Tentative Title: Battalion: An Organizational Study of the United States Infantry

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At this writing the Cold War has been over for more than ten years. However, the true shape of what, for want of a better term, we must call the "post-Cold War" era and how it will shape the armed forces of the world has yet to become apparent. Thus the world's militaries, including the US Army and Marine Corps, find themselves in a period of testing and experimentation. What their combat forces will look like after is all over one can only guess. Although history is far from a panacea, the past is the only thing we really have to guide us. Unfortunately, neither the US Army nor the Marine Corps has found any good way to remember and profit from past experience. Both services have extensive libraries and archives. Both write up elaborate "lessons learned" and "after action" reports after every major training exercise or actual operation, yet the fruit of all this labor never seems to reach the troops.

Therefore, this writer hopes that this treatise on the organizational history of the US Army and Marine Corps infantry over the past 100 or so years can make some small contribution towards bringing the past to light. This writer believes that this past century is particularly important because prior to 1898, the United States had never fought a land war anywhere outside of Canada, Mexico, or its own territory. However, its war with Spain turned the United States into a colonial power with worldwide interests. Since then the United States has fought nearly all its foreign wars and gained most of its overseas military experience.

In selecting the infantry as his focus of study this writer acknowledges that it is very difficult to know just what combat arms and services will become the most important in the wars of the future. However, that the infantry will retain its former prominence seems like a safe bet. It is the simplest and least expensive of the combat arms to equip and it has formed the backbone of most armies throughout recorded history. It is still the primary agency for the capture and control real estate. However, discussions of the infantry often degenerate into a history of battles, campaigns, or specific personalities. Such matters have been exhaustively dealt with elsewhere. Instead, this history will focus on the infantry's organization and structure, or its evolution as a weapon system. It will cover the internal functioning of the battalions and regiments in some detail, especially often-neglected issues like staff functioning and logistics. Since the focus of this work is on organization it must also consider doctrine because doctrine and organization are closely entwined. Within this context, the work concentrates on the infantry battalion (or battalion-sized regiment) because that has been the infantry's basic fighting unit over at least the past two centuries. However, in the US Army and Marine Corps the regiment was the basic infantry element for logistics and administration until about 1960. Therefore this work will also describe regiments up until that time.

For primary source material this writer has relied heavily on the original tables of organization themselves. These are stored in a number of localities, particularly at the Army Library at Carlisle Pennsylvania, at the US National Archives (especially Record Group 127, which holds the Commandant of the Marine Corps' papers through 1941), and at the Marine Corps Historical Center at the Washington DC Navy Yard. Other valuable material has come from the US Army's Center of Military History, now located at Fort McNair in Washington DC. The staff members that this writer dealt with at all of these places have been extremely knowledgeable and helpful.

However, this writer's claim to describe every American infantry regimental or battalion structure from 1898 to the present must be qualified by certain exceptions. Armored or mechanized infantry units are omitted because their story properly belongs to that of the tanks they were specifically created to support. Also missing are the specialized airfield defense battalions and squadrons fielded by the US Army and Air Force during and after World War II and for the war in Vietnam. These units were specialized organizations far more concerned with the physical security of fixed installations than with combat. Their functions were closer to those of military police than of infantry. Finally, the dismounted cavalry regiments that fought as infantry during World War II (most notably those in the 1st Cavalry Division) are also not included. They did not alter their organizational structure beyond what was necessary to dispense with their horses and to adapt themselves to the requirements of dismounted combat. Thus they never really stopped being cavalry until the end of the war when all of them either disbanded or became standard infantry.

In addition to being a narrative account this work is also intended to serve as a ready reference. Therefore it includes a lot of very detailed information, both in the text and on the numerous wire diagrams of the infantry organizations that appear in the text. In these diagrams strength breakdowns for each element can appear in two or three figures. The first figure always refers to officers and the last to enlisted personnel. If there are three figures the middle one refers to warrant officers. The diagrams are also annotated with lists of all or most weapons and certain other equipment items assigned to each sub-element described. The equipment shown is intended to give the reader an idea of the unit's relative mobility or any special or unusual capabilities it might have. Up through the Korean War period, the ranks and duties of personnel in given sub-units are also listed. However, infantry organization after 1953 became sufficiently complex that to continue to list personnel would make the diagrams impossibly complex. Instead, the key information will appear in the text and footnotes.

The story of the American infantry battalion's evolution to its present state has not been told before and this writer's first priority will be to tell it. Although this writer has not always been shy about expressing his opinions in

the text, he has nevertheless left it largely up to the reader to decide what lessons, if any may be drawn from this experience. Many lessons should be obvious. Others may be less obvious but that in itself should not diminish their importance.

Quantico, Virginia

1 March 2000

CHAPTER 1 - THE COLONIAL POLICE FORCE 1898-1917

The history of today's United States Army and Marine Corps infantry battalions really began in 1898. Prior to that time, the infantry's standard large fighting unit had been the regiment. In its essential characteristics, the infantry regiment had scarcely changed since the 1775-83 War for Independence. Based upon British Army practice, it was designed to accommodate the close order tactics of the Eighteenth and early Nineteenth Centuries, which grew out of the limitations of the inaccurate, short-ranged, slow-firing, and unreliable smoothbore flintlock muskets that most soldiers carried. From 1812 onward the "sharp end" of a US Army regiment consisted of 10 small companies grouped into a single battalion. (Smaller groups of companies might form temporary battalions to meet particular situations). Each company traditionally had three officers (a captain, a first lieutenant and a second lieutenant) and a number of enlisted men that could range from 50 or so in a Regular Army company in peacetime to up to 100 in a company raised for war.[◴] Despite recruiting shortfalls and high desertion rates, companies in peacetime generally stayed closer to their authorized strengths than they did in war. Casualties and other causes, to be discussed below, usually kept wartime companies below 50% strength.[1]

Although the number and ranks of the men that a company was authorized had always been published, a company's internal structure was not officially specified until 1918. Instead, a captain configured his company according to standing Army regulations (as he understood them), the number of men actually available, and his own judgement. Usually this consisted of forming his corporals and privates into eight-man squads and then grouping those squads into two or more platoons.[2]

On paper a colonel commanded each regiment. A lieutenant colonel assisted him and a major commanded each battalion. Given that an infantry regiments normally had only one battalion (and thus only one major[◴]) the fact that three "field grade" officers were in charge of it might seem excessive. It was in fact was a survival from British tradition under which a colonel was usually too important to command his own regiment. Being more akin to a proprietor than a commander, he might actually be a general officer, or a powerful nobleman. His American counterpart (often an influential politician) was also frequently absent and for similar reasons. Under either system, command of a regiment in the field tended to devolve upon its lieutenant colonel, or even its major. Likewise, three officers were more than what was needed to command each company. However, just as their field grade counterparts were often away from their regiments company officers were often absent from their companies. They might have staff duties with the regiment or a higher headquarters, or they might be sick, on leave, or off recruiting new men. In any given company the first lieutenant usually served as the captain's principal deputy and relief while the second lieutenant actually functioned, more often than not, as an officer trainee, learning his duties "on the job."[3]

These infantry regiments served in an army that, by European standards, was extremely small in size, geographically and culturally isolated, indifferently equipped, doctrinally backward, and generally inconsequential. Although by 1898 the United States commanded a huge landmass, a burgeoning population, and a rapidly developing industrial base, its army was still largely a relic of the Civil War. During that conflict, some 1,696 infantry regiments served at one time or another on the Union side but only 19 were Regular Army and only 10 of those had existed before the war. As in previous conflicts, the various state militias furnished most of the wartime army. However, militia units as such were not used. The militia was a home defense force whose members could not be compelled to serve outside their local areas. They could volunteer to do so, however, and the procedure at the start of a war would be for the President to send out a call for a fixed number of volunteers (broken down by state) which the militias could then answer. A militia regiment in which a minimum of two thirds or so (depending on the terms of the call) of the members volunteered for federal service could be taken on as a regiment of United States Volunteers with all volunteering members retaining their militia ranks and positions. New recruits could then be used to bring existing Volunteer regiments to full strength and to create new ones. After the first few months of the war, state governors were allowed to fill officer vacancies in the Volunteers, a power they often used to reward their friends and political cronies. When casualties depleted a Union Army Volunteer regiment, the governor of its home state preferred to replace it with a new regiment rather than rebuild it. This enabled the governor to appoint all the new regiment's officers, thus giving him many more favors that he could use to pay off his political debts.[4]

[◴] Although 10 companies per infantry regiment was the norm there were exceptions. The nine Federal "New Army" regiments raised for the Civil War, for example, were each allowed three eight-company battalions. In practice each of these battalions functioned as if it was a regiment itself but recruiting shortfalls left most New Army regiments unable to field more than two battalions apiece. The 10 pre-war or "Old Army" regiments retained their original organizations. See Appendix 1.1 and 1.2 and the US Army *Registers* for 1860-1898.

[◴] In 1847 Congress increased the number of majors to two per Regular Army infantry regiment/battalion. Because there was no retirement system, many officers remained on active duty long after they were too old to be of any use. The extra major was meant to ensure that the regiment had at least one field grade officer who was still young enough to be able to command it in the field. The outbreak of the Civil War ended this practice. See Upton, *Military Policy of the United States* p. 206.

In battle, the companies of a regiment originally fought in line formation two ranks deep, the men standing shoulder to shoulder. The regiment would arrange its companies in column for movement or in line for combat. The appearance of the percussion cap rifled musket shortly before the Civil War did much to make the regiments tactically obsolete. The new rifles were not only more reliable than the old flintlocks but had three times the effective range. Their use mandated greater dispersion. Not only could fewer men hold a given frontage but musket era close order formations now presented too easy a target. The standard two-rank firing line remained in use but men were spaced about twice as far apart, thus doubling the regiment's frontage. This might have created serious tactical control problems but as most regiments were already operating at half strength or less, no major organizational change (such as permanently grouping the regiment's companies into two or more battalions) was necessary.[5]

When the Volunteers went home at the end of the Civil War, the Regular Army actually expanded. It needed extra troops both to occupy the South and to police the western territories. In 1870, after the occupation of the South had ended, Congress trimmed the Army from an authorized strength of nearly 55,000 down to 30,000 men. The Army distributed these among a number of administrative departments and several territorial commands, also called "departments." The territorial departments controlled the Army's 25 infantry regiments (down from 45 in 1867) and 10 cavalry, and five artillery regiments. They sometimes assumed tactical responsibilities because in peacetime, Congress would authorize no tactical headquarters above the regimental level. New budget cuts in 1876 further reduced the Army to about 25,000, largely through a sharp reduction in the number of infantry privates. However, in response to the disaster at the Little Big Horn Congress authorized another 2,500 privates for the cavalry regiments. For a time, this made cavalry regiments individually much larger than infantry regiments though this size difference later diminished as personnel were redistributed. In 1890, after the Indian wars had ended, each infantry regiment "skeletonized" two of its rifle companies in order to strengthen the other eight. The officers from the skeletonized companies typically served as inspectors of state militia units or to taught "military science" at selected colleges. The regiment's remaining companies usually formed two provisional battalions. However, because the Army had dispersed itself among hundreds of small posts that seldom had more than one or two companies apiece the provisional battalions were mainly symbolic. Nevertheless, many officers wanted to get away from Civil War style single battalion regiments and achieve the greater flexibility that multiple battalions per regiment would make possible. Each cavalry or artillery regiment was already using a structure of three battalions (or squadrons) of four companies (or troops) each but Congress refused to spend the money to apply this to the infantry. In its view infantry regiments need only be cadre formations in peacetime because they had no peacetime missions. They were not fighting the Indians like the cavalry, nor manning coastal fortresses like the artillery.[6]

Anachronistic as the late Nineteenth Century organization of the U.S. Army's infantry may have been, it is worth noting that it was not unique. The challenges that the Army faced in policing the American West were not unlike those experienced by the British or French in their Nineteenth, and early Twentieth Century roles as European colonizers of Africa and Asia. They too fielded battalions that featured relatively large numbers of smaller companies; British battalions had eight companies apiece. The standard French infantry battalion had six companies until about 1875 while a *Chasseur*, or light infantry battalion could have as many as ten. The standard company strength in both these armies was three officers and 75 to 125 men, whereas post-Civil War US Army infantry companies did not exceed 65 enlisted men. All these tactical organizations were holdovers from the musket era. Deployed in close order each of these small companies made a compact enough formation for one man, the company commander, to control (squads and platoons served more to facilitate firing than maneuver). That they lingered for as long as they did was due as much to institutional inertia as from a lack of sophisticated opponents. More but smaller companies also meant more commands for captains and made it easier for their parent battalions to create multiple detachments, often a useful capability in "irregular" warfare. Nevertheless, their defeat at the hands of the Prussians in 1870-71 caused the French to move to a German style battalion that had four large 200-250-man companies. This battalion was much simpler to control and maneuver and needed relatively fewer supply and administrative personnel. As firepower improvements increased the need for battlefield dispersion, the old 75-125-man companies gradually became too large to fight as single entities but too small to split into tactically effective sub-units. However, a 200-250-man company could function as a smaller but more efficient version of one of the old battalions, its three or four platoons being individually as effective as one of the old companies. The British had considered switching to large companies after the Crimean War but only the fiascoes of the Boer War persuaded them to move seriously in that direction. The actual changeover did not finally occur until the British Expeditionary Force (BEF) left for France in 1914. Even after that, eight-company battalions lingered on in the colonies until they were finally phased out in 1918-19.[7]

If US Army infantry regiments remained weak in manpower, their firepower did slowly improve. Immediately following the Civil War, the Army completely equipped itself with breechloaders by converting its existing muzzleloaders to Springfield "trap door" rifles. Although the later models used metallic cartridges and were fairly

reliable, all the Springfield trap door rifles were heavy, single-shot weapons that suffered from a heavy recoil. However they were only intended as a stopgap until the Army Ordnance Department could come up with something better. It was not until 1892, however, that the Ordnance Department finally settled on the Norwegian designed Krag-Jörgensen repeating rifle. The "Krag" was a light and serviceable weapon that fired a relatively modern .30 caliber (7.62mm) bullet whose higher muzzle velocity was expected to compensate for its smaller size. Like contemporary Mauser rifles, it used a moveable bolt to rapidly feed cartridges into its chamber from a five-round magazine. In this respect the Krag was a true repeater. Unfortunately, its weak locking mechanism not only reduced its accuracy but also limited its ammunition's propelling charge. Worse, Mauser-type five-round "stripper clips" that could fill a five-round magazine with a single motion, would not work with the Krag. Cartridges could only be inserted one at a time and this made the process of filling the Krag's magazine so slow that the rifle was normally used only as a single loader, the magazine being reserved for emergencies. Oddly enough, the Ordnance Department may have found the Krag's inefficient magazine attractive because of the ammunition economy that it imposed.[8]

The US Navy, however, found the Krag so objectionable that it refused to issue it to its sailors and Marines. Instead, it selected the M1895 Lee straight-pull repeating rifle. This weapon was easily loaded by stripper clip but it was chambered for an unusually small .236 (6mm) caliber cartridge that lacked stopping power. Further, the Lee's straight pull action, although fast, was weak and unreliable. The service life of the new rifle would be short.[9]

In 1898, the United States Navy still maintained a Marine Corps as one of its subdivisions, although the Marines had largely subordinated their infantry functions to other tasks. Marines were soldiers originally recruited into most navies for service aboard wooden sailing ships. In the close-range combat characteristic of that era, Marine musketeers could add significantly to a ship's firepower or to the strength of a boarding or landing party. Marines could also serve as auxiliary seamen or gunners although, contrary to popular myth, British and American Marines rarely took station in the rigging to fire down on the decks of enemy ships. Rapid or accurate musket fire from the "fighting tops" was, at best, very difficult to achieve and in any case only trained seamen were obliged to go aloft; musketeers were far more efficiently employed from the deck.[10]

The arrival of steam propulsion and heavier cannon ensured that future naval battles would be fought from well beyond small arms range. Marines could still serve in the occasional landing party, but mostly they supplemented the sailors by providing semi-skilled labor at sea and, in battle, by operating some of their ship's lighter cannon. They also acted as seagoing police but this added nothing to their popularity. Like their Army counterparts, Marine officers suffered from long and monotonous service with few promotion prospects. When the Army went under the budget cutter's axe in 1876, the Marines were not spared. Congress reduced them from about 3,000 men to 2,000, led by a mere 75 officers. The Marine Corps' Commandant was reduced in rank from brigadier general to colonel. When, in 1885 Congress finally permitted the Navy to start replacing its wooden Civil War era vessels with modern steel warships, the Marines lobbied to be allowed to man the new ships' secondary batteries. They argued that since the ships resembled floating fortresses their crews would have to train more like soldiers and Marines were cheaper to maintain than sailors. Such suggestions merely helped to fuel a strong movement among the Navy line officers to remove the anachronistic Marines from their ships altogether. Such a move would amount to a bureaucratic death sentence for the Marine Corps since it would almost certainly lead to its absorption by the Army. However, no one could think of a genuinely useful mission for the Marines. Even landing forces of the era were made up primarily of sailors (who were supposed to get the same infantry training that Marines did) and led by Naval officers. The fact that the Marines had let their infantry skills deteriorate to the point where, in 1887 only 98 Marine officers and enlisted men could qualify as marksmen or sharpshooters, added some weight to the Navy's claim that its sailors made just as good "soldiers" as the Marines did. However, instead of remolding their Marines into something the Navy actually wanted Marine commandant Charles McCawley and his successor Charles Heywood merely redoubled their efforts to lobby Congress for a larger Marine Corps with more shipboard responsibilities.[11]

Unlike the Army, the Marines had no fixed tactical organization of any kind. During the Revolution, the Continental Marines formed separate companies and detachments. Each was an integral part of the crew of a particular warship. When the ship disappeared from the Navy list, so did its Marines. When Congress established a permanent United States Marine Corps in 1798, it did not revive the old companies. Instead, Marines were assigned to barracks located at the principal naval bases and ports. The barracks supplied detachments for shipboard duty. Each detachment typically had one or two officers and up to 60 men. If the Marines had to fight ashore, they would form themselves into temporary companies, battalions, or even a regiment or brigade. These ad hoc combat units used Army doctrine and structures as much as they could but since they could only use whatever manpower was immediately available, they tended to be of relatively small size. Major Waller's "battalion" at Peking in 1900, for example, had only 130 men. These temporary units would disband as soon as their mission was complete. The United States Marines' mentor organization, the British Royal Marines, used a similar system. The British Marines (who were not permanently established until 1755 and not "Royal" until 1802) used permanent numbered

companies, but these never left their depots and only furnished individuals for shipboard and other duty, just like the US Marine barracks did. In later years, the Japanese Imperial Marines would also follow the practice of assembling temporary field units from manpower assigned to permanent depots. Like their American counterparts, British Marines acted as naval gunners and auxiliary seamen and they also served alongside sailors in Naval landing parties.[12]

Overall, the US Marine Corps of 1896 had changed remarkably little since 1798, despite revolutionary developments in both naval and land warfare. Its survival depended much more on its political influence within the halls of Congress and the Navy Department than on its substantive contribution to the nation's defense.[13]

THE SPANISH-AMERICAN WAR, 1898

The War with Spain in 1898 was the Army's first chance since the Civil War to show that it could do more than chase Indians or suppress unruly labor unionists. The war itself was immensely popular with both the public and the politicians but the question of who would fight it became very controversial. On the one hand there was a traditional school that viewed a large standing army as forever threatening the liberties of a free people. They believed that US Volunteers drawn from the state militias (of which many traditionalists were members) should fight America's wars. The Regular Army should only be a peacetime caretaker. This view, like the militia itself, hailed from British tradition and memories of the military dictatorship of Oliver Cromwell. Traditionalists also tended to be anti-intellectual. They regarded warfare as being largely a test of manhood and believed that free men fighting for their liberties should need little training and few preparations in order to win. In support of this notion they liked to cite the American victories over British "professionals" in 1775-83 and 1812-15, while conveniently overlooking the many disasters and the fact that troops trained to professional standards had won most of the successes. Even today, this romantic view of American military history exerts great influence and is experiencing a revival. Class prejudice was also a factor. Traditionalists tended to see the Regular Army's officers as hidebound West Point martinets and its enlisted men as social and/or economic failures who had joined the Army as their last resort.[14]

Opposing the traditionalists were the disciples of the Regular Army's leading intellectual of the post-Civil War era, Brevet Major General Emory Upton. An 1861 West Point graduate, Upton's service in the Civil War soon won him a reputation as an innovative combat leader and skilled tactician. Appalled by the incompetence he saw Upton advocated dramatic improvements in military education, particularly for officers. As a protégé of Major General William T. Sherman, Upton wrote the Army's 1867 manual on infantry tactics. This volume set forth ideas that Upton had put to good use during the Wilderness and Spotsylvania battles. In response to the increasingly destructive power of the breech-loading rifle, Upton abandoned the traditional two-ranked firing line as the standard combat formation, prescribing instead a single rank of soldiers who could produce more than adequate firepower while presenting less of a target. Maneuvers were based on four-man elements, readily controlled by a set of simplified commands. Because his new formations featured greater dispersion and a corresponding reduction in the officers' ability to exert tactical control, Upton also emphasized the encouragement of individual initiative.[15]

In 1874-75 Upton headed a commission that embarked on a world tour to observe the principal European and Asiatic armies, in search of new ideas for the United States Army. In 1876 Upton published his findings as *The Armies of Europe and Asia*. He devoted a chapter to each army visited, summarized what he had learned and then sketched ways of applying them in America. Upton especially admired the German army, with its general staff and sophisticated mobilization system. He wanted the United States Army to become a similar force, operating as a training cadre in peacetime, and expanding itself in wartime with large numbers of draftees and trained reservists. Upton also proposed a system of rotating officers through the Army staff and several field commands in order to broaden their experience. He wanted to either eliminate the state militias, along with their politically appointed and frequently incompetent officers, or reduce them home guards. Upton particularly railed against untutored American congressmen or cabinet members who often made decisions about such purely military matters as army organization, mobilization, and training. Upton's next book, *The Military Policy of the United States*, was to be his masterwork. It set forth a wealth of statistical data illustrating how a reliance on amateur soldiers to fight its wars only led the United States to one disaster after another. Lessons were rarely remembered from one war to the next and victories had only been gained through greatly superior numbers and/or resources, blunders committed by the enemy.[16]

Unfortunately, Upton rested his thesis solely on military considerations. He expected American society to place the needs of its military ahead of politics, culture, and traditions. He did recognize that any peacetime army, which the American public would support, would have to be small. However, he did not reckon with limited war situations that did not justify a national mobilization but would be too much for his small regular army to handle. Upton also did not anticipate the effects that the greatly increased size of America's late Twentieth Century military would have on his ideas of manpower management.

Upton never finished *The Military Policy of the United States*. In 1884, after carrying it up through 1862, he retired from the Army and committed suicide. His death was partly due to the effects of a probable brain tumor and partly due to depression brought on by the premature death of his wife and by despair of his own ideas ever being adopted. Upton, however, had far more influence than he knew. Although his second book was not actually published until 1904, it had considerable impact even as it circulated in manuscript form. His *The Armies of Europe and Asia* was also widely read. However, republicans (small "r") who strongly supported civilian control over the military even at the expense of combat efficiency opposed Upton's ideas. So too did lazy romantics who wanted the glory and social prestige of military rank without the hard work. Few wanted to give up their hometown militia units. By late in the century many were as much social clubs as military organizations. At first, the Uptonians could do little more than try to improve Regular Army officer training and education by, among other things, instituting mandatory promotion examinations. For more substantial reforms, they would have to bide their time.[17]

The first serious clash between Uptonians and traditionalists came in March of 1898. War with Spain was imminent but not yet declared. Congressman John A. T. Hull (R. Iowa), a staunch Uptonian and, since 1894, chairman of the House committee on Military Affairs, sponsored a bill (largely written by Uptonians in the Army's Adjutant General Department) to strengthen the Army for the coming conflict. Hull considered National Guard and other militia units as useless for offensive action. Instead, he backed an Uptonian expansible army based on a large and Federally controlled, trained, and equipped reserve. The bill he proposed would authorize a wartime expansion of the Army from 27,000[◴] to 104,000 enlisted men. The additional officers that this expansion required would come from the regular noncommissioned ranks and from lists of civilians selected by the President. Each infantry regiment would expand from eight companies to 12 in three permanent four-company battalions. For the existing infantry regiments alone this would create 50 new battalion commands and 100 new companies. Promotion would at last be available for the deserving and company and battalion commands could at last go to younger men. The Hull Bill avoided the sensitive issue of expansion of the peacetime Army by promising that the Army's new battalions would only be active in wartime. However, wartime expansion would have to be massive and rapid. An existing infantry regiment, for example (compare the 1896 and 1898 units in Apendix 1.1 and 1.2) would have to triple its enlisted strength in order to get from its peacetime to wartime manning levels. Additional regiments of federally recruited United States Volunteers (as opposed to US Volunteers raised from the state militias) would be raised from scratch to serve for the duration of the war. The President would designate particular states as recruiting areas for volunteer regiments and for the expansion of specific Regular Army regiments. It was hoped that the Regular Army would become more attractive to recruits if its regiments were associated with particular localities.[18] Few state units would be necessary as the Hull Bill already provided for enough federal troops for field operations. It was hoped that trained militiamen would leave their state organizations as individuals and provide the bulk of the Federal volunteers.

At first it seemed that the Hull Bill, enjoying as it did the full support of the McKinley administration, would easily pass. However, as it made its way through the House, riders were attached that required the immediate reduction of the Army back to 27,000 men as soon as the war was over. Also, the Bill could not go into effect until war was actually declared. This latter clause was a setback to the bill's backers who had hoped that expansion could begin earlier. Worse, neither Congressman Hull nor his Uptonian military advisors (nor the President, for that matter) had reckoned with the power of the traditionalists, led by an aroused and militant National Guard.[19]

Ever since February 1898, a war fever had possessed the nation and both federal and state authorities were deluged with offers of military service. National Guardsmen were very much a part of this movement. Although the National Guard organizations in the seaboard states were fairly certain of being called up at least to man the coastal fortresses, those from the inland states had no such assurances. The Hull Bill would not only deny them their opportunity to serve but also, by idling the National Guard while the war was fought out, would kill any chance of future legislation to solidify the Guard's status as a national wartime reserve. Worse, National Guard officers would not even be allowed to serve in the Federal forces as individuals unless they first gave up their commissions. Not only was this unthinkable, but even National Guard enlisted men were reluctant to serve on an equal footing with their perceived social inferiors in the Regular Army. Guardsmen constituted solid voting blocs in most states and, together with Southern Democrats still smarting over Reconstruction, populists who feared a large professional army's potential as an instrument of repression, and various Army dissidents with technical objections, they formed a powerful coalition against the Hull Bill. By early April support for the Bill collapsed under an avalanche of praise for the National Guard's citizen soldiers (mainly for their Civil War service) and declarations that an enlarged Regular Army was the first step towards militarism and the suppression of individual liberty.[20]

The military authorities then went "back to the drawing board" and brought forward a new proposal for a wartime Army of about the same total size but including 40,000 state volunteers for field service and another 20,000

[◴] The Army had increased slightly because Congress had recently authorized two additional artillery regiments.

for the coastal defenses. The Regular Army would only expand its enlisted strength to 60,000 (by filling out its existing regiments but not creating any new ones). A new law passed on 22 April assured National Guardsmen of their right to become US Volunteers in their own organizations and under their own officers. However, even this was unsatisfactory because the 60,000 National Guardsmen that the Army was calling for would mobilize only about half of the units that wanted to participate. Politically powerful militia officers would miss out on their Volunteer commissions, and forfeit the glory and prestige that went with them. Rather than risk the embarrassment of being left on the shelf many Guard units passed resolutions declaring that all would go to war or none. The Army could not ignore such threats. If it was going to accept large numbers of volunteers it at least wanted trained ones and most trained volunteers would have to come from the Guard. In addition, President McKinley was being advised not to repeat Lincoln's mistake of not asking for enough volunteers early when war fever was at its height. Therefore, on 23 April, the President asked the state governors for 125,000 volunteers, enough to accommodate literally everyone.

Major General Nelson A. Miles, then the Commanding General of the Army, was horrified. He predicted (accurately) that such a large number of men would be not only unnecessary but also nearly impossible to supply and equip. Nevertheless, the President's call smoothed the way for the passage of a new Hull Bill that gave the Regular Army a war-strength of 61,000 plus three nationally recruited US Volunteer cavalry regiments totaling 3,000. Regular infantry regiments could adopt a 12-company/three battalion organization for at least the duration of the war and the state volunteer infantry would do so as well. Of the three US Volunteer cavalry regiments, the First became the famous "Rough Riders" of Teddy Roosevelt fame. The proposed recruiting districts were dropped. As before, expansion could not begin until war was declared and the Army would have to revert to its prewar strength of 27,000 as soon as peace was restored. On April 25, the United States declared war on Spain.[21]

As matters turned out the National Guard could supply the Army with plenty of infantry but little cavalry or artillery and no engineers at all. In building their militias, state governors preferred infantry because they were cheaper to train and equip and useful for such non-military duties as disaster relief and the control of civil disturbances. Further, most states only maintained their militia companies at about 60% of their wartime strength. When a company entered Federal service about half its men would either fail their physical examinations or ask to be excused, thus dropping its strength to 30%. This situation provoked a second call for another 90,000 volunteers. Of these 75,000 would fill gaps in the state recruited volunteer regiments and 15,000 would serve in new Federally recruited volunteer organizations that included three regiments of badly needed engineers, a regimental-sized corps of signalers, and 10 infantry regiments composed of men alleged to be immune to tropical diseases.[22]

All of these Regular and Volunteer regiments would train to fight under a major revision of Emory Upton's tactical doctrine that the Army had adopted in 1891. This expanded the Uptonian concept of maneuver by fours to encompass the maneuver of eight-man squads arranged in up to four platoons per company. This was consistent with German doctrine, which Upton much admired. Thus the Army structured a war strength 1898 company so that it could form up to 12 Upton style squads with a corporal and seven privates in each (see Appendix 1.2). These squads could then group themselves into as many as four platoons (each under a sergeant) with up to three squads apiece. A British rifle company organized itself for combat in a similar way, grouping its squads into four "sections." In practice, however, American units were usually well below their authorized strengths. A Volunteer company typically mustered about 80 men, or enough for nine squads (or three platoons). A Regular Army company would initially have had only about 50 men, or five squads (two platoons). Regular Army units were not only less popular among potential recruits but also many of them went overseas early and thus had less time to do what recruiting they could. Few Regular regiments reached their full strength before the end of the war.[23]

It should be understood that in 1898 an infantry battalion was just a grouping of four companies within an infantry regiment. It had a commanding officer but he had no one to assist him apart from a sergeant major and two lieutenants serving as adjutant and quartermaster (supply and transportation officer), respectively. A full battalion totaled just 15 officers and 425 men and it occupied a small enough frontage that its commander could see most of what was going on for himself and could transmit his orders by voice or messenger. The battalion's parent regiment had diminished in importance as a tactical command echelon but it still provided important administrative and logistical functions. The regimental headquarters (Appendix 1.1) included the senior adjutant and quartermaster officers plus the commissary officer (coordinating food supply) and their enlisted assistants. With the band these brought the total strength of the regiment to 50 officers and 1,309 men, excluding the personnel attached from the Army Medical Department (about four officers and perhaps 20 men). However, the organization tables did not provide for the 30 to 50 messengers, orderlies, cooks, drivers, and other assistants that a regimental headquarters, its subordinate battalion headquarters, and its parent brigade needed in order to operate. A regimental commander could only obtain these men by weakening his companies.[24]

The 1898 campaign itself was very significant in terms of its effect on the future of both the Army and the Marine Corps so it is worth examining in some detail. Prewar projections on how the Army might be employed

accepted the notion that it would primarily be supporting a naval campaign. Since Spanish possessions were all on islands, control of the sea-lanes was clearly crucial. In its offensive role, the Army would seize Spanish territories after the Navy had isolated them. It would also secure the overseas bases and anchorage's which the Navy would require. In Cuba, the Army and Navy agreed that the Army would conduct raiding operations to keep the Spanish off balance and facilitate the transfer of arms and supplies to the Cuban insurgents. Later plans became much more ambitious and called for direct assaults on the main Spanish garrisons around Havana. However, the war itself progressed quite differently. It had scarcely begun when a cruiser squadron under Commodore George Dewey destroyed a flotilla of Spanish gunboats and small cruisers in Manila Bay and thereby opened the Philippine Islands to American conquest. Meanwhile, the main Spanish fleet lay in home waters. From there it was supposedly able to deploy rapidly to either the Philippines or the Caribbean. However, most of its warships were in very bad condition and its real combat power was hopelessly weak. Nevertheless, Rear Admiral Pascual de Cervera y Topete created a great stir when he left the Cape Verde Islands with four armored cruisers and three destroyers and headed for the Caribbean. The Americans were unable to find Cervera until late May after he had already arrived at the port of Santiago, located on Cuba's southeast coast. The United States battle fleet under Rear Admiral William T. Sampson immediately blockaded him. However, Sampson feared that while his ships blockaded Cervera, other Spanish warships would be free to do mischief elsewhere. Of course if Santiago could be captured or if Sampson could slip his heavy ships inside the harbor, Cervera would be doomed. Neither of these things, however, would be particularly easy to accomplish. The town of Santiago lay at the northern end of a bay that was accessible only through a narrow, winding channel whose entrance was dominated by high cliffs. The Spanish had mined the channel and erected batteries on the cliffs west of the channel (the Socapa) and to the east (the Morro). Although not very powerful the batteries could still prevent the removal of the mines and Sampson would not risk his ships in the channel while the mines were there. Santiago, however, was much more vulnerable to a land attack. Not only were its fixed defenses only adequate against lightly armed insurgents but also its garrison had been seriously weakened by food shortages, sickness, and by the need to send out detachments to hold other points against the guerrillas.[25]

For the capture of Santiago, the Army promised Sampson the services of Major General William R. Shafter's Fifth Corps. While Sampson chafed with impatience as he waited for Shafter to arrive, on the other side of the world George Dewey was also fuming over the fact that his own lack of land forces had left him powerless to exploit his newly-won naval supremacy in the Philippines. The Army regiments that were supposed to join him were far from ready. The only soldiers Dewey had were the Marines already serving aboard his ships. Admiral Sampson could count on more substantial Marine help, however. In 1896, Congress had finally decided to increase the Marine Corps by 500 enlisted men (but no new officers). These extra men became critically important when, in April 1898, just before war was declared, the Navy instructed the Marines to form two four-company battalions at Key West for unspecified duties with Sampson's fleet. Manpower, however, was so short that despite the 1896 increase, there were still only enough Marines available for one battalion with five rifle companies and an artillery company. The latter would have four of the Navy's new 3-inch "landing guns." The full battalion included a lieutenant colonel, three majors (of whom one was the quartermaster and the other two had probably been earmarked to command the two smaller battalions), six captains, 13 lieutenants (two per company plus an adjutant), a Navy surgeon, and 631 enlisted Marines.[26] In early June the Marine Battalion was ordered to Guantanamo Bay, Cuba, where it would secure a fleet anchorage from which the Santiago blockade could be supported. This task it accomplished with relative ease. Admiral Sampson then hoped to use the Battalion, reinforced by additional sailors and Marines from his fleet, to storm the Spanish batteries on the Socapa cliffs if the Army would agree to capture the Morro. General Shafter, however, having finally landed his troops on 22 June at the village of Daiquiri, made it clear that he did not believe that the fall of the Morro would end the campaign soon enough to enable his army to avoid the onset of yellow fever. Instead, he would seek to conclude matters more quickly by heading inland, directly for Santiago.

On 1 July, Shafter launched his main attack against the village of El Caney and against San Juan and Kettle Hills. These positions guarded the main routes into Santiago. Fortunately, the Spaniards had ineptly deployed their troops in poorly sited positions that left them disastrously weak at several critical points. Though numerically inferior overall Shafter's men would enjoy a local numerical superiority of ten to one. Even so, Shafter threw away many of his advantages with a frontal assault that exposed his men to the full fury of the Spaniards' very modern and efficient Mauser rifles. Although the Americans took all their objectives and probably could have taken Santiago as well, they had sustained over 1,400 casualties. They therefore halted their advance and dug in.

Despite this reprieve, the Spanish knew that all was lost. Not only was food and ammunition running short but also their opponents could now overlook the city's inner defenses and cut off its water supply. The Americans, however, believed that Santiago was too strong to be reduced by anything less than a formal siege. They had experienced great difficulty in landing their supplies across the beaches at Daiquiri and Siboney and even more

difficulty moving them over the primitive Cuban roads to the Santiago siege lines. They were now suffering serious privations that could only be relieved by a complete unloading of Shafter's ships. However, this could not take place without the use of Santiago's port facilities. Admiral Sampson, meanwhile, continued to press General Shafter for an attack on the Morro so he could finish off Cervera but Shafter feared another Pyrrhic victory or, worse, a bloody repulse. Sampson likewise refused Shafter's demand that the Navy force a passage into Santiago harbor and use its heavy guns to support the Army's assault on the City. He declared that this was impossible until someone at least removed the mines from the channel. He and Shafter continued to argue until July 3 when Cervera solved their dilemma by making a desperate attempt to escape. Sampson's fleet easily caught him and destroyed all his ships but Santiago did not capitulate until July 16. The war ended on 13 August. It had lasted less than four months[27]

ARMY POSTWAR REORGANIZATION 1898-1905

The Spanish war exposed a lot of American shortcomings and logistics ranked high among them. The movement of supplies had been largely entrusted to hired civilians who had proven very unreliable. The loading and unloading of Shafter's ships had been totally disorganized. Shafter's men were ravaged by disease after Santiago fell, due in no small degree to poor sanitation and the low priority assigned to medical supplies. Disease also attacked many soldiers who never left the United States. Although the troops had evinced plenty of courage and enthusiasm, their officers were often incompetent and their weapons inferior even to those of a third rate power like Spain. Cooperation between the Army and Navy was unsatisfactory, as there was no effective joint command.[28]

Nevertheless, Spain's defeat had created a substantial American colonial empire almost overnight. The United States would occupy Cuba but would annex Puerto Rico, the Hawaiian Islands, and the Philippines. Native Filipinos, however, demanded immediate independence and proceeded to launch a rebellion of a scope and intensity for which even the Army's recent experiences against the Plains Indians left it unprepared. With all its newfound commitments, the Army soon discovered that it needed more men to keep the peace than to fight the war. However, no sooner had peace with Spain been concluded that the Volunteers began clamoring to go home as loudly as they had previously demanded to be called up. While the Volunteer regiments in the Philippines agreed to stay on long enough for replacements to arrive, Congress was forced to maintain the Regular Army at 65,000 men and to reinforce it with 35,000 Volunteers (all federally recruited this time) who would serve until 1901. These men would form 24 infantry regiments (numbered 26 through 49), plus a cavalry regiment and a regimental-sized signal corps. Ironically, this produced essentially the same 100,000 man Army that the original Hull Bill had called for. In addition, the Army created an unnumbered two-battalion Puerto Rican Regiment in 1899. Unlike the 24 volunteer regiments, however, this would be a permanent addition to the Army. The authorized enlisted strength of a standard three-battalion infantry regiment increased to 1,378. This included the provision of trained cooks for the rifle companies to address complaints about the poorly prepared food being served by company messes.[29]

Unlike later eras in which an easy military victory would be treated as cause for complacency, the Spanish American War spurred the Army to implement numerous reforms concomitant with the 1901 appointment of Elihu Root as Secretary of War. Root was a lawyer with no prior military experience. His immediate predecessors had all been Civil War veterans. He did, however, have a genuine desire to improve the Army and his mind was not burdened by a lot of preconceived ideas. He soon came under the influence of the Uptonians who urged him to form a general staff on the Prussian model, increase the professional education of officers, and to rely on Federally recruited volunteers as a wartime reserve rather than the National Guard.[30]

Meanwhile, in order to replace the 35,000 US Volunteers whose service was to expire in 1901, the National Defense Act of May 1901 authorized five new Regular Army infantry regiments (numbered 25 through 30). In the Philippines, the Army had already discovered the value of native scouts and guides for fighting insurgents. As a result, the Army had actively recruited such men into unofficial companies under American officers, and paid them as civil employees of the Quartermaster Department. The 1901 Act legalized 50 companies of what became known as the Philippine Scouts. Besides augmenting the infantry the 1901 Act also made substantial increases to the Regular Army's cavalry, artillery and engineers. It allowed the president to vary the total enlisted strength of the Army between 59,000 and 100,000; or the enlisted strength of a rifle company to between 65 and 150 enlisted; or that of a regiment to between 816 and 1,836 enlisted. About 3,800 officers were also authorized (an increase of 1,300). Although the maximum strength levels were intended for formations stationed in combat zones like the Philippines, casualties and recruitment shortfalls tended to keep such units at close to their minimum strength levels.[31]

The next order of business was the National Guard. Root was enough of a politician to realize that, whether the Uptonians liked it or not, the Guard was there to stay. He believed that the best way to deal with it would be to transform it into something that could actually play the wartime role that its political power had secured for it. An

Act passed in 1903 reduced the number of National Guard infantry regiments from 155 to 129 in order to provide much needed increases in its cavalry and artillery. More money for training and equipment would follow.[32]

Apart from incremental improvements to its organization the Army would effect major changes in its weapons and equipment. The Krag-Jörgensen rifle, upon whose acquisition so much time and energy had been lavished, had been tried and found wanting. Yet, in 1900 Root strong-armed the Navy and Marine Corps into replace their Lee rifles with Krags in the interest of standardization. However, Root also directed the Army Ordnance Department to replace the Krags with a Mauser rifle similar to the one the Spaniards had used so effectively. This became the highly successful Springfield M1903. Popular with the troops, it was sturdy and its accuracy made it highly prized in an Army that placed a heavy emphasis on individual marksmanship. Although the Regulars received the new rifle fairly quickly, rearmament of the National Guard dragged on for years. Some Guard regiments could not even get rid of their Springfield "trap doors" until as late as 1905 when they finally received Krags.[33]

THE INTRODUCTION OF MACHINEGUNS 1904-1914

Until 1906, the United States infantry relied for its firepower almost solely upon its rifles or muskets. The introduction of machineguns would not only have a profound effect on the infantry's firepower but would also change its structural configuration. During the Civil War several different models of machinegun had been tried but all proved to be heavy, expensive, slow firing, and unreliable. Nevertheless, the Army Ordnance Department purchased about 100 Gatling guns in 1865 and 50 more in 1874. These Gatlings spent much of their service lives in storage, as there was great uncertainty over what to do with them. Their potential as close defense weapons for the nation's permanent (mostly coastal) fortresses was recognized, however. Because the artillery regiments garrisoned those fortresses and because Gatlings corresponded in size and weight to light artillery pieces it seemed logical that the Gatlings should be artillery weapons. At about the same time, the French army adopted a Gatling "look-alike" called the Montigny *Mitrailleuse.* Like the Americans, the French assigned it to their artillery. During the 1870-71 Franco-Prussian War the *Mitrailleuses* stayed back with the French field guns and were thus easily spotted, outranged, and neutralized by the German field astillery. However, on the rare occasions when they deployed forward with the French infantry the *Mitrailleuses* performed very successfully. This fact, however, was generally overlooked and conventional wisdom on both sides of the Atlantic held that machineguns were mere "defensive" weapons effective only when protected by a fortress or, at least, when not threatened by enemy artillery. Acting on these conclusions, the US Army tried to employ a few Gatlings against the Plains Indians. However, the mobility penalties imposed by the guns' size and weight were such that the troops usually left them at home. Interest in the Gatlings thus fizzled and the US Army continued to ignore them until 1898.[34]

Meanwhile, in 1884 Hiram Maxim, an American living in England, patented a design for an entirely new type of machinegun. Unlike earlier weapons that operated through the use of external (usually muscle) power, the Maxim gun harnessed the force of its own recoil. This enabled a single man to fire a Maxim gun twice as fast as a full crew could fire any previous weapon. Six years later in 1890, a Mormon gunsmith named John Moses Browning also patented a machinegun. This one operated by using the energy of the gas generated by the combustion of the propelling charges of its ammunition. Known as the Colt machinegun (after its manufacturer) it was an air-cooled weapon significantly lighter than the water-cooled Maxim. The near simultaneous invention of smokeless powder (1886), rimless cartridge cases, and copper jacketed lead cored bullets made available all of the essential technology that automatic weapons use today. However, the new machineguns still needed many refinements and armies hesitated to invest too heavily in them. The early Maxim and Browning guns were heavy, complex, and delicate and their mechanisms jammed frequently. Firing tests showed them to be even less reliable than the later model Gatlings and the Colts would overheat rapidly since air is a much less efficient cooling medium than water. Disappointed by the results of its own testing of the Colt and Maxim guns, the Army Ordnance Department left it to the US Navy to purchase the 50 Colt guns that became the United States' armed forces' first true machineguns. Unfortunately, these weapons were further plagued by problems with the Navy's unconventional .236 caliber ammunition.[35]

The Army's first prominent machinegun advocate was First Lieutenant John Henry Parker. Parker commanded a battery of four Gatling guns that operated with some success in Cuba as part of General Shafter's Fifth Corps. He had worked closely with Lieutenant Colonel Teddy Roosevelt of the 1st US Volunteer Cavalry who enthusiastically endorsed Parker and his guns. Riding on the crest of this success, Parker proposed the formation of an experimental machinegun company that he himself would command. It would be the prototype organization for a machinegun corps that would support the infantry in both attack and defense. However, Parker presented very little factual data to support his conclusions. Worse, his criticisms of the Army's performance in Cuba (though often justified) were tactless, as were his attacks on the prevailing dogma of the superiority of field artillery over machineguns. The fact that his machinegun corps would be a separate branch of the Army (competing with the others for money and

manpower) was also highly objectionable. These factors caused both the War Department and Congress to view his ideas with indifference or hostility. Nevertheless, the Army soon gained additional experience with machineguns in the Philippines and, later, in China. Besides using its own Gatling guns, the Army found it necessary to increase its supply of automatic weapons by borrowing some of the Navy's Colt machineguns. In China the importance of the machinegun was brought even more forcefully to the Army's attention when an attack by the 9th Infantry against the walled city of Tientsin was repelled by Chinese machinegun and rifle fire.[36]

In light of these events, the Ordnance Department reluctantly concluded that perhaps the Army could use a few machineguns and it set about procuring some. Naturally, it needed to take its time in order to do a good job so it embarked upon its search for the "perfect weapon" by following the same policy of decisive indecision that had produced the Krag-Jörgensen rifle. This time the results would be even worse. The Department began by buying Model 1895 Colt machineguns chambered for the .30-40 Krag cartridge. These would serve as stopgaps pending the adoption of a standard weapon. After much deliberation, the Department selected, in 1904, a version of the Maxim gun built by Vickers Sons and Maxim (VSM). The Ordnance Department chose the Maxim because its water-based cooling system gave it a superior sustained rate of fire over the air-cooled Colt. Although the test guns performed well, Ordnance Department tinkering soon transformed the production design into a 65-pound monster that fired from an 80-pound tripod. This modified VSM ended up with the dubious distinction of being one of the heaviest tripod-mounted weapons ever devised. Needless to say, it proved unpopular in service. Only 287 were built.[37]

Smarting under this failure, the Ordnance Department began casting about for an alternative. Prodded by the cavalry to opt for a much lighter weapon than the VSM the Department selected the 22-pound, bipod mounted, air cooled, gas operated Benet-Mercie. This weapon emerged as the winner in competitive trials against the VSM gun but only because testing was deliberately structured to minimize the importance of the Benet-Mercie's inferiority in long-range accuracy and sustained rate of fire. In an army that stressed individual marksmanship and tactical mobility and which mostly fought against poorly armed irregulars the Benet-Mercie's weak points seemed acceptable. Though the gun was officially adopted as the M1909, actual deliveries did not begin until 1911 and issue to the troops was further delayed by the need to develop pack equipment. Serious testing only began in 1912 and the results were disquieting. The Benet-Mercies failed to develop even as much firepower as a group of riflemen of the same size as their crews. Unreliable ammunition feed strips, firing pins, and extractors plus the instability of the bipod mount all contributed to the guns' ineffectiveness. Although reliable firing pins and extractors became available in 1913, the inaccuracy, slow rates of fire, and overheating problems all persisted. The use of a heavy tripod only partially solved the accuracy problem while detracting considerably from the gun's mobility. By this time the Ordnance Department had recognized the Benet-Mercie as a disaster and started to search for yet another design. In 1914, it settled on the Vickers machinegun. This was a much-improved redesign of the old VSM, but when the Ordnance Department finally announced its interest in the weapon, Britain was already at war with Germany and needed every available Vickers gun for its own use.[7] Thanks to these Ordnance Department follies the United States would enter the First World War in 1917 without possessing a single modern machinegun.[38]

Meanwhile, as the Army procured its first (albeit, second rate) machineguns, it had to answer the inevitable question of what to do with them. The National Defense Act of 1901 still classified machineguns as artillery weapons but permitted their issue to the infantry and cavalry. Lieutenant Parker, now a captain and lately returned from the Philippines, resumed his advocacy of a machinegun corps. He promised that if a company of this corps were attached to each three-regiment infantry or cavalry brigade, it could provide a machinegun for each rifle company or cavalry troop. Brigadier General J. Franklin Bell, on the other hand, wanted to permanently add a machinegun to each infantry battalion or cavalry squadron. Drawing on his own Philippine experience, he observed that in the decentralized small unit operations that were characteristic of the fighting in those islands, brigade or higher headquarters tended to fill requests for specialized weapons like machineguns very slowly if at all. The fact

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[7] At about this time Colonel Isaac Newton Lewis of the Automatic Arms Company of Buffalo NY offered the US Army one other machinegun. In 1910 Automatic Arms had hired Lewis, recently retired from the Coast Artillery, to market a machinegun design the rights to which Automatic Arms had just acquired from its inventor Samuel Neal McClean. Lewis revised and considerably improved McClean's basic design (which later bore Lewis' name) but the US Army Ordnance Department showed no interest in it. In 1913 Lewis offered the gun to Belgium and England. Both soon recognized its revolutionary potential and built it in great numbers in factories at Liege (Belgium) and Birmingham (England). The Lewis gun served with great success in World War I and the British, who could not build enough for themselves, had additional guns made by the Savage Arms Corporation at Utica NY. Even so, the US Army could still not make up its mind to embrace the light (27-pound) Lewis gun despite its great superiority over both the disastrous Benet Mercie and the *Chauchat* automatic rifle that the Army later accepted from the French. As matters turned out in 1917-18 the US Army mainly issued the Lewis for aircraft use or to infantry operating in British sectors. The Navy also bought a few thousand Lewis guns for itself and the Marines though the Marine Brigade in France had to give up its Lewis guns to the Air Corps and use *Chauchats* instead. The Marines, however, employed Lewis guns extensively after the war until enough Browning automatic rifles (BAR) became available to replace them. For the US Army, the Lewis gun marked yet another wasted opportunity. See Joseph E. Smith, *Small Arms of the World*, 10th Edition (Harrisburg PA, The Stackpole Company 1973) pp. 113-114 and 270.

that more fighting of the same sort was widely anticipated gave General Bell's comments added weight. The final decision on what to do with machineguns was eventually referred to the Army's newly organized General Staff. As yet unfamiliar with its duties the Staff moved slowly and carefully considered the opinions of Captain Parker, General Bell, and many others. It concluded that machineguns should not be treated as artillery weapons. They fired the infantry cartridge. Their maximum range did not exceed 2,000 yards. They were substantially smaller and lighter than any field gun. They and their ammunition were readily transportable in the vehicles normally found with infantry and cavalry units. In combat they had proven most successful when deployed with the infantry.[39]

Other key questions, however, still remained. Should the infantry, the cavalry, or a separate machinegun corps man the new machineguns? Should the guns be employed singly or by platoons or companies? How should they be tactically controlled? Many officers were against having machineguns at all. They criticized their heavy use of ammunition, their inferior accuracy per round to that of aimed rifle fire, their mechanical unreliability, and the difficulties of estimating the range from gun to target. The very inappropriateness of some of these objections illustrated the lack of any realistic machinegun performance data or employment concepts that might guide the General Staff in its decisions. The Staff therefore looked at what the European armies were doing. The British had pioneered machinegun technology and had used machineguns in combat in Africa but they had done almost nothing to develop machinegun organization or doctrine. Repelled by their experience with the Montigny *Mitrailleuse,* the French did not even start to buy machineguns in quantity until 1907 and then only because public opinion forced them to do so. It was the Germans who were doing most of the machinegun doctrinal work. However, even they were buying guns only in small quantities, as they could not decide which model they really wanted. They did, however, organize the guns they had into six-gun company-sized "detachments" *(abteilung)*. These largely separate and independent units (16 of them by 1904, but that was in an army of about 180 active infantry regiments) operated mainly under the control of high level commanders, much like Captain Parker's independent machinegun corps.[40]

While these deliberations were in progress, the Russo-Japanese War broke out in February 1904. It was largely an extended land campaign fought in Manchuria between two European style armies equipped not only with modern small arms and field artillery but also with machineguns. The Russians used the Maxim while the Japanese employed the French designed air-cooled and gas operated Hotchkiss. Unfortunately the reports of American military attaches sent to observe the fighting omitted important details about machinegun employment, and reached no concrete recommendations or conclusions regarding the new weapons. In general they agreed that machineguns could be very effective at times, especially when used to suddenly increase the volume of fire in a given sector without overcrowding the firing line. However, the Americans criticized the guns' mechanical reliability. After making similar observations, the European observers were able to reach far more definite conclusions. The British (under Sir Ian Hamilton, who later presided over the Gallipoli disaster) were emphatic about the machineguns' deadly effectiveness. They credited them with half of all the war's casualties though they may only have been referring to the later months since very few machineguns had been in use before then. [⏲] Predictably, the British War Office largely ignored these reports. The Germans and French observers agreed with the British though the French army, like the British, was reluctant to take any action. The Germans, however, promptly redesigned the Maxim gun to reduce its weight as much as possible, and then built it in large numbers as their own Model 1908 machinegun. By 1914 every German active or reserve infantry regiment had its own machinegun company.[41]

It was only in 1906 when the now Major General Bell became Army chief of staff that a decision on how to use the U.S. Army's machineguns was finally reached. Nearly two thirds of the 195 VSM guns that the Army had received by that time had to be set aside for fortress use or placed in reserve but the rest could be issued to the troops immediately. Bell reasoned that the best way to start would be to organize a provisional machinegun platoon for each infantry or cavalry regiment. Each platoon would consist of three noncommissioned officers and 18 men under a regimental staff officer and it would operate two guns. Since the platoon was too small to handle its own supply and administration, it would be attached to one of its parent regiment's battalions (or squadrons), which could then provide such support. In maximum strength regiments (such as one of those in the Philippines) the men of the machinegun platoon would all be detailed from the rifle companies of its host battalion. In minimum strength regiments the host battalion would receive enough additional men to form the machinegun platoon. The new organization allowed for training and experimentation at the individual gun crew and platoon level but did not allow for machinegun units of company size or larger. However, in 1908 Captain John Parker (with the help of his friend

[⏲] In February 1904, apart from guns assigned to fortresses the Russians had only one eight-gun machinegun company in the entire Far East. The Japanese had two six-gun companies, each one attached to a cavalry brigade. A year later, at the Battle of Mukden, the Russian Army had only seven machinegun companies (56 guns) supporting an army of about 350,000. The Japanese, by contrast, had 254 machineguns for an army of 250,000 and intended to assign 24 machineguns to each of their infantry divisions. After Mukden the Russians considerably increased the quantity of their machineguns. They had earlier used 62 machineguns (including many Gatlings) in the defense of Port Arthur from August 1904 to January 1905. See Historical Section of the Committee of Imperial Defense, *Official History of the Russo-Japanese War*, (3 Volumes) (London, His Majesty's Stationary Office 1910 for Vol. 1; Vol. 3 not published until 1921).

Theodore Roosevelt) was finally allowed to organize his experimental machinegun company, which would have three officers (Parker had asked for four), 95 men, and six guns (nine in wartime).[42]

Unfortunately, the machinegun platoons were not popular within the United States Army. The number of VSM guns was so small that few soldiers ever saw them. Their complexities made them difficult and time consuming to master and the best men tried to avoid assignment to them. However, it was the decision to allow only 1,000 rounds per gun per year for training purposes that proved fatal both to the effectiveness of the guns and the morale of their crews. This was, of course, a product not just of financial parsimony but also of the prevailing ignorance about what machineguns required. Doubtless many officers, thinking only in terms of training riflemen, would have considered 1,000 rounds per year as a very generous allowance. It might never have occurred to them that a machinegun could fire off 1,000 rounds within a few minutes and that such a small quantity of ammunition would hardly suffice even for gunner familiarization, let alone the achievement any sort of marksmanship proficiency or crew cross training. Officers who complained about the weight of the guns restricting the mobility of their commands rarely had the opportunity to see what the guns could do for them. Machinegun visionaries, especially ambitious and publicity hungry visionaries like John Henry Parker, were looked upon as cranks. The news that Parker's methods for such things as range finding and the delivery of indirect machinegun fire were not working out well in tests (although they would ultimately prove themselves in World War I) was doubtless received by many with great satisfaction.[43]

The War Department meanwhile, in its 1910 issue of the *Field Service Regulations*, prescribed a provisional machinegun company of three officers, 108 men, and six machineguns. Each infantry regiment was ordered to organize one. Like the earlier provisional machinegun platoons, the new companies would use officers detailed from the regimental staff and men detailed from the rifle companies. The Army was reluctant to ask Congress for a permanent organization until the provisional one was fully tested. A new Infantry Board, meeting in 1911, continued to examine the problem and concluded that machineguns should be regarded as a separate class of weapon rather than a specific item of equipment. Machineguns were best used in defensive emergencies because once they began firing they would attract so much enemy counterfire that they might soon be put out of action. The old dogma stemming from the French misuse of the Montigny *Mitrailleuse* was still popular, despite the Russo-Japanese War experience. Now that the much lighter Benet-Mercie was replacing the VSM, the Board gave little thought as to how the Benet Mercie's small size and light weight might make it much less conspicuous in the defense and more mobile in the offense. Nevertheless, because the Benet-Mercie was easier to carry the Board did propose a smaller machinegun company with four officers, 83 men, and six guns. Internally, the company would have three platoons of two eight-man gun squads each. The squads could use guns of either the VSM or Benet-Mercie types.[44]

THE INFANTRY REGIMENT, 1914-1917

Meanwhile, the Army staff continued to refine the structure of its infantry regiments. Although the core of a regiment's strength remained in its 12 rifle companies, the Army staff began to organize regimental headquarters personnel, augmented by men detached from the rifle companies into provisional regimental headquarters, machinegun and supply companies. These companies, which first began to appear in 1912, were provisional because Congress had neither recognized their existence nor appropriated any money for them. Thus the Army could only create them by using men and equipment that really belonged to other units. In February 1914, the Army published its first official Tables of Organization (see below) and these described the new companies in detail.

To a large extent, however, the new companies represented recognition of existing practices. The regimental headquarters company consisted of the regimental band, the regimental and battalion adjutants and sergeants major, and a section of about 20 messengers and orderlies taken from the rifle companies. Eight orderlies worked with the regimental commander directly. Several worked at brigade headquarters (which had no enlisted men of its own). The battalion adjutants and sergeants major, plus a few more messengers and orderlies would work with their respective battalions. Thus each battalion headquarters detachment (there were no battalion headquarters companies) came from the regimental headquarters company. Two color sergeants (who carried the regimental colors on parade) were in charge of regimental discipline.[45]

The regiment's five quartermaster and commissary officers (including three battalion supply officers) and its quartermaster and commissary sergeants commanded the supply company and (as an additional duty) its machinegun company. Both the supply and machinegun companies had to be composed almost entirely of men detached from the rifle companies and thus tended to reduce the regiment's fighting strength (see Appendix 1.3). The supply company supported the quartermaster and commissary officers in their traditional roles. It would obtain supplies from Quartermaster Corps supply trains (or by local purchase when practical) and forward them to the rifle companies. For transportation, the supply company would improvise regimental combat and field trains using vehicles and horses obtained from the Quartermaster Corps and drivers from the rifle companies. Regiments serving

overseas (in the Philippines, Hawaii, or the Canal Zone) would get drivers as well as vehicles and teams from the Quartermaster Corps and would not have to weaken their rifle companies. A maximum strength regiment in the United States would operate 21 four-mule Quartermaster supply wagons, each carrying a 2,465-pound payload. This payload could increase by as much as 300 pounds if necessary. The nine wagons that carried ammunition were known as "combat" wagons and, together with any vehicles carrying medical supplies (and the machinegun company's combat wagon, if it had one), constituted the regiment's "combat train." The combat train carried everything that the regiment was likely to need in combat. The remaining 12 wagons (four carrying baggage and camp equippage and the other eight carrying rations) constituted the "field train." The field train carried everything the regiment needed when not in actual combat. A minimum strength regiment normally had only three combat wagons (they had to supply their own drivers). This was enough for "in garrison" requirements. If more were needed (and could be justified) the Quartermaster Corps would supply them, together with the necessary drivers.[46]

Despite the presence of an albeit provisional machinegun company, a regiment's firepower still depended largely on its rifles. The regimental combat train carried 120 rounds per rifle and 20 rounds per revolver or 21 rounds per automatic pistol. This was addition to the 100 rounds each rifle armed soldier carried on his belt and the 20 or 21 rounds carried by each revolver or pistol armed officer or man. The machinegun company's ammunition wagon (if it had one) carried 26,400 rounds for the company's four machineguns. The four pack mules with each machinegun squad carried a total of 4,800 rounds if the squad was armed with the Benet-Mercie machinegun or 6,250 rounds if it used the VSM gun. If battle were imminent, the regimental commander would normally order the combat train to issue all of its ammunition to the troops. Each rifleman would thus get a total of 220 rounds. The machinegun company's wagon would dump all its ammunition on the gun squads' positions. This ammunition would have to last until the combat wagons could hurry to the rear and return with another load from the division combat train.[47]

The field train operated somewhat differently. Its job was to lighten the soldier's load by carrying items that were either not very portable or not continuously needed. It had to make baggage appear when it was required for making camp and then make it disappear when the troops broke camp and were on the march again. The field train also included the field kitchens. Ration wagons supported the latter by bringing them food from the division field train but the preparation and issue of meals by the kitchens themselves posed special challenges. Increases in the effective range of artillery and small arms fire were making the supply of three meals a day to troops in contact with the enemy ever more hazardous. Although emergency rations based on biscuit, dried beef, and other preserved food existed for situations in which the normal food supply system failed, they had not proven satisfactory.[48]

Since 1865, the US Army medical corps furnished each of the Army's regiments with a medical detachment. This detachment was organized according to a scheme first introduced by Army Medical Corps Major Jonathan Letterman. Letterman was a Civil War veteran who, like many of his peers, had been appalled at the plight of wounded men subjected to the tender mercies of the then existing military medical system. Many soldiers died where they fell because no provision had been made for evacuating them from the battlefield. Wounded men at Gettysburg, for example, typically had to lie out in the open for three days before being picked up. Those who survived this ordeal would likely face the even worse trial of being operated on, without anesthetics, by an overworked regimental surgeon who, with a few largely untrained assistants, functioned under the most primitive, even barbaric conditions. Alternatively, a wounded man might be sent to one of the hospitals that existed in the larger cities or major military camps. These were much better equipped and staffed but a seriously injured soldier stood only a slim chance of surviving a journey to one of them since he would receive little if any medical attention along the way. Under either method, even if a man did not actually die, he was unlikely to ever again be fit for front line military service.[49]

Letterman's response to this situation was to call for enough stretcher-bearers from each regiment to get the wounded off the battlefield early and into the hands of trained medical orderlies. These would furnish essential treatment only and would then send a casualty to the rear through successive stations in a systematic evacuation chain. Each station in the chain would be capable of giving more extensive treatment than the previous one. The end of the chain would be the base hospital but only the most gravely wounded needed to go that far. Men with less serious injuries could get rapid and adequate treatment at the lower stations well before shock, gangrene, or other complications set in. They would not only survive but could even return to full duty. Letterman's ideas, though sometimes implemented locally, ran into a great deal of conservative opposition and were not officially adopted until nearly the end of the century. In the 1914 infantry regiment, Letterman's system began at the company level. A rifle company would have an enlisted medical aidman attached to it. This man would render first aid to the wounded and arrange for their evacuation, if necessary, by stretcher teams traditionally provided by the regimental band. These would move casualties to a battalion aid station staffed by a surgeon and his enlisted assistants. From here, wounded men would move by stretcher or ambulance to a regimental aid station. The more serious cases could then proceed to higher echelons. The system could not function completely in peacetime since a peace strength medical

detachment could only man the regimental and one of the battalion aid stations and provide aidmen for perhaps half the companies. Later versions of this medical detachment would be considerably strengthened.[50]

Under the Uptonian doctrine the the US Army was still following in 1914, a rifle company would organize itself for parade or battle by lining up all its privates and corporals in two ranks according to height (tall men on the right). Eight-man squads would then be counted off, each squad having four men from each rank. Corporals would be distributed so that there was at least one per squad. A maximum strength company would have a lot of extra privates so senior privates first class (PFC) might command some squads. No squad should have more than eight or less than six men. Squads that fell below six men would either be broken up or rebuilt by transfers from other squads. If extra men remained but not enough to form another squad, they would be distributed behind the company's rear rank to serve as "file closers." If a company had suffered significant casualties it would reorganize itself by dissolving enough squads to fill the remainder to six or eight men apiece. Once the squads were organized they would be assigned to platoons. Each platoon would get two to four squads, a "guide," and a platoon leader. The company would form not less than two or more than four platoons; hence its maximum strength was 16 squads (four platoons of four squads each). Squads were numbered from the right, one through 16 (or less). The most senior platoon was on the right and was always commanded by the senior lieutenant. The junior lieutenant commanded the platoon on the left, which was regarded as the company's second senior platoon. The center or center right platoon always went to the first sergeant. If there were a center left platoon, it would fall under a sergeant. If the company were short a lieutenant then sergeants would lead the center left and right platoons while the first sergeant commanded the left. Sergeants also served as platoon guides, who functioned in much the same way as platoon sergeants do now. If there were extra sergeants, some platoons would get a second guide. In combat the platoons and their squads would stay close enough to the company commander to receive voice commands or visual signals. The company fought with its platoons and squads forming a single line, not a double line as in the Civil War. A column formation would be used for movement. Tactics emphasized the gaining of fire superiority before any frontal attacks were launched.[51]

The February 1914 Tables of Organization also, for the first time, described the organizations of brigades and divisions although Congress had not previously authorized anything larger than a regiment except in wartime. Now, however, the United States Army and the "Organized Militia" or National Guard would (on paper) constitute between them some 16 infantry divisions, a cavalry division, two separate cavalry brigades, a Hawaiian Brigade, three coast artillery districts, various field army and army troops, plus some smaller overseas garrisons. As in the Spanish American War, an infantry brigade would have three regiments. An infantry division would get three brigades plus a regiment each of cavalry and field artillery, and a battalion of engineers. The Organized Militia would man 12 of the infantry divisions, selected army troops, an infantry regiment in Hawaii, and about 40% of the coast artillery. The first four divisions would be manned by the Regular Army but of these only the Second was even theoretically complete. The First and Third Divisions had only two thirds of their infantry, and the Third had no artillery. The unfortunate Fourth Division had no units assigned to it at all. Nine Regular infantry regiments were overseas. Three of them were in Hawaii (forming the Hawaiian Brigade) and the rest were in the Philippines, the Canal Zone, and China. The 12 Organized Militia divisions were complete (more or less) in infantry but were still very short in field artillery and engineers. For all its shortcomings, however, this was by far the largest, best-trained, best-equipped, and most powerful peacetime army that the United States had ever fielded. Since there was never any real invasion threat at home (beyond the occasional border raid from Mexico) the Army could expect to do all its fighting overseas.[52]

THE TRANSFORMATION OF THE MARINES 1899-1916

In terms of its growth, the Marine Corps benefited from the fallout over the campaigns around Santiago and Manila even more than the Army had. In March 1899, Congress authorized a Marine Corps with the unprecedented strength (even in wartime) of 201 officers and 6,062 men. The Corps' actual strength reached 174 officers and 5,240 men by the end of that year. For the moment its institutional future seemed secure. Although Marine Commandant Charles Heywood wanted to increase his Corps' traditional role of supplying warship detachments, the Navy was rapidly warming to the view that the Marines were far better employed manning permanent landing forces in support of the Fleet. The value of such forces had been unequivocally demonstrated in 1898 and Admiral Dewey was already calling for a Marine landing force to be stationed at Cavite for the use of the Asiatic Fleet. By November 1899, this force comprised no less than three Marine battalions (12 companies) totaling 43 officers and 976 men.[53]

More change was in the wind, however. Until 1898, the Navy never had a senior staff that could give advice to decision-makers on naval policy. In that year Secretary of the Navy John D. Long appointed a Naval War Board, or Strategy Board, headed by Rear Admiral Alfred T. Mahan. The Naval War Board would advise the Secretary on

strategic policy and conducting the War with Spain but Long allowed the Board to dissolve when that war ended. However, the Navy's rapidly expanding size and responsibilities caused the Secretary to announce the formation of the Navy General Board. This body soon began to function as the Navy's de facto general staff. Its chairman, Admiral George Dewey, had recently returned from the Philippines and was by then the most distinguished naval officer on active service. Like the Army's General Staff, the Navy General Board was mostly an advisory body but the Secretary almost always followed its advice. Though mainly concerned with naval strategy and the annual shipbuilding program, the Board also decided a number of Marine Corps issues.[54]

One of these was that of the role that the Marines would play in naval landing forces. Prior to 1898, the Marines had routinely participated in most types of Naval landing parties. However sailors constituted the majority (typically 75%) of at least the larger landings and naval officers were normally in command. Commander William Fullam, still the leader of the movement to eliminate the Marine ship detachments, had as a lieutenant in 1896 called for the formation of permanent Marine battalions that could support the Fleet wherever it went. They would free more sailors for sea duty and enable the Marines to accumulate expertise in land operations. However, many officers opposed Fullam partly from conservatism and partly from the conviction that the Army could furnish any large landing forces that might be necessary and that the Marines should be abolished. Spanish-American War experience, however, tilted official opinion towards Fullam. Indeed, the Navy's decision to form the 1898 Marine Battalion may well have been at least a partial result of Fullam's influence.[55]

Since Admiral Dewey was already a strong advocate of giving the Marines the landing force mission, the General Board, which he chaired, decided in favor of this move fairly quickly. However, the Board believed that such landing forces should be mainly defensive. Since no enemy could defend everything, the Board expected that in most parts of the world there would be suitable undefended or lightly defended sites for fleet bases or anchorages. The Fleet would select one of these sites as its forward base and set the Marines to fortifying and defending it. This would leave the Fleet free for offensive action, knowing that it had a secure base close by that it could fall back on. Having arrived at this concept, the General Board advised the Navy Secretary to order the Marines to form a provisional four-company battalion at Philadelphia that could support it. In September 1902 this battalion, after acquiring a fifth company (bringing its strength to 19 officers and 522 men), deployed to Culebra for extensive exercises with the Fleet. The potential wartime usefulness of this force was demonstrated a few years later in the Russo-Japanese War of 1904-05. Japanese Marines established a fortified base in the Elliott Islands that allowed the Japanese fleet to closely blockade the Russian fleet in Port Arthur. This later brought about the latter's destruction by land based heavy artillery. In 1907, as US relations with Japan deteriorated, US Marines in the Philippines built and manned temporary defenses at Olongapo to protect Manila and the Naval base at Cavite. The Marines' ability to fortify and defend advance bases soon figured in all of the General Board's war plans.[56]

Meanwhile, the Marines continued to develop their base defense doctrine and mission. By 1913 they had concluded that an advance base force should be structured as a brigade composed of two regiments of about 1,250 enlisted men each (plus officers). One would be a fixed defense regiment, armed with heavy pedestal mounted naval guns, mines, searchlights and other specialized equipment. It would protect the base itself and the seaward approaches to it. The other would be a mobile regiment, consisting of infantry and field artillery. It would engage enemy forces operating outside the range of the fixed defenses, and be particularly responsible for repelling a landing. This advance base brigade was not expected to fight the enemy's main battle fleet (that was the Navy's job) but would instead protect the base from smaller threats such as cruiser squadrons, fleet detachments, or raiding forces.

In 1911, in order to facilitate these plans, the newly appointed Marine Commandant Major General William Biddle ordered all Marines at barracks and naval stations who were not required for "housekeeping" duties or absent in ship detachments to form themselves into numbered companies. Each company would start off with three officers (at first, it was only possible to assign two officers per company) and 100 enlisted men. Many companies received training and equipment for specialized base defense roles though all were supposed to serve as infantry when needed. Companies could then combine to form temporary regiments or separate battalions. Two or three regiments, in turn, could form a brigade. Individual companies would be "semi-permanent" and provide some organizational continuity but larger units (regiments, brigades, etc.) would continue to be "provisional."[57]

Implementation of General Biddle's 1911 order seems to have taken some time although the numbered companies were definitely in place by 1913. Freeing up enough Marines to man them seems to have caused more difficulty than anticipated. Although nearly 10,000 enlisted Marines were on active duty in 1913, about 2,000 were serving in ship detachments and 950 in overseas garrisons. Another 5,600 were serving in the Navy's depots, prisons, magazines, and shipyards. Still others were on furlough, in hospital, in confinement, or awaiting discharge. This left few enough for new units, though some of the men on depot or yard duty could be made available. By June 1913 two advance base regiments had been organized at Philadelphia. Of these, the First would be the fixed defense regiment and the Second would be the mobile defense regiment.[58]

Although Marine organization and doctrine for land combat was supposed to follow that of the Army, unique requirements and limited manpower, made it necessary to build Marine regiments and battalions differently. A Marine regiment could have six to 10 companies and it might operate as one, two, or as many as three battalions. Two to five companies could constitute an independent battalion but these were seldom created in practice. A regiment also included a staff, a headquarters detachment, and, frequently, a band. In a fixed defense regiment there would also be a fire control or searchlight unit to direct the naval guns. The headquarters detachment functioned similarly to an Army headquarters company, though it was usually smaller. The regimental quartermaster and his assistants handled all the regiment's logistics without a supply company because animals, vehicles, and drivers were difficult to move by sea and would not be needed on a continuing basis. Marine landing forces only operated over short distances inland, could buy local food or rent transport, and could count on at least some help from the Navy.[59]

In keeping with these principles, the two regiments at Philadelphia initially had six companies apiece. In the First Regiment these were a signal company; a field artillery company; two naval gun companies (one with four 5-inch rifles and the other with four 3-inch); a mine company with 60 sea mines; and a machinegun company. The Second Regiment totaled four rifle companies, a field artillery company and a machinegun company. The field artillery companies in the two regiments each had four 3-inch "landing" guns and at least one company (from the First Regiment) had two Army 4.7-inch guns as well. Each machinegun company manned four "one-pounder" (37mm) boat guns and eight Colt machineguns and could also serve as an engineer unit. In November 1913, the two regiments became the Advanced Base Brigade. In January 1914, it exercised at Culebra with the Atlantic Fleet.[60]

The advance base training of the brigade, however, was soon interrupted. In April 1914 the Wilson administration ordered the Atlantic Fleet to occupy Vera Cruz in Mexico. The Marine brigade would have to participate as infantry and would require extensive reconfiguration and reinforcement. By May, the Brigade had expanded from 12 companies to 24. These included a signal company, two field artillery companies (forming a separate battalion), and three infantry regiments with a machinegun company and six rifle companies (forming two battalions) each. Expected reinforcements would add a seventh rifle company to each infantry regiment and a third company to the artillery battalion. Two more regiments (the Fourth and the Fifth) were also assembled but neither was needed. However, it was not until November that the Marine Brigade was free to return to Philadelphia, disband its Third Regiment and resume its advance base training. As early as the following August the Brigade once again had to revert to its infantry role when the Wilson administration ordered the Atlantic Fleet to intervene in Haiti. Just as Haiti was getting under control, the Brigade received new orders to send the bulk of its men into the Dominican Republic. Though organized resistance there was soon crushed, the Marine occupation of both Haiti and the Dominican Republic would continue until 1934 and 1924, respectively. Thus the Marine Corps, propelled by events over which it had little control, had again been forcibly diverted from its "natural" amphibious calling to become a colonial police force.[61]

CHAPTER 2 - FAREWELL TO THE PAST, THE FIRST WORLD WAR, 1917-19

For all its newfound power, the United States Army in 1914 was still far behind its European contemporaries. It fell even further behind after the European armies went to war with one another, dramatically increasing their own numbers and firepower and honing their tactical doctrines and techniques with actual combat experience. The Army's most senior officer, Major General Leonard Wood, together with former President of the United States Theodore Roosevelt, warned that it would not be possible for the United States to remain aloof from this conflict indefinitely and urged redoubled efforts to prepare the United States for war. Assisted by the sinking of the *Lusitania* and the onset of unrestricted submarine warfare, Wood, Roosevelt, and others were able to attract a considerable following that strongly supported American military preparedness. However, powerful anti-preparedness forces opposed them. These included pacifists, isolationists, and populist romantics like William Jennings Bryan. Bryan, while certainly no pacifist, regarded any war preparation as unnecessary. According to Bryan, Americans were born soldiers and needed no training or organization. If war should be declared then the President had only to call for volunteers and they would all appear, ready to fight, within one day. Most anti-militarists, however, were more rational than that. As in 1898, many feared an overly powerful Federal Army. Others questioned the wisdom of involving the United States in what was really a purely European dispute. Southern whites opposed the arming of blacks. National Guardsmen were especially wary of new plots by Regular Army Uptonians to upstage them. The Guardsmen's fears, at least, were entirely justified. They soon discovered that the Regulars were cooking up yet another Federal reserve force to supercede the National Guard. They intended to call it the Continental Army. To insure that their new force would have enough men, the Regulars wanted conscription. However, National Guard supporters fought the Continental Army as strongly as they had opposed the Hull Bill in 1898. This led to a last minute compromise that produced the National Defense Act of 1916. Passed in June of that year, it provided for a five-year expansion of the Regular Army from its then current strength of 100,000 to 175,000 (288,000 at war strength). It killed the Continental Army and affirmed that the National Guard (this term by now covered all state militia units that were receiving Federal money) would remain as the nation's first reserve. The Guard would increase in size from 100,000 to 425,000. The regulations covering its discipline and supply would be the same as those for the Regular Army. The Federal Government would pay it for 48 armory drills and 15 days of field training per year. Guard officers would have to meet Regular Army training and selection standards, and all Guard members would have to respond to Federal calls for service anywhere. There would be no more US Volunteers.[0] All able-bodied male citizens (or those declaring an intent to become citizens) between the ages of 18 and 45 who were not already in the National Guard or Naval Militia would constitute the Unorganized Militia. Soon to be dubbed the National Army, the latter was a "wartime only" force to be raised by conscription. Although the Regulars had gotten much of what they wanted they considered the Act to be an unconscionable pork barrel for the National Guard. The Regular Army was to raise 35 new infantry regiments, but only the first seven of these became active prior to the United States' declaration of War on Germany in April 1917. The Act also authorized each infantry regiment to have (for the first time) permanent headquarters, supply, and machinegun companies. A regiment would no longer have to deplete the strength of its rifle companies in order to improvise provisional headquarters, machinegun and supply units.[62]

In July 1917, the War Department instituted a new and very Uptonian system of identifying, through numeric designations, all active and reserve component organizations called into national service. With certain exceptions this system is still in use. It set aside the numbers 1 through 25 for Regular Army infantry divisions (only numbers 1 through 20 were used in 1917-18). For National Guard divisions it allocated numbers 26 through 50 (of which only 26 through 42 became active in 1917-18). It set aside numbers 51 through 75 for special units and gave numbers 76 and higher to National Army divisions. Regular Army infantry regiments would carry numbers between 1 and 100 (although numbers 67 and higher were "war only" formations). National Guard regiments would carry numbers 101 to 299 (though only 101 through 168 were actually used); and numbers 301 and higher were for the National Army. The new system profoundly affected the National Guard. State unit identifications, titles, and traditions were swept away. Regiments able to trace their histories back to before the Revolutionary War were broken up or combined with other units, their distinctiveness submerged in a sea of uniformity. With the abandonment of local recruiting, most units also lost their regional character as they were filled up with men drafted from all over the country.[63]

The War Department issued new tables of organization in May 1917 (see Appendix 2.1) that implemented the changes authorized by Congress in the National Defense Act of 1916. Although the new tables did not greatly change the maximum strength of an infantry regiment, they prescribed much higher minimum strength levels and significantly increased the proportion of non-commissioned officers. Corporals commanded all squads and an extra corporal per company served as clerk. (These company clerks would survive until the early 1980s.) Each company

[0] General Pershing and President Wilson later quashed a scheme hatched by Leonard Wood and Theodore Roosevelt to raise a US Volunteer division (an enlarged version of "the Rough Riders") for France. See A.A. Nofi, *The Spanish American War, 1898* op cit p. 149.

also got a mess sergeant to supervise its cooks and its quota of privates first class (PFC) was also specified for the first time. The company's artificers were now called "mechanics" and its musicians became "buglers." In addition, newly designated supply officers and sergeants replaced the old quartermaster and commissary officers and sergeants and thus eliminated some unnecessary duplication (see Appendix 2.1).[64]

Besides the battalion commander himself (a major) each battalion headquarters now had its own adjutant but the sergeant major and mounted orderlies were still just permanent attachments from the regimental headquarters company. This was because the Army's system of personnel administration required that all enlisted men be members of companies or equivalent organizations. Since a battalion headquarters was too small to act as a company the regimental headquarters company provided its company-level administration. The supply company supported each battalion with a section of five or seven wagons under a regimental supply sergeant (in lieu of a supply officer) but as before, these "battalion sections" normally operated under supply company control.

The now permant regimental machinegun company had become appreciably larger and included four full-time officers, including a reconnaissance officer. Since the reconnaissance officer was mainly concerned with range finding (to support long-range and indirect fire) and with position selection he may be seen as a throwback to the Nineteenth Century "machineguns as artillery" idea.

The regimental supply company operated separate supply sections for the machinegun company and each infantry battalion. Ammunition allowances per weapon were the same as in 1914 except that the machinegun company would get two combat wagons rather than one. The supply company headquarters itself provided vehicles for the regimental headquarters, headquarters company, and medical personnel.

The regimental adjutant also continued to serve as headquarters company commander. The company itself still furnished the regimental band and the sergeants major and mounted orderlies for regimental and battalion headquarters. However it no longer sent men to brigade headquarters since these were now self-supporting.

The medical detachment of a maximum strength regiment could attach two aidmen to each rifle company and set up a small aid station at each battalion and at the regimental headquarters.[65]

THE AMERICAN EXPEDITIONARY FORCE

The 1917 infantry regiment was the final development of the reorganizations that began in 1898 and it remained in use until 1920 by Army units serving outside of Western Europe or Russia. However, both the War Department and the Army General Staff overwhelmingly agreed that even at maximum strength, this regiment was woefully lacking in both the size and the firepower needed on a European battlefield. The American Expeditionary Force (AEF) that was soon to be sent to France would need an entirely different organization.[66]

However, our new British and French allies did not share the War Department's opinion. They knew that the United States had no army fit for a European War, yet they needed American help immediately. They wanted Americans to help them bolster their own depleted armies by taking over rear area support functions to free more of their own men for front line duty. Americans that did enter combat would do so as individual replacements, or as units not exceeding regimental size, which could fill out existing Anglo-French formations. Large units like divisions were not desired. The British and French assumed rightly that the Americans possessed very few officers able to competently command large and complex formations. Much of the Americans' combat value could be wasted through the inexperience and ineptitude of their senior leaders, should the latter receive combat commands. Even worse, a large American army might just be enough to end the war in favor of the Allies and enable the United States to dictate the peace. However, the British and French should have realized that they were asking for the politically impossible. With no distinctly American army in France, serving under its own officers in its own sector, the position of the United States relative to Britain or France in any postwar peace negotiations would be gravely weakened. Also, the American public would never allow its sons to go overseas to fight and die under foreign officers. Finally, there was the more practical problem of actually integrating Americans into foreign organizations in the face of numerous cultural, institutional, and (in the case of the French) language barriers.[67]

Major General John Joseph "Black Jack" Pershing, the designated commander of the AEF, was a strong willed, and politically astute cavalryman whose military experience, like that of most American officers, lay mostly in small scale "irregular" warfare against Filipino and Mexican insurgents. However, he needed little encouragement from the Woodrow Wilson administration to resist Anglo-French plans to graft Americans into their own forces. While allowing a few minor concessions, Pershing would ensure that most Americans who served in France did so under AEF command.[1] However, to allay fears that a separate American army could not be ready soon enough to be of use to the Allies, it was important that some sort of combat division be assembled and sent overseas immediately. To this end, the War Department, through the General Staff, hastily drew up a provisional division

[1] The one major exception was the integration of four regiments of the all-Black 93rd AEF Division into three French infantry divisions.

and published its organization tables in July 1917. The new division would have a "square" configuration. This meant that its infantry would consist of four regiments, grouped under two brigade headquarters. This had been the standard configuration for French and German divisions in 1914. However, by 1917, most French and German divisions had converted to a "triangular" configuration based on three infantry regiments. Manpower per division had been cut to about 14,000 from a 1914 norm of 18,000. The War Department's decision to use the square organization was not a flat rejection of European experience. While the triangular division was recognized as easier to transport and maneuver, the square division was seen as having more staying power and being better able to break through the fortified trench lines that dominated the war in France. Also, larger divisions would mean fewer high-level commands to fill from the Army's very short supply of experienced senior leaders. Finally, the French had told the War Department that they had switched to triangular divisions mainly to save manpower but they still preferred square divisions. The British, by contrast, used a unique division structure based on three infantry brigades with four battalions each. This produced the configuration of a triangular division with the infantry strength of a square one. However, the War Department never gave this much more radical solution (that would also have required a dramatic regimental-level reorganization) any serious consideration. Instead, it built its 1st Expeditionary Division, soon to become the AEF 1st Division, as a French-style square division. The 16th, 18th, 26th, and 28th Infantry Regiments, all plucked at random from the Mexican border and hastily fleshed out to their new authorized strengths, would constitute the new division's infantry. By the time they left for France, 90% of their enlisted men were raw recruits. With artillery and other support troops the new division counted some 17,000 officers and men. All duly boarded troopships and, together with the 2,700-man Fifth Marine Regiment embarked in the escorting warships, departed for France.[68]

As it worked out the organization of the infantry regiments of this new division the General Staff had been particularly impressed by reports from France about how machineguns were dominating infantry combat. Therefore, its initial approach to structuring the AEF infantry focused on ensuring that there would be enough machineguns. It noted that French and German infantry regiments now included one machinegun company per infantry battalion. In the case of the French, this was accomplished by substituting a machinegun company for one of the four rifle companies in each infantry battalion. In an effort to compensate for the resulting 25% reduction in rifle strength, the French bolstered the firepower of their remaining rifle companies with *Chauchat* M1915 automatic rifles. Unlike machineguns, the lighter *Chauchats* did not require a solid mount such as a tripod but could be supported by a soldier's own heft. The British, by contrast, allowed only four machinegun companies for an entire division. However, these machinegun companies belonged to a corps of specialists similar to what John Henry Parker, by now a lieutenant colonel, had advocated for the American Army. Each was about one third larger than a German or French machinegun company and was supplemented by large numbers of Lewis machineguns organic to the infantry battalions. Lewis guns, while considered to be automatic rifles like the *Chauchats*, were heavier, more reliable, and offered better firepower than the French weapons. However, they were still inferior in effective range, accuracy, and sustained rate of fire to full sized machineguns. Based on this information, the War Department in July decreed that three of the four companies in each of an AEF infantry regiment's three battalions would be rifle companies of four officers and 200 men each. The fourth company would be a machinegun company with four officers and 148 men. This would give the regiment an adequate number of automatic weapons and, even after the regimental supply company (four officers and 110 men) and headquarters and headquarters company (286 officers and men) were added, it would not exceed the 15-company limit that Congress had mandated for an infantry regiment.[69]

Further change would await the results of a fact finding board made up of representatives from the cavalry, infantry, field artillery, quartermaster corps, and general staff and chaired, oddly enough, by its senior quartermaster representative, a Colonel Chauncey Baker. The Baker Board sailed for Europe in late May of 1917 and spent six weeks touring France and England to collect as much information as possible on the optimal combat organization for the AEF. The Baker Board's findings received close scrutiny from AEF commander Pershing, who now had broad authority from the War Department to organize the AEF as he saw fit and to determine its doctrine. With regard to the infantry, the Baker Board's recommendations remained inconclusive as to the organization of divisions and larger units because British and French opinion was divided on the issue. The Board recommended that the square division structure of July 1917 be retained but with its size increased to 25,500. It would have 12 infantry battalions based on a rifle company of six officers and 250 men. This rifle company would be larger than either a British rifle company of six officers and 221 men[◷] or a French company of four officers and 194 men, although all three were based on a similar structure of four rifle platoons. The AEF company's extra manpower would better enable it to absorb heavy casualties and then rebuild itself afterwards. The Board recommended

[◷] Subtracting the men normally absent from a British company left only about five officers and 160-180 men. See M. A. Ramsey, *Command and Cohesion, The Citizen Soldier and Minor Tactics in the British Army*, 1870-1918 (Westport CT, Praeger 2002) pp. 184-187.

replacing each battalion's machinegun company with a fourth rifle company. Four companies would enable a battalion to put two companies on line and still have two more in reserve with which to relieve them. A machinegun company would still be necessary but the Board believed that such a unit could be habitually attached to the battalion from another organization. The regiment itself would get its old machinegun company back and this could support one battalion. Other machinegun companies could come from a separate three-company machinegun battalion assigned to each infantry brigade but this would still leave one infantry battalion per brigade without machineguns. A five-company division level machinegun battalion would have to contribute additional companies to make good this deficiency. One company in the division-level battalion would employ armored cars or motorized machineguns and act as a mobile firepower reserve. The undue complexity of this three-tiered system promised unpleasant consequences in combat. Nevertheless, in August 1917, the War Department adopted a 27,000-man division that incorporated these Baker Board recommendations.[70]

General Pershing soon aired his own views about how AEF divisions should be structured. He believed that the situation on the Western Front could only be resolved by a large and well trained force of riflemen that could drive the Germans from their entrenchments and then defeat them in open combat. He believed that the British and French were war weary and weakened by casualties and, though conditioned to the tactics of trench warfare, had lost the aggressive spirit, which he had determined that the American Army must have. Nevertheless Pershing rejected the greater mobility and flexibility of the triangular division and opted for a version of the Baker Board's square division (with a further boost in manpower) even though it was designed for precisely the battle of attrition, which Pershing in his own writings deplored. Pershing reasoned that the organizational redundancy of a square division, which could bring two regiments into action and still have two more in reserve, best suited it for battering its way through the German defenses, which were invariably fortified in great depth.[71]

Pershing retained the 250-man rifle companies recommended by the Baker Board although he cut the size of their headquarters in order to put more men in the rifle platoons. The French rifle company of September 1916, which the Baker Board had endorsed, became the model for the AEF company. The French company had a headquarters platoon with the captain and 25 men and four rifle platoons with a platoon leader and 42 men in each. Lieutenants led the first three rifle platoons but the fourth was always reserved for the company's most senior sergeant. Tactically, a rifle platoon broke down into two half platoons led by sergeants. The first half platoon had one squad of eight *grenadiers* and another with a leader (all squad leaders were corporals) and two three-man automatic rifle teams. The second half platoon had two squads of 12 and 13 *voltigeurs* (riflemen), each, respectively. Two men per squad had grenade launchers on their rifles while another man carried extra grenades. The first half platoon provided a base of fire while the second maneuvered. Unfortunately this platoon organization proved to be awkward and inflexible and in September 1917 the French discarded it in favor of two identical half platoons, each with two squads of seven (minimum) or nine (maximum) men each.[◷] One squad had *grenadier-voltigeurs* armed with rifles and hand grenades. The other had half its men serving an automatic rifle while the rest used rifle grenade launchers. Each half platoon could now fire and maneuver within itself and the overall organization became much simpler and more adaptable.[72]

Unfortunately, the AEF rifle companies incorporated few of the benefits of the French 1917 reorganization and perpetuated many of the mistakes of 1916. Each company would consist (see Appendix 2.2) of a headquarters and four platoons. As in the French Army, a company headquarters would have forward and rear echelons. The former was known as the "captain's group" and included, besides the captain himself and the first sergeant, the messengers, signalers, and buglers (who served as messengers in combat) needed to control the company tactically. The rear echelon, or "service group" had the cooks, mechanics, supply sergeant, and clerk who took care of the company's administration and logistics. Men detached from the rifle platoons to act as a cadre for rebuilding the company in the event of heavy casualties might also be attached to the service group. In an AEF company the company executive officer commanded the service group whereas, in the French army, the group would be under the company's second most senior sergeant (after the fourth rifle platoon leader). Neither the French nor German armies used executive officers at company, battalion, or even regimental level. They believed that a first sergeant or senior platoon leader could easily carry out executive officer functions as additional duties. Even in the United States Army prior to 1917, executive officers had only been used in the case of regiments and that was more the result of tradition than practical necessity. Nevertheless, the Baker Board, based on British advice, had recommended an executive officer for each rifle and machinegun company. Majors (or senior captains) commanded British rifle companies. Junior captains served as executive officers and lieutenants commanded platoons. This was a product of the reorganization of the eight-company pre-war British battalion into the four-company wartime

[◷] A few months later the British also reorganized their rifle platoons to discard their specialized rifle, hand bomber, rifle grenade, and machinegun squads (called sections) in favor of three uniformly organized rifle squads (sections) of an NCO and six to nine men each and a Lewis machinegun section of an NCO and two five-man gun teams. See M. A. Ramsey, *Command and Cohesion*, Ibid.

organization. The four senior pre-war company commanders became majors and took over the new double-sized wartime companies. The junior pre-war company commanders became their executive officers. They took care of administrative and logistical matters and took charge of their companies during the many occasions on which the actual company commander was absent. Like his American counterpart, the British company executive officer also commanded the cadre from which his company might be rebuilt, should it suffer heavy losses in combat.[73]

In an AEF company each rifle platoon would have a headquarters and four sections. The sections were numbered 1 through 16 throughout the company just as the old rifle squads had been. The sections were of four different types, each rifle platoon getting one of each. The hand bomber section was supposed to be composed of three four-man teams specially trained in throwing hand grenades. Its men were to be equivalent to the French *grenadiers*. It was called a bomber section because the British and American armies were using the term "bomb" to refer to hand grenades while the term "grenade" applied only to rifle-launched grenades. The rifle grenadier section was supposed to form three three-man teams. The rifle and automatic rifle sections each had two squads. The standard automatic rifle was the French *Chauchat* though after September 1918 a few lucky units received Browning Automatic Rifles (BAR). The AEF regiments that operated with the British received Lewis guns in lieu of *Chauchat*s.

The AEF rifle platoon's internal organization was better suited for facilitating training than for tactical use. For battle, a lieutenant was expected to task organize his platoon into as many as seven squads of six-to-eight men each and then to group these squads into two half platoons. This was but a variation on the Uptonian system used to organize pre-war and non-AEF (May 1917) rifle companies for combat. Though the exact composition and distribution of the squads in an AEF platoon was left up to the platoon leader, it was normal to base the two half-platoons on the rifle and automatic rifle sections. Their sergeant section leaders would become the half-platoon leaders and they would cross-attach squads between themselves so that each would have one rifle squad and one automatic rifle squad. A full strength rifle platoon could build three additional squads by combining each of the three four-man teams in the hand bomber section with a three-man team from the rifle grenadier section. For its eighth man, each of these squads could use one of the messengers from platoon headquarters. Though eight men was still the standard squad size, the two automatic rifle squads would only get their original seven. Instructions included in the organization tables specified that only one team per automatic rifle squad would carry its automatic rifle except in broken terrain where the half-platoon might separate into two or more parts. The other team would have rifles only. However, combat experience soon taught most regiments to dispense with any such voluntary firepower reductions and to always employ every serviceable automatic rifle they possessed.

While experienced officers might have been able to handle these rather complex "build it yourself" platoons, they must have been utterly bewildering to the barely trained temporary second lieutenants that commanded most of them. Dealing with "shrinkage" created by casualties must have been especially vexing since the "textbook" methods of organizing a platoon which the lieutenants had learned in training could seldom be applied in combat. It was not enough to simply memorize task organization. One had to actually understand it. Failures of the replacement system (to be discussed below) caused rifle companies to typically be manned (exclusive of officers) at about 200 men each (or about 45 per rifle platoon) in mid-1918. By late October, this average had fallen to 178 (or about 40 per platoon). With experience a number of basic principles to guide officers in how to organize their units in the face of manpower shortages, evolved. First, the automatic rifle squads, being the heart of the platoon's firepower, were always maintained at full strength, if at all possible. Second, since the "hand bombers" seldom achieved any special expertise with the hand grenade, they could serve as extra riflemen to fill gaps in other sections. Third, the rifle grenadier section could reorganize as two teams of three grenadiers and one carrier each. Adding four riflemen to each team would produce two squads. Any remaining riflemen could then form additional squads. Each half platoon could then have an automatic rifle squad, a rifle and rifle grenadier squad, and (hopefully) a rifle squad.[74]

An AEF infantry battalion consisted of four rifle companies under a major who was assisted by an adjutant and (after August 1918) an intelligence officer (both lieutenants). The Baker Board had specified that at least one machinegun company per infantry battalion was also essential but the Congressionally mandated 15-company-per-regiment limit made this possible only if least two machinegun companies could routinely reinforce every infantry regiment in combat. Therefore the proposed Baker Board brigade machinegun battalions would expand to four companies each, thus furnishing the minimum of six machinegun companies required by a two-regiment infantry brigade. At the same time the division machinegun battalion would reorganize as two motorized machinegun companies and become the division's road-mobile machinegun reserve. The former armored motor machinegun company would join the newly organized Tank Corps. A division staff lieutenant colonel would become the division machinegun officer and oversee the training and employment of all 14 of the division's machinegun companies.

The machinegun companies in both the infantry regiments and the infantry brigades were all organized in exactly the same way with three platoons of four guns each (see Appendix 2.3). At first they used air-cooled French Hotchkiss M1914 tripod mounted machineguns but the companies in 12 AEF divisions received water-cooled, belt fed British Vickers guns. American-made Browning water-cooled belt-fed machineguns began to appear in September 1918. The machinegun company's executive officer doubled as its reconnaissance officer. Although British machinegun companies included reconnaissance officers neither the Germans nor the French had any officers to spare for performing reconnaissance duties on a regular basis. However the Americans could afford to add a second lieutenant to every machinegun company headquarters to act as ammunition officer and to relieve the executive officer of the duty of supervising the company train. A machinegun company's train operated as the service group in the rifle company headquarters did. It worked with the supply vehicles attached to, or otherwise operating on behalf of the company and was alsupposed to maintain four spare machineguns without carts, crews or vehicles. Although these guns were mainly carried to replace losses, company headquarters and train personnel could operate them as additional guns. This seems to have rarely occurred in practice. In common with French and British custom, all machinegun company personnel carried only pistols or revolvers so as to keep their hands free. They would rely on the rifle companies that they operated with to protect them if it came to close combat.

The combat role of a machinegun company was to deliver long range and mainly defensive fires. Even during an offensive operation, its missions were still the defensive ones of protecting the infantry's flanks and holding captured ground against counterattack. It was of relatively use for the direct support of an infantry attack because of its poor mobility and the constant danger of hitting friendly troops, despite the doctrinal emphasis placed on indirect fire. The complexity of the guns and their operation encouraged overspecialization among the gunners. Casualties in the machinegun companies, although heavy, were only about 60% of those sustained by the rifle companies. To move its guns and the vast amounts of ammunition that they required the company had to rely on its machinegun carts. These were large and elaborate affairs weighing over 400 pounds apiece and carrying 500-600 pound payloads. If no mules were available they would have to be manhandled. They could move over firm ground fairly easily but soft ground could pose a serious obstacle. In a combat situation the weight these carts and their full payloads usually made it impossible for a machinegun company to keep pace with the rifle companies it supported and often seriously delayed the guns in reaching their firing positions.[75]

An AEF regimental headquarters included a combined operations and intelligence officer, however the Army did not pursue this excellent idea of combining operations and intelligence functions (since they are, or should be, closely linked to each other) but separated them soon after the war ended. In the headquarters company the headquarters platoon actually performed the earlier headquarters company roles of providing sergeants major, clerks, messengers and orderlies to staff the regimental and three battalion headquarters (see Appendix 2.4).

Although the regimental signals officer was only a second lieutenant he commanded a huge platoon. It provided sections for attachment to the regimental and battalion headquarters but these would have mainly used visual signals (semaphore, panels, lamps, pyrotechnics, etc.). There was also a telephone section could field up to eight six-man telephone squads. However, in battle, a section from the outpost company of the division signal battalion routinely reinforced the regimental signal platoon. The lieutenant that commanded this section and also served as communication liaison officer and technical inspector for the regimental staff. His men formed four 13-man telephone "details" and a 10-man cable laying detail. Each telephone detail supplied switchboard and telephone operators and linemen to either the regimental or a battalion headquarters. Presumably, this freed the regimental telephone section to focus on company level communications. It was a rule in the AEF that a superior unit was responsible for establishing and maintaining communications with its subordinate units. However, since a brigade headquarters were too small to provide communications for its regiments, the division signal battalion, through its outpost company, provided the necessary signal personnel instead.

Despite the large amount of manpower devoted to it, infantry regimental communications remained unreliable at best. It was seldom possible to lay cable and establish telephone communication fast enough to keep up with an ongoing battle. Worse, enemy shellfire and friendly vehicle traffic were constantly cutting the wires. Visual signaling required clear weather and could not easily handle lengthy or complex messages. Messengers were relatively reliable but slow. Field radios were too heavy, complex, and faulty for front line use. An infantry brigade had none at all but there was a small radio company (three officers and 75 men) in the division signal battalion. The division artillery also had a few radios but one of the more noticeable effects of poor communications lay in the infantry's inability to coordinate its actions with its supporting artillery. Naturally, the inexperience of both the infantry and artillery officers combined with the fact that they seldom trained together added to the problem. Engaging unplanned "targets of opportunity" was especially difficult. The fire of a few German machineguns might easily hold up the advance of an entire battalion. The pinned-down troops could then watch their pre-planned artillery fire walk away from them while their officers were powerless to tell the guns to suspend their fire plan and shoot at the new targets. One solution to this problem was to bring field guns forward to where the gunners could

see their targets for themselves. This tactic, however, was seldom successful because horse teams could not easily haul a field gun and ammunition across the broken and muddy front-line terrain. Then too, the gun and its accompanying limbers, caisson, horses, etc. presented the Germans with a very conspicuous and vulnerable target.[76]

The remainder of the headquarters company consisted of combat support specialists (see Appendix 2.4). They paralleled similar troops found in French infantry regiments. The bomber section in the sapper-bomber platoon could operate up to 30 rifle grenade launchers (some would likely be held as spares) or six 3-inch Stokes mortars. The Stokes mortar was the original version of the standard infantry mortars we use today; however, its accuracy was poor and its effective range (as noted above) very short. Although it was still much lighter and simpler than the German *minenwerfer* trench mortars the bombers who operated it had no mules or carts with which they could move it and its ammunition forward to to keep pace with an infantry advance. The grenade launchers and mortars were important because apart from them the infantry was mainly armed with flat trajectory weapons that fired solid projectiles. The infantry needed weapons that could fire exploding projectiles at a high enough angle to reach German machineguns firing from trenches, shell holes, and similar below ground and/or defilade positions. Stokes mortars were effective at this but they were heavy and few in number (only two per infantry battalion) and could only engage targets at between 250 and 750 yards' range. Since it was usually difficult or impossible to get them across "no man's land" quickly they generally could support an attack only during its initial stages. Rifle grenade launchers were lighter and much more plentiful than the mortars but even shorter ranged, slow firing, and very inaccurate.[77]

The one-pounder (37mm) gun platoon operated three of French-designed Puteaux lightweight infantry guns. The Puteaux was never intended to serve as an antitank weapon. Instead, it was meant to fire high explosive shells against German machinegun nests though, unlike the mortars and grenade launchers it was still a flat trajectory weapon and its effectiveness against below ground targets was necessarily limited. Though first designed and tested in 1896 the gun did not actually enter production until 1916. The one-mule ammunition cart with each 37mm gun squad carried 224 37mm rounds (14 16-round boxes). This might seem like a generous allowance but given the uncertainties of front line ammunition supply (especially during offensive operations), it was none too generous.[78]

The pioneer platoon employed four squads (a corporal and 12 men each) forming two half-platoons led by sergeants. Pioneers carried out minor but essential engineering work in forward areas. They could also form carrying parties to bring up ammunition.

The regimental supply company delivered ammunition, food, water, and other material from the division field and combat trains to all the companies of the regiment, just as it had done under previous organizations (Appendix 2.4). For this purpose it employed a large company headquarters and separate detachments for its parent regiment's headquarters, headquarters company, machinegun company, and three battalions. The supply company headquarters planned and coordinated regimental logistics, and undertook the care and feeding of the company's men and animals. Company officers at first included a commander and three lieutenants. Among their other duties they supervised the three regimental supply sergeants who planned and coordinated supply deliveries to the battalions. The addition of two more lieutenants to the supply company in September 1918 allowed the assignment of a supply officer (in addition to a supply sergeant) to look after the logistical needs of each battalion on a full time basis.[79]

The supply company's remaining sections supported the regiment's three battalions (and their rifle companies) and its headquarters and machinegun companies. Mostly they just provided vehicles and drivers though the regimental and battalion sections also provided cooks for regimental and battalion-level officers' messes (the company cooks served the enlisted men). A rifle company was allowed a combat wagon for its ammunition (a machinegun company would get two) plus a field kitchen (with a rolling kitchen and accompanying water and ration carts) plus an escort wagon for its baggage and additional rations. These vehicles carried three days' rations per man. As in earlier organizations, supply company personnel acted on behalf of, but were not attached to, the units they supported unless those units were operating separately from the rest of the regiment.[80]

Unfortunately, this system of regimental logistics, though sound enough in theory, seldom worked well in practice. Supply companies tended to suffer from weak leadership because their role was not glamorous and many officers tried to avoid it. Additionally, a shortage of draft animals plagued the AEF. The War Department had reduced the number of animals shipped to France in favor of more troops. The British and French had promised to make up the animal shortfall from their own stocks but the mules they supplied were insufficient in number and already worn out by hard service. A lack of proper rest and fodder plus the usual hazards of war combined to keep animal attrition rates high. The AEF tried to economize on animals by motorizing most of their division level and higher supply units. The infantry's rolling kitchens and R&B wagons had to make do with only two mules apiece even though they needed four. Combat wagons, however, were supposed to get their full four mules. While motorization at the higher echelons might appear to have been a blessing, it was a very mixed one. It is true that trucks were and are much faster than horse drawn vehicles. They can be operated and maintained by far fewer men relative to payload, and they consume a far smaller weight and volume of fuel. However, the primitive trucks of the

First World War era were all but useless off well-maintained roads. Such roads were few in number. Careful planning and supervision by experienced officers was needed to prevent the traffic on them from becoming hopelessly snarled. The AEF generally lacked such officers, especially after General Pershing dismissed his French advisors. As a result, AEF offensives usually fell apart within the day or two it took for their MSRs (main supply routes) to jam solid. This happened at St-Mihel. It also sealed the fate of the Meuse-Argonne offensive, which gained six miles on its first day but only three miles over the next 21. Animal transport could make use of many roads and trails barred to motor vehicles and could even move cross-country if conditions were favorable. However, the AEF's draft animal shortage would have much reduced its supply wagons' ability to proceed over adverse terrain. The construction of more roads might have made the trucks more effective but the AEF needed most of its engineers just to maintain the existing roads.[81]

As they approached the front lines, mud, shellholes, and the dangers of enemy fire and observation often made it impossible for the service company wagons to get close enough to deliver their loads to the front line troops, even after dark. Carrying parties had to move the supplies over the remaining distance but they required manpower that the supply companies lacked. Coupled with poor planning by inexperienced, overworked, and sometimes negligent supply officers, this often led to supply system breakdown. This in turn affected the infantry's discipline and morale as well as its mobility and firepower. Charles Grant, who was part of the British mission to Marshal Foch, traveled widely in the Meuse-Argonne combat zone. He saw field kitchens being looted by half-starved men and heard of 400 Americans starving to death as well as of many wounded dying because they could not get to the aid stations. To guard against supply failure, individual soldiers had to carry two days worth of emergency rations, plus extra ammunition in addition to their 60-pound basic load. Having to march long distances with so much gear eroded the men's physical fitness for battle. Then too, it was only the rifle companies (and the pioneer platoons), which could furnish the manpower for the carrying parties needed to get rations and ammunition from the supply vehicles to the troops. They also had to furnish working parties for many other functions not otherwise provided for in the tables of organization. These included the fortifying of their own positions and the burial of their own dead, the latter activity not being exactly a morale booster. The basic tactical concept behind the square AEF divisions under which the two regiments holding the division's front line could be relieved by two more regiments to their rear was seriously undermined. The two regiments that were supposed to be resting were the ones that had to man all the work details. When it came time for them to relieve the front line regiments it was, as historian Allan Millett described it, often a question "of replacing exhausted troops who had suffered casualties with exhausted troops who had not."[82]

It had certainly not been intended that the infantry serve as labor troops. Such tasks were supposed to have been carried out by separate regiments of pioneers modeled on those used by the French. In the French Army, pioneer regiments were lightly armed infantry serving under corps and army headquarters. They tended to consist of older men and were not the elite assault troops that filled the pioneer platoons in the infantry regiments. Though they could fight when necessary their main function was to furnish the bulk of the semi-skilled and unskilled labor in the forward areas. In imitation of this system the War Department raised 37 AEF pioneer regiments. These were organized as AEF infantry regiments without machinegun companies or sapper-bomber, pioneer, or one-pounder gun platoons. Only two of the 29 pioneer regiments to reach France did so before the last three months of the war. One regiment was supposed to go to each army corps and several to each army. However, the AEF pioneers proved to be so badly trained and led (even by AEF standards) that after front line service involving a mere 241 battle casualties most of the pioneers were pulled out of combat to serve as unarmed laborers far to the rear.[83]

To provide for its medical and spiritual needs, each regiment received a more or less permanent attachment from the Medical and Chaplain Corps. However even a full strength detachment barely sufficed to provide two medics (medical aidmen) per rifle or machinegun company and to man skeletal aid stations at each battalion and the regimental headquarters. There was very little manpower for stretcher teams. Relative to their total size, the AEF received only about half to two thirds as many medical men as the earlier 1914 and 1917 regiments, despite the heavy casualties that AEF regiments were expected to incur. The effectiveness of the AEF's medical service reflected the meager resources devoted to it. More than 25% of AEF combat fatalities were men who died of their wounds. In subsequent wars this number rarely exceeded seven percent. However, many others who might have been saved died where they fell because a fatally inefficient casualty evacuation service could not find them in time. Even to qualify as "died of wounds" a man had to be living when he reached an aid station. The fact that a division had only one horse-drawn ambulance company that could operate away from the roads also constituted a serious shortcoming.[84]

Two infantry regiments and a machinegun battalion (see Appendix 2.5) constituted an infantry brigade.[2]

[2] An AEF infantry brigade was purely a tactical headquarters and provided no combat support or combat service support for its subordinate units. The headquarters was very lean and consisted only of a brigadier general, a major (serving as adjutant, there was no executive officer) and three liaison officers (lieutenants) of whom two were also the general's aides. Only the division headquarters had a full staff.

To assist him in commanding his brigade, a brigadier general had only a major (adjutant) Outside of its infantry and machineguns an AEF division included a field artillery brigade with two regiments (24 guns each) of 75mm field guns and one of 155mm howitzers plus a company of 6-inch trench mortars. There was also a regiment of engineers with six companies (six officers and 250 men each), a signal battalion, and the division trains (121 officers and 3,121 men) divided into ammunition, supply, engineer, and medical sections.[85]

In its final form, and at a full strength of more than 28,000, one 1918 AEF infantry division had more men in it than the entire United States Army did when many of the officers who would command these divisions first received their commissions. It was nearly twice as large as any British, French, or German division. Ironically its size did not buy it the staying power that the AEF leadership had hoped for. This was due in part to the logistical difficulties already described and as well as the shortcomings of the Army's personnel replacement system.

There was never enough manpower. When the United States declared war, the Regular Army amounted to only 127,600 officers and men. A Regular Army Reserve, authorized in 1912, had not quite reached 4,800 members. There was also an Officers' Reserve Corps of about 2,000 and an Enlisted Reserve Corps (mainly technical specialists) of 10,000. The National Guard mustered 181,000 of which 80,000 had already been called into Federal service for the Mexican troubles. There was also a National Guard reserve (inactive Guard members still available for call-up in wartime) which had grown to about 10,000. Besides these, there were an unknown number of graduates from the various reserve officer-training programs. By prodigious effort, the Army increased this total of perhaps 335,000 trained or semi-trained men to 3.7 million by the Armistice. Early planning had called for one third of all divisions to serve as replacement depots or field-training units charged with keeping the remaining combat divisions filled with men. The system broke down, however, as heavy losses forced the intended depot divisions to be used as combat units instead. Only six of the 42 AEF divisions to reach France before the Armistice (three more arrived soon afterwards) actually served as replacement or training depots instead of the 14 that were needed. As an emergency measure, five combat divisions, and later two of the depot divisions, were skeletonized to immediately create urgently needed replacements but, of course, this rendered them useless for either combat or depot duty. Another division had to be fragmented to provide men for rear area support duties and yet another was broken up to flesh out three French divisions. Even in February 1918, (before the AEF had seen serious combat) the four combat divisions in the AEF I Corps were 8,500 men short (mostly in their infantry regiments). The 41st Division, which was the corps' depot division and charged with supplying those missing men was itself 4,500 men short. By early October 1918, AEF combat units needed 80,000 replacements but only 45,000 were expected before 1 November. At the end of October, the total shortfall had reached 119,690, including 95,303 infantry and 8,210 machinegunners. Only 66,490 replacement infantrymen and machinegunners would be available any time soon. For most of the war, AEF combat divisions were typically short by 4,000 men. After August 1918, even divisions fresh from the United States usually needed men. Too many divisions had been organized too quickly.[86]

Of course the root cause of the manpower problem was even more basic. Men were being used up faster than they could be replaced. The AEF suffered most of its battle casualties between 25 April and 11 November 1918, a period of less than seven months. These combat losses amounted to between 260,000 and 290,000 officers and men, of whom some 53,000 were killed in action or died of their wounds. The rest were wounded or gassed but 85% of these subsequently returned to duty. About 4,500 AEF prisoners of war were repatriated after the Armistice. Five thousand others became victims of "shell shock." Accidental casualties, including those known to have been caused by "friendly fire" (total friendly fire losses must have been considerable, given the poor state of infantry-artillery coordination), or disease or self-inflicted wounds, far exceeded those sustained in battle. Two thirds of the more than 125,000 Army and Marine Corps deaths between April 1917 and May 1919 occurred overseas and nearly half (57,000) were from disease. Pneumonia and influenza-pneumonia, which produced the infamous "swine flu" epidemic of 1918, were the chief killers but many victims who became ill before the Armistice did not actually die until after it. Between 14 September and 8 November 1918 some 370,000 cases were reported in the United States alone. Within less than two years between one quarter and one third of the men serving in the US Army had died or became temporarily or permanently disabled by battle, disease, accident, or misconduct. Had such losses continued, the United States might soon have begun to experience the same war weariness and manpower "burnout" that had been plaguing the British, French, and Germans.[87]

With regard to the infantry, the woes of the AEF replacement and training system were much increased by the prevailing belief that because an infantryman needed few technical skills he had little to learn and could be quickly and easily trained from very average human material. Technical arms such as the engineers, signal corps, artillery, and, more significantly, the air corps got the pick of the AEF's manpower. The infantry soon became the repository for those deemed unfit for anything better. Many infantrymen saw themselves, and were seen, as cannon fodder. Morale and cohesion were further undermined by the practice of stripping new divisions of men (often before they had even left the United States) to fill older ones. The better men and officers avoided infantry duty to seek less demanding "technical" jobs. Of course, training suffered grievously. As demands for replacements became more

insistent, men who supposedly had received several months' training were appearing in the front lines not knowing how to load their rifles. Others proved to be recent immigrants who could not speak English. Infantrymen of small physique who might have rendered useful service in non-infantry roles, soon collapsed under the physical burdens placed on them and became liabilities rather than assets. Losses among even good infantry were heavy enough but mediocre infantry melted away at an astonishing rate. Its indiscipline, disorganization, and ignorance inevitably increased losses by what must have seemed like a couple of orders of magnitude. These losses were likely to be replaced, if at all, by men of even lower caliber. Straggling was an especially pernicious problem, which the military police had only limited success in controlling. Even more than actual casualties, it caused some units to simply evaporate. During the Meuse-Argonne offensive, for example, one division reported that it was down to only 1,600 effective men. However, soon after it arrived at a rest area, it reported 8,400 men in its infantry regiments alone.[88]

The officer situation was even worse. The pre-war officer corps was quickly swamped. Early 1918 estimates determined that 150,000 new officers were needed and that 200,000 officer candidates would have to be recruited in order to allow for those who would fail to qualify. When the United States declared war there were but 5,800 Regular Army officers on active duty. To these could be added about 3,200 trained National Guard officers. Another 8,800 National Guardsmen with prior enlisted service or service in the Officers' Reserve Corps or other training programs received commissions later on. The United States Military Academy at West Point churned out five classes in 19 months, although this only raised the Regular officer total to about 6,000 by the Armistice. However, 16,000 deserving Regular Army non-commissioned officers became temporary lieutenants. Another 70,000 professional men such as doctors, lawyers, chaplains, and also businessmen who knew how to run supply, accounting, shipping or procurement offices were commissioned directly from civilian life. The rest, some 96,000, would have to come from the Officer Training Camps (OTCs) or from the Reserve Officer Training Corps (ROTC) set up in the colleges. Prior to the war, most regular officers were commissioned either from West Point or from the ranks. In 1913, in order to raise interest in military preparedness and to build up a reserve of potential officers Major General Leonard Wood helped to start two volunteer training camps for college students. In 1915 similar camps were run for prominent business and professional men and politicians, the best known being held at Plattsburg, New York. The graduates of these camps formed the Military Training Camp Association (MTCA), which continued to run training camps and would later give the wartime OTCs a considerable head start. However, the OTCs were plagued by shortages, particularly of qualified instructors and well thought out curricula. Unlike the MTCA camps, they were not public relations gimmicks but actually had to produce competent officers, and very quickly. However, they soon degenerated into something akin to recruit training. This was in sharp contrast to the French and Germans who screened officer candidates far more carefully (the process required written examinations and prior enlisted service), gave them thorough training from experienced instructors, and evaluated them in combat. Although class prejudice played a role (especially in the German Army) far greater weight was placed on demonstrated leadership and decision making skills. The American choice to commission college men with little screening produced a system which, unlike the German, but similar to the British, was not merely influenced by social class but largely based on it. As was the case with the enlisted ranks, the best AEF officers tended to go into the technical services.[89]

Once he had received his commission, taken over his new command, and prepared to lead it into battle, the life of an infantry lieutenant turned out to be far more of a challenge than anyone expected. Not only was combat physically dangerous and both physically and mentally exhausting, it was also complex, infinitely various, and required an ability to coordinate the actions of several combatant arms. Additionally, an officer had to be concerned with discipline, logistics, and the training and motivation of his own men. Of such matters most infantry officers knew very little. To expect a recent college graduate with three months of what was only a little more advanced than recruit training to master all of this was, in the great majority of cases, to expect the impossible. Even Regular officers soon found themselves overwhelmed. In the 1st Division, for example, in 1917 there was a great shortage of lieutenants because most of the pre-war lieutenants had to be made captains. When more lieutenants arrived, most were brand new. Many divisions had few pre-war officers below major. Even as captains, pre-war officers found themselves commanding rifle companies that were bigger than the battalions that they had recently led platoons in. AEF rifle platoons could easily be as large and complex as pre-war companies. Few officers had ever worked with machineguns. Regular officers had seldom seen even the guns attached to their own regiments.[ꝸ] To address these problems, the Army set up schools in France to give crash courses in the basics. However, AEF headquarters frequently indulged a habit of pulling key officers out of their units just prior to some major operation so that a training course they were to attend could start on time. This was both corrosive to cohesion and typical of the simplistic and self-defeating approaches that the 1918 Army so frequently employed to address its problems.[90]

[ꝸ] Combined arms training with infantry, engineers, and field artillery would have been rare. In 1916 the Regular US Army had but 36 batteries of mountain, field and heavy artillery and 12 companies of engineers to support its 30 infantry and 15 cavalry regiments. Most troop training was conducted within the regiments at the company and battalion/squadron levels.

The results of these weaknesses were not encouraging. One of Britain's most competent First World War officers, General Ivor Maxse, toured the AEF II Corps. He described its unfortunate "90 day wonder" OTC officers as men who rarely took their platoons out to practice handling them and whose professional skills were held in low esteem even by their own men. Unable to hold their units together or maintain discipline, these AEF officers frequently led their troops to their deaths in ill-conceived frontal assaults. Their personal courage, however, was seldom in question. Officer casualties among those who served in front line infantry battalions amounted to some 50.7% as compared to 44.7% for their men. Even some of the AEF officers' harshest critics called them "gallant and brave." Nevertheless, the price that these officers (and their men) paid for their ignorance was a high one.[91]

Even worse, a "professionally challenged" OTC lieutenant could expect little help from his non-commissioned officers. The best of these were becoming officers themselves and the Army tended to undervalue the others. They were neither set apart from the private men nor given the special privileges and responsibilities to which NCO rank should have entitled them (and which German, French, and British NCO's received). In the AEF, non-commissioned rank was a casual affair, easily won and just as easily lost. NCO training was mostly "on the job." Indeed, anyone who survived heavy combat almost had to be made a non-commissioned officer since such battlefield "school of hard knocks" survivors could usually outperform any NCO sent directly from the United States.[92]

Despite its many sacrifices and despite its fairly impressive achievement of, within one year, getting itself to Europe in a state in which it could fight at all, the overall performance of the AEF was ultimately a disappointment. The British and French accused it of having contributed more to the successful escape of the German Army (after its failed 1918 offensives) than to its ultimate surrender. General Pershing had insisted on having his own sector, ignored expert advice on tactics and logistics, clogged the roads with his oversized divisions, and held up the Allied advance by stalling out in the Meuse-Argonne. In reaching these conclusions, the British and French were not entirely unprejudiced. Already annoyed at the Americans' refusal to serve under their command, they disliked Pershing's abrasive personality, his belittling of their own achievements, and his insistence on going his own way. Also, the French and British did not want to see the "upstart" Americans gain credit at the expense of their own men. However, more disinterested witnesses such as Charles Bean, the official Australian historian who had personally observed the Americans in action and was no partisan of the British, generally corroborated Anglo-French assessments of the AEF. German observers (also not without bias) tended to be critical as well.[93]

Although the AEF's combat effectiveness had improved significantly by the time of the Armistice, its performance still tended to vindicate those who had predicted that the Americans would need at least two years to field an efficient army. Even so, the AEF had two million relatively fresh men in action by October 1918 and this in a fight in which all the other participants had already largely exhausted themselves. The failure of the German 1918 offensives (to which the AEF made a small but significant contribution) was the beginning of the end and the AEF was subsequently able to win for President Wilson a measure of control over the postwar peace negotiations that committed both the Allies and the Central Powers to a settlement based on American war aims.[94]

THE MARINES IN THE AEF, 1917-19

The June 1916 National Defense Act, that advanced the Army and the National Guard to their largest peacetime strengths ever, was followed in August by a similar Naval Appropriations Act. The latter authorized the largest Naval shipbuilding program ever undertaken by the United States and increased the Marine Corps' authorized strength from its 1913 level of 340 officers and 10,000 men to nearly 600 officers and 15,000 men. A further increase to 700 officers and 17,400 men was authorized during the following March. The 1916 Act also authorized the appointment of Marine warrant officers and established small Navy and Marine Corps reserve organizations.

When the United States declared war on Germany on April 6, 1917, the Marines had reached an actual strength of 511 officers (including 43 retired officers on active duty and 49 warrant officers) and 13,211 men. The First Regiment (with seven companies) served as a fixed defense regiment at Philadelphia but was available to assist the Navy in countering a highly improbable German threat to the Panama Canal. The Second Regiment occupied Haiti under the First Provisional Brigade. The Third and Fourth Regiments served in the Dominican Republic under the Second Provisional Brigade. These four regiments would have totaled some 3,300 officers and men and perhaps 35 of the Corps' 50 to 60 numbered companies. Smaller overseas garrisons totaled about 2,100 officers and men. Another 2,200 men were serving at sea with the fleet and about 6,600 were stationed at various posts in the United States.[95]

The declaration of war presented the Marine Corps Commandant, Major General George Barnett, with a serious problem. Although the Marine Corps had advanced considerably in both size and importance since 1898, its future was still precarious. Lacking any guaranteed existence like the Army and Navy, it had to retain the good will of both Congress and the public. The Marines had always emblazoned their recruiting posters with the slogan "first

to fight" but they had always fought as part of the Navy. Any war with Germany was going to be mostly an Army affair and mostly fought in France by the AEF. The Marines would somehow have to find a place for themselves in the AEF in order to make good on their slogan. If they failed they might find themselves facing institutional extinction.

In the past, the Marines had participated in only a few operations with the Army and most of those had been on a very small scale. Nevertheless, General Barnett managed to persuade the Secretary of the Navy, Josephus Daniels, that the President had the authority to transfer all or part of the Marine Corps to the Army in wartime. Barnett also pointed out that this war was going to be fought mainly on land and that if the Corps did not take part it would die. The Secretary, in turn, persuaded the President to sign the necessary Executive Order. General Pershing appears to have been willing, at this point, to allow some Marines to serve as infantry in the AEF but he did insist that they use the same tactical organization and doctrine as the Army. This was entirely acceptable, and Barnett hurriedly organized the Fifth Marine Regiment and sent it to France as an attachment to the AEF 1st Division.

The Fifth Regiment arrived in France in July 1917. Being the fifth regiment of a four-regiment division, it soon found itself relegated to the sidelines and stuck with all the odd jobs such as providing military police details, couriers, and guards. Correctly reasoning that a larger unit would not be so easily pigeonholed, General Barnett in October 1917 augmented the Fifth Regiment with the newly formed Sixth Regiment and Sixth Machinegun Battalion. The whole force constituted the AEF Fourth Brigade, or half the infantry of the AEF 2nd Division.[96]

Although the organization of the Fourth Brigade's infantry regiments was supposed to be the same as that of all the other AEF infantry regiments, it did in fact differ in some details (see Appendix 2.6). Every Marine rifle and machinegun company had two additional sergeants to serve as gas NCOs and the Marines added gas officers to each battalion headquarters. Whether this helped reduce the number of gas casualties is unclear. Marine enlisted men also tended to be given higher ranks than their Army counterparts. In a Marine regiment a platoon sergeant was not just the senior sergeant in a platoon, he was a gunnery sergeant, ranking as an Army sergeant first class (a rank that the Army awarded only to specialists) and well above a sergeant. Sergeants commanded all four sections in a Marine rifle platoon and this allowed an additional sergeant per half-platoon. The rifle section included two men trained equipped as snipers (enough for one sniper per half-platoon). Two more snipers were in company headquarters. Since 1887 when test results had exposed their poor marksmanship, the Marines had made rifle shooting into even more of a fetish than it had been in the Army. In contrast to the many soldiers sent into battle without even having fired their rifles, no Marine was even allowed overseas if he had not qualified as an expert rifleman or sharpshooter. To give extra promotion, pay, and recognition (but not leadership responsibility) to the best shots the Marines introduced the rank of corporal (technical). The rank was also given to mechanics, horseshoers, saddlers, wagoners, and five senior operators in the telephone section of the regimental signal platoon to reward technical proficiency. However, despite their important but difficult and thankless duties, Marine cooks only ranked as privates.

It is of interest to note that in a Marine regiment the headquarters platoon included a regimental pay section. Though they were serving with the AEF, Army division-level pay sections did not pay the Marines. The Marines still received their pay through the Navy and they traditionally handled such matters at the regimental level.

Apart from the regimental-wide changes already mentioned, there were few alterations to the supply company, except in the ranks and titles of some of its personnel. The Marines used quartermaster sergeants rather than regimental supply sergeants and a Marine gunnery sergeant headed the ordnance detachment in lieu of a sergeant. Also, a warrant officer (quartermaster clerk) augmented the supply company headquarters and, in September 1918, another warrant officer (paymaster clerk) augmented the regimental staff. The diagram in Appendix 2.6 shows the Marine regiment, as it would have appeared just before the addition to its supply company of two more lieutenants.

The Navy supplied the regiments' medical personnel and chaplains. Where the Army allowed 48 medical enlisted men per regiment, the Navy gave the Marines 55. The extra men were certainly needed. The Marine Brigade had the highest casualties of any similarly sized unit in the AEF, suffering some 12,000 killed and wounded besides losses from sickness and accidents. As proof of the Marine Brigade's high morale it should also be noted that only 25 Marines became prisoners of war, far below average for an AEF brigade. Finally, it should be pointed out that the Army's Third Infantry Brigade, forming the other half of the 2nd Division's infantry, sustained the second highest losses of any AEF brigade. Overall, the 2nd Division incurred nearly ten percent of all AEF battle casualties but it captured 12,000 Germans or about 19 percent of all Germans taken prisoner by the AEF. The division played a leading role in most of the AEF's major battles.[97]

The Marine AEF regiments differed from their Army counterparts in more than just structural details. They had a huge advantage in manpower quality. Except for about 7,100 draftees accepted during the war's last weeks, the nearly 79,000 Marines who served in the war were all volunteers. About one sixth of these men had joined prior to the war. This was several times the Army's percentage of pre-war men, even if those who had only National Guard service are included. Many Marine wartime volunteers were college men and included a lot of athletes. The large number of officer-quality enlisted men persuaded General Barnett to direct on 4 June 1917 that, in future, all

officers be appointed from the ranks. This move had the strong backing of Secretary Daniels who favored the practice of commissioning enlisted men. Such a system would be more in line with what the Germans and French were doing. Even the college men would have to have several months' enlisted service before they could hope for a commission. By then their leadership potential could be properly evaluated. In addition, many pre-war enlisted men of greater age and experience but less education and growth potential could also become officers. Better still, the Marines were mostly infantry. Unlike the Army, they had few service or technical positions into which their best and brightest could be drained. Instead of getting the dregs, Marine infantry regiments got all the best officers and men. They were always kept at full strength with fully trained replacements, despite heavy casualties.[98]

The high quality men that the Marines were able to contribute to the AEF provoked a good deal of jealousy within the Army in general and from General Pershing in particular. The latter praised the Marines in private but refused to do so in public. Although Pershing had accepted the Fourth Marine Brigade into the AEF, he rebuffed every offer to send Marine artillery to France. The presence of both Marine infantry and artillery in France would have paved the way for the formation of a Marine AEF division. That would have given the Marines much more publicity at Army expense. Late in the war Pershing relented enough to accept another Marine infantry brigade, the Fifth, which reached France in September 1918. However, although nearly all these Marines had qualified as expert marksmen, he employed them in menial jobs in the rear areas. At the same time, Pershing was rushing thousands of untrained Army recruits into front line combat where they were routinely and needlessly slaughtered.[99]

Despite their advantages over the Army and despite the fact they were facing German units who could hardly be called elite, the Marines found the test of battle, especially at such places as Belleau Wood and Blanc Mont, to be a hard one. Until their relief on 18 June 1918, units of the German 237th Infantry Division held most of the sector that the Marines attacked during the fighting at Belleau Wood. This division had only been activated in January 1917. Most of the division's early service had been relatively easy duty in Russia. It had only been in France since March 1918. Allied intelligence rated it "mediocre."[❓] The division's three infantry regiments, the 460th, 461st, and 462nd were each supposed to have nearly 3,000 men but, as of June 1918, they had no more than 1,200 apiece. This was only equivalent to a single AEF battalion with its attached machinegun company. Worse the German's previous advances had left them far ahead of much of their artillery and with only limited forces with which to launch counterattacks. Thus, two of the important ingredients of previous German defensive successes against the British and French were absent. However, although they were severely depleted in their manpower, the 12 rifle companies, three machinegun companies, and mortar company in each German regiment retained much of their full complement of weapons. A rifle company, though not much larger than an AEF platoon, operated six MG-08/15 light machineguns (LMG), a machinegun company had eight MG-08 Maxim guns (of the 12 it was authorized) and a mortar company could still operate six 76mm light trench mortars. However, once the LMG's in the rifle companies were fully manned, few men were left to serve as riflemen. Hence, the close combat capabilities of these companies tended to be even weaker than their low fighting strengths would suggest. Nevertheless, the German soldiers could count on being led a skilled and combat experienced cadre of officers and NCOs. The Marines had no such advantage and this weakness probably did the most to turn their attack into a bloodbath.[100]

On the morning of 6 June, the 461st Regiment held Belleau Wood itself. The 460th was on their right, with a small detachment holding a forward position on Hill 142. The 462nd was in reserve. The 5th Marines opened the battle by sending a battalion charging across open ground, without any cover from friendly smoke or artillery fire to attack Hill 142, apparently in the belief that the Germans were not occupying the woods beyond. Though the Germans soon retired from their rather exposed position, its capture cost 410 Marine casualties. To win a toehold in the wood and in the ruins of the adjacent town of Bouresches (on the 461st Regiment's left flank) the Marines launched a second assault that afternoon that was nearly as reckless as the one that morning. Two reinforced companies from the German 398th Infantry Regiment, 10th Division, held Bouresches. These Germans, helped by the fire of their comrades from the 461st, were able to exact another 1,087 casualties from the three Marine battalions sent against them. By nightfall on 6 June 1918, the Marines had lost more men killed in action than they had ever lost during their entire previous history (since 1775). Subsequently the Marines (with a good deal of coaching from the French) began to put aside their Civil War era tactics and to make better use of cover and of their own considerable superiority in supporting artillery. Marine marksmanship proved very useful for defeating German counterattacks on 13 June. Recently captured positions were always vulnerable to counterattack because the machineguns and other heavy crew served weapons needed to hold on to them could not be brought forward

[❓] According to Allied intelligence, which tended to paint a rosier picture than was wise, the division was initially composed of still-convalescing veterans and raw recruits. The Allies also perceived an incident in April 1918 in which members of the division, encouraged by their officers, openly fraternized with the French as a sign of weakness. The Allies had much more justification in seeing another incident in August 1918, wherein 80 armed members of the division surrendered to only four French soldiers as indicative of low morale (more than 900 members of the 237th Division were taken prisoner in that month) but after the failure of the 1918 offensives and the cumulative effects of casualties and the blockade German morale was already close to the breaking point and would soon collapse altogether.

quickly enough. Skill with the rifle could to some degree compensate for this. Most of the wood and of Bouresches was gradually cleared by 15 June. After that the Army's 7th Infantry (3rd Division AEF) temporarily relieved the worn out Marines. However, being only a regiment and not a brigade, the 7th Infantry did not attack and instead merely held onto the captured ground. The Marines renewed their attack after they returned to the front on 23 June. Helped by an overwhelming artillery bombardment, they were able to secure the last of the wood (now defended by elements of the German 87th Division, which had recently relieved the battered 237th) on June 26. The Marines had demonstrated that amateurs could win if they are willing to pay the costs of their own ignorance. In their case the cost of this modest success amounted to some 5,000 dead and wounded.[&] Speaking of the AEF as a whole, one contemporary summarized its tactics as "overwhelming German machineguns with American flesh."[101]

SERVICE OUTSIDE OF FRANCE

Apart from the war in Europe, the principal military concern of the Wilson administration during 1917-18 was the protection of resources and installations considered vital to the war effort. The threat of German sabotage in the United States was taken very seriously. In addition, Mexico was still unstable politically and sporadic border clashes continued to occur into 1919. Mexican oil was also regarded as an essential resource and the troops stationed on the Mexican border were prepared to invade in order to keep it flowing. However, all the National Guard, National Army, and even the Regular Army regiments raised for wartime only were reserved for duty with the AEF. (The National Army 332nd and 339th Regiments did deploy to Italy and North Russia, respectively, but both remained under AEF command.) This left non-AEF assignments in the hands of the pre-war Regular Army regiments. Out of 38 Regular infantry regiments available in 1917, 25 were on guard duty within the Continental United States or on the Mexican Border and 13 garrisoned U.S. possessions overseas. Local defense forces raised in Hawaii and the Philippines eventually freed the pre-war regiments stationed in those places for duty elsewhere. By the end of the war the 15th Infantry in China, the 33rd and 65th (Puerto Rican) Infantry in the Canal Zone, and the 27th and 31st Infantry (both under the AEF tables) in Siberia were the only non-AEF regiments still overseas. Inside the United States state militia (non-National Guard) units and 48 newly raised battalions of "United States Guards" (recruited from men physically disqualified for overseas service) had freed 20 regiments from stateside guard duties, but not in time for any of them to fight in France. Only twelve pre-war regiments actually saw combat in the AEF. Nine of them served with the early-arriving 1st, 2nd, and 3rd AEF Divisions. The other three were with the late arriving 5th and 7th Divisions. One more reached France with the 8th Division, but only days ahead of the Armistice. By this time, the Regular Army regiments had long ago been stripped of most of their pre-war men to provide cadre for new units. They were refilled with so many draftees that their makeup scarcely differed from those of the National Army.[102]

The situation with the Marines was similar to that of the Regular Army. Most Marine regiments had to perform security and colonial policing duties that kept them away from the "real" war in France. Also like the Army, the Marines made Herculean efforts to accommodate a flood of recruits, acquiring training bases at Quantico Virginia and Parris Island South Carolina, as their existing facilities became too crowded. The Second Regiment (First Provisional Brigade) continued to police Haiti while the Third and Fourth Regiments (Second Provisional Brigade) did the same for the Dominican Republic. The First Regiment remained at Philadelphia as the core of the Advance Base Force (ABF) but its role soon became little more than that of a caretaker of ABF equipment. Although there was little danger from the German High Seas Fleet ABF units might still be needed in the Caribbean to help secure the Panama Canal and a few other critical points against potential attacks by German surface raiders or heavily armed "U-cruisers." Political unrest was endangering both the Cuban sugar crop and Mexican oil. To address such concerns, the Marines raised the Seventh, Eighth, and Ninth Regiments as infantry units in August, October, and November 1917, respectively. The Seventh, with eight companies went to Guantanamo, Cuba, to protect American sugar interests. The Ninth Regiment (nine companies) and the headquarters of the Third Provisional Brigade followed. The Eighth Regiment with 10 companies, meanwhile, went to Fort Crockett near Galveston, Texas to be available to seize the Mexican oil fields with an amphibious landing, should the situation in Mexico get out of hand.

[&] The 5,000 American casualties at Belleau Wood included both Marines and supporting Army and Navy personnel. John Mosier (p. 326) has noted that the American Cemetary at Belleau Wood contains 2,289 single graves and commemorates 1,060 missing, the highest of any American military cemetery from this war. Given the usual proportion of wounded this suggests that actual American losses may have been significantly higher than officially reported. According to Ernst Otto the German 237th Division's casualties on 6 June amounted to 78 killed in action (KIA), 228 wounded in action (WIA), and 95 missing in action (MIA). The German 10th Division lost 24 KIA, 101 WIA, and 26 MIA. Although the 237th Division was mainly fighting the Marine Brigade that day the 10th Division (relieved a few days later by the 28th Division) mainly engaged the 3rd Brigade though it fought elements of the 4th. From 6 June until its relief on 18 June the German 237th Division sustained 309 KIA, 1,078 WIA, and 327 MIA. This suggests that total German losses in and around Belleau Wood through 26 June were about 2,000 to 2,500. For his defense of Belleau Wood, the commander of the 461st Regiment, Major Bischoff, received the *Pour le Merite* (Blue Max), one of Germany's highest military decorations.

Three other rifle companies (possibly the ones missing from the Seventh and Ninth Regiments) occupied the Virgin Islands against possible raids by German submarines. In August 1918, the Seventh and Ninth Regiments expanded to 10 companies each. The situation in Cuba having subsided, the Marine garrison there was reduced to just the Seventh Regiment. The Ninth Regiment and the Third Brigade headquarters joined the Eighth at Fort Crockett.[103]

A contemporary description of the Eighth Regiment (see Appendix 2.7) details its enlisted strength but only gives its total number of officers. However officer ranks and duties are not difficult to deduce. A typical infantry unit of the period and organized in the pre-war style, the regiment had three three-company battalions plus a separate automatic rifle company. Each company was allowed only 100 men rather than 150. The regimental headquarters detachment would have to function as both supply and headquarters company. To perform its supply company functions the detachment could only furnish a small quartermaster staff that would have to improvise (usually by hiring it) whatever transportation the regiment might require. In its headquarters company capacity the detachment would support the regimental staff and furnish each battalion staff with a sergeant major, quartermaster sergeant, and a few privates. All staffs were very small. Rifle companies could have fielded up to ten rifle squads each.

The machinegun (or automatic rifle) company was also a 100-man company and thus larger and more capable than its Army 1917 counterpart. It included a reconnaissance officer and it would have been armed with the ill-fated M1909 Benet-Mercie in most cases. There were probably eight machinegun squads (led by corporals) forming two platoons with four squads, two sergeants, a corporal (for signals), and a corporal (technical) range finder operator in each. A sergeant (technical) would operate the company range finder.[104]

Further ABF expansion occurred in 1918. In January, a separate field artillery battalion assembled in 1917 and armed with M1902 3-inch field guns became the Tenth Regiment. It remained at Quantico, having been rejected for AEF service even after its subsequent rearming with 7-inch naval rifles. The Eleventh Regiment was formed at the same time as an ABF mobile defense regiment. It was later converted to infantry and sent to France with the Fifth Brigade. Meanwhile, a Twelfth Regiment emerged from a cadre of the First Regiment to man a consignment of 16 British-type 8-inch howitzers. Like the Tenth Regiment, this unit was also rejected for AEF service.[105]

In October 1918 with even the possibility of German cruiser raids on American possessions growing ever more remote, the First Regiment reorganized itself as infantry. Together with the newly organized Second Machinegun Battalion, it united with the Seventh Regiment at Guantanamo to form the Sixth Provisional Brigade. As an infantry unit, the First Regiment manned an automatic rifle company and seven to nine rifle companies. It also had a signal company, probably intended for use by a brigade headquarters. The Second Machinegun Battalion had a small headquarters and three companies, each identical to the automatic rifle company shown with the Eighth Regiment, above. It is likely that there was also a First Machinegun Battalion, organized similarly to the Second Battalion and either kept at Quantico or else sent out to the Third Brigade in Cuba or Texas.[106]

After the Armistice in November 1918, surplus manpower at Quantico was organized into the Fourteenth and Fifteenth regiments. Both were created against the possibility of a renewal of hostilities against Germany. The Fourteenth, which included many recently recalled veterans, replaced the Tenth Regiment as the ABF's light artillery unit. It had nine officers and 53 men in its headquarters. Its three battalions totaled nine companies; each similar to the automatic rifle company of the Eighth Marines but armed with four M1902 3-inch field guns or 3-inch naval guns rather than eight machineguns. However these companies could also serve as infantry. The Fifteenth appears to have been similarly organized and equipped but it included many draftees. The Secretary of the Navy had suspended voluntary recruiting for the Marines on 8 August 1918 (just as it had been suspended for the Army). The resulting draftees proved to be of dramatically inferior quality to the volunteers. They might have presented a serious problem had the war continued. As it was, the Fourteenth deactivated in June 1919 while the Fifteenth served in the Second Provisional Brigade in the Dominican Republic as an infantry unit. While there, its efficiency gradually improved.[107]

CHAPTER 3 - POSTWAR ASSESSMENT AND RECOVERY, 1920-32

Although the First World War had a profound impact on the United States Army, its most important effect was the degree to which the US Army embraced the tactical doctrines and military theory of the French Army. The reasons that the US Army should have embraced the French Army, and not the British, as its mentor, despite a language barrier, are not too hard to find. French influence had been strong within US military ever since the Marquis de Lafayette had first offered his services to George Washington. By 1780 the US Army was completely equipped with French-designed muskets. While the Army did not give up its British-style single-battalion regiments until 1898, General Winfield Scott had caused the Army to officially adopt French Napoleonic drill and doctrine in 1815. During the Civil War, soldiers on both sides wore French-style uniforms and many of their officers had learned their trade by studying the admittedly distorted descriptions of Napoleonic tactics rendered by French (actually, Swiss) General Antoine Jomini.[7] In addition, it appears that the senior leadership of the AEF was astute enough to realize that, for all its shortcomings, the French Army had been much more effective against the Germans than the British Army had, notwithstanding a great deal of British propaganda to the contrary that, in many cases still passes as "history" to this day. Finally, despite cultural and common language ties (and the best efforts of American Anglophiles) Britain and America had not been on especially friendly terms in 1917. In order to maintain their blockade of Germany, the British had boarded and sometimes seized American merchant ships and this had led to some ugly incidents.[108] Also, there was strong anti-British sentiment within America's sizeable Irish population.[8]

Despite General Pershing's frequent assertions of AEF independence from its British and French allies, American doctrinal dependence on the French soon became almost total. Army manuals tended to be little more than direct translations of their French equivalents. French instructors were everywhere. Even before 1917, American officers who wanted to get ahead in their profession attended French Army schools. When George S. Patton was a young cavalry officer in 1911 and asked to become a tactical instructor at West Point, he was told that no cavalry officer who had not first attended the French Cavalry School at Saumur could ever receive such an assignment. Similar policies were undoubtedly in effect for the infantry, artillery, and engineers. After 1917 and up until 1939 American officers were sent in droves to attend French military schools so that they could learn the latest military techniques and keep up with doctrinal changes. Every large AEF staff had its French advisors. We have already seen in the last chapter how French influence drove the AEF's combat organization.[109]

French military education had its roots in the Eighteenth Century Enlightenment. This period stressed the importance of logical thought and reasoning and the use of scientific methods. The officers trained under these ideas, including Napoleon Bonaparte himself, would lead France to many victories in the wars of the French Revolution and the Napoleonic wars and thus enjoyed great prestige. According to Enlightenment thinking, the purely military arts of tactics and strategy too vaiable, complex, and ambiguous to really be taught. It was better instead to teach officers science and mathematics as these disciplines would give them useful skills and make them logical thinkers better able to recognize and master the practical lessons that their military experience would bring them. Thus, in Eighteenth Century France only artillery, engineer, and naval officers received formal training. The skills of the infantry and cavalry were considered far more intuitive and therefore best learned "on the job." In 1794, the new government of Revolutionary France consolidated its artillery and engineer schools under the *Ecole Polytechnique* in Paris. In 1808, Napoleon Bonaparte established a school for infantry and cavalry officers at Saint-Cyr. While Saint-Cyr still taught a lot of science and mathematics, it actually taught military art and history as well. It thus deviated from the "war as science" view taught at the *Ecole Polytechnique*. World War I resolved the philosophical dissonance between these institutions in favor of the latter. Since St.-Cyr graduates mainly populated the infantry and cavalry, their life expectancies were dramatically shorter than those of their *Polytechnique* brethren who populated the artillery and engineers. By 1917 the French Army was completely in the hands of technocrats who saw war as a kind of engineering project and sought to bring order and reason to the battlefield. They developed the "methodical battle" under which the enemy was systematically pulverized by masses of artillery. The infantry would merely occupy whatever was left. Though methodical battle methods were slow and cumbersome, the consensus among French and American officers was that by leveraging their national economies (to furnish, among other things, the vast amounts of ammunition required) they minimized risk and saved lives. They were also much easier to identify and explain (especially to amateurs) than the more sophisticated German approach. The US Army taught methodical battle as "fire and movement." One maneuver unit would fire while another moved and both received plentiful support from the artillery. Tactics were mainly linear and based heavily on Napoleonic ideas.

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[7] In 1874, General William T. Sherman complained to his old comrade Stephen A. Hurlbut about how completely the United States Army had, throughout their own careers, been shaped by the "principles and practices" of its counterpart in France. Quoted in Perry D. Jamieson, *Crossing the Deadly Ground, United States Army Tactics, 1865-1899* (Tuscaloosa AL, University of Alabama Press 1994) p. 3.

[8] It is also worth noting that many Irish-Americans deeply resented Britain's savage repression of the 1916 "Easter Rebellion."

They focused on securing one's flanks (typically on impassible terrain or adjacent units), adhering to detailed map graphics, and having all operations subject to tight central control. Centralized control was especially important to ensure the proper coordination of all fire support. Army officers educated mainly in rote procedures would execute highly detailed plans and operations. Their focus would be inward on procedure rather than outward upon the enemy. Even well before 1917, the US Army was predisposed towards a methodical doctrine. Ironically, it saw the more decentralized German approach, because it relied more upon the professional skills of its officers than the weight of its ordnance, as elitist and harking back to the old European military aristocracies whose abuses had caused so many people to flee to America. However, despite their widespread suspicion of "professional" soldiers, Americans held engineers in high esteem. President Thomas Jefferson founded the US Army's first formal school, the Military Academy at West Point in 1802 in imitation of the *Ecole Polytechnique*. Jefferson had actually visited the school during his stay in France and he regarded it as an excellent model for the United States Army to follow so as to free itself from the need to rely on the services of foreign experts.[110]

Given the US Army's near total ignorance of modern warfare in 1917, it is easy to see how it might have eagerly seized the first viable military doctrinal system held out to it. That of France was not merely available, it was also the natural choice. Thus in American military thinking the French model of war as chaos that must be tamed overcame the opposing (German) view that war as chaos that must be exploited. Nevertheless French doctrine did not triumph in the US Army without overcoming a good deal of opposition. Some officers argued that doctrine that relied on the superior military skills that a carefully selected and trained officer corps could provide might make sense for a nation that was likely to be fighting its future wars overseas, where time and distance would necessarily limit the material it could bring with it. Also, an adoption of the German emphasis on short but decisive wars could facilitate an American victory while the American public's support for the war was still high. These arguments were sufficiently persuasive that they eventually caused the 1941 edition of the US Army's *Field Service Regulations* (FM 100-5), which replaced the much more heavily French-influenced 1923 edition to incorporate large sections from the 1936 edition of its German counterpart, *Truppenführung* (or "Command of Troops").[111]

However, this success had already been rendered meaningless by the Army's 1929 publication of the *Manual for Commanders of Large Units*. This was a "straight up" translation of the French manual of the same name recently published in France. The US Army never promulgated it as "official" doctrine, but at a time when the Army could rarely engage in field exercises at even the regimental level, the clear, systematic, and concise instructions that the *Manual* supplied for the operations of divisions and corps were eagerly consumed. Thus the *Manual* became more than an official doctrine. It was what everybody read. It brought French-style doctrine to all levels of command.[112]

Also in 1929 year George C. Marshall took over the Army's Infantry School at Fort Benning and began to emphasize a French-style doctrine. The Army's Command and Staff College at Fort Leavenworth Kansas had already been doing this for some time. Many American officers would probably deny that the United States was ever a slavish imitator of France in matters military and would instead argue that America has evolved its own "way of war" to which no doubt the French have made some contributions but so have many others including the Germans. It is true that the doctrine that Marshall taught and has to a great extent continued to guide the Army today does differ from French post–1918 doctrine in a number of respects. For one thing, it puts great emphasis on offensive operations, something the French became reluctant to do after the catastrophic losses they had suffered in 1914-18. Even so, Marshall believed that effective command and control "presupposes that the leader knows the leader knows the location of all elements of his command at all times and can communicate with any element at any time." He also emphasized that to know and apply the proper "rules and procedures" could overcome the "friction" of combat. These were core principles of French doctrine and stood in sharp contrast to the much more decentralized German approach wherin the leader allowed his subordinates to carry out his orders in their own way. Leadership was by exception and assumed that the commander had enough trust in his subordinates to make close supervision unnecessary. Marshall was convinced that such an approach could never work for the hastily trained and organized American units that would most likely fight the next war. A professionally trained cadre of leaders could still enable an otherwise amateur army to fight well under a decentralized command system, as the Finnish Army would demonstrate in the "Winter War" of 1939-40 but to Marshall, and many other Americans, such a cadre smacked of "elitism." Marshall believed that an American army needed a clearly defined, concise "paint by the numbers" system that could be memorized and applied without much need for holistic thinking. With such a system it could win a war of attrition where God and victory would be on the side of the "big battalions" and "big industry." [113]

A NEW CITIZEN ARMY

Scarcely had the First World War ended when the United States began a demobilization that, in terms of its speed and thoroughness, dwarfed even that of the Civil War. From a peak strength of 3.7 million in November 1918, the Army plunged to an active strength of 200,000 as of 1 January 1920. The military buildup that had begun in 1898 was definitely at an end. For the post-war Army, Congress rejected the Army General Staff's Uptonian plan for an expansible force of 500,000 men organized in 20 half-strength divisions. Instead, it favored an alternative put forward by Colonel John McAuley Palmer. Palmer, a Pershing protégé, offered Pershing's view that the AEF had won the war for the Allies despite the bumbling Uptonians at the War Department and those ungrateful and back-stabbing British and French. The mere fact that the war had been won at all (however unexpectedly) seemed to justify in the mind of Colonel Palmer and many others the enormous human cost of sending untrained men under incompetent officers into battle, even against an already spent and demoralized enemy. The winning of wars by such means, despite the availability of more efficient and humane alternatives, was what Emory Upton had found so unconscionable when he witnessed it during the American Civil War. Nevertheless, in his concern about the danger of allowing professional soldiers to become dominant in American military and foreign policy Palmer had scored an important point. Such men could constitute a special interest group that might encourage foreign adventures to insure their continued employment. They might also press for a larger (and freedom threatening) Federal government that could float heavy military expenditures, justified or not. As a privileged class, professional soldiers might even use their positions to foist upon an unsuspecting public substantial expenditure on unnecessary policy or procurement "boondoggles." They might not even feel much pressure to acquire and maintain the military skills that were the "bread and butter" of their existence. In peacetime, such skills can easily become soft and evaporate. Their absence might be hard to detect, especially by a public that seldom participated in military affairs. Any wartime disasters that might result could easily be blamed on not enough money or public support. Palmer wanted to be certain that the nation would not go to war without genuine popular support (as opposed to mere acquiescence). A Swiss style citizen army subject to universal military training should do most of the fighting, according to Palmer. The Regular Army should confine itself to the supervision of peacetime training and the conduct of small and short-term contingency operations not requiring a mass mobilization. The Regulars would share the key leadership positions in a wartime army with members of the citizen force. Palmer's principal difficulty, however, lay in finding a means to synthesize the skills of the professional with the patriotism and disinterestedness of the citizen soldier.[114]

Congress adopted most of Palmer's ideas when it passed the National Defense Act of 4 June 1920. However, it would not agree to universal military training. Instead, it authorized a Regular Army of 280,000 and a National Guard expanded (on paper) to 435,000. The National Army was renamed the "Organized Reserve." The Guard and the Organized Reserve would provide Palmer's citizen soldiers who would fight the nation's major wars. Citizen officers, including some in the highest ranks, would command them. The Regular Army itself would have three armies and nine army corps, all organized on a territorial basis. These would replace the old territorial departments. Each army corps would get one Regular Army, two National Guard, and three Organized Reserve infantry divisions. Three additional Regular Army divisions (raising the total to 12) would be permanently stationed overseas. Congress would cease to dictate the composition of tactical units and would no longer limit infantry regiments to 15 companies each. In addition, Congress introduced a new pay system for enlisted men that would have seven grades. Grade 1 (master sergeant) was the highest, followed by Grades 2 (technical sergeant), 3 (staff sergeant), 4 (sergeant), 5 (corporal), 6 (private first class, or PFC), and 7 (private). Congress also specified how many enlisted men could occupy each of these grades. This tended to constrain the Army's organizational structures since Congress did not allow enough men in the higher grades to fill all the positions that the Army wanted. To reward skilled technicians who lacked leadership responsibilities, the Army designated them as specialists and allowed them to occupy higher pay grades while still ranking as privates or privates first class. Sergeant major and first sergeant ceased to be permanent ranks and instead became positions that were usually (but not always) filled by master sergeants.[115]

Finally, Congress also established an office of the Chief of Infantry, headed by a major general. Like the chiefs of the Army's other branches such as the artillery or engineers, the Chief of Infantry would supervise training; develop weapons and doctrine; represent the infantry's bureaucratic interests, and give it a professional image.

THE NEW INFANTRY REGIMENT

In 1919, while all these legislative maneuverings were in progress, the War Department asked General Pershing to examine the records of the AEF and to draw whatever lessons might be appropriate for the future. To perform the necessary studies and at the suggestion of his staff, Pershing appointed a number of review boards, all presided over by a "Superior Board" which would render the final report. In addition to charging the Superior Board with carrying out the War Department's request, Pershing also ordered it to explore the tactical and structural implications of the AEF's experience. The Board was very harsh in judging the Army's wartime performance. Special criticism was

leveled at the performance of the combat arms and, in particular, at the disastrous policy of filling the infantry with ill trained and marginally intelligent recruits. However, apart from these matters and a War Department request that it review its own functions, the Board focused most of its efforts on how to organize the postwar infantry division.[116]

Of the eight officers composing the Superior Board, four had commanded AEF divisions or larger units, one had been a United States observer of the German Army until April 1915, and most had held important staff positions. All had been heavily involved in organizational issues. For its evaluation of infantry organization an Infantry Board and a Machinegun Board assisted the Superior board. The sum of their efforts was a recommendation that the post-war infantry division have the same basic "square" structure as the AEF's 28,077-man 1918 division. At 29,200 officers and men the Superior Board's division was even larger. The Board retained most components of the AEF division in substantially their original form but it did recast the infantry. The Infantry Board had recommended retaining the old organization of only four rifle companies per battalion plus a machinegun company per regiment and a machinegun battalion per brigade but the Superior Board overruled it. Instead, the Superior Boarded opted to add a fifth (machinegun) company to each infantry battalion and to eliminate the brigade machinegun battalions and regimental machinegun companies. The motorized divisional machinegun battalion would remain. In lieu of its machinegun company, each infantry regiment would get a howitzer company. This unit was a combination of the old sapper-bomber and one-pounder gun platoons of the AEF infantry regimental headquarters company. Each of its three platoons would have one M1916 37mm infantry gun (the U.S. version of the French Puteaux gun) and two 3-inch Stokes mortars. One platoon could be attached to each infantry battalion, if required. Each platoon's task was to fire high explosive shells against enemy strongpoints that the artillery had missed. The gun would attack vertically faced targets (such as redoubts or pillboxes) while the mortars attacked horizontal targets (like entrenchments or foxholes). The Board was satisfied with the 37mm gun but considered the mortar's range and accuracy to be very inadequate and recommended that it be replaced as soon as possible. Ideally, its replacement should be a small howitzer that was readily portable and might, if its flat trajectory performance were good enough, replace the gun as well as the mortar. The howitzer company was so named in anticipation of the procurement of this weapon.[117]

The Board's other major changes mainly affected the staffs controlling infantry units. The Board concluded that while most AEF staffs suffered from a lack of experienced officers, those at division level and above were generally adequate in terms of their size but lower level staffs, especially those controlling regiments or battalions, were entirely too small. The reader will recall, that a major, assisted by a lieutenant (serving as adjutant), commanded an AEF battalion. The battalion's parent regiment would supply a sergeant major, a mail clerk, and a total of ten messengers and signalers from its headquarters company and would also furnish sections from its medical detachment and supply company. The signal battalion from the parent division would provide a telephone detail. By August 1918, each battalion also had a lieutenant to serve as intelligence officer and would get another lieutenant from its parent regimental supply company to serve as supply officer. By French or German standards all of these attached personnel provided ample staffing. In a French infantry battalion a major (or captain) was in charge. His only staff officers were two lieutenants, who acted as adjutant and intelligence officer, respectively, and there was also a surgeon. Enlisted support came from a battalion headquarters platoon under a senior sergeant. Most of the battalion's service support, as in the AEF, came from a regimental supply company. A German battalion headquarters had a captain or major (often a lieutenant) as battalion commander, assisted by an adjutant, a paymaster (a warrant officer equivalent clerk), and a surgeon. Sometimes there was an extra lieutenant to act as supply officer. By contrast, the command element of a British battalion was at least three times larger. A lieutenant colonel was in command and he had a major as his executive officer/chief of staff plus eight other officers and an attached chaplain.[o] Enlisted support came from a company-sized "headquarters wing" of about 150 men who operated staff, administration, transportation, signal, and medical sections.[118]

The AEF staffs had failed not because they were too small but because they lacked competent officers. Failure would have been most obvious at the battalion level where the staffs were smallest and where the skills required were those for which they were least likely to have been trained. For most of the junior AEF infantry officers, training had focused on making them acceptable platoon leaders who might eventually become passable company commanders. It was an operating assumption that either they would be dead or disabled or the war would be over before they could rise much higher. Hence, further growth potential was not contemplated. By contrast, the German and French systems usually started out with men who already had a year's enlisted experience or who had been officer cadets and were already familiar with basic soldier skills and even with squad/platoon tactics. Though they would only graduate as lieutenants, their training began in earnest with a study of the battalion and then worked

[o] These other officers included an adjutant and a medical officer (usually captains); plus a transport officer, a machinegun officer, a quartermaster, a signals officer, and two liaison officers (all lieutenants). Typically, only about seven or eight of these officers were actually present with the battalion at any one time. The signals and liaison officers were most likely to be absent.

upward and downward. This method produced officers who were not only well qualified for platoon or company command but also could assume higher responsibilities. The French and Germans needed fewer officers because they had proficient ones. Because they needed fewer officers, more care could be taken over the training and selection of the officers they had, thus making them better still. The NCO corps got stronger as well because fewer officers competed with it for responsibilities. Skilful officers also meant smaller staffs since each officer could be more efficient. Smaller staffs enjoyed a significant tactical advantage in their ability to operate faster than large ones.[119]

Despite the obvious advantages of the Franco-German system of selecting and training officers, the Superior Board concluded that such a model was not appropriate to an American style citizen army. (This was despite the high content of reservists in both the French and German officer corps.) Instead, the Board made an exception to the usual American practice of imitating the French and opted for the British practice of commissioning more officers with (individually) fewer skills. However, the Superior Board strongly endorsed a new French-designed staff system. The AEF had already adopted it at army level and above and, by the end of the war, was extending it to corps and divisions. Originally, the new system divided the staff into five sections of which the first was the adjutant's section for personnel administration, the second was for intelligence, the third was for plans and operations, the fourth was for logistics, and the fifth was for training. Each section was (at least in theory) equal to the others and had direct access to the commander through the chief of staff. In 1918-19, the training and the plans and operations sections were combined, thus reducing the total number of sections to four. The Superior Board recommended the extension of this system to the regimental and battalion levels even though the French considered it far too unwieldy for use below the division level. However, the War Department ultimately adopted the Superior Board's recommendation and U.S. military staffs at all levels have retained this basic structure ever since.

The Infantry Board's recommendation to solve the problem posed by incompetent infantry battalion commanders was not so much to improve their training or selection but to increase their rank. Henceforth, they would be lieutenant colonels rather than majors. The official rationale for this was that lieutenant colonels would bring more maturity, seniority, and experience to their jobs than majors would. The obvious difficulty, however, is that if all infantry battalion commanders were lieutenant colonels, then the infantry would need many more lieutenant colonels and would have to promote junior officers much more rapidly in order to obtain them. Thus an officer could reach the rank of lieutenant colonel well before gaining the additional maturity and experience that was the justification for making him a lieutenant colonel in the first place. However, the Superior Board wanted each battalion to have a major as well. Noting that platoons, companies, and regiments already had officers (non-commissioned officers in the case of platoons) designated as seconds in command, or executive officers, each lieutenant colonel commanding an infantry battalion (majors would still command battalions of other than infantry) should have a major as his executive officer. The Board justified its decision by pointing out that as the core of any combined arms force, an infantry battalion could expected to be supported or augmented by machineguns, field artillery, engineers, and even tanks. The battalion commander would have to be an able coordinator of all of these elements with that of his own unit and he needed more rank and experience to accomplish this. If he became a casualty, a mere company commander would not suffice to take his place; another field grade officer must perforce succeed him.

The remainder of the proposed battalion headquarters would include a captain who would constitute the third (Bn-3) staff section responsible for plans and training. In practice, however, the battalion executive officer functioned as the real S-3 and the S-3 officer merely assisted him. A first lieutenant served as Bn-1, or adjutant, and would also command the battalion headquarters detachment. Another first lieutenant would be Bn-2 or the intelligence officer. The regimental supply company would provide a Bn-4. The Board's proposed battalion headquarters would also have 72 enlisted men, a substantial increase over what an AEF battalion would have had. Many of the extra men were assigned to a scout section and an observer section.[❶] This represented a dramatic increase in the battalion's tactical intelligence collection capabilities, an area in which the AEF battalions had been notably deficient.[120]

The Board also recommended that the staff of an infantry regiment expand from five officers to ten (plus three attached chaplains). It also proposed a much smaller regimental headquarters company with four officers and 183 men (without the pioneer, sapper-bomber, or one-pounder gun platoons). The regimental staff would include a munitions officer, a gas officer, and even a postal officer (prior to 1920 these did not exist below the division level).[121]

The Superior Board submitted its report in July 1919 but General Pershing was dissatisfied with its conclusions and did not release it for over a year. He concluded that the Board had done its work too soon after the close of

[❶] The scout section was to have a sergeant, four corporals and 20 privates. The observer section would get a sergeant, two corporals and 12 privates. There was also a signal section of four sergeants, five corporals and 15 privates. This replaced the old telephone detail and the messengers, orderlies, and signalers that used to come from the AEF regimental headquarters company.

hostilities and had allowed the special conditions that existed at the time to unduly influence its findings. Pershing believed that a division could not be larger than 20,000 men and still be mobile enough for future battlefields. He had been advocating a triangular division of 16,875 built around three infantry regiments plus a regiment of 75mm guns. Rifle companies would be of the AEF type but a battalion would have only three of them plus a machinegun company. The latter would increase to 250 men both to improve its mobility and to create a fourth machinegun platoon. While the Superior Board's report remained in limbo, the Army General Staff, in concert with officers from the Army Infantry School, had proposed its own division of 24,000 men. Like the Superior Board's division, this one would have a square configuration (four infantry regiments). However, the heavy 155mm howitzers of the division artillery would be removed to corps command, and the infantry regiments themselves would be much more like General Pershing's. Their battalions would each muster three 200-man rifle companies and one machinegun company. Infantry School officers had pointed out that the infantry of any army must be considered its basic combat arm and that all other arms must be supportive of its requirements. Since a future war in which both sides enjoyed secure flanks, as in France, was considered unlikely, the Infantry School opined that in the future the infantry would operate by utilizing a combination of both position and open warfare. Thus the firepower and staying power of a square division would still be needed even though tactical mobility would be more heavily stressed. However, a "slimmed down" square division could still retain adequate mobility despite the four-regiment structure. Nevertheless, Pershing stuck by his triangular division and attempts to resolve the differences between himself, the General Staff and the Infantry School failed. Therefore, Secretary of War Newton Baker intervened, set up a new board, called the Special Committee, and directed it to reach a solution.[122]

The Special Committee was generally composed of younger officers who had held key staff positions during the war, though it was headed by William Lassiter, a former division commander and member of the Superior Board. Another member was Captain George C. Marshall who, with Colonel Fox Conner, served as General Pershing's representatives. The Special Committee met between 22 June and 8 July 1920 and conducted extensive studies and hearings. Testimony from about 70 officer witnesses led to the conclusion that the AEF division had indeed been too large. It nearly equaled the size of an army corps but its lack of a corresponding command structure seriously impaired its flexibility. Discussion then focused on whether a future division should have a triangular or square structure. Although the Committee agreed that a future repetition of the recent fighting in France was unlikely, future enemies would still be deploying their forces in depth in both attack and defense just as the Germans had done. To defeat such opponents, a square division, which could deploy two infantry regiments forward and two back, was desirable. This left the question of whether a square division could conform to the 20,000-man limit advocated by General Pershing. Brigadier General Hugh Drum proposed replacing the division machinegun battalion with a light tank company, cutting the size of the rifle and machinegun companies in the infantry regiments, and reducing the number of artillery and support troops. Mobility would still be inferior to that of a triangular division but sufficient for most situations. Although Pershing, Connor, and Marshall continued to press for a triangular division, they finally settled for the smaller square one. It totaled 19,997 officers and men, barely within Pershing's upper limit.[123]

After considerable labor had been expended over the details, tables of organization for the new division were officially published on 15 April 1921. The infantry regiments became much more self-sufficient than in 1918 and incorporated all of their own machineguns and communications. Brigade machinegun battalions disappeared and the division signal battalion became a company. Other reductions in the division's supply and transport elements saved enough manpower to form a labor unit (the division service company) that could take over many of the work details that the riflemen had to perform in the old AEF divisions. Service battalions operating at corps and army levels replaced the AEF pioneer regiments. Although the new division had enough support units substantially reduce the time its infantry would have to spend on non-infantry tasks its infantry strength would be dramatically reduced. With only three rifle companies and three rifle platoons per company an infantry battalion in the 1921 division would have only nine rifle platoons vice the 16 in an AEF battalion. With two rifle companies forward and one back, a 1921 battalion could attack on a 400 to 800 yard front. Its defensive frontage would be about twice as great.[124]

Within the rifle platoons, uniformly organized sections and squads supplanted the old AEF "do-it-yourself" system of cobbling together tactical squads from dissimilar rifle, automatic rifle, hand bomber, and rifle grenadier sections. The War Department (and later the Chief of Infantry) undoubtedly hoped that the resulting simplification of the rifle platoon's structure would make it much easier to command. A new multi-roled rifle squad would be the basic fighting element. It was still the old Uptonian organization of a corporal and seven privates but it now had its own Browning Automatic Rifle (BAR) and its own rifle grenadier (with a grenade launcher attached to his rifle). Despite its inaccuracy and slow rate of fire, the rifle grenade launcher was still the only weapon in the regiment, outside of the howitzer company, that could lob exploding projectiles into horizontally faced targets such as machinegun nests. The BAR gave the new squad some much-needed automatic firepower. In keeping with the

tactical importance of his weapon, the BAR gunner was rated as a T6 (Grade 6) "technician", though he would probably rank as a PFC as well. Another man assisted the BAR gunner in carrying his ammunition and could take over his weapon if he became a casualty. Two of the squad's riflemen were also trained as scouts. The senior private in the squad was trained to take over if the corporal became a casualty. For ammunition, the squad was supposed to carry 100 rounds per rifle and 480 for the BAR but it would normally receive additional ammunition just prior to entering combat. Hand and rifle grenades would be issued as well but World War I experience showed that, despite their usefulness in action, grenades tended to be discarded by the already heavily laden troops. The troops had received little training in throwing the hand grenade and tended to lack an appreciation of its value. Three rifle squads, led by a sergeant and assisted by a corporal (serving as "guide") made up a rifle section. This section replaced the old AEF "half-platoon." Two sections plus a platoon leader, a platoon sergeant, and four runners comprised a rifle platoon.

While the new platoon's six uniformly organized squads led by two section leaders constituted a great simplification of the AEF organization; they must still have been a handful to control. The usual platoon formation for movement or attack was a column of sections (one section following the other) with each section arranging its three squads in a line parallel to the enemy's front and perpendicular to their own direction of movement. Alternatively, the sections could be arranged in line, each section's three squads forming a "vee." In this way, the platoon would have a four-squad front with two more squads in trace. For the squads themselves, two principal formations were recognized, a column for movement and a wedge or "vee" formation for combat. This latter formation covered a front of 20 to 40 yards. The corporal would be in the lead with his BAR man directly behind him. Three riflemen would be echeloned to his left and three more to his right. When approaching the enemy, the rifle company would advance with two of its platoons forward and one back. As they drew nearer the enemy, the squads in the forward sections of the two forward platoons would then each detach a scout who, with the scouts from the other squads would form a six or eight-man skirmish line about 100 to 300 yards ahead of the company.[125]

The headquarters of a rifle company was somewhat larger than what it had been in the AEF though it functioned in much the same way. The company executive officer was present only in wartime and would continue to function more or less as the Baker Board had prescribed. Except for his principal task of ensuring that the company commander had an experienced and qualified successor, most of his duties were well within the competence of a good company first sergeant. However, unlike the French, German, and many other armies, the US Army did not consider a mere platoon leader as fit to take command of a company on short notice. The American reliance on executive officers was really an organizational solution to training/selection problems with platoon leaders and NCOs. In spite of this, the overall quality and training of American non-commissioned officer corps rose significantly after the war, though its responsibilities did not significantly increase.[126]

The number of enlisted men in the 1921 rifle company headquarters had increased since 1918 despite the fact that they were serving a smaller unit (see Appendix 3.1). They included six spare privates whose only purpose was to bring the company's enlisted strength to 200. Neither personal weapons nor specific duties were officially assigned to these men although since companies rarely had all their enlisted men actually present and fit for duty, the question of how to employ "spare" men seldom arose. For combat, the Special Committee expected rifle company headquarters to operate as a captain's group and a rear echelon, just as it had done in 1918.[127]

Although the fourth company in each 1921 infantry battalion was now a machinegun company it assumed the letter designation of the old rifle company that it had replaced. Thus, in a given regiment, Companies A, B, C, E, F, G, I, K, and L remained rifle companies while Companies D, H, and M became machinegun companies. Each of these machinegun companies, however, would have only two platoons. This was aimed not so much at economizing on the company's manpower as it was at increasing its mobility. The idea was to reduce the length of the battalion's march column and, through this, that of its parent division. March column length had a direct impact on tactical mobility and flexibility. A short column could move on or off a road and bring all its elements into action much faster than a long column could. Due to its vehicles and animals, a machinegun platoon took up nearly the same road space as a rifle company.[2] Thus, cutting a machinegun platoon could significantly shorten a battalion's march column and increase its tactical agility. It was hoped that the mobility of the machineguns themselves could be further enhanced by the addition of two more ammunition bearers to each machinegun squad. However, the bulk of the machineguns' ammunition would still have to move in the same heavy carts that the AEF had used. A machinegun company headquarters was similar to that of a rifle company except that in addition to an executive

[2] If train vehicles are included (though all of these actually belonged to the supply or service company) the differences become less pronounced. A rifle company's train vehicles (both combat and field trains) would approximately double its column length from 95 to 185 yards. A machinegun company's train vehicles would increase its column length from 205 yards (90 yards for each platoon) to 315 yards. A full battalion would have a column length of 1,030 yards, of which all its combat and field trains would use 500 yards. See War Department Tables 26W "Infantry Battalion (War Strength)," 28W "Rifle Company, Infantry Regiment (War Strength)" and 29W "Machinegun Company (War Strength)" all dated 15 April 1921.

officer (authorized only in wartime) it included a reconnaissance officer and reconnaissance sergeant. The ammunition officer of 1918 was gone. His job did not really require a full time officer (even in wartime). As in 1918 there was also a company train that included the company's motorcycle messenger (T6) but no supply vehicles.[128]

Instead of cobbling together battalion headquarters detachments from men seconded from the regimental headquarters company (and elsewhere) as the Superior Board had proposed (and as had been done by the AEF) the Special Committee chose to accommodate the same people in battalion-level headquarters companies (see Appendix 3.3). Such a move would insure their administrative independence from the regimental headquarters companies. Technically, the six officers that made up the battalion headquarters would not belong to the new headquarters company, though they would still be maintained and administered by it. As recommended by the Superior Board, the battalion commander would be a lieutenant colonel but he would only have an executive officer (a major) during wartime). First lieutenants headed his four staff sections. Of these the Bn-1, or adjutant, also commanded the headquarters company. With the assistance of the communication platoon commander, he was also responsible for establishing the battalion command post and ensuring that communication was maintained with the regimental command post, adjacent battalions, and any supporting artillery. He was also in charge of prisoners and stragglers and the distribution of replacements. The Bn-2 or intelligence officer also headed the intelligence section of the battalion headquarters company. The Bn-3 of course dealt with plans and training. He was also expected to be the tactical specialist who wrote and distributed the orders, arranged troop movements and security measures. The Superior Board had not recommended the inclusion of a Bn-4 or supply officer because supply officers were supposed to come from the supply (now renamed the service) company. However, the Special Committee decided that battalion supply officers should be members of the respective battalions that they served rather than of the service company. This was probably not only because their battalions should have their first loyalty but also because a Bn-4 would be coordinating the efforts of his own battalion's company cooks, supply and mess sergeants, horseshoers, stable orderlies, and so forth, in addition to vehicles and personnel that the service company would furnish.

The headquarters company headquarters included the usual company administrative and support personnel but since it had no tactical functions its members also formed the headquarters company's rear echelon. Together with the rear echelons from the rifle and machinegun companies, it constituted the rear echelon of the battalion. During combat, the rear echelon remained in the battalion bivouac area together with any attached field kitchens and supply vehicles. It is worth noting that a staff sergeant (with horse) served as battalion sergeant major. Mere sergeants acted as first sergeants and platoon sergeants in all the companies. For duty with battalion headquarters the company headquarters provided an automobile driver (or chauffeur T5) although no automobile had yet been procured for him to drive. One cook (a T4) was provided for the officers' mess in wartime only.

The Intelligence section operated under the Bn-2 while being under headquarters company administration. It was essentially the same organization proposed by the Superior Board. It would man battalion observation and listening posts and conducted limited patrolling. It would also send men to accompany the larger patrols drawn from the rifle companies so they could impart the benefits of their expertise and also make reports directly back to the Bn-2.

The battalion communication platoon replaced the old regimental signal and orderly detachments and the divisional telephone detail. The officer platoon leader and his platoon sergeant/signal electrician shared responsibility for battalion communications with the adjutant. The message center dispatched, coded, decoded, and recorded all messages. It also determined the priority of each message and the manner in which it would be transmitted. The section also handled the battalion's carrier pigeons. The courier section was a messenger pool working under the close control of the message center. All of its members had horses or mechanical transportation, though travel on foot was the norm in forward areas. For situations such as crossing an area subject to heavy shellfire, or where unusually rapid movement was required, a system of runner posts, under which different runners relayed a message from post to post, would be established. The visual signal section operated lamps, semaphores, and signal pistols. The wire section employed a reel cart with five miles of wire, two four-line switchboards, and five telephones one of which was for line maintenance. The section primarily served the phone lines between battalion headquarters and regiment. It did not normally include the rifle or machinegun companies within its network. In addition to voice traffic, the section's wire lines could carry Morse signals sent through buzzer phones.[129]

The radio and panel section requires more discussion. The panels were visual signals used to communicate with aircraft. They were given to the radio section as an additional duty since radios and panels were used only intermittently. Radios at this time were heavy but delicate affairs. Even the lighter ones had to move in carts similar to those used for machineguns. By the middle of the 1920s, three types were in use by the infantry. Although voice radios (called radiotelephones) existed, the infantry radios were all radiotelegraph systems, meaning that they were

key operated and employed Morse code (or CW). The heavy SCR (Signal Corps Radio)-130, with a range of 60 miles served brigade headquarters. The lighter SCR-79A, with a transmission range of about 30 miles, replaced the unsuccessful SCR-105 during the mid-1920s as the regimental radio. The SCR-77 was the battalion-level radio. Light enough for two men to carry over short distances, it was supposed to have a five-mile range, though it often did not reach much beyond a mile. All three of these systems drew their electric power from unreliable storage batteries that only the division signal company could recharge. CW transmissions were relatively easy to encrypt but the process of composing, sending, and receiving them could be even slower than transmission by messenger. Hence, radio communication tended to be regarded as merely supplementary to other means.[130]

The headquarters and headquarters company of the infantry battalion's parent infantry regiment (see Appendix 3.4) was in many respects just an enlarged version of its battalion counterpart. One major in the regimental headquarters served as regimental machinegun officer. His task was to supervise the training of the regiment's three machinegun companies and to advise the colonel on how they should best be used. A second lieutenant (in wartime only) assisted him. Captains filled the principal staff positions. The Special Committee also placed the R-4, with a lieutenant munitions officer to assist him in the regimental headquarters and not in the service company.

The regimental intelligence "platoon" was actually smaller than a battalion intelligence "section" but it included an "office force" that could provide topographical drafting, interrogation andtranslation services.

The regimental pioneer platoon was the only combat support platoon that the Special Committee left left within the regimental headquarters company. Though it was much smaller than its 1918 counterpart, its duties remained essentially unchanged. Since it no longer had to furnish signals detachments to the battalion headquarters, the regimental communication platoon was much smaller than in 1918. It resembled a larger version of the communication platoons that the Special Committee had organized within the battalion headquarters companies.[131]

The new regiment's howitzer company was substantially as prescribed by the Superior Board (see Appendix 3.5). The War Department stated that the company's organization would be provisional, pending the adoption of an infantry howitzer. Each of its platoons could employ one gun and one mortar. Company headquarters held three additional mortars in reserve (with the service company presumably providing the transportation for them). How those mortars were to be used is uncertain. Perhaps the War department or the Special Committee believed that the mortar sections could man two mortars each in situations where ammunition could be stockpiled at the gun positions and tactical movement was not required. Unlike in the AEF, the mortars had carts of their own, similar to machinegun carts. The gun and mortar (complete with their carriages) each weighed about 340 pounds. Each round of mortar ammunition, packed, weighed nearly 15 pounds and the two mortar carts carried 72 of them. About twice as many rounds of 37mm ammunition were carried for the gun. These ammunition allowances were considered minimal and ammunition conservation was stressed. The mortar and gun sections would each man only one weapon (one mortar per howitzer platoon was also kept in reserve) with a gun crew of ten.[132]

In the regimental service company the headquarters platoon was just an umbrella for the regimental staff, supply and band sections. The staff section mainly supported the regimental adjutant (R-1) but also did clerical work for the R-3. The supply section manned an office for the R-4 but it also provided a repair group, a distributing point group, and a procurement group. The R-4 office (a lieutenant, a master sergeant, and several clerks) maintained records, submitted required reports, forwarded requisitions, and maintained a journal and a situation map. The repair group operated a shoe repair machine and included a wheelwright to repair regimental vehicles. The distributing point and procurement groups supervised the handling all classes of supply except ammunition. The procurement group (a lieutenant and a master sergeant) received supplies on behalf of the regiment at the division supply point and then arranged for its transportation to the regimental supply point. There, the distributing point group (a lieutenant, a supply sergeant, and a couple of storekeepers) would supervise the receipt, storage and issue of incoming supplies.

The transportation platoon held the bulk of the service company's manpower. Like its AEF predecessor it incorporated a transportation section for each battalion and and the regimental headquarters and howitzer companies. The platoon's vehicles constituted the regiment's trains and, just as in the AEF, served interchangably between the combat train (mainly carrying ammunition) and the field train (carrying almost everything else). The transport platoon's standard vehicles were its four-mule combat (ammunition) and R&B (rations and baggage) wagons. The normal payload for each of these vehicles was 2,500 pounds (though loads of up to 4,500 pounds were occasionally carried). In order to allow for relief drivers each four-mule wagon had two wagoners (drivers). Despite the fact that the United States was already the world's premier manufacturer and user of motorcars and trucks, the transportation of its infantry regiments continued to rely almost entirely on draft (or pack) animals. However, the greater efficiency of motor transportation was recognized and better ways of utilizing it were being explored. Trucks saw increasing use in moving supplies at all levels above the regiment. On the other hand, (as in 1918) the available trucks were underpowered and offered only a very poor level of cross-country mobility. They thus depended heavily on trafficable road networks with stiff traffic and circulation control. Animal transport was still

superior off the roads or on bad roads or roads that had to be shared with foot troops. Under extreme road or cross-country conditions, only pack mules would be able to move but pack transportation demanded a significant increase in men and animals (over draft transportation) to ferry the same payload. Animal transportation could cover up to 30 miles a day for limited periods. Trucks could cover 100 to 140 miles a day and were considered at least three times as efficient as draft animals (much more so in the case of pack animals) in terms of the men and materiel required to move a given payload a given distance. Along with rail, or water transport they would push supplies far enough forward so that animal transportation units would not have to move it more than a day's journey to get it to the troops. The Special Committee calculated the transportation requirements of an infantry regiment based on what it believed that the regiment's routine daily unit requirements would be. The Special Committee planned to deal with extraordinary requirements (such as those imposed by heavy combat) by reinforcing the regiment's transportation platoon with transportation units from higher echelons.[133]

As a result of combat experience, the regimental medical detachment in 1921 was now nearly twice as large as it had been in 1918 even though it supported a significantly smaller regiment. It could now assign two medical officers to a battalion section. As in 1918 it operated as four sections (one regimental and three battalion). Appendix 3.7 shows an arrangement that was probably typical. Each battalion section would provide two medical aidmen per rifle or machinegun company plus an aid station and up to three stretcher teams. One aidman would follow each rifle company's two forward platoons, giving emergency aid to wounded men as they fell out. He would then direct "walking wounded" to the aid station while tagging the others for pick-up by stretcher parties. In battle members of the regimental band would act as additional stretcher-bearers.[134]

In a 1921 infantry division two of these infantry regiments would constitute an infantry brigade. Brigade headquarters had twice as many officers (ten rather than five) as its AEF counterpart plus a full headquarters company similar to that of an infantry regiment (but with its own transport section and no pioneer platoon).[135]

Of course, the reader should remember that this entire organization was largely notional and (except for experiments) would actually exist only in time of war. In peacetime, most regiments would be manned under peacetime tables that would only allow enough men for training purposes and for operational requirements short of actual war. These tables actually appeared in November 1920, or before the details of the wartime tables had actually been worked out. They did, however, resemble the war tables manned at about 50% of their full strength. In terms of their size these peacetime units tended to resemble the organization tables used by the Army prior to 1917.[136]

Peace strength rifle companies would get only two platoons each. Each platoon would still have two sections but a section would get only two squads. Company, platoon and section headquarters were all cut back (see Appendix 3.8) and of course there were no executive officers. The company supply sergeant would have to double as gas sergeant. Interestingly, however, company headquarters kept four of its six spare privates.[137]

Though each machine gun squad lost four men, the machinegun company kept both of its platoons. (It could hardly afford not to.) Platoon headquarters were sharply reduced. Company headquarters absorbed the company trains but lost its reconnaissance officer and reconnaissance sergeant and many other members.[138]

Battalion headquarters and headquarters company was reduced even more sharply. The staff would consist of just the battalion commander himself (who could be a major or lieutenant colonel) and one luckless first lieutenant who was supposed to cover all the staff positions and act as headquarters company commander and battalion communication officer. In practice, he functioned as the adjutant, leaving most communication matters to the platoon sergeant of the communication platoon. Logistical matters could be referred to the service company and the commanding officer himself would deal with operational and intelligence issues. Since the headquarters company headquarters had lost its cooks, its personnel would have to mess with one of the rifle or machinegun companies. However, since the rifle and machinegun companies had lost their barbers, tailors, and cobblers those in the headquarters company would provide these services for the entire battalion. Despite all these cuts, the intelligence section remained relatively large. The communication platoon combined its couriers and message center sections.[139]

The regimental headquarters and headquarters company, although reduced in similar proportion to its battalion counterpart did retain a small staff, including a machinegun officer (Appendix 3.9). One officer would assume both R-2 and R-3 functions, while another performed additional duty as regimental gas officer. The headquarters company did have a company commander who was also the communication platoon leader but was not considered a regimental staff officer. He had a small "housekeeping" staff of enlisted men to assist him. The communication platoon itself remained relatively large. The intelligence platoon retained much of its office force but lost its "field force" except a corporal and three privates, each of whom could act as a trained scout for one of the battalion's rifle companies. The pioneer "platoon" became just a squad (led by a corporal) but was armed with pistols rather than rifles.[140]

At peace strength, the howitzer company retained all its equipment (some of which had to be placed in storage) but lost one of its three platoons. One of its two remaining officers served as company commander while the other could take charge of any detached platoon.[141]

Though severely reduced both the regimental service company[❸] and medical detachment retained their basic wartime structures and functions.[142]

Under the National Defense Act of 1920, the Regular Army was supposed to maintain a total of 12 peacetime infantry and three cavalry divisions. Nine of the infantry and all the cavalry divisions would be stateside forming the nucleus of nine "army corps." The three remaining infantry divisions would reside permanently overseas in the Canal Zone, Hawaii, and the Philippines, respectively. Stateside, the 2nd Division would be maintained at wartime strength both as a rapid reaction force and to conduct experiments with the 1921 division structure. The infantry itself totaled 65 regiments (numbered 1 through 65) in 1920. These included the four provisional Philippine Scout regiments, originally organized in April 1918. From 1920 they became known as the 43rd, 45th, 57th, and 62nd Infantry and replaced previously disbanded non-Filipino wartime-only units that had carried the same numbers. Likewise, the old Puerto Rican regiment, which had existed without a number since 1908, became the new 65th Infantry.[143]

These 65 regiments constituted a very respectable force, indeed much more respectable than what either Congress or the public was willing to pay for. The belief that there would be no more major wars, the creeping realization of just how expensive the last war had really been, plus a wave of isolationist and antiwar sentiment all combined to persuade Congress to enact drastic cuts in the Army's budget and authorized manpower. In late 1921, these cuts caused the Army to deactivate 18 infantry regiments. Eight more followed in 1922 and one in 1927. The Army's actual end strength dropped from a peak of 230,000 (out of an authorized strength of 280,000) in 1921 to less than 149,000 in 1922. Falling again to 133,000 in 1923, it never rose above 143,000 until 1936. The War Department itself further weakened the infantry in order to strengthen other arms that it considered more important. For example, it sacrificed the freshly created Philippine Scout 43rd and 62nd Infantry in order to create cavalry, coast artillery, engineer and other support units. Five infantry battalions had to deactivate in 1930 to meet Air Corps manpower demands. Between 1920 and 1932 the combined effect of all these cuts reduced the infantry branch by 63% or from 110,000 to a little over 40,000. Most of the 38 surviving infantry regiments could exist only at strengths well below what even the November 1920 peacetime tables prescribed. Even the Army's elite war strength experimental and demonstration unit, the 29th Infantry was not immune. Stationed at Fort Benning, it had the only active howitzer company in the Continental United States (other regiments had no more than howitzer platoons) and was one of only two regiments to actually field a headquarters company rather than a headquarters detachment. However, even this much-favored regiment could field only two active battalions and the same was true of at least 13 other regiments. Many regiments could only maintain their battalions at enlisted strengths of 300 or 320 apiece. The overall enlisted strength of some regiments fell to 830 or less. The two battalions in the 15th Infantry in China, for example, had only two rifle companies and a half strength machinegun company apiece. Other overseas regiments did better, however. For example, the 14th and 33rd Infantry in the Canal Zone were relatively strong at 1,724 enlisted each. The surviving Philippine Scout regiments (the 45th and the 57th) stayed fairly flush also. Regiments attached to Army schools used special organizations designed to fit the needs of those schools. However, even three-battalion regiments in the Continental United States rarely totaled more than 1,000 men. Of the nine Regular Army divisions in the Continental United States, only three (1st, 2nd, and 3rd) were even theoretically manned at their full peace establishments of just under 11,000 each. The 4th, 5th, and 6th Divisions retained only skeletal infantry regiments with most of their other elements inactivated. The 7th, 8th, and 9th divisions had no troops assigned to them at all and existed only on paper. Overseas, the Hawaiian Division was generally complete but the Panama Canal Division amounted to little more than a brigade, and the Philippine Division lacked most of one infantry regiment and more than half its artillery. Reserve forces fared just as badly. The National Guard could not maintain more than half of the 435,000 men it was authorized. The military skills of the 100,000 officers in the Organized Reserves were becoming stale because there was no money for refresher training. Enlisted (non-National Guard) reservists hardly existed at all because no one had budgeted any money for recruiting them.[144]

Such stringent financial conditions certainly retarded but by no means halted the Army's further progress in experimentation and reorganization. One of the earliest projects was to find a replacement for the unsatisfactory Stokes mortar and the 37mm gun of the howitzer company. Initially, the Army designed a dual-purpose 2.24-inch (57mm) gun-howitzer. This weapon could fire a six-pound semi-armor piercing shell at low angle or lob a 10-pound high-explosive shell for high angle work. Testing showed that the six-pound shell lacked a sufficient bursting charge while the 10-pound shell was inaccurate and tumbled in flight. The biggest problem, however, was to design

❸ It should be noted that each battalion train section provided four field kitchens and four baggage wagons for sharing among five companies. Two of the combat wagons in each battalion section were for the machinegun company. The third would support all three rifle companies. The howitzer and headquarters companies shared the same train section

a carriage within a reasonable weight limit that would permit both low and high angle firing. After the gun burst during a firing trial, the Army abandoned its search for a dual-purpose weapon but continued to pursue single purpose weapons. It rolled out a prototype mortar in 1922 and a modernized 37mm gun in 1925. Compared to its 1916 predecessor the 1925 37mm gun offered a better carriage and a longer barrel that allowed the use of more powerful ammunition but its weight rose to 360 pounds. The 1922 "mortar" was actually a small breech loaded howitzer with a rifled barrel, a wheeled carriage, and a split trail. It fired a 12-pound high explosive projectile comparable to that of a 75mm gun. However, only high angle fire was possible and its effective range was limited to between 400 (later 300) and 1,800 yards. For traveling, the mortar had a small 215-pound caisson and limber drawn by a mule. By the summer of 1927, three prototype guns and seven mortars had been built. Standardized as the 37mm infantry gun M1 and the 75mm infantry mortar M1, they were issued to the 29th Infantry at Fort Benning for extensive testing.[145]

While it pursued improvements in the infantry's firepower the Army did not neglect its mobility. In 1925 it introduced a combined water and ration cart that would save one vehicle and driver from each company field kitchen. An examination of the military applications of various commercial motor vehicles led to the tentative adoption of a version of the T-35 Holt tractor, essentially an agricultural vehicle that could haul a 2,000 pound payload in a trailer at up to 10 miles per hour. The Army also tested an improved escort wagon (for rations and baggage) and new infantry and machinegun carts that were about 100 pounds lighter than those that the AEF had used. Additionally, it looked at ways of reducing a soldier's marching load which World War I experience had proven to be excessive.[146]

The Army constantly updated the organization of the war strength infantry regiment throughout the inter-war period even though, until the mid-1930s most of the changes could only exist on paper. However, the changes made in 1927 were fairly significant. The regiment actually got smaller even though its combat power increased. Its rifle companies changed only slightly (see Appendix 3.10).[147]

Of more importance was the addition of a third platoon to each machinegun company (see Appendix 3.10). Experience in numerous tactical problems had highlighted the fact that eight guns was not enough to provide flank protection and fire support in both offensive and defensive combat. The doctrinal requirement (and practical necessity) to employ guns in pairs further exacerbated the problem but even more compelling was the recognition of the need for additional machineguns to provide anti-aircraft protection. For this reason the new third platoon would receive heavier .50-caliber machineguns, as soon as any were available.

Although a new machinegun platoon would add more than 100 yards to its parent battalion's march column Army planners by 1927 appear to have concluded that this was not so great a drawback as they had thought it to be a few years earlier. Organization tables no longer tracked column lengths by this time. However manpower conservation was still important and the planners were careful to more than offset the manpower requirements of a third machinegun platoon per battalion (which would be configured in exactly the same way as the other two) with economies in the machinegun companies themselves and in other elemts of the regiment. The use of more efficient vehicles in regimental and division level transportation also helped. Additionally, the Army sought to increase the machinegun companies' ability to defend themselves by equipping a small portion of their personnel with rifles. Machinegun strength had further increased by 1931 with the addition of 12 spare guns to each battalion. These would be maintained by the machinegun company but manned by the rifle companies in "defensive" situations.[148]

The biggest change in the battalion headquarters company (see Appendix 3.11) was the reduction in the size of communication (signal) platoon. This was accomplished by combining the courier and message center sections and the radio and the visual signal sections. The battalion intelligence platoon began to develop its own "office force" by sacrificing five scouts and two observers to gain a staff sergeant and a topographical draftsman. The commanding officer's driver was allocated a cross-country car though nothing like this was actually in service in the Army at this time. The Army was experimenting with several commercial vehicles that seemed to meet the requirements of this type. A motorcycle with sidecar would have been the authorized substitute.[149]

Changes in the regimental headquarters company (see Appendix 3.12) changes paralleled those in the battalion headquarters companies (including a smaller communication platoon).[150] However, the regimental band, now reduced to the more reasonable strength of a warrant officer and 28 men, had been removed from the service company. Not all regiments would have bands. Those that did would place theirs under the regimental adjutant who would attached them to one of the companies for administration and messing.

The regimental service company headquarters was reduced slightly. The staff section of the headquarters platoon remained unchanged but the planners added more cobblers to the supply section so that, in addition to its other functions, it could handle shoe repair for the entire regiment. This allowed the elimination of company-level cobblers and thus saved a total of 10 men per regiment. The use of combined ration and water carts in the field kitchens and the removal of most of the spare wagoners made it possible to effect numerous economies in the transportation platoon of both men and vehicles. Although a battalion had more machineguns it was actually

allowed fewer combat wagons (four rather than five) but it would get an additional R&B wagon. In view of their responsibilities the chiefs of the transportation sections (assistant wagon masters) were made sergeants rather than corporals.[151]

The howitzer company headquarters received an executive officer and a reconnaissance officer (see Appendix 3.13). A reorganization of the howitzer platoons gave them separate gun, mortar and ammunition squads.[152]

EXPERIMENTAL REGIMENTS

Naturally, all of these changes directly affected only the (modified) war-strength 29th Infantry. The peacetime tables of November 1920 and the local modifications to those tables remained essentially unchanged. However, trials of new organizations continued. The 29th Infantry tested an experimental howitzer company utilizing the new M1 37mm gun and M1 75mm mortar during 1928-29. With five officers and 197 men, it was nearly twice as large as a standard company but with three guns and six mortars it did not operate twice as many weapons. However, it could carry some 288 rounds for each 37mm gun (or twice as many as a standard company) and for each mortar it could lift 108 rounds (rather than the usual 72). One 11-man gun squad, two nine-man mortar squads, and an 11-man ammunition squad made up each of its platoons. The company also included its own telephone squad (12 men). Road space for the experimental organization was said to be 100 yards greater than for a standard howitzer company.[153]

By this time, motor vehicle technology had advanced to the point where the cross-country mobility of even commercial cars and trucks had greatly improved. In response to this development, in 1929, the War Department authorized the experimental motorization the 34th Infantry at Fort Eustis. Of course motorization in this context meant little more than replacing the regiment's animal transport with cars and trucks. It did not mean that there would be sufficient vehicles to simultaneously lift the entire regiment. Instead, the 34th Infantry would receive an assortment of 91 (mostly commercial types) motor vehicles and eight motorcycles. The type and number of vehicles provided was determined much more by how much funding the War Department could scrape together than by any doctrinal or structural considerations.[◴] The regimental commander was expected to distribute his vehicles as he saw fit and to test them against one another in a variety of roles and situations.[154]

Finally, the Infantry Board conducted the first phase of a series of field tests of experimental organizations for the infantry battalion during the summer and fall of 1929. The 29th Infantry was the testbed and the Fort Benning military reservation (and home of the Army's Infantry Branch) the laboratory. The objective was to explore ways to increase a battalion's combat power by augmenting and/or redistributing its automatic weapons. Road space considerations would be secondary. The tests would consider only the weapons and equipment that already existed or were expected to be in service in the near future. The initial approach was to use a "building block" system under which Infantry Branch planners would assemble battalions from varying mixes of (at first) experimental rifle and machinegun companies. Initially the experimental rifle company a standard 1927-28 rifle company with a fourth rifle platoon. At first, experimentation focused on the company's automatic rifles. One alternative was to place all 24 of them in a single platoon (so that it would have six squads with four BAR in each). It would act as the company's base of fire while the remaining platoons carried rifles only. A second alternative was to issue the BAR at the standard rate of one to each of the company's 24 rifle squads. A third alternative was to double this and isse two BAR per rifle squad. Meanwhile, the experimental machinegun company, like the experimental rifle company, would also get a fourth platoon but this one would have an officer and 45 men with four .50-caliber machinegun squads of nine men each. The other three platoons would each have an officer and 41 men organized with four eight-man .30-caliber machinegun squads (one gun per squad, of course). The experimental machinegun company would total seven officers and 191 men while the experimental rifle company would have six officers and 251 men. The battalion headquarters and headquarters company would be of the standard 1927-28 type except for the addition of a howitzer platoon of an officer, 59 men, one 37mm gun, and two 75mm mortars (or howitzers). The Infantry Board assembled least three battalion structures at different times using these units. One had four rifle and one machinegun companies totaling (without attached medical or service company troops) 39 officers and 1,318 men. Another had just two rifle companies but two machinegun companies. It totaled 34 officers and 1,007 men. A third type had three rifle companies and one machinegun company (33 officers and 1,067 men). In September 1929, another type with three rifle companies and two machinegun companies was tested. The rifle companies were

[◴] The vehicles issued to the 34th Infantry included 32 cross-country cars (nine with light cargo bodies), 19 1.5-ton 4x4 trucks, 29 3/4-ton trucks (15 4x2 and 14 6x4), five 3.5-ton Holt tractors (each pulling two 3/4-ton trailers), a 750-gallon fuel truck, eight motorcycles with sidecars, and five trailer-mounted field kitchens. Only the field kitchens, motorcycles and fuel truck were standard Army vehicles. The rest were commercial types, though some had been modified. The 6x4 trucks had each received an additional axle. The cross-country cars and 1.5-ton trucks had new or modified bodies added to their commercial chassis. All vehicles had balloon tires. In general, the 1.5-tonners were meant to carry rations and baggage for the service company. The cross-country cars would replace riding horses except that those with the light cargo bodies, plus the 3/4-ton trucks, would serve as weapons carriers for the howitzer and machinegun companies or as ammunition vehicles for the service company.

reduced to three platoons each but with two BAR per rifle squad. One of the two machinegun companies replaced its .50-caliber platoon with an enlarged howitzer platoon of two 37mm guns and two 75mm howitzers, an officer, and 79 men.[155]

A second series of infantry battalion tests at Fort Benning ran from January through March 1930. These tests sought to further improve and develop the winning design from the first series. This was the fourth alternative with three (three-platoon) rifle and two machinegun companies except that the two machinegun companies would shrink to three platoons each by transfering their howitzer and .50-caliber platoons to the battalion headquarters company. For combat, one of the two machinegun companies would habitually attach its platoons to the three rifle companies. This would give each of the latter both a fourth platoon and a base of fire. The other machinegun company, plus the howitzer and .50-caliber platoons from the headquarters company, would form the battalion commander's firepower reserve. The .50-caliber platoon, whose four machineguns (and their ammunition) would ride on eight one-ton trucks, could execute either antitank or antiaircraft missions. The 37mm gun in the howitzer platoon could function in an antitank capacity in addition to being a close support weapon. The new battalion would have 37 officers and 1,141 men. It would use up 1,913 yards of road space, or more than twice the 913 yards (plus 40 yards for the normally attached howitzer platoon) of a 1927-28 battalion. It would also have about 300 more men. On the other hand, it would have nearly the same number of rifles, twice as many automatic rifles and howitzer weapons and more than twice as many machineguns. It could also carry more ammunition per weapon. Many observers felt that this new battalion had achieved an ideal mix of firepower, shock power, controllability, troop density, and mobility.[156]

The next step was to fit the battalion into a regimental organization. However the battalion's large size would make it unwieldy if it had to operate as part of a regiment. Therefore, the Infantry Board trimmed it by dropping one machinegun company while strengthening the other with a fourth (.30-caliber) platoon. This increased its strength to seven officers, 236 men, and 16 machineguns. It added an extra man to the battalion headquarters company headquarters but cut the intelligence section back to 12. Newly established regimental companies would absorb the battalion's .50-caliber and howitzer platoons. These changes reduced the battalion to 29 officers and 870 men.

Besides its headquarters, headquarters company, service company, and attached medical and chaplain units, the regiment would have an expanded howitzer company that would soon be renamed the cannon company. It would also have an extra machinegun company (four platoons) with .50-caliber guns. The cannon company (seven officers and 249 men) would have four platoons with two guns, two howitzers, an officer and 56 men each. The service company would have 10 officers and 250 men. Of these, the transportation platoon (still equipped with horse drawn vehicles) would have five officers and 200 men. Each battalion transportation section would get one officer and 40 men. This allowed each battalion a service company officer in addition to its own supply officer (Bn-4). The regimental headquarters and headquarters company (nine officers and 83 men) would lose its pioneer platoon but would gain a regimental band with a warrant officer and 49 men. Regimental manpower would total 120 officers and 3,456 men, by no means an impossible size. The 29th Infantry could organize as one of these regiments minus one battalion, a cannon platoon, a platoon from the regimental machinegun company, and part of the service company.[157]

The theory behind the new structure was that if a regiment had more firepower it could hold wider frontages and support a new defensive doctrine under which the front would be covered mainly by long ranged artillery and machinegun fire. Most of the infantry would be available for deployment in depth for maneuver and counterattack by small independent units. Clearly, this concept was strongly influenced by German defensive doctrine of 1918. Although putting two BAR in each rifle squad was seen as an effective way to beef up firepower, it imposed a heavy burden of weapons and ammunition on the BAR gunners and their assistants. This restricted their own mobility and that of their squads. Increasing the machinegun companies to four platoons not only boosted firepower but also better enabled them to displace tactically by bounds. Three platoons could fire while one moved and the company would be less impaired if it had to detach a platoon to a rifle company. Larger machinegun companies would also improve the regiment's resistance to air attack and would increase the security of the regimental train. The cannon company would attach a platoon to each of the (normally two) battalions that the regiment would deploy forward and this would leave two cannon platoons plus the fourth (.50-caliber) machinegun company as the regimental commander's firepower reserve. This would transform the regimental commander into much more of a combat leader in its own right who would not have to leave all the fighting to his battalion commanders. If circumstances required, platoons from the regimental machinegun company could be attached to individual battalions where they would operate under the direct control of those battalions' organic machinegun companies.[158]

Despite widespread satisfaction with this new regiment, the War Department did not adopt it.

However, motorization was also proceeding apace. Although only the 34th Infantry was fully motorized, nine other regiments also began experimenting with a variety of military and commercial trucks. These vehicles,

however, could not stray very far from good roads and only partially replaced animal transport. They were mainly an effort to economize on manpower and animals while gaining some practical experience with motor transport.

At the same time, concern was also being expressed that the number of weapons being added to infantry units would seriously hurt their mobility. Most of the senior officers involved in infantry reorganization could remember when infantrymen carried little more than their rifles. Even an AEF infantry battalion included no weapon too heavy for one man to carry. They viewed the machineguns that had since been added as defensive weapons whose weight would slow everything down. They saw the howitzers as an unnecessary duplication of field artillery.[159]

Nevertheless, new technology was starting to make good some of the infantry's critical shortfalls. Hitherto there had been no intermediate weapon between the BAR and the heavy water cooled Browning M1917A1. Although the 15-pound BAR was very mobile its firepower was limited by its uncontrollability in automatic fire, its rapid overheating, and lack of a stable mount. On the other hand, its relative immobility seriously impaired the value of the heavy Browning, despite its excellent firepower. For long-range sustained fire it needed a very sturdy and steady mount and for this reason, this 34-pound gun (plus seven pounds of water) had to be supported by a 53-pound tripod. This gun could also easily consume more than 600 pounds of water and ammunition in about an hour or so of heavy combat. Thus, Infantry automatic weapons could offer firepower or mobility but not both. The Army needed an intermediate weapon combining some of the mobility of the BAR with some of the firepower of the heavy machinegun. This intermediate weapon would be called a light machinegun (LMG). Since there was so little money available the development and procurement of an LMG was not expected to be easy. However, a solution presented itself in the form of the Browning M1919 machinegun. This was essentially an air-cooled version of the M1917A1 that had been developed as a tank machinegun. The Army mounted 72 improved M1919A1 guns on improvised tripods and began to test them. It soon became clear that a ground-mounted M1919 was the intermediate weapon that the Army was looking for. However, the fully developed M1919A4 took much longer to produce than expected and it did not begin to reach the troops until 1940. However, its eventual arrival was never in doubt and the planning for infantry organizations proceeded from about 1933 on the assumption that this gun would be available.[160]

Additional weapon developments included the testing of the Pederson and Garand semi-automatic rifles and the development of the M2 37mm gun, which proved to be only slightly superior to the M1. The French Edgar-Brandt designed 81mm mortar model 27/31, however, turned out to be a huge improvement on the lackluster M1 75mm mortar. Based on the original Stokes design, the Brandt weighed only about 40% as much as the M1 mortar. It also fired a more destructive shell more than half again as far and at a much faster rate. Despite the fact that it was a smooth bore weapon it even demonstrated superior accuracy at long range and also enjoyed a shorter minimum range. Following its 1932-33 tests, the Brandt was selected for procurement pending the availability of funding.[161]

In the communications field, Infantry radios continued to present range and reliability problems in addition to those caused by their excessive weight and complexity. The introduction of the SCR-131 loop continuous wave radio was a big step forward. It replaced both the battalion-level SCR-77, now developed to its "B" version, and the regimental and brigade level SCR-79. In its basic version, the SCR-131 could range to five to seven miles. Light enough to be a battalion radio but superior to the current regimental radio its reliability was much enhanced by the use of a hand generator rather than undependable batteries. If it was rigged with a homemade wire antenna, transmission range could be extended to 100 miles and tests were successful from as far as 2,000 miles. This helped to relieve a serious training problem. An infantry brigade or regimental communication platoon was allowed only one radio in peacetime and they were frequently garrisoned too far apart to conduct joint operator training. Battalion radio sets were usually in storage because so few units could actually man their radio sections. The SCR-131 with its homemade antenna allowed widely separated posts to conduct joint training but lack of procurement funding made the SCR-131's introduction a very slow process and left the older SCR-77 and 79 sets in service for some years.[162]

Over the next several years, the deteriorating world situation brought about by the rise of Nazi Germany and Soviet Russia, the civil war in Spain, and the Japanese seizure of Manchuria finally began to loosen Congressional purse strings, though the effects of this would not be felt for some time. However, together with the technical advances already made and the organizational experience already acquired, the new money would fuel a new round of reorganizations that would produce permanent change to the Army's infantry regiments and battalions.

THE MARINES CHANGE DIRECTION YET AGAIN

The 1919 demobilization was nearly as traumatic for the Marines as it was for the Army. Their numbers fell from a peak of 75,000 to about 1,000 officers and 16,000 enlisted in 1920. Authorized strength was 17,400. The 15 Marine regiments and at least three, probably four, machinegun battalions existing at the end of November 1918 had withered away to only five regiments and a couple of separate battalions (one artillery and one infantry) by the

following August. Marine commitments, however, remained heavy. The brigades in both Haiti and the Dominican Republic had their hands full suppressing new rebellions. Guard detachments were still needed for Navy bases and Navy ships. The number of men required for the latter duty had fallen by only 10% since 1918. The Marines also had to staff their own bases at Quantico, Parris Island, and San Diego and they had to find men to rebuild the advance base force as well. When these facts were brought to the attention of Congress in 1920 the latter increased the Marine Corps' authorized strength to 1,093 officers and 27,400 enlisted but then approved funding for only 20,000. Actual Marine strength was 1,087 commissioned and warrant officers and 21,903 enlisted in 1922. Enlisted strength gradually fell to 18,000 by 1927 though officer strength actually climbed to 1,198. In 1922, Congress extended the Army's new seven-pay-grade enlisted rank structure to the Marine Corps and this took effect in 1923. Unlike the Army, however, the Marines did not place specialists in higher pay grades while ranking them as privates. In the Marines, rank and pay went together although rank titles might be changed to reflect specialized occupations.[163]

A number of cultural and doctrinal changes within the Marine Corps were occurring as well. Uppermost in the minds of many was the question of what the Marine Corps' future was to be. World War I had done little to answer this since demobilization had placed the Corps in much the same position at the end of the war as the one it had occupied at the beginning, albeit with an enhanced public image and combat reputation. The bulk of the Corps' operating forces were still engaged in colonial police work in the Caribbean. However, the new Commandant, Major General John A. Lejeune, was prescient enough to realize that this would not last and that a much more permanent mission would be needed to secure his service's future. Instead, Lejeune and his advisors concluded that the real mission of the Marine Corps was "readiness." While this concept might seem trite, one should consider that the United States was and is primarily an insular power. Its standing army in 1920 served primarily as a garrison force and cadre for a much larger wartime citizen army. Little or none of it would be available for immediate use upon the outbreak of a major war beyond the troops already deployed to major US overseas possessions like the Philippines, Hawaii, or the Panama Canal. Although the Army of 1920 seemed to have little idea about who its future adversaries were likely to be, the Navy had already fingered Japan as its most likely future opponent. Japan had the most powerful navy after the United States and Great Britain and Japanese-American animosity was growing. The Japanese resented the racist treatment of Japanese immigrants in California. Americans resented Japan's high handed (and racist) actions in China. The Japanese saw American criticism of Japan's China policy as interference in Japan's rightful sphere of influence. Any war fought against Japan would be primarily naval in character. However, post war disarmament treaties forbade improvements to any American fortresses west of Hawaii. The League of Nations had also mandated most of the central Pacific islands to Japanese control. If it was to successfully engage the Japanese fleet, or to threaten Japan itself, the United States Navy would need bases in those central Pacific islands. Hawaii was too far away to be useful and the Philippines were too vulnerable to Japanese attack. Only an expeditionary force could seize and hold the central Pacific islands that the Navy needed and that expeditionary force would have to be ready to move whenever and wherever the Navy did. By staying "ready," requiring only limited reserve augmentation and, being already under the Navy's control, the Marine Corps would be much better positioned than the Army to provide this expeditionary force, at least during the critical early stages of the next war.[164]

A primary exponent of this concept of a future Pacific war was Lieutenant Colonel Earl H. "Pete" Ellis, one of the Marine Corps most brilliant and innovative thinkers. Ellis had already written an extensive report in 1912-13 on advance base operations titled "Naval Bases: Location, Resources, Denial, and Security" in which he put forward many of his ideas about overseas operations by (and against) both the Germans and the Japanese. After the war, Lejeune placed him in the planning section that he had set up at Marine Corps headquarters to plan how the Marines would fit into the next war. In 1921, Ellis completed an extensive study titled "Advance Base Operations in Micronesia" in which he outlined how the Marine Corps might conduct an amphibious campaign against the Japanese. Lejeune heartily endorsed this work and adopted it *in toto* as Operations Plan 712. In it Ellis discussed the Navy's need for expeditionary forces to seize and hold island bases in the central Pacific. He described some of the techniques that might be used, including the employment of warships to give gunfire support to a landing force, the role of aviation, and defensive techniques. Rather than the tactically defensive but strategically mobile version of the Army's Coast Artillery Corps that it had been prior to World War I, Ellis envisaged a post-war Marine Advance Base Force (ABF) that would be offensively oriented both strategically and tactically. Ellis pointed out that the pre-war assumption that the ABF could seize essential base sites before an enemy could occupy them would not be valid in a war against Japan. The Marines would have to take most of the Navy's bases by force, often in the face of strong and well-developed defenses, and then defend them against counterattacks. To do this, Ellis proposed an ABF of about 24,000 Marines organized into a base defense brigade and three landing brigades. Each brigade would have three regiments. The regiments would be assemblies of uniformly configured 125-man companies each of whose training and equipment could vary according to its particular mission. A base defense regiment would

include a 300-man air detachment and six companies of coast defense and anti-aircraft guns. A landing regiment would have 12 rifle companies (three battalions) backed by additional companies of machineguns and light artillery.[165]

Reinforcing Ellis' ideas were the changes in the Marine officer corps that the First World War had wrought. Instead of having made their careers performing mainly technical duties with the Navy afloat or with the Advance Base Force ashore (as prewar officers had done) many postwar Marine officers were products of their service as infantrymen fighting in a land campaign alongside the Army. Thus Ellis' concept of a more infantry oriented Marine Corps found itself a receptive audience. Ellis himself did not live to see the results of his work. He died mysteriously in the Palau Islands in 1922 while investigating the illegally constructed Japanese fortifications there.[166]

Despite Ellis' untimely death, the Marine Corps lost little time putting Ellis' basic ideas into practice. With the expectation of getting 27,400 Marines from Congress in 1920, it planned to rebuild its Advance Base Force as the offensively oriented structure that Ellis had advocated. It would have East and West Coast Expeditionary forces. The East Coast force, based at Quantico Virginia, would be the largest. Its Third Brigade, consisting of the First and Tenth Regiments, would be a base defense brigade, totalling 1,762 enlisted men, plus officers. The First Regiment with a headquarters company, a service company, two searchlight companies (each differently equipped), a signal company, an engineer company, and an anti-aircraft company (armed with machineguns) was the support unit. The newly re-established Tenth Regiment, with three batteries of 75mm field guns and two of 155mm guns, besides headquarters and service companies, was the artillery unit. The Fourth Brigade, a reincarnation of the old AEF brigade and still with the Fifth and Sixth Regiments and Sixth Machinegun Battalion, would be the East Coast landing brigade and was to total 3,575 enlisted men. The West Coast Expeditionary Force, based at San Diego, had only the Fifth Brigade. It was similar the Fourth Brigade but had only one regiment (the Seventh) and one machinegun battalion (the First). Its enlisted strength was to have been 1,722.[167]

The tables under which the Fourth and Fifth Brigades were to be organized were never officially published. However, a surviving verbal description of them shows that they differed considerably from contemporary Army peace-strength infantry brigades. An Army brigade consisted merely of two infantry regiments plus a small brigade headquarters and headquarters company (totaling six officers and 46 enlisted men). The Marine brigade, on the other hand, featured a much larger headquarters company, and a brigade supply company (the latter being motorized and including at least one truck for each of the brigade's rifle companies and two for each machinegun company). This was in keeping with its intent to operate independently rather than as part of an infantry division. Each Marine infantry regiment did include a headquarters company and three infantry battalions. However, The headquarters company comprised only the regimental staff, an orderly section, and the band (28 enlisted). A signal company (soon changed to a platoon) seems to have been authorized later but intelligence, 37mm gun, and Stokes mortar platoons were to be added only in wartime. Likewise, the regimental supply company (four officers and 96 men) would also be only a wartime augmentation. The three infantry battalions had no headquarters companies. In wartime they could expect to get detachments from the regimental headquarters company as they had done in 1918. The fighting element of each battalion would consist of only three rifle companies of two platoons each. Each platoon was to have six squads grouped into two sections. All machinegun companies in the Marine brigade would be concentrated into a brigade machinegun battalion. Since there had to be a machinegun company for each infantry battalion, the First Machinegun Battalion would have required three companies and Sixth Machinegun Battalion six. This arrangement imitated the British use of a specialized machinegun corps and would have facilitated training. The Marines considered it superior to the organizations used by the French and (after 1920) the United States Armies, which relied on having a machinegun company organic to each infantry battalion. As with a Marine rifle company a Marine machinegun company's 125 men (plus officers) formed a company headquarters and two platoons with up to six squads in each. Extra men insured tactical mobility in the absence of the draft animals that the Marines could not always provide. The companies would use a transport cart that could employ mules if any were available or could be manhandled if they were not. A recently deceased Major Cole was the designer. The Cole cart consisted of a lead element, or "caisson," to which the trails were attached. It carried a large cargo container designed for ammunition or water. A trailing element called the "trailer" could carry an identical cargo container (with signal equipment or medical supplies) or a machinegun, 37mm gun, or Stokes mortar in lieu of a container. Both caisson and trailer were single axle vehicles using disk wheels with rubber tires. They could traverse a wide variety of terrain.[168]

Naturally, Congress was not going to fund the manpower needed to make these organizations possible. Moreover, there was undoubtedly pressure on the Marines to more closely conform their organizations to Army patterns. Before the end of 1921 and before the Fourth or Fifth Brigades had even been fully assembled, their organizational tables were revised. Tentative tables dated 21 August 1921 were tested at Quantico and recommended for adoption in January 1922. While only strength summaries of these tables survive in the

Commandant's correspondence files, they show a brigade with a large headquarters company (118 officers and men), a depot detachment (58 officers and men), two infantry regiments, and no machinegun battalion. The regiments conform to Army standards except that the Marine regimental and battalion headquarters companies were slightly, and the Marine machinegun companies moderately, larger. The Marine service company was smaller by 39 men. This was largely accounted for by reductions in the regimental band and the motorized transportation platoon. However, the Marine service company probably included a regimental pay section for which there was no Army equivalent.[169]

These tables were soon revised again. Indeed, changes to the changes were part of a continuous process of minor adjustments. Not only were tables drawn up for units operating within a brigade organization but tables also existed for independent regiments, battalions, and even companies. These usually required some sort of infusion of service troops but an independent company was supposed to be augmented by a weapons platoon with a 37mm gun squad, a Stokes mortar squad, and a section of two machineguns.[170]

The new Marine rifle companies (see Appendix 3.15), established in 1922 and modified somewhat in 1923, would change very little until the formation of the Fleet Marine Force (FMF) in 1934. The company's two rifle platoons were exactly the same as their Army equivalents except for some differences in their enlisted ranks and titles (certain Marine privates were ranked as lance corporals during 1920-23). Platoon sergeants in Army companies were just the most senior sergeants in their respective platoons, but Marine platoon sergeants ranked as gunnery sergeants. The company headquarters included four "other duty" privates. Unlike Army "spare" privates, their arms and equipment were officially carried on the books of their parent unit. In 1925, a company signal corporal replaced one of these men. He took charge of the company messengers and visual signalers.[171]

Besides three rifle companies and a headquarters company, each Marine infantry battalion would have one of the new Marine machinegun companies (see Appendix 3.15). A Marine battalion's machinegun company, though similar in layout to an Army company incorporated additional men in order to assure its mobility when draft animals were unavailable. This organization would, however, change substantially during 1925-1926.[172]

The new Marine battalion and regimental headquarters and headquarters companies were practically the same as those of the Army (see Appendices 3.15 and 3.16). In the case of the howitzer company, however, the Marines believed it important to maintain that unit's three-platoon structure in order that there be one platoon available for attachment to each battalion in the regiment. This meant, of course, that howitzer platoons could only be of minimal size. A Marine regimental service company also differed significantly from its Army counterpart (see Appendix 3.17). The Marine service company commander, in contrast to Army practice, was also the regimental supply officer (R-4. Its transportation platoon was much smaller and (at least in theory) motorized. Its headquarters platoon had just the office section (equivalent to the Army personnel or staff section) and the regimental band. To carry out the functions of the Army service company's supply section the Marines used a supply platoon, the Army section's functions being divided between a quartermaster (QM) section and a depot section. The Marine platoon also included pay and PX sections, which had no counterpart in an Army service company. The vehicles in the transportation platoon are not described in any primary source that this author has been able to discover however the estimate shown in Appendix 3.17 is probably in keeping with normal practice. Although a regiment included no draft or riding animals in its permanent equipment, riding horses for the officers and senior noncommissioned officers not in the rifle companies, pack animals, and draft animals for the Cole carts could be issued if circumstances permitted, typically for operations in Haiti or the Dominican Republic.[173]

Although in retrospect the Marines' decision to motorize their operating forces and use animal transport only by exception seems very advanced, the vehicles they had to choose from were very unsatisfactory. The standard FWD (four wheel drive) truck was mechanically unsound and used excessive amounts of fuel. The heavier "Class B" or "Liberty" truck was better mechanically but even less capable of off-road operations. Five-ton full-tracked Holt tractors towing cargo trailers were available for cross-country movement. However, they were slow (ten miles per hour), burned 2.5 gallons of gas per mile, needed refueling every 15 to 20 miles, were difficult to maintain, noisy and fatiguing to drive, and wore out their tracks quickly on paved roads. In the fleet maneuvers of 1922-23 and later in China in 1926-27, both the tractors and the FWD trucks proved too heavy for easy handling by the Navy's troop transports. In China, the FWD trucks could not even negotiate city streets and only the Liberty trucks, of which there were only three in the entire 3rd Marine Brigade, were usable in downtown Shanghai or Tienstin. During the Civil War reenactments, which were largely publicity stunts put on in the Shenandoah Valley by the Fifth, Sixth, and Tenth Regiments, heavy rains left the dirt roads impassible for any vehicles but the tractors. Even with the tractors, supplemented by the use of most of the infantry to push the trucks (or pull them with hand-lines), any vehicular movement was painfully slow. Had this been actual combat, the troops would have found themselves totally stranded and bereft of supplies. Just as sobering was the thought of how much worse this might have been in a poorly developed and largely roadless district in Asia or Latin America. Nevertheless, the even bleaker prospect of

having to ship horses and mules by sea and then get them ashore without port facilities left the Marines with no recourse but to redouble their efforts to make their motorized transport work. Some relief was in sight. Tests of a two-ton tractor, which would be much easier to handle than the older five-ton model, had been encouraging. However, there was little hope of finding a satisfactory truck anytime soon.[174]

Meanwhile, manpower shortages and the need to maintain troops in Haiti and the Dominican Republic soon forced a further reorganization of the Expeditionary Forces. In April 1922 the Fourth Brigade on the East Coast disbanded. Its Fourth and Fifth Regiments went to the Third Brigade. The First Regiment disappeared, leaving behind only its signal and engineer companies and platoon of light tanks (which became independent). In August, the Second Brigade in the Dominican Republic reconfigured itself in anticipation of the local Marine organized and trained constabulary shouldering a greater share of the burden of policing the country. The Brigade went from three regiments to two, losing its Fifteenth Regiment and redesignating its Third Regiment as the First.[175]

In April 1923, the Second Brigade (see Appendix 3.19) reported its strength and organization to the Commandant of the Marine Corps. This has given us a description of how Marine brigade and regimental organizations might be modified for a constabulary mission when only limited manpower was available. The brigade at this time consisted of the First (formerly the Third) and Fourth Regiments, besides brigade headquarters and service companies. Each regiment was cut back to two battalions, one with two rifle companies and the other with three. Battalion headquarters companies remained at full strength, as did the available rifle companies, but instead of machinegun companies there was only a reduced strength machinegun platoon within each regimental headquarters company. The guns were intended to defend key fixed posts in the unlikely event of a mass uprising. The gun crews could be smaller because they would seldom have to move their guns anywhere. Despite manpower shortages, each regiment retained its band. Skeletal howitzer companies also survived as training units, not just for howitzer weapons but for all military skills. Presumably they trained members of the native constabulary or *Guardia* in addition to, or instead of Marine recruits. The Marine Commandant, Major General Lejeune, had written in August 1922 to the commander of the Second Brigade suggesting he get rid of his regimental howitzer companies and instead set up a brigade-level howitzer or machinegun company to serve as his training center. The men saved could form another machinegun platoon or an armored car unit. The Commandant had, however, left the exact organization of the brigade to the discretion of its commander who evidently chose not to take his chief's advice.[176]

The Second Brigade did not suffer from a lack of officers. It had nearly a full complement despite its shallowness in the enlisted ranks. Extra officers were needed for liaison duties with the native government and constabulary and to lead any patrols of 15 or more men. However, the main reason for the extra officers was that although Congress was actually paying for only about two thirds of the 27,400 enlisted men it had authorized, it did pay for nearly all the officers that it had promised. The resulting officer surplus employed many First World War veterans and enabled an unofficial staff to be set up at Marine Corps Headquarters, despite the fact that the latter was (on paper) still operating at its 1817 establishment. Also, the surplus helped to create an officer reserve for a future war.[177]

During and after the same years that these reorganizations took place, a series of amphibious exercises were held wherein many new ideas could be tested. A reinforced battalion landed in Culebra and at Guantanamo in 1922. Another battalion landed at Cape Cod in the following year and a smaller force went ashore in Panama. In 1924, there was a much larger joint operation with the Army that simulated an attack on the Panama Canal. Yet another joint operation in 1925 involved a simulated attack on the Hawaiian Islands by a Marine expeditionary force of two divisions totaling 42,000 men. Only about 2,500 Marines were actually available to represent this force. A larger detail from the Army represented the defenders. For the Marines, the practical value of the exercise lay mainly in its command post functions but the organization of their expeditionary force is of interest. Pete Ellis' idea of basing most of his combat organizations on a standard 125-man company was followed here, at least insofar as the infantry was concerned except that they actually used a standard company of three officers and 100 men, organized as a headquarters and two platoons. A standard infantry battalion would have four rifle companies (apparently with 10 BAR each), a machinegun company (eight guns), and a headquarters company (11 officers and 165 men) that included headquarters and intelligence sections and communication, pioneer, service, and howitzer platoons. The latter (with three officers and 64 men) had two 37mm guns and two mortars. Three of these battalions plus another but smaller headquarters and headquarters company (12 officers and 100 men) and a Navy medical unit (nine officers and 50 men) comprised a regiment. Two regiments, a headquarters company, and a machinegun battalion (two companies) made a brigade. Two infantry brigades, an artillery brigade (48 75mm guns), a pioneer battalion, a machinegun battalion, and service troops made a division. A brigade of 155mm howitzers and regiments of pioneers and anti-aircraft guns supported the entire Force.[178] These exercises had to be halted after 1925 because of commitments elsewhere.

In May of 1926, the Fifth Marines landed in Nicaragua to halt the ongoing civil war there and enable a more acceptable regime (to the United States) to emerge. All went well until one Nicaraguan general named Augusto Sandino decided not to cooperate and started a guerilla war that would embroil most of the Marine Corps' available expeditionary forces for the next seven years. Sandino soon realized that his untrained and ill-equipped peasants were badly outclassed in pitched battles against the Marines and the Marine-trained and led Nicaraguan National Guard. Therefore, he changed his tactics. He learned to avoid the larger contingents of his enemies, to ambush the smaller ones, and to kill or intimidate any supporter of the Americans he could find. He also seized or destroyed American property (the protection of which was the official reason for the Marines' presence in the country) wherever possible. All the while, Sandino maintained a successful propaganda campaign that raised sympathy for his cause not only in Nicaragua but also in the United States, Europe, and the rest of Latin America. In response, the Marines brought in another infantry regiment, the Eleventh Marines, used aircraft extensively to ferry supplies and attack Sandino's men, strengthened the Nicaraguan National Guard, and launched a series of offensive operations to bring Sandino to book. Though Sandino's casualties remained high, they never affected his ability to strike at almost any part of the country he chose. Neither did they prevent him from inflicting enough Marine casualties to erode American political resolve to continue the war. Even the policy of conserving Marines by using Nicaraguan National Guardsmen to hunt Sandino while Marines occupied the principal towns could not halt Marine losses. On December 31, 1930 Sandino's men successfully ambushed a ten-man Marine patrol, killing eight. This was "the last straw" and it persuaded the Hoover administration to order a phased withdrawal of Marine forces from Nicaragua that would be complete as soon as the 1932 elections were over. Protests that the Nicaraguan National Guard was not yet strong enough to stand on its own were brushed aside as the last Marines pulled out on 1 January 1933. As it happened, however, Sandino had little opportunity to savor his victory. The new commander of the National Guard, Anastasio Somoza, managed to lure Sandino into visiting the Nicaraguan capital at Managua, where Somoza was able to assassinate him.[179]

Nicaragua was the last of the "Banana Wars." The Marines had pulled out of the Dominican Republic in 1924 and would be leaving Haiti in 1934. Nicaragua had a profound effect on Marine Corps organization, doctrine and attitude. It was the first combat experience of a generation of officers who would lead the Marine Corps through the Second World War and Korea. The lurking suspicion that only Somoza's treachery prevented the war from becoming an American defeat was not publicly expressed but probably was sobering for many. It was the first of the protracted mostly Communist-led (Sandino himself was not actually a Communist, though he was lionized by the international left) guerrilla "wars of liberation" that would characterize much of the Cold War era. The Marines had found no easy answers for how to deal with it, but they had gained much combat experience on the level of the squad/platoon and the individual soldier. This had convinced them of the importance of automatic weapons like the BAR and the Thompson sub-machinegun at the small unit level. The small unit focus tended to divert attention away from larger unit operations. However, Nicaragua gave the Marine Corps its own views about tactical organizations that addressed more than the requirements of amphibious warfare (the well known *Small Wars Manual* was one result). Henceforth, Marine and Army tactical organizations would begin to evolve in different directions.[180]

Meanwhile in 1926, yet another crisis arose. A little-known Chinese warlord named Chiang Kai Shek, having routed his enemies was well on the way towards making himself the president of a united Chinese Republic. His troops, however, were threatening the foreign community in Shanghai whose members appealed to their home governments for protection. The United States agreed to send a brigade of Marines. The only one available was the Third at Quantico, and it had already sent its Fifth Regiment to Nicaragua and had recently disbanded its Sixth Regiment. The Sixth Regiment had to be hastily reassembled. To replace the Fifth, the Fourth Regiment, recently returned from the Dominican Republic and now on the West Coast, had to be brought up to strength. Since it had only two of its three battalions, Headquarters Marine Corps grabbed most of the Marines stationed on Guam and in the Philippines to create another battalion for it. Besides its two infantry regiments, the revived Third Brigade would have a battalion of 75mm guns, an air group (with observation, fighting, and utility squadrons); headquarters, service, engineer, and military police companies, a tank platoon, a base hospital, and a brigade train. At full strength it amounted to just over 4,800 officers and men. For a Marine Corps of less than 20,000, which already had 2,000 men in Nicaragua and nearly 2,000 more serving on ships in the Fleet, this was a prodigious effort.[181]

The infantry regiments of the new brigade showed the numerous changes in their organizations that had been made over the past five years. Preliminary tables were issued in 1927. The final ones appeared in 1929. The most important change was the elimination of the howitzer companies and the permanent attachment of howitzer platoons to the machinegun companies (see diagram below). This had been a routine practice in the past and became the standard by early 1926. At that time each howitzer platoon had an officer, a warrant officer, and 22 men but by 1929 the platoon would get additional men to better enable it to move its guns and ammunition. The former howitzer company commander went to the regimental staff as the machinegun and howitzer officer. As such, he

was charged with supervising machinegun and howitzer training, advising the regimental commander on the employment of these weapons, and served as *de facto* regimental munitions officer. By the beginning of the China expedition, official machinegun and howitzer company strength had been increased as shown in Appendix 2.20. In addition, the machinegun and howitzer company would maintain 142 rifles (for all sergeants and below) so that its personnel could augment those of the rifle companies in performing peacetime guard duties.[182]

The rifle company remained unchanged but the battalion headquarters received a full staff (using up some excess officers) as shown in Appendix 3.20. Like the machinegun and howitzer company the battalion headquarters company had no organic transportation beyond its Cole carts. It had to depend on service units for motor vehicles. In its communication platoon the SCR-130 radio (used at brigade level by the Army and enjoying a nominal range of 60 miles and an effective range of 40 miles) replaced the inadequate SCR-77. Marines in Nicaragua preferred the SCR-127 over the SCR-130 because it could run off a hand generator rather than unreliable batteries. Both radio sets could communicate with aircraft at 20 to 50 miles. The need for long-range communication across hostile country increased the importance of radio in Nicaragua. However, wire and visual methods were used whenever possible.[183]

Navy medical personnel, instead of being attached to the regiment in a single group were now permanently divided among the regiment's companies. Those with the battalion and regimental headquarters companies would establish aid stations to which wounded from the rifle and machinegun and howitzer companies could be evacuated.[184]

Headquarters Marine Corps had dramatically reorganized and rethought the service company (see Appendix 3.22). It eliminated its platoons, since other than the transportation platoon, they had served no real purpose and subdivided the company into functional sections for personnel administration, pay, supply administration and the regimental band. This considerably reduced and simplified thw whole company. Instead of a transportation platoon, the servicecompany would have only a small transportation section. The regiment (see Appendix 3.23) would have to rely on its parent brigade for nearly all its motor transportation requirements. To meet these, the brigade included a "train" of four motor transport companies of which one would normally support each infantry regiment. Each company could operate either 12 two-ton trucks or 12 Holt tractors towing three-ton trailers, depending on circumstances. Either trucks or tractors would haul ammunition and supplies or serve as prime movers for the regiment's 17 field kitchens (each with a rolling kitchen plus ration and water trailers). This level of motor transport was certainly minimal but this was in keeping with low equipment budgets, the need to conserve shipping space, and the expectation that the brigade would seldom have to operate very far from a beachhead or a port.[185]

Although the brigade was designed to be able to operate without animal transportation, riding horses (and/or draft mules for the Cole carts) could be issued whenever circumstances favored their use. An infantry regiment could receive an augmentation of 142 riding horses. These were supplied to all the officers (including Navy chaplains and medical officers) and sergeants major in the regimental and battalion headquarters and headquarters companies, one messenger per battalion communication platoon, and two messengers in the regimental communication platoon. The remaining 97 horses mounted one complete rifle company (including its Navy Hospital Corpsman). Mounted units had been found to be especially valuable for pursuing bandits and insurgents in all of the Marines' Caribbean interventions. A mounted company could also be used for scouting or as a mobile reserve.[186]

Experience in exercises and deployments also produced schemes for war strength organizations. Besides the notional 42,000-man force of 1925, a 22,000-man reinforced division had been proposed in 1924. The first detailed wartime organization, however, was published along with the 1929 peacetime tables. This called for expanding the peacetime brigade into a division of two infantry brigades (two regiments each), an artillery regiment (24 75mm guns), enlarged air group, engineer battalion; headquarters, signal, military police, and tank companies, and service units. The small size of the divisional artillery (an Army division would have had three regiments) reflected the Marines' heavy reliance on naval gunfire support, in keeping with Pete Ellis' recommendations.

The war strength Marine rifle company (see Appendix 3.34) differed from the peacetime company, mainly in that it had a third rifle platoon. It would also include assistant section leaders or "guides," plus a company executive officer. Each rifle platoon would still have only four squads, in contrast to the Army's six-squad wartime platoons. Earlier Marine organizations based on two platoon companies with five or six squads per platoon would not be revived. The war strength machinegun and howitzer company was identical to its peacetime counterpart except that it would no longer have its 142 spare rifles (the war strength rifle companies would be strong enough to undertake any guard duties required). Three Navy hospital corpsmen were allowed per rifle or machinegun and howitzer company.

The battalion headquarters company (see Appendix 3.25) was also strengthened though without much change to its basic organization. The communication officer (a first lieutenant) would command the company in lieu of the Bn-1. In the enlarged communication platoon the message center and messengers were put in separate sections. The

transport platoon of the service company would hold the battalion's sidecar motorcycle. A lighter and improved SCR-77B radio would replace the SCR-130. The wire section had enough equipment to support battalion headquarters but not to link it to its companies.

The regimental staff was slightly enlarged by splitting the duties of the machinegun and howitzer officer between a machinegun and howitzer officer (a major) and a munitions officer (first lieutenant). The headquarters company was also enlarged. The pioneers became an actual platoon with a sergeant and four eight-man squads under a warrant officer. The communication platoon was given an SCR-130 for communication with brigade and two SCR-77B, one of which could have been used as a spare or for direct communications with supporting aircraft or artillery.

The service company was strengthened enough to revive its old platoon organizations. The Headquarters platoon would have the staff section and the band. The Supply platoon would likewise get the quartermaster and depot section and the pay section. The transportation section would expand back to a platoon and would be given sufficient vehicles so that the regiment need no longer depend on its parent brigade or division for its internal motor transport requirements (see Appendix 3.26). The platoon could be reinforced from the division trains in the event of heavy fighting or an extended supply line. Planning, however, continued to assume that the regiment would operate close to a friendly seaport or beachhead and that its transportation requirements could be reduced accordingly.[187]

Although peace strength Marine battalions and regiments closely resembled their Army counterparts, Marine units at war strength were generally much smaller than comparable war strength Army formations. For example, a war-strength Marine battalion would be smaller than a war strength Army battalion by 200 men (though it would have about the same number of officers). There were two reasons for this. First, smaller wartime units can reach their full strengths faster and be ready to fight sooner, especially if they begin from the same baseline strength in peacetime. Thus, other things being equal, a Marine unit could mobilize faster than an Army one. Since the naval phase of any future war would probably start very soon, if not immediately, after war was declared it was important that Marine landing forces be available in the shortest possible time. Second, the Navy could not afford to maintain a fleet of standard purpose-built troopships in peacetime to carry Marine expeditionary forces in wartime. Large numbers of commercial vessels would have to be requisitioned instead. These ships would be of all sizes and shapes but for an amphibious landing, smaller and shallower draft ships that could maneuver easily in shallow or confined waters would be the most useful. However, each of these ships would still have to be big enough to carry at least one large unit. It would be very undesirable, for example, to have to split a battalion between two or more different ships. There would certainly be confusion on the beach as elements from the same battalion came ashore from different ships in different places and tried to find each other. Therefore, an infantry battalion, including all its men and essential equipment had to be small enough to fit within as many commercial passenger or cargo ships as possible. A smaller battalion would also facilitate the most difficult part of any landing, namely the loading of the troops into boats and their movement to the beach. Since infantry units would constitute the initial landing waves, which are the most difficult of all, it was especially desirable that they be easy to carry in landing boats.[188]

While they were never actually used, these tables of organization reflected the experience gained in numerous Caribbean and Hawaiian maneuvers and they remained the basis for the Marines' wartime planning until about 1936.

In 1932, the Marines began a period of disengagement during which they would shed most of their overseas commitments. This finally enabled the Corps to concentrate its slender resources on its chosen goal of creating an expeditionary force that could support the Fleet. It would begin with a radical reorganization.

CHAPTER 4 – THE MOTORIZATION REVOLUTION, 1933-40

The series of experiments in infantry force structure, which the Army had begun during the 1920s, continued during the following decade and even expanded to include armored and mechanized cavalry units. The 29th Infantry at Fort Benning continued to be the Infantry Branch's organizational test bed. The Infantry Board planned a new round of testing of specifically motorized units in 1933 but its progress was slowed by a lack of funds to procure the necessary vehicles. However, its efforts coincided with a major project by the General Staff and the War Department to vet all of the Army's tactical organizations and specifically to reorganize the infantry division.[189]

Meanwhile, Infantry Board field-testing of motorization concepts during 1933-34 explored four different methods for integrating trucks into an infantry regiment. Under the first method, or Type A, a regiment would get sufficient vehicles to move all its elements in one lift except for six of its rifle companies. The Type B regiment was the same except that all nine of its rifle companies would be "grounded." A Type C regiment would have motor vehicles for only its field and combat trains (in other words, all the trucks would belong to the service company) while in the Type D regiment, only the combat train (the ammunition carriers) would have trucks. It soon became clear that a Type B configuration offered the best combination of mobility and efficiency. Motorization for the rifle companies was not considered cost effective. Rifle companies could only accomplish their combat missions on foot and while they were doing so their trucks would have very little to do. Rather than leave all those trucks idle, it would be much better to assign them elsewhere and whenever a rifle company needed trucks it's parent regiment could usually obtain them them from corps or army level transportation units. If these were unavailable the parent regiment's service company trucks could carry riflemen once they had delivered their primary loads to their movement objectives. However, if the rifle companies could manage without trucks, the weapons companies could not. Machinegun and mortar crews could only hand-carry their weapons and limited quantities of ammunition over very short distances. Even after the guns and crews had dismounted, they still needed their trucks to bring them more ammunition.[190]

The procurement of new weapons would also have a major impact on the Infantry's organization. In 1936 the Army officially adopted the M1 Garand semi-automatic rifle. This weapon featured more than twice the rate of fire and nearly the same range and accuracy as the existing M1903 bolt action weapon. However, selection of the M1 raised questions about the future of the Browning Automatic Rifle (BAR) as the Army's squad automatic weapon. An M1 equipped squad without a BAR could outshoot an M1903 squad with one. The existing version of the BAR was heavy, tended to overheat, and was hard to control in automatic fire. Numerous BARs were in stock, however, and rather than discard them, the Army decided to upgrade them. The upgraded BAR was called the M1918A2. It had its forearm cut back to ease cooling problems by exposing more of its barrel and gas system to the air. For better controllability in automatic fire it received a cyclic rate reducer that permitted the gunner to select a "fast" rate of 350 rounds per minute for accuracy or an "accelerated" rate of 550 for volume. The bipod on the M1918A2 was resited near the muzzle, counterbalancing muzzle climb. Adding a monopod to the butt permitted the BAR to be clamped onto a specific firing azimuth. A folding butt plate eased the strain that the weapon placed on the gunner's shoulder. Unfortunately, all these changes increased the BAR's weight from 15.5 to 23.5 pounds, though this did help to better ballast it for rapid firing. The resulting improvements in the M1918A2 BAR's performance were so dramatic that the Army decided to retain the BAR as an interim light machinegun (LMG) at least until the long delayed M1919 Browning was finally ready. Use of the BAR as an LMG forced a change in doctrine as well as in designation. The Army regarded an automatic rifle as just a semi-automatic or automatic rifle that could *augment* the firepower of a squad's rifles but was inadequate to serve as the squad's focus of maneuver in the attack or center of resistance in the defense. Indeed, the Army believed that an unmodified BAR, due to its inaccuracy and tendency to overheat, was not greatly superior to a single M1 rifle. In contrast to an automatic rifle, an LMG primarily existed to provide fully automatic firepower. It could deliver flanking fire along a fixed azimuth in the defense, or provide a base of fire to support maneuver. It would function similarly to a water-cooled heavy machinegun (HMG) while trading effective range and sustained firepower for better mobility. For the LMG role, the Army considered a tripod mounted belt fed weapon to be capable of delivering about twice the improved BAR's effective rate of fire. On the other hand, the improved BAR would be much lighter and could be brought into and out of action much faster.[191]

Nevertheless, the improved BAR created some important dilemmas. If it was light enough to be a platoon or a squad level weapon, in which role could it best be used? Until 1942, opinion was against putting it back in the rifle squads. A new BAR with a basic ammunition load of ten filled 20-round magazines weighed some 45 pounds. This was not enough to prevent a BAR man from keeping up with riflemen when moving at a walking pace but the BAR man would probably be incapable of the bursts of speed that battle often demanded. Hence, he would tend to lag behind his squad unless it slowed its pace enough to allow him to keep up. Another problem with a squad-level BAR was that the riflemen, distracted by the need to carry ammunition for and protect the BAR, might fail to exploit the increased firepower of their own M1 rifles. Further, the Army believed that the individualism of the

average American would better suit him to fighting as a rifleman rather than as part of a group clustered around an LMG. Naturally, it was recognized that such a philosophy could drive combat formations. A squad whose firepower depended on its rifles would tend to deploy in width, or parallel to the enemy, in order to use as many of its rifles as it could. This would tend to distribute the squad's manpower and firepower across a relatively broad front, thus complicating tactical control and making it difficult for the squad to focus its efforts in any one place. It might also increase casualties by exposing more squad members to direct enemy fire. An LMG based squad, on the other hand, could deploy in depth. Since both firepower and maneuver focused on the LMG the LMG crew could be made up of the most reliable and experienced members of the squad. Tactical control would be eased since the squad leader could control the whole squad just by directing the LMG. With the LMG generating much of the squad's firepower fewer riflemen need be exposed to the enemy. Ultimately, however, the Army decided that the rifle platoon should consist of several all-rifle squads, backed by one or more BAR/LMG squads. The latter would provide a base of fire in the attack and flanking fire in the defense. They could even protect the platoon from air attack. Keeping the LMGs out of the rifle squads would also remove the need to burden those squads with extra men to carry LMG ammunition.[192]

To modify the existing rifle platoon to incorporate LMGs and M1 rifles while fitting within the framework of a motorized regiment, the Infantry Board reduced the platoon's six squads to seven men each and dropped a messenger from platoon headquarters, thus cutting the platoon's enlisted strength to 50. Each rifle section would have two rifle squads and one LMG squad. The LMG squad would have a rifle-armed squad leader, two gunners (armed with BAR/LMG's), and four ammunition bearers (armed with pistols). The section leader and section guide would also carry rifles along with the platoon sergeant and the three platoon messengers. In the offense, the platoon would operate as before with its two sections in column. Within each section, the LMG squads would lead, probably preceded by scouts. After making contact, the LMGs would fix the enemy with their fire, leaving the riflemen free to maneuver. For the defense, the LMGs would deliver flanking enfilade fire covering the platoon's frontage. They could function as single guns but would more likely to operate in pairs as two guns could deliver a more continuous fire. Also, one gun could cover for the other should it become disabled.[193]

In 1935, the Army incorporated its new ideas in another testbed infantry regiment (see Appendix 4.1) that would exercise both motorization and the new weapons. As usual the 29th Infantry was the "guinea pig" for the new organization, the process of converting to it involved a complete redistribution of its crew-served weapons. Its three infantry battalions became "rifle" battalions and retained only their rifle companies. Their machinegun companies, cut down to only two platoons apiece, became the nucleus of a new "special weapons" battalion. This battalion also received an antitank company with three platoons of .50-caliber machineguns and a mortar company with three platoons of the new Hotchkiss-Brandt 81mm mortars. Each rifle or weapons battalion operated under a small staff supported by a headquarters detachment rather than a headquarters company. The detachment provided only command personnel and a message center. Most communication personnel came from a communication platoon (of 5 officers and 116 men) in the regimental headquarters company. This unit supplied a section of wire and radiomen and a communication officer to the regimental headquarters and each battalion headquarters. The three rifle battalions remained almost entirely on foot (even their attached communication sections were each allowed only a single 1.5-ton truck with which to move their equipment) but the rest of the regiment was fully motorized.

It was hoped that collating all the regiment's heavy weapons into a fourth battalion would give the regimental commander a large and very flexible firepower reserve. Although each .30 caliber machinegun company could be attached to an infantry battalion, it was considered doctrinally desirable that the fire of these guns be massed as much as possible. Thus a battalion that was to conduct a major attack might have two or even all three machinegun companies firing in its support. On the other hand, the primary purpose of the .50-caliber antitank company was to provide guns for antitank protection. Doctrine in this case held that, rather than being concentrated, such guns should disperse throughout the regiment's sector in order to cover all possible avenues of approach for enemy armor. Since most of the world's tanks in 1936 were in fact very lightly armored, the use of a .50-caliber gun as an antitank weapon was not unrealistic, although spreading the guns out probably was. The .30 caliber machineguns were also intended to provide air defense. Field-testing soon revealed that the Fourth Battalion commander could exercise few tactical responsibilities. In practice his three machinegun companies nearly always operated under the three rifle battalion commanders while his antitank and mortar companies worked directly under the regimental commander. Therefore the Fourth Battalion commander generally acted as an advisor to the regimental commander on the best use of his weapons, while he ensured that his forward-deployed companies remained fully stocked with ammunition.[194]

Since 1921, the 29th Infantry had been without its third battalion. Not only was a third battalion not created under the test organization, but the fourth battalion's third machinegun company that would have supported it was not created either. Likewise, the headquarters company did not maintain communication or truck sections for a third

battalion. A third truck section was later created, however, as experience showed that some trucks were needed to simulate the third battalion's presence during maneuvers. Later, the regimental headquarters company also improvised a headquarters detachment for the missing battalion. Throughout its brief life span the test regiment carried out extensive maneuvers in which it operated both on its own and with light tanks and motorized artillery.[195]

By December 1936, enough experience had been gained for a further refinement of the new regiment. Within the rifle platoons, the rifle sections were eliminated and replaced by three nine-man rifle squads and an eight-man LMG squad operating three BAR/LMGs. A lieutenant, two sergeants (a platoon sergeant and assistant), and three messengers made up platoon headquarters. A five-man light mortar squad carrying an experimental Hotchkiss-Brandt 47mm mortar reinforced each rifle company headquarters. The 47mm mortar was a scaled down 81mm that could fire exploding shells or pyrotechnics for signaling. Rifle company strength fell to five officers and 137 men. A rifle battalion would employ three of these reduced rifle companies in peacetime but would get a fourth one in war. At the same time, the Infantry Board reconfigured the special weapons battalion. It eliminated the mortar and antitank companies but added a .50-caliber antitank machinegun platoon to each machinegun company and moved the 81mm mortars to the division artillery. These changes cut the total wartime strength of the reorganized regiment to 110 officers and 2,362 men (excluding attached medical personnel and chaplains).[196]

Testing in 1937 and 1939 was even more exhaustive and embraced not just the 29th Infantry but the entire 2nd Infantry Division, now structured as an experimental division for the tests. Field trials were supplemented by General Staff studies that not only plumbed previous maneuvers but also promulgated the recommendations of many senior officers and knowledgeable individuals together with the results of an extensive study of foreign division organizations. The findings of these studies finally settled the old post-World War I arguments about the merits of "square" or "triangular" infantry division decisively in favor of the latter. However, square divisions still endured (at least in the National Guard) until wartime mobilization began in earnest at the end of 1941.[197]

The chief of staff of the experimental 2nd Division was Colonel Leslie J. McNair, an officer whose experience in designing tactical organizations stretched back to the First World War. McNair's influence on the test exercises was profound and he saw to it that they were as thorough and realistic as technology and peacetime budgetary constraints permitted. He was able to assemble and evaluate an entire division organization piece-by-piece, beginning with the rifle squads. Testing focused on such issues as frontages that given units could or should hold; firepower per man and per unit; ammunition allowances; and the impact of motorization on mobility in general and on transportation capacities in particular. It also looked at what the infantry needed in terms of artillery support and also devised a methodology for echeloning automatic rifles, machineguns, and mortars within the infantry regiment. Other issues such as maintenance requirements; time/distance studies; communications; what service support elements the division had to have, and what service support functions could be relegated to corps and army echelons were also examined. McNair summarized his findings in a report first published in March 1938 wherein he recommended the adoption of a very austere triangular infantry division of 10,275, with three infantry regiments of about 2,400 each. McNair got rid of the weapons battalions and restored the infantry battalion as the basic fighting element. He believed that regiments should no longer be the fighting units because firepower improvements were distributing them over frontages too broad for easy control. Battalions should subsume all combat and combat support elements required in most combat situations. Less critical elements could be attached when needed. The infantry battalions regained their machinegun companies but those companies lost their .50-caliber antitank platoons. The 81mm mortars, having been found unsuitable for the artillery, reappeared in a two-gun platoon in each infantry battalion headquarters detachment. This increased the latter's strength to five officers and 63 men. The rifle companies reverted from four per battalion back to three but the rifle platoons reverted to the two-section/six squad and four LMG configuration of 1935-36. The number of 47mm mortar squads increased from one per company to one per platoon. The elimination of ammunition bearers reduced each mortar squad to two men but platoon messengers or anyone else who might be available could help carry mortar ammunition. These changes boosted each rifle company to five officers and 168 men. An important consideration underlying this increase was that small rifle companies were less economical with manpower. Even a smaller company needed almost same number of rear echelon personnel (mess and supply sergeants, clerk, cooks, etc.) to support itself as a much larger one did. Thus, replacing four small companies with three larger ones saved a company's worth of "overhead" while offering comparable firepower and mobility. At the regimental level, antitank defense was concentrated into an antitank company of eight of the new M3 37mm guns. These guns were American produced versions of the German 3.7cm Pak 35/36. They not only replaced .50-caliber machineguns in the antitank role but their ability to fire high explosive shells also enabled them to replace the old M1916, M1, and M2 37mm guns in the infantry support role. The regimental service company was broken up, its elements being absorbed by the battalion headquarters detachments and the regimental headquarters company. Communication personnel continued to be centralized in a regimental communication platoon.[198]

THE DECEMBER 1938 REORGANIZATION

In light of the deteriorating world situation and the resultant willingness of Congress to pass larger military appropriations, the War Department believed that it could afford to pad Colonel McNair's extremely austere organizations with additional men. Congress would eventually open the manpower floodgates with further spending increases as well as conscription. Combat organizations could now be designed more on a basis of what was desirable than on what was affordable. In this vein the War Department issued new organization tables for a division of about 15,000. This was much larger than what McNair (soon to become a Brigadier General) had proposed but it would be fully motorized and far "leaner" and more nimble than the square division[o] that it would replace. In terms of size, there was much less distinction between the War Department's and McNair's infantry regiments. The regiment which the War Department mandated, even at its full war strength and with all its attached chaplain and medical personnel, totaled 2,542 officers and men or only about 140 more than what McNair had recommended.[199]

Rifle squads and platoons were again shuffled. The Infantry Branch was sure it had been on the right track when it increased the rifle squad to 12 men (eight in peacetime) in its December 1936 review. This permitted the deletion of the awkward rifle sections while maintaining the platoon at an acceptable size. Since 12 men were considered too many for a corporal to handle, a sergeant would lead the new squad and a corporal would assist him. The larger squad promised to be much less brittle than the older seven, eight, or nine-man organizations. Senior officers well remembered that the eight-man AEF squads had required frequent reorganization in response to the constant attrition that whittled away their strength. This resulted in personnel turbulence that sapped unit cohesion at its most vital point. Since the minimum doctrinal size of a squad was six men a 12-man squad could function without reorganization even after losing up to half its members. Three 12-man squads could form a greatly simplified three-element 40-man platoon that even a hastily trained wartime lieutenant should be able to command effectively.

For armament, the rifle squads would only carry M1 rifles. M1903 rifles, with one BAR per squad, would serve until enough M1 rifles became available. Rifle squads would be highly mobile since no squad member would be so heavily loaded as to be unable to move long distances at a walking pace or "double time" for short stints. Rifle platoons would also carry no crew-served weapons, lest the weight and ammunition requirements of these devices reduce the platoon's mobility and their manning requirements cause a reduction in rifle squad strength.[200]

The new rifle company (see Appendix 4.2) would include crew-served weapons but would concentrate them in its headquarters rather than distribute them among its platoons. To accommodate the new weapons, the company headquarters would expand to a platoon and would serve as a weapons platoon in all but name. The company headquarters portion of the new unit still followed the conventional pattern except that in wartime it would have two command elements. The larger one (under the company commander) would control the company as a whole while the smaller (under the headquarters platoon commander) directed the two weapon sections. The balance of the company headquarters constituted two weapon groups and the rear services group. One of the weapon groups was a light mortar section armed with another Hotchkiss-Brandt mortar, the 60mm M2. This weapon replaced the 47mm, which had finally been deemed to be too light. The 60mm mortar, as originally designed for the French Army, had nearly twice the range of the 47mm (1,900 yards vice the 47mm's 1,000 yards) and could fire a shell with about three times the effective casualty radius (15 yards or so). Like the 47mm, it could also launch pyrotechnics. Its disadvantage, of course, was that it was much heavier. The mortar and its accessories weighed 50 pounds and constituted a two-man load, whereas the 20-pound 47mm mortar could by carried by one man. Individual 60mm rounds were also was much heavier than 47mm. A five round box of 60mm ammunition weighed about 18.5 pounds and a five-man mortar squad could carry, in addition to the mortar, no more than six boxes (30 rounds) or enough for perhaps 90 seconds' firing at the maximum rate. By contrast, the same five-man squad could carry 96 rounds of 47mm.

The mortar section would normally operate within 500 yards of the company's front line. It was expected that cover would almost always be available within this zone. Visual or voice communication with other company elements should always be possible and the mortars should be able to observe and engage targets facing all or most of the company's front line. Though the mortar section had only two squads, it was issued a third mortar for use by its mortar squad amnmunition bearers in "defensive" situations when tactical movement was not required.

The other weapon section was the BAR/LMG section, with two seven-man squads, each operating two BAR. The LMG section was intended to follow the leading rifle platoons to deliver flanking (and hopefully) enfilading fires across its own or an adjacent company's front in either the offense or defense. It could also deliver supporting fires through gaps between platoons. Both LMG squads would normally be used together and would rarely if ever

[o] The square division had, by now, swollen to a wartime (paper) strength of 22,000 men.

be attached out to the rifle platoons. There were now only two LMG squads per company, as compared to six in the 1935 regiment and the regiment Colonel McNair had designed. However, it was expected that this reduction in automatic firepower should be offset by the replacement of the BAR by the M1919 LMG. This weapon could offer greater accuracy and stability and two to three times the BAR's effective rate of fire. However, an LMG squad could operate only one M1919 at a time. The other would be kept in reserve for defensive situations. Because its weapon sections could only hand carry their primary weapons and a very limited supply of ammunition, each rifle company would include a light truck (at first, a commercial-type 1.5-tonner) to carry its spare crew-served weapons and ammunition. When the enemy was not in close proximity, it would carry the primary weapons as well.[201]

The resulting rifle company, though larger that what General McNair would have preferred, was better armed, and offered more tactical independence and flexibility than any previous company. Its standard for tactical mobility at the company level was that all weapons and equipment had to be light enough to be hand carried over extended distances and varying terrain at a walking pace. However, (unlike at platoon level) the men carrying the crew served weapons and ammunition would not have to be able to "double time" and it was understood that they would have had to rest more frequently. The LMG and mortar sections comprised a *de facto* weapons platoon and established the company as the smallest tactical unit that could generate its own base of fire. They gave the company commander a tool with which he could influence the battle even after all his rifle platoons had been committed.[202]

The old machinegun company had been expanded into a heavy weapons company, charged with giving close support and protection to the rifle companies (see Appendix 4.3). "Close support," meant acting as the battalion's base of fire while "protection" included protecting the battalion's flanks, assembly areas, and bivouacs by fire. As had been the case in the 1935 experimental motorized regiment, the new company was oriented around its two platoons of water-cooled Browning .30 caliber M1917A1 heavy machineguns (HMG), augmented by an antitank platoon (air-cooled .50-caliber machineguns) and a platoon of 81mm mortars. Although the weapons company commander was responsible for the supply, training, and administration of his entire company, in battle he normally controlled only his two HMG platoons. The antitank and mortar platoons worked directly under the battalion commander. Although the HMG platoons continued to perform largely as they done had in the First World War, the presence of LMG's in the rifle companies allowed them greater flexibility to position themselves further back from the front line. HMGs continued to operate in pairs. In the offense, they covered the flanks of the battalion and directly supported the rifle companies with flanking or overhead fire. They also protected the battalion's objective, once it had been seized, from enemy counterattack. They could deliver antiaircraft fire as well. Although overhead fire was seldom practiced during peacetime for safety reasons, each HMG platoon did include a fire control corporal to direct the platoon's indirect and overhead fire. In the defense, the HMGs would cover the battalion's front line with a barrier of flanking enfilade fire that an enemy would have to cross in order to reach the battalion's positions. This is still a standard defensive tactic. Like the rifle company's M1919-equipped LMG squads, each HMG squad actually had two guns. One was for "normal" use when tactical mobility was necessary. The second was reserved for "defensive" situations where the squad would be stationary and its four ammunition bearers would be free to man it. This extra gun, plus water and ammunition for the primary gun, would be carried in the squad's light truck.[203]

The battalion antitank platoon was armed with two M2 Browning .50-caliber machineguns. These could be used singly or in pairs to cover the most likely armor avenues of approach. Although M3 37mm antitank guns were entering service, they could not be hand carried and thus exceeded the mobility parameters laid down for battalion level weapons. Even so, the .50-caliber was by now regarded as too light for antitank work and the Army was contemplating its replacement with a 20mm or 25mm weapon on a wheeled carriage that could be hand drawn.[204]

A debate over whether to concentrate the regiment's 81mm mortars into a single company or to divide them among the battalions was resolved in favor of dividing them. Although the concentration of mortar fire made possible by the former course of action could be very desirable in many circumstances, the Chief of Infantry was adamant that concentration of fire was really the province of the artillery. Infantry weapons should distribute their fires along the front so as to fill the gaps left by the artillery and other supporting arms. The new mortars (both 60mm and 81mm) were regarded as by far the most significant additions to the infantry's armory. They were much more effective than the old Stokes mortars and rifle grenades at attacking trenches, shell holes, and other below ground positions that were relatively immune to flat trajectory weapons like rifles and machineguns. It was against the small targets, such as machinegun nests, that could stop the infantry's advance and which the artillery might easily miss that the Chief of Infantry believed that the new mortars should be used. Infantry mortars were not there to duplicate, compete with, or even to supplement the artillery but to complement it. They would focus on the "detail" work for which the artillery was less effective and/or economical, especially given the lack of rapid and reliable communications that bedeviled infantry-artillery cooperation. The new mortars would operate well forward. The 60mm mortars would be within 500 meters of the front line and the 81mm within 1,000. The mortars could be in defilade but their observers had to be able to see all or most of their sector and then communicate with the

mortars by voice or hand signal. This was because the Army had adopted a deliberate policy of not issuing radio or telephone equipment to its infantry mortar units. Although the Army acknowledged that telephone communication between the mortars and their observers could be useful, it feared that wire or radio equipment would encourage placement of the mortars too far from the fighting for them to be really effective. If wire and radio communications were available they could be better used to call in the regiment's supporting artillery. The whole point of having mortars was to reduce dependence on such communication means, which, under battle conditions, could be very unreliable. In addition to directing fire, the mortar observers (usually platoon or section leaders) chose their targets, in accordance with what they could see of the situation plus any guidance contained in their current operation orders and what they knew of the battalion's mission. They did not normally take calls for fire from front line rifle units. They had to be close enough to see the action and to know where friendly troops were and where and when they needed help.[205]

The new battalion headquarters detachment (see Appendix 4.4) was extremely austere. The staff consisted only of a lieutenant colonel battalion commander, a major serving as both executive officer and operations officer, and one lieutenant who combined the roles of adjutant, intelligence officer, and headquarters detachment commander. A supply officer from the service company and a communication officer from the regimental headquarters company were normally present as well. The staff received enlisted support from the headquarters section of the headquarters detachment. The intelligence section furnished trained scouts plus a topographical draftsman. An ammunition or pioneer section provided ammunition carrying parties. These would be especially important when the weapons carriers could not get ammunition close enough to the mortars or machineguns they supported for the crews to move it the rest of the way without assistance. Instead of a communication platoon, there was only a message center section. All other battalion communicators would come from a battalion section of the communication platoon in the regimental headquarters company.[206]

Although the battalion was clearly the infantry's basic fighting unit, a battalion would still depend heavily upon its parent regiment for most of its supply, communication, medical, and administrative needs. Regimental headquarters did have, more or less, a full staff and, if authorized, a regimental band. Enlisted support for the regimental headquarters would come from the headquarters company headquarters and the intelligence platoon. The former provided a mess team and five (four in peacetime) commercial Ford *Phaeton* five-passenger sedans with drivers. One of these sedans was for the company headquarters' own use. Attempts to armor the *Phaeton* were unavailing but its lightweight contributed considerably to its mobility since it was easy to push when it got stuck.

The antitank platoon gave the regimental commander an antitank reserve that was fully motorized but not radio equipped. It was not as large as the eight-gun company that General McNair had recommended, but its six 37mm M3 antitank guns could augment the three battalion antitank platoons. In 1939 and 1940 the War Department was able to pare an officer and ten men from this platoon without greatly affecting its efficiency.[207]

The largest element of the headquarters company was the communication platoon. The four sections that it provided to the regimental and battalion headquarters were all similar, except that the regimental section included its own message center. All four sections, however, had wire and radio/visual subsections. The battalions took full control over their communication sections, once they were attached, but the regimental commander retained authority to order them to install certain regimental wire lines in order to expedite the setup of the overall wire net. Additionally, the section of a battalion not in enemy contact might be ordered to install wire lines for the regiment. In the defense or in a deliberate attack, a battalion would normally maintain two telephone stations, one at the battalion command post, and one at an observation post (usually manned by intelligence platoon personnel) co-located with the observers from any artillery that might be directly supporting the regiment. In addition to voice traffic, buzzer phones (of which the regiment had five) might be used to transmit CW messages over telephone lines. Occasionally, phone lines might be extended to the rifle and weapons companies of one battalion but additional telephones would have to be borrowed from regiment in order to implement this. In a rapid advance, a battalion might bring forward one phone line with which to connect itself to its parent regiment.

For radios, the regimental section carried two 179-pound, 15-mile ranged SCR-171s for communicating with division level and higher headquarters and three 76-pound five-mile ranged SCR-131s for communicating with the SCR-131 held by each battalion section. Both the SCR-171 and SCR-131 sets transmitted in CW (Morse code) only and were hand generator powered. However, the regiment was also, and for the first time, issued with man-packed battery powered voice radio sets. These were SCR-195s and with all its accessories and spare parts kit each one weighed 91 pounds. However the load that an operator actually had to carry was only 26 pounds. The SCR-195 could transmit up to 4.5 miles in ideal conditions though practical ranges were only about three miles in dry weather or two miles in wet. It was not capable of CW transmission nor could it transmit within SCR-131 or 171 frequency ranges. Each regimental or battalion section was allowed two SCR-195s (for a total of eight in the regiment). One SCR-195 from this pair, with its operator would accompany the regimental or battalion commander while the other

would be given to a remote station such as in an observation post, at the head of a march column, or with the point company during an advance, etc.[208]

Communication security was already posing difficulties since encryption and decryption was slow with CW systems and generally impossible with voice systems. The M-94 cipher device, for example, which equipped battalion and regimental message centers, could only encrypt/decrypt one word per minute, though if the division field code or air-ground liaison codes were used the speed increased to about three words per minute. CW transmission was the fastest. A telegraph/buzzer phone could process up to 30 ten-word messages per hour. A radiotelegraph set (SCR-131 or 171) was good for 15 to 20 messages per hour but a voice radio was only two thirds as fast. Visual signals were even slower and depended on good weather. A lamp could transmit ten messages per hour; signal panels only three per hour. All traffic except telephone conversations (which were supposed to be limited to tactical matters) had to be written in triplicate on the appropriate forms and routed through the regimental or battalion message centers. The message center chief usually selected the means of transmission since he knew best what was available. Messengers (some of them motorcycle equipped) remained an important communication means at all echelons but especially in the rifle and weapons companies, which still had neither telephones nor radios.[209]

MOBILITY AND LOGISTICS

The new regiment was intended to synthesize the often-competing qualities of unprecedented firepower and high tactical mobility. Although the switch to motorization had relieved the regiment of the need to provide fodder to draft animals, its men still had to be fed and watered; its trucks had to have fuel, maintenance, and spare parts; and its new crew served weapons needed mountains of ammunition. Thus, the quantity of supplies needed to maintain the battalion's combat capabilities could ruin its mobility if transportation was not carefully managed. An efficient high-demand logistical system could assure mobility and flexibility by increasing the frequency, volume, and reliability of supply deliveries. If, for example, a unit could count on getting its food and water replenished each day, it need only carry a day's supply of food and water. If it could count on getting more ammunition within an hour of entering a battle, it would only have to carry an hour's worth of ammunition. Like the "just-in-time" supply concepts being preached today, the new system capitalized on the high speeds and long distance travel capabilities of the new military trucks that the Army was introducing. Such vehicles made it possible for a regiment to bypass division supply and draw directly from corps or army supply heads. Despite the distances involved, supplies could be rushed to a front line unit within hours of a request rather than days. Shorter delivery times minimized what combat units had to carry with them, and thus boosted their tactical mobility. Delivery schedules could be maintained, even in the face of difficult or extended routes (or heavy demand) by selective reinforcement of the transport elements of the units involved. The heavily burdened fighting units of World War I could become a thing of the past.

The infantry regiment's service company was the primary operator of the new system. This company was designed to release the greatest number of men for combat service while filling all routine supply requirements. The regimental supply officer (S-4), who was a major, did not command the company although he was administratively assigned to the its headquarters. Instead, his assistant, a captain, was the actual company commander. As such he was responsible for the company's discipline, administration, and training (except for the special training conducted by regimental staff officers). He was also responsible for the regimental motor echelon, while it was moving or in bivouac. The motor echelon consisted of the service company transportation platoon (less detachments), plus any rifle or weapons company vehicles that might temporarily fall under regimental control. The service company headquarters was divided into a command group and an administrative group. The former included the vehicles, messengers, and orderlies (the latter not added until 1940) used directly by the company commander and S-4. The latter handled "housekeeping" for the rest of the company and included the mess detail, supply sergeant, clerk (a corporal), armorer, carpenter, and the kitchen and baggage truck with its driver, and was led by the mess or supply sergeants, whoever was senior. The two motorcyclists in the company headquarters were attached to the supply section of the regimental headquarters platoon.

The service company's regimental headquarters platoon was, as before, a notional structure that administratively housed the regimental staff and supply sections (and, in earlier days, the regimental band). The staff section's purpose was to support the regimental adjutant (S-1) and operations officer (S-3). A personnel officer, personnel sergeants, administrative and mail clerks, and the chaplain's assistant all worked for the adjutant. A technical sergeant (operations) assisted the S-3 and some of the administrative clerks also performed S-3 functions. The two regimental color sergeants still looked after the regimental colors but now they also oversaw the interior security of the regiment, guard details, and related tasks. In combat, they worked with the regimental

headquarters commandant (the headquarters company commander) to control stragglers, guard prisoners, and the security of the regimental baggage.

The supply section accomplished most of the administrative work of the regimental supply system. Functionally, it was organized into a supply-office group, a receiving and distributing group, and an ammunition supply group. The supply-office group directly supported the S-4 in his capacity as a regimental staff officer. Operating with the regimental train and staffed by the regimental supply sergeant, three clerks, and two messengers, it maintained records, consolidated requisitions and receipts, and compiled reports. The receiving and distributing group operated directly under the service company commander and received all classes of supply except Class V (ammunition) that arrived at the regiment from higher supply echelons. The group established regimental distributing points for Class I (rations/water), Class III (petroleum, oil, lubricants; or POL), and Class IV (engineer supplies, mainly tools) and then sorted and apportioned the supplies among the different elements of the regiment for collection by their intended recipients. As the group consisted of only a staff sergeant and a few clerks and basic privates, it could actually perform only its administrative functions. Work details from the units that were to receive the supplies actually performed most of the physical work of loading, unloading, sorting, and distributing them.

Finally, the ammunition supply group directed the handling of Class V supplies. It consisted only of the regimental munitions officer (a captain) and the munitions sergeant, though both men were issued service company motorcycles with sidecars and drivers. (Until 1940 one motorcycle came from the company headquarters and the other from the supply section. After 1940 both motorcycles came from company headquarters.) They operated the regimental ammunition point and took charge of those ammunition vehicles operating under regimental control. For labor, they would have the use of the three battalion ammunition and pioneer sections.

The largest and most important element of the service company was, of course, the transportation platoon. The platoon commander (a captain) was also regimental transport officer and effectively functioned as the service company executive officer. He assisted with the establishment, control, defense, and operation of the regimental train bivouac. He was responsible for the maintenance of his vehicles and for the training of his drivers and mechanics. He was also responsible for their operations except when they were detached from the regiment or had passed to the control of the regimental munitions officer. A master sergeant transportation chief and mechanical inspector served as the transportation platoon commander's assistant and platoon sergeant. He also supervised vehicle maintenance and the preparation of records and reports. The truckmaster (a sergeant) assisted in controlling the movement and operation of the regimental train and usually accompanied the kitchen and baggage vehicles when they were under regimental control. In addition there were drivers for platoon headquarters vehicles.

The commander of each battalion section was a lieutenant who doubled as the supply officer of the battalion that he supported. His section sergeant also served as the supported battalion's supply sergeant. Although the lieutenant commanded his section in garrison, in the field he was really in charge of his trucks and drivers only when they operated under battalion control. The section truckmaster (a corporal) was responsible for the movement of the section vehicles and usually rode with them. Two of the section's 1.5-ton trucks carried supplementary ammunition for the rifle companies. Four others carried the field kitchens, a day's rations, and the bedrolls for the battalion's four companies (the battalion headquarters detachment fitted itself in where it could) and the remaining truck was a spare. The field kitchen trucks were badly overloaded. Although each of them was equipped with a 3/4-ton trailer, this only raised its rated payload to about 4,500 pounds while the payload it actually had to carry was some 6,800 to 8,350 pounds, depending on how much water was included. Each truck had to make two trips to ferry its required load. However the Infantry School recommended the alternative of cramming the essentials into one load and leaving the officers' and men's bedding/pack rolls to be brought forward later in trucks furnished by higher headquarters.

Besides the three battalion sections, the transportation platoon included another kitchen truck with trailer, driver, and relief driver for the regimental headquarters company. Another such truck for the support of the service company existed in the service company headquarters. There was also a small motor maintenance section manned by a staff sergeant, a clerk, three mechanics, a welder, and a motorcyclist. For the battalions there were three two-man maintenance teams, each carried in a 1/2-ton pick-up truck.[210]

The vehicles and drivers from this unit and from the regimental medical detachment constituted the regimental train. The Army defined a "train" as that part of a unit's transportation that operates immediately under the orders of the unit commander and is used primarily for supply, evacuation, and maintenance. The train did not include the weapons carriers in the rifle and weapons companies that were permanently assigned to squads, platoons, and companies for tactical use. In an infantry regiment, the train was further divided into four parts. Which part a given vehicle and driver happened to be in depended on what functions it was performing at the time. The ammunition, or "combat," train included all vehicles and personnel used to carry ammunition; the kitchen-and-baggage or "field," train included the vehicles carrying water, rations, kitchen equipment, and other gear not required for actual combat. The engineer equipment train was essentially the engineer equipment section (referred to above) when it was

attached. There was also a medical train. The maintenance section was also considered a train. When not released to battalions or otherwise employed, regimental train vehicles would occupy a bivouac area some miles in the rear. The area chosen had to be accessible to vehicles but it should also offer some cover and concealment and be outside the range of at least the enemy's light artillery. The regimental maintenance shop could be located there and baggage and bedrolls staged there for issue when appropriate. The company field kitchens and mess teams would normally stay there during the day to rest and prepare food to carry up to their companies. However, meals might alternatively be prepared in a battalion bivouac area. There would also be a regimental supply point for the receipt and distribution of supplies other than ammunition. The receiving and distributing group of the regimental supply section would operate it. Non-ammunition supplies were brought forward from the supply head to the regiment by vehicles of the kitchen and baggage train using methods similar to those used for ammunition. The trucks (usually the battalion kitchen trucks doing double duty) would pass through a division supply point en route to the supply head. At the regimental supply point they would either drop their loads or be directed further to the battalions and/or companies.

By 1941, the ration situation had considerably improved. The Army defined a ration as an allowance of food (or water) for one person for one day. The War Department had developed and type classified a new series of standard rations designed to meet situational requirements. Field Ration A was essentially the normal peacetime garrison ration and featured commercial-type perishable food requiring refrigeration. Field Ration B was the same except that non-perishable canned substitutes replaced the refrigerated items. Field Ration C was a cooked, balanced, canned ration which, during the Second World War era, consisted of three cans of prepared meats and vegetables and three cans of crackers, sugar, coffee, etc. Non-perishable, it was intended as a unit or individual reserve ration. Field Ration D was what the Germans called an "iron ration." Intended for emergencies and to be carried by the soldier into combat in place of or addition to C rations, it consisted of three four-ounce chocolate bars. Neither the C nor D rations required any preparation by company field kitchens and were merely issued as required. The goal was to give the soldiers three meals a day of which two would be hot meals (A or B rations) prepared by the mess teams. Meals would generally be served (and filled water and gasoline cans delivered) after dark and just before dawn. Kitchen trucks could get much closer to the troops during hours of darkness without being seen or fired upon by the enemy.[211]

Because of the greatly increased quantities of material involved, efficient ammunition supply was central to the success of the whole system. Ammunition was carried by motor vehicle as far forward as possible before unloading and final distribution to users. When in combat and after he had dumped his organic load, the driver of a transport vehicle not needed for some other purpose was usually given a requisition for ammunition and sent to the ammunition supply points of progressively higher units until his requisition could be filled. When not in combat, transport vehicles used as ammunition carriers maintained an initial load of ammunition that was additional to what the men carried on their persons. This initial supply was calculated to last until a regular flow of ammunition from a higher headquarters supply source could be established. The bulk of the initial ammunition was carried in the battalion weapons company vehicles that served as mortar or machinegun squad weapons carriers. The load that had to be carried by a machinegun or mortar squad totaled between 700 and 1,000 pounds. An HMG squad had two guns but carried water and ammunition for only its primary gun. Each HMG with its tripod weighed 85 pounds, exclusive of seven pounds of water carried in the primary gun (the reserve gun was left dry). For the primary weapon there were four 23-pound water chests. These would cool the gun while it fired off its standard load of 6,750 rounds of ammunition (27 250-round belts packed in metal boxes and weighing a total of 554 pounds). A single 250-round belt could be consumed in only two minutes if fired off at the HMG's maximum sustained rate. Thus, 27 belts were not considered an extravagant supply for one gun. Likewise, an 81mm mortar squad had to carry 143 pounds' worth of cannon tube, mount, and accessories. Its 949 pounds of ammunition included 78 rounds of "light" shells, at 9.1 pounds apiece for a complete round in its carrying container, and 18 rounds of "heavy" shell at 13.16 pounds per complete round. The heavy shells were special short ranged (1,200 meters) high explosive projectiles intended to demolish bunkers and other "hard" targets. The 96 rounds constituting the mortar's basic ammunition supply could be fired off in only six minutes at the mortar's best sustained rate of fire or in as little as three minutes at the maximum rate. An antitank squad had the smallest load. Its .50-caliber M2 machinegun and tripod weighed 125 pounds and the 1,200 rounds of ammunition carried for each gun, a mere 432 pounds.

These loads made a light truck or "weapons carrier an essential part of every weapons squad. Initially, 1.5-ton cargo trucks served in this role. Although these trucks had adequate cross country mobility and a more than ample payload capacity (it could carry all the squad members as well as their ammunition and equipment) they were too large and conspicuous to operate safely anywhere near the enemy. Testing revealed that the new 4x4 1/2-ton trucks had better cross-country mobility, were much less conspicuous, and could still carry sufficient payloads. These machines replaced the 1.5-ton trucks in the weapons carrier role (the 1.5-tonners remained the principal cargo carriers for the service company) on a "one-for-one" basis as they became available during the early part of 1940.

They also replaced the 1.5-tonners in the regimental signal platoon on a "two for one" basis. The 1/2-ton truck appeared in both "command and reconnaissance" (C&R) or "weapons carrier" (WC) variants. The C&R version featured a full-length passenger compartment with seats. The WC type, on the other hand, had a two-seat cab forward and a cargo bed behind. There was even a "pick-up" version with a folding tailgate. The C&R trucks, being sturdier and having better cross country mobility, replaced most of the *Phaetons* used by weapons platoon and company commanders. Ammunition supply plans were soon recalculated based on the cargo capacity of the 1/2-ton WC or pick-up truck.

Only three members of an eight-man weapon squad could actually ride in a 1/2-ton weapons carrier in addition to the squad's weapon and ammunition load. Five squad members had to walk; though in some cases one man per squad could ride in the platoon commander's vehicle. This divided a squad into separate "ground" and "motor" elements, each with very different rates of travel. If the enemy was not in close proximity and there was no great danger in allowing the two elements to separate, they could displace by moving at different times or along different routes. If action was imminent, or if the enemy were close enough to be a serious threat then all squad members (except for the weapons carrier driver) would march together on foot, hand carrying one weapon and as much ammunition as they could. The residual ammunition would follow in the weapons carrier. An HMG was a three-man load. An 81mm mortar and its accessories required four men. The remaining three or four squad members could either carry 18 81mm rounds or a water chest and seven boxes (belts) of HMG ammunition (1,750 rounds). Individual loads varied between 30 and 60 pounds, besides 40-50 pounds of personal weapons and equipment. Handcarts could have more than doubled the amount of ammunition that a squad could carry but they do not appear to have been much used. The soldiers seem to have preferred hand carrying over short distances to pulling carts over longer ones.

Once its squad had "dismounted" the weapons carrier could remain nearby or go back for more ammunition. In an attack, ammunition would be kept on board the carriers as much as possible so that it could be readily moved to follow the course of the battle. When directed by the company transport sergeants and platoon transport corporals, a few carriers at a time would be sent to the rear to pick up more ammunition. The remaining vehicles would keep as close to their heavy weapons as they could, using ammunition bearers from their own squads or from the battalion pioneer section to get ammunition from each carrier to its gun as it was needed. In the defense, the carriers would dump their ammunition close to the guns and move well to the rear. Small additional dumps could be created near command posts. In battle, the mortars would require the most frequent resupply because they consumed ammunition by weight faster than any other weapons. However, because they could fire from defilade positions they were usually the easiest to reach. Even so, it was expected that carrying parties from the pioneer section would most frequently be needed to bridge the gap between the mortars and their carriers. Based on First World War experience, the HMGs were also expected to be heavy ammunition consumers but much less accessible to vehicles and/or carrying parties since they were likely to deploy closer to the enemy and in a direct fire mode. The .50-caliber guns seemed to pose the fewest ammunition supply problems since their rate of expenditure was likely to be low.[212]

In a rifle company, ammunition supply procedures were somewhat different. The rifle company weapons carrier was at first a 1.5-ton truck, replaced in early 1940 by a 1/2-ton weapons carrier. This vehicle would carry the company's three 60mm mortars (including the one spare) and four M1919 LMGs (including two spares). The mortars weighed about 40 pounds apiece and the LMGs, with their tripods, spare parts, and other accessories weighed 51 pounds each. Also carried would be 120 rounds (420 pounds) of 60mm ammunition and an uncertain quantity of LMG ammunition, probably 10 to 12 250-round belts totaling 200-250 pounds. However, until late 1940 practically every rifle company used M1918A2 BARs as its LMGs. When this occurred none of the four LMG served as spares. Each LMG gunner, assistant, and ammunition bearer would carry 80 rounds (in 20-round magazines). Another 900 rounds per BAR/LMG would be carried on the truck. Just prior to combat each BAR/LMG team would receive 300 rounds beyond what it was already carrying (100 each for the gunner, assistant gunner, and ammunition bearer). Each 60mm mortar squad would carry its mortar and 30 rounds. In the rest of the company, each rifleman would receive a 96 round bandoleer in addition to the 40 rounds he was already carrying. The bandoleers would come from the two trucks of the battalion's ammunition train (part of its service company transport section). These trucks would also carry a total of 360 rounds for the 60mm mortars plus additional BAR/LMG, pistol, and rifle ammunition. After the weapons carriers had been "topped off" whatever ammunition that remained on these trucks would be left at the battalion ammunition supply point (ASP) while the trucks themselves headed for the rear to pick up another load.

The battalion ammunition supply point (ASP) would be located at a place close to the companies where trucks could be loaded or unloaded under cover. It could shift as necessary to conform to the tactical situation. The battalion's pioneer and ammunition section (see below) would operate it under the supervision of the battalion supply officer. Weapons carriers arriving there in search of ammunition would be loaded and sent back for as long

as ammunition remained. Thereafter, the weapons carriers would be transferred from battalion to regimental control and ordered to proceed to the regimental ASP. Designated by the regimental commander with the advice of his supply officer (S-4), the regimental ASP would normally be located two to three miles to the rear depending on the road net. It would be on, or easily reached from, the MSR (main supply route) and was movable according to the tactical situation. The regimental ASP would offer cover for several vehicles and be operated by the regimental munitions officer, assisted by his sergeant. Empty vehicles could be loaded with any ammunition available there or they could be sent to the corps/army level supply head (perhaps 20-30 miles to the rear), passing through the division supply point (usually just a control point) en route. Service company trucks would normally make these runs, though company weapons carriers might do so if the need was great. There, they would pick up a new load of ammunition as directed by the munitions officer. They would then return to the regimental ASP by the same route. Upon arrival, loaded vehicles could be held in reserve, sent to a battalion ASP, or unloaded and sent back for more ammunition.[213]

Finally, the 1938 tables for the first time organized regimental medical unit was into permanent battalion and regimental sections, giving unit commanders some firm guidelines on how medical personnel should be distributed. The detachment's officers, except for two dentists with detachment headquarters were Medical Corps or Medical Service Corps members. They usually ranked as captains but sometimes as first lieutenants. The commanding officer, or regimental surgeon, was a major. Each battalion section included eight medical aidmen (two per rifle or weapons company), three (two in peacetime) four-man stretcher teams, and an aid station run by two officers and seven men (four in peacetime).[214]

THE 1940 REORGANIZATIONS

Having developed the War Department's new regiment to this stage, the Army plunged into a new series of maneuvers in 1939. The outbreak of the Second World War in Europe lent a special urgency to these proceedings, as Congress would soon begin to loosen the national purse strings as well as instituting the first peacetime draft in American history. These improved prospects for manpower and money, plus the additional experience from the maneuvers, resulted in a modest enlargement of the regiment in March 1940 to 2,776. The fall of France in 1940 helped to spur a much larger increase in regimental size, in tables dated 1 October 1940. This brought the regiment to 3,449 officers and men, including medical and chaplain personnel.[215]

Both the March and October reorganizations imposed numerous changes on the rifle company (see Appendix 4.6). In March, each rifle platoon acquired an eight-man automatic rifle squad and an extra messenger. The company headquarters platoon became the weapons platoon when the company headquarters became seperate. A platoon leader, a platoon sergeant, two messengers (one when at peace strength), and a weapons carrier and driver (recently dropped from the mortar section) formed the new weapons platoon headquarters. Except for the loss of its vehicle the mortar section remained unchanged and continued to have two squads and three mortars. In the LMG section the squads were actually reduced from seven men each to five, in anticipation of the near term introduction of M1919A4 LMGs. Five men were judged sufficient to operate one of these weapons but four would still be supplied (two as reserve weapons). One squad could carry a gun with its tripod and at least five ammunition boxes (1,250 rounds).

The automatic rifle (BAR) squad restored much of the automatic firepower that the rifle platoons had lost under the December 1938 organization. It also gave the BAR a place in the infantry's organization that it could occupy once the M1919A4 LMG had replaced it in the weapons platoon. Finally, it moved rifle company strength closer to the 200 man "ideal" that was small enough for tactical control but large enough to be economical with administrative overhead. The automatic rifle squad constituted the rifle platoon commander's firepower reserve. As such, it would generally stay close to the platoon leader or platoon sergeant during an advance. The squad could protect the platoon's flanks if one or both of these were uncovered. In the attack it provided the platoon base of fire and in both the attack and the defense it tried to use flanking enfilade fire to cover as much of the platoon's frontage as possible. The BAR squad could break down into two teams (or three teams if the platoon commander decided to use its third BAR) that could operate separately or as attachments to two or all three of the rifle squads. However, doctrine argued strongly against splitting up the BAR squad unless this was absolutely necessary. In general, the fire of the automatic rifle squad was to be held back until a critical moment since the squad could only carry enough ammunition to sustain its fire for a brief period of time. Each BAR gunner carried 80 rounds and his assistant carried 120, all in 20-round magazines. Another 820 rounds per BAR would be carried by the battalion's two ammunition train trucks. When the riflemen received their extra ammunition, each BAR gunner would get another 100 rounds (in magazines), 80 more (also in magazines) would go to his assistant, and 120 (in bandoleers) to his

ammunition bearer. This would leave 520 rounds per BAR in the battalion's ammunition trucks or at its ASP but getting this ammunition forward to the BAR squads under battle conditions could prove to be both difficult and dangerous.[216]

In an advance, the rifle platoon would commonly adopt a wedge formation with one rifle squad leading, followed by the BAR squad. The other two rifle squads, moving abreast, would bring up the rear. The platoon commander would frequently be out ahead reconnoitering the route to be taken. When the enemy was near the squads would advance by bounds, one squad moving under the cover of the others. Supervision of the BAR squad and responsibility for antiaircraft defense would generally be delegated to the platoon sergeant, who would also take charge of the whole platoon in the platoon commander's absence. The platoon guide would stay to the rear keeping an eye on adjacent units and checking for straggling. The rifle platoon would attack with two rifle squads forward and one back. If both flanks were secure the BAR squad would move behind the leading squads to support their advance. If possible, it would take up a flanking position from which it could bring the platoon's objective under direct fire.

Since the weapons platoon constituted the rifle company's firepower reserve, the company commander himself determined the tactical employment of its two sections. The weapons platoon commander was more concerned with the training and administration of his unit and, in particular, its ammunition resupply arrangements. He would also advise the company commander on, or be given charge of, the selection of march routes for his vehicles and weapon sections and of covered positions wherein they could await orders. For this purpose, he would frequently be found reconnoitering ahead of his unit in much the same way as the rifle platoon leaders. He would also advise the company commander on the selection of firing positions and would look for places where the weapons carriers could safely off load their ammunition within a reasonable carrying distance of the gun positions. In action, the LMG and mortar sections tended to operate separately. The weapons platoon commander generally took personal charge of the LMG section, after receiving instructions from the company commander about what he was to do with it. The 60mm mortars, on the other hand, operated directly under the company commander's control.[217]

The LMG section delivered short to medium ranged automatic fire in support of its parent company, if possible from a flanking position that allowed it to fire across its own front or that of an adjacent company. Both squads operated together and engaged the same targets, ideally those whose destruction or suppression would best support their own company's main effort. The LMG section stayed at two squads when the mortar section went to three since the LMG's were meant to be used together and three squads were considered too many for the section leader of a direct fire unit to control. The Army believed that adding another section was the best way to increase the number of LMG's but it probably did not do so to avoid making the weapons platoon too large. As for the existing LMG section, in an advance, or movement to contact, it would march behind and between the two leading rifle platoons, a position from which it could quickly deploy to where it was needed. In the defense, the section would be integrated into the battalion fire plan, and its fires coordinated with the battalion level HMGs, though it would remain under rifle company control. Other LMG tactics and techniques of position selection were similar to those used by water-cooled HMG's but limited by the LMG's shorter effective range and inferior sustained firepower. On the other hand, LMG's could easily outrange and outshoot even the improved BAR's while their tactical mobility was much batter than that of the HMG's. Nevertheless, an M1919 LMG still needed one man to carry the gun and another to carry the tripod. Before the gun could open fire, the tripod had to be placed, the gun attached to it, and then loaded with ammunition. This precluded LMG use by assault units. The BAR, on the other hand, needed only one man to operate it and did not have to be mounted or emplaced before it could open fire. The fact that the United States never even attempted to develop a weapon, like the German MG-34 or the British Bren, that combined LMG firepower with BAR mobility would constitute a significant weakness in the American infantry's armament.[218]

Though the LMG section did not expand the 60mm mortar section received a third squad in October 1940. This squad not only boosted the mortar section's overall firepower it actually increased its tactical mobility by enabling to keep two of its squads firing while the third displaced. It also enabled the attachment of a squad to each rifle platoon. This would normally be done during a tactical movement where there was little or no enemy resistance. It might also be used in the defense where an attached mortar squad could be co-located with the rifle platoon leader for maximum control. Otherwise, the tactical employment of the mortars was governed by (1) ammunition supply – the feasibility of getting sufficient ammunition to the mortars from the battalion ASP. Considerations included the availability of pioneer carrying parties and how closely a weapons carrier could approach the mortars' position; (2) Observation – the availability of positions close enough for easy communication with the mortars and from which all or most of the company's front line would be visible. Such positions were not always hard to find since the company's attack frontage was only likely to be about 200 to 250 yards wide even though in the defense it might be twice this; and (3) Defilade - the mortar position should be protected from enemy direct fire or observation. However, mortars were small enough that a shell hole, foxhole, or even a fold in the ground would suffice. The primary function of the mortars was to cover "dead space" in the company's sector not reachable by the company's

rifles or machineguns. They were best used to attack targets that lacked overhead cover. Although it was understood that the mortars should be used together, the need to attack multiple targets could require that individual mortars be given separate targets. The mortars could also fire pyrotechnics for signaling or illumination purposes.[219]

With the October 1940 reorganization, the rifle company's strength again increased, as shown in Appendix 4.6. Part of this resulted from the already mentioned expansion of the 60mm mortar section. The weapons platoon also received a second weapons carrier and a transportation corporal to supervise it and the existing weapons carrier. With two weapons carriers ammunition loads could now be redistributed. One carrier would get the three mortars (40 pounds each) and 180 rounds (60 per mortar, for a total of 530 pounds). The two LMGs (51 pounds each) and 6,000 rounds of ammunition (357 pounds) would go in the other carrier. Only two LMG's would be carried, all spare weapons having been discarded. In addition, each of the two carriers would have a BAR and 200 rounds (presumably in magazines) for its own anti-aircraft defense and for the protection of other weapons platoon elements. These BAR's could also be loaned to the rifle platoon BAR squads for defensive combat. It is worth noting that the two carriers now carried payloads well below the 1,000 pounds or so that each could accommodate. It was expected that additional hand grenades, rifle or BAR ammunition, and/or personnel would use up their remaining capacity.[220]

Another major change to the company was the addition of "basic" privates in the amount of about ten percent of the company's enlisted strength. Like Marine "other duty" privates, these soldiers were intended to address the chronic strength shortfalls resulting from "routine" and often temporary attrition caused by sickness, injury, and other authorized and unauthorized absences. Made possible mainly by the availability of draftees, basic privates had no specific duties or special training. Instead, they served as "live in" replacements, becoming familiar with their officers and non-commissioned officers and gaining some knowledge of the tasks they might perform when vacancies among the company's "non-basic" privates occurred. Even in the unusual situation in which there were no vacancies, basic privates could still make themselves useful by performing any of the myriad of duties required of any military unit but not actually provided for in the table of organization. These could include guard duty, work details, assisting the mess team, and service as additional messengers or ammunition bearers. Basic privates were thus a deliberate means of programming "fat" into an organization to enable it to absorb minor attrition without loss of efficiency. However, the presence of the basic privates drove the company's total war strength above the 200 men recommended by the Chief of Infantry but since it was expected that units would seldom operate at full strength, this was not considered a problem. To support the extra men, the company's administrative personnel needed only to be increased by three cook's helpers. Thus, even the ratio of combat to support personnel (in theory at least) was improved.[221]

The battalion weapons company was only slightly affected by the March 1940 reorganization, apart from the replacement of its 1.5-tonners and Ford *Phaeton*s by 1/2-ton WC and C&R trucks. The October 1940 reorganization was more extensive (see Appendix 4.7). The HMG squads lost their reserve guns. Experience showed that even in defensive situations, an HMG squad could rarely spare its ammunition bearers to man a second gun since these would likely be fully occupied in supplying ammunition to the first one. The .50-caliber antitank and the 81mm mortar platoons expanded to two sections of two squads each at war strength. This gave all four of the weapons company platoons the same internal organization. However, since the .50-caliber platoon's antitank mission precluded the use of indirect fire it had no instrument corporal. The company's 18 newly acquired basic privates represented rather less than ten persect of its strength. Only three cook's helpers augmented the company headquarters' administrative group to enable it to support the additional men.

Though the elimination of the spare machineguns lightened the weapons carriers' total loads, the carriers' ammunition loads did not significantly increase. Instead, each pair of carriers received one BAR and 200 rounds for local air defense. They thus became defensively armed in similar fashion to the rifle company carriers.[222]

Doctrine for employing the weapons company was much the same as it had been in 1938-39. In battle, the company commander still exerted tactical control only over the two HMG platoons but by 1940 he had gained some control over the mortar platoon as well. For tactical movement, the HMG squads would march with their carriers if the terrain allowed only "slow going" for light trucks. If the terrain were more favorable for vehicles, the carriers would follow the foot elements by rapidly moving by bounds from one covered position to the next. If the platoon had to move with a flank exposed, if enemy contact were imminent, or if the danger from air attack were particularly great then its sections would move by bounds, the one providing "overwatch" or a base of fire if needed, for the other. The platoon leader would control this movement by keeping his leading section constantly in sight, watching for the enemy, and using his C&R vehicle (as necessary) to reconnoitre the route, paying special attention to detours around, or crossings over, terrain obstacles for the carriers. Extra security could be gained by posting a couple of men as antiaircraft and antitank lookouts. If a detour would be brief, the platoon vehicles could travel under the leadership of the transport corporal. Extended detours would be arranged for at company level, the

company commander leading the marching element of the company. The men carried their weapons and as much ammunition as they could while the vehicles moved in convoy under the control of the battalion transport officer.

Just prior to engaging the enemy, the HMG platoon leaders would confer with the company commander. The latter would point out objectives to be taken or reached, what positions the platoons should occupy, and where the "off carrier" positions (the point where the weapons carriers would unload their weapons and ammunition) should be. The platoon and section leaders would then select the primary positions for their guns, as well as supplemental positions for use if their primary positions became masked or otherwise unusable. Alternate positions could also be chosen for secondary missions such as protecting the battalion against a flanking attack. Observers from platoon headquarters would be posted, within hand-and-arm signaling distance of the guns, to observe the platoon's sector, determine ranges, select reference points, and identify targets. It was considered best for the platoon leader to control the fire of all four of his guns simultaneously. Where circumstances did not permit this, the platoon could operate by section. The lieutenant would personally direct the section with the most important mission and would leave his other section to his platoon sergeant, or even to individual squad leaders. Flanking or overhead fires could be used, though it was held to be generally unsafe to fire over the heads of friendly troops at targets that were less than 400 yards away from them. Overhead fires were most often used in attacks where the battalion was supported by friendly tanks. Such fires tended concentrate on heavy weapons that the enemy had placed to the rear of his front line. Targets on reverse slopes could also be attacked. In the defense, the machineguns would be positioned, generally by section, to deliver flanking fire or a "final protective line" along the main line or resistance (MLR). Rifle company LMG sections could be used in the same way. When this occurred, the HMG platoon leaders would supervise their positioning and thus insure that they would fit into the overall battalion fire plan. Alternatively the HMGs could be positioned in depth to deliver overhead fire in support of the main defense or a counterattack or to block enemy penetrations. In addition, they could occupy open positions forward of the MLR in order to deliver long range harassing fires. As the enemy's main attack began, however, they would withdraw to their primary positions in or behind the MLR, using covered withdrawal routes.[223]

In addition to their other duties, the HMGs also provided the battalion's primary antiaircraft defense. During approach marches, in assembly areas, and at other times when the battalion was likely to be vulnerable to air attack, at least some of the guns would deploy on their carriers or on the ground in an anti-aircraft mode.

Movement procedures for the 81mm mortar platoon would be largely the same as those of the HMG platoons. When the battalion was in contact or near contact with the enemy, the mortars would displace by sections to insure continuous coverage. They would try to avoid displacements altogether while the rifle companies were in action. Like the rifle companies' 60mm mortars, the battalion mortars were supposed to be used primarily to cover gaps and "dead space" left by other weapons and by supporting artillery fire. However, 1940 doctrine expected the mortar platoon commander to keep in touch with the artillery observers and seek opportunities to combine the fires of his weapons with theirs. In offensive operations, the mortars would engage targets of opportunity chosen by the battalion, commander, weapons company commander, or the mortar platoon leader to support the battalion's scheme of maneuver. The mortars would position themselves within 800 yards (as against 1,000 yards under previous doctrine) of the front line. They were not expected to engage targets that were more than 2,000 yards away, despite their maximum range of more than 3,000 yards. Two thousand yards was regarded as the limit of effective observation. In the defense, 81mm fires would generally engage one primary and one or more secondary pre-planned targets. Ideally, the mortars should be in a defilade position that was within hand-and-arm signaling distance of an observation post from which all or most of the battalion's front line could be seen. If the observation post had to be placed too far from the guns to allow voice or hand signals, enough wire equipment was supplied to link the observers to the guns by telephone. This was a departure from 1938 doctrine, which did not allow any radio or telephone equipment for the mortars at all. Close to the mortars, there should also be a covered position where the weapons carriers could deliver additional mortar ammunition. If at all possible, all of the mortars should be close enough together for the platoon commander to control them while staying far enough apart to ensure that a single enemy shell could not silence more than one mortar. If this was not possible, the mortars could still deploy by separate sections or even by individual guns. In poor visibility or if the battalion was very dispersed, they could be attached to the rifle companies. In such a case they would be used similarly to the 60mm mortars. The 81mm mortars could screen friendly movement with smoke as well as support it with high explosives. Mortar fire was considered especially effective against targets in road cuts, behind railway embankments, or on reverse slopes. They were also deadly against entrenched heavy weapons. They were not, interestingly enough, required to engage antitank weapons since it was believed that these weapons were better dealt by flat trajectory automatic weapons fire.

In combat the .50-caliber machinegun, or antitank platoon would operate directly under the battalion commander's control. If kept together, it would be placed where it could best meet any armor threat that might appear. However, the platoon was more likely to be dispersed to cover several likely armor avenues of approach,

though its elements might have to redeploy rapidly to keep up with changes in the situation. The guns would be used in pairs whenever possible. The platoon could deploy observers to give it some early warning.[224]

The infantry battalion headquarters and headquarters detachment underwent only minor changes from its December 1938 organization (see Appendix 4.8). In lieu of its *Phaeton*s, it now had two 1/2-ton C&R trucks for the headquarters section plus another driver and four basic privates. A 1/2-ton WC was also added to each squad of the ammunition and pioneer section in order to improve its ammunition handling capabilities. One squad member became the driver. A new first lieutenant assumed the jobs of headquarters detachment commander and transport officer. The other lieutenant continued to serve as battalion adjutant and intelligence officer. In the headquarters detachment headquarters a master sergeant (Grade 1), rather than a technical sergeant (Grade 2) now served as battalion sergeant major and as first sergeant of the headquarters detachment. In addition the communication officer attached from the regimental signal platoon, the supply officer from the service company, and a medical officer from the medical detachment also served as battalion staff officers. Battalion tactics and organization had changed relatively little. Most of the important innovations had already occurred within the companies. For attack or defense, the battalion normally deployed two of its rifle companies forward, the third would be behind them, and the weapons company dispersed throughout the battalion sector.[225]

The October 1940 reorganization also meant considerable change at the regimental level. The regimental headquarters itself now had to organize itself for 24-hour operations (see Appendix 4.9). Half the officers would rest while the others worked. Thus the regimental executive officer and the plans and training officer (S-3) would naturally take over each other's duties since the executive officer still functioned as *de facto* S-3 while the S-3 was really his assistant. The intelligence officer (S-2) and adjutant (S-1) could also alternate. The S-4 (still resident in the service company) could switch with the service company commander. The regimental headquarters company headquarters still supplied vehicles (four C&R trucks and one *Phaeton*), mess teams, and orderlies for the regimental commander and executive officer. Two of the company headquarters' three 1.5-ton trucks carried band instruments (when a band was authorized). The third was for regimental command post equipment. In other respects, the headquarters company had changed considerably. Its antitank platoon had detached itself and become an antitank company. Since 1938 the communication platoon had picked up 22 more enlisted men (including six extra telephone linemen to support the new antitank company). The radio section gained a 1/2-ton truck mounted SCR-245 long-range radio. The SCR-245 weighed about 180 pounds and was capable of CW transmission for up to 45 miles, "tone" transmissions (still in Morse Code) for up to 35 miles, or voice transmission up to 20 miles.[226]

Operating under the S-2, the intelligence platoon doubled its scouts and observers to a total of four corporals and 12 privates. In theory this allowed four four-man scout-observer teams to be organized but in practice, patrols and observation posts were always task organized. Some men also had to serve as clerks or assistant draftsmen as well.

These increases to the company headquarters and the intelligence and communication platoons (mainly drivers and basic privates) maintained the strength of the headquarters company despite the loss of the antitank platoon.[227]

The new antitank company was only authorized in wartime (see Appendix 4.10). It was a considerable expansion of the 1938 platoon, spurred in no small degree by the recent successes of the German *Panzers* and the increased availability of 37mm antitank guns. It was the only company in the regiment that was fully motorized and controlled by radio. Although the old antitank platoon had no radios, the new company had five SCR-195 man-pack radios and an SCR-245. Each antitank platoon had one SCR-195. The company commander had another with which to maintain contact with his platoon leaders. The fifth was for a remote station such as an observation post, the head of a column, or for the company commander when he was not in his command post. The SCR-245 communicated with CW sets at regimental and battalion headquarters and served as a station on the division's antitank warning net. Like other CW capable radios, the SCR-245 could not communicate with SCR-195s.[228]

Doctrinally, the antitank company was not supposed to be employed independently nor was it to be widely dispersed. If it had to face a major armor threat, then divisional tank or antitank units could reinforce it. It was supposed to make use of its mobility, sending guns well forward to hammer the enemy as he approached but withdrawing before becoming closely engaged. The company would strongly defend the regiment's main line of resistance (MLR) but in the event of an enemy breakthrough it would harass the enemy and channel him into predetermined kill zones where he could be destroyed by counterattack.

The basic unit of the company was the six-man antitank squad with its 37mm gun and 1/2-ton WC prime mover. A section had two squads plus a sergeant section leader and a weapons carrier with driver (for reserve ammunition). A platoon had two gun sections, a rifle squad and a platoon headquarters. The rifle squad with 13 men and two BAR was supposed to protect its parent platoon from infantry attack and to reconnoiter firing positions. For this purpose it had its own 1.5-ton truck and driver and could split into two teams with a BAR apiece. Each team could support one gun section.

The antitank company headquarters was nearly as large as one of its gun platoons. Like most headquarters of tactical companies it operated as a command group and an administration and supply group. Though all of the company headquarters' communication personnel and equipment were in its command group, some administrative and supply group personnel could use sound-powered phones borrowed from the antitank platoons. Additional wire equipment and personnel could be attached to the antitank company from the regimental signal platoon.[229]

The regimental service company was larger than in 1938 but its functions remained essentially unaltered. The transport platoon acquired 13 additional 1.5-ton trucks of which two went to a section for the new antitank company and four more went to an expanded maintenance section. Manpower increased by 33 enlisted men of whom 15 were basic privates and the rest were the drivers and mechanics needed to operate the additional trucks (see Appendix 4.11).❶ The two additional trucks in each battalion section made five trucks with trailers available for kitchen and baggage duty. The fifth truck was for the battalion headquarters detachment and because that required a much smaller load than the company trucks it could take some of their overflow. This eased but did not eliminate the

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❶ For a summary diagram of the full October 1940 infantry regiment see Appendix 4.12.

1 See Emory Upton, *The Armies of Asia and Europe* (New York, the Greenwood Press, undated reprint) and Emory Upton, *The Military Policy of the United States* (New York, the Greenwood Press, facsimile reprint first published 1904). For a detailed look at the earliest regimental organizations. See also Robert K. Wright Jr. *The Continental Army* (Washington DC, US Army Center of Military History 1983) and the tables in the U.S. Army *Registers* for 1860-1898 (all published Washington DC by the Adjutant General).

2 John K. Mahon, *Army Lineage Book Vol. II: Infantry* (1953 Washington DC USGPO) p. 27; John K. Mahon and Romana Danysh *Army Lineage Series, Infantry Part I: Regular Army* (Washington DC Office of the Chief of Military History US Army 1972) p. 31 (cited below as Mahon & Danysh); and Weigley op cit p. 226. Gregory J. W. Irwin, *The United States Infantry, an Illustrated History 1775-1918* (New York, Stirling Publishing Co 1988) p. 93; and Upton, *Armies of Europe and Asia* op cit.

3 Russell F. Weigley, *History of the United States Army* enlarged edition (1984 Bloomington Indiana, Indiana University Press), pp. 207, 226 & 229-230; Gregory J. W. Urwin, *The United States Infantry, An Illustrated History 1775-1918* (New York, Sterling Publishing Co 1988) pp. 93; Graham A. Cosmas, *An Army for Empire* (University of Missouri Press 1971) p. 109; also see Wright, *The Continental Army* op cit p. 48; and J. A. Houlding, *Fit For Service; The Training of the British Army, 1715-1795* (Oxford, Clarendon Press 1981) pp. 313-314. See also the U.S. Army *Registers* for 1860-1898 (Washington DC, Adjutant General's Office).

4 Weigley op cit pp. 227 and 266; Leonard L. Lerwill et al, *The Personnel Replacement System in the United States Army* (Washington DC, US Army Center for Military History 1954; reprinted 1982 and 1988) p. 77; and Urwin op cit, pp. 96-97.

5 Cosmas op cit pp. 89-91; Weigley pp. 226-227; John K. Mahon op cit pp. 23-27; Mahon & Danysh pp. 33-34; also see Upton and Wright for discussions on tactics.

6 Weigley op cit pp. 266-267; Mahon, *op cit* pp. 23-27 and 60-61; Mahon & Danysh pp. 32-34; Weigley pp.282-283; Cosmas pp. 14-20 and 89-91.

7 See Upton's chapters on the British, French, and German armies in his *Armies of Asia and Europe* op cit;. See also John A. English, *A Perspective on Infantry* (New York, Praeger Publications 1981) pp.1-9 and David Woodward, *Armies of the World 1854-1914* (New York, G.P. Putnam's Sons 1978). See also Brevet-Major Hereward Wake "The Four-Company Battalion in Battle" *Journal of the Royal United Service Institute Volume* (London November 1914); and Brigadier General F. I. Maxse "Battalion Organization" *Journal of the Royal United Service Institute Volume* (London January 1912).

8 John K. Mahon p 28; Mahon & Danysh p 34; Urwin pp.120-123; Joseph E. Smith, *Small Arms of the World*, 10th Ed (Harrisburg PA, Stackpole Books 1973) pp. 63-64; Cosmas pp. 8 and 12..

9 Jack Shulimson, *The Marine Corps in Search of a Mission* (Lawrence Kansas, University Press of Kansas 1993) p. 170 note 6 & pp. 174-175; Smith op cit p 63; and Col Robert Debs Heinl Jr USMC, *Soldiers of the Sea, The United States Marine Corps, 1775-1962* (Baltimore MD, The Nautical and Aviation Publishing Company 1991 reprint originally published 1962) p 189.

10 N. A. M. Roger, *The Wooden World, An Anatomy of the Georgian Navy*, (Annnapolis MD, The Naval Institute Press 1986) pp. 28 & 55. See also Alfred J. Marini, *The British Corps of Marines 1746-1771 and the United States Marine Corps, 1798-1818, A Comparative Study of the Early Administration and Institutionalization of Two Modern Marine Forces* (Unpublished Thesis submitted to The Graduate School at the University of Maine, at Orono ME 1979) pp. 92-96 and 173.

11 Shulimson passim; and Heinl, *Soldiers of the Sea* op cit p 150.

12 Marini op cit and Col Robert D. Heinl Jr USMC, *Soldiers of the Sea, The United States Marine Corps 1775-1962* (Baltimore Maryland, Nautical & Aviation Publishing Co originally published 1962) pp. 612-613; See also Shulimson op cit.

13 Shulminson op cit

14 For recent examples of this genre see the numerous books by Stephen Ambrose on the experiences of American GI's during World War II (for example, *Citizen Soldiers* [New York 1998]). Ambrose recounts many examples of heroism and success by American soldiers, despite serious shortcomings in their selection and training. While the incidents recounted may be individually true (more or less, or at least according to the best recollections of survivors) and are usually uplifting and exciting they are frequently atypical of the larger events they are meant to depict. They can thus convey a distorted and excessively rosey picture. Good examples of similar writing are the numerous and successful books by the German writer Paul Carell (such as *Unternehmen Barbarossa, Der Marsch nach Russland*, [Frankfurt 1963] later published in English as *Hitler Moves East*). However entertaining they may be, such books make an exceedingly weak foundation upon which to base military policy but people are often attracted by what is comfortable and flattering.

15 Weigley, pp. 275-281

16 see Emory Upton, *The Armies of Asia and Europe* (New York, the Greenwood Press, undated reprint) and Emory Upton, *The Military Policy of the United States* (New York, the Greenwood Press, facsimile reprint first published 1904).

17 Weigley, op cit pp. 270-271 and 279-81.

18 Cosmas pp. 90-91.

overloading problem with the kitchen and baggage trucks. There was also an ammunition truck for each rifle or weapons company. The weapons company truck carried 81mm mortar ammunition exclusively (as the mortars were expected to consume their "on carrier" ammunition well before the HMGs or .50-caliber guns did) and 1,064 .45 caliber rounds for the company's pistols (the weapons carriers did not carry .45-caliber ammunition). The two "company" transport sections for the headquarters and antitank companies, respectively, each included a kitchen and baggage truck (with trailer) besides a truck for ammunition and (in the case of the headquarters company) signal equipment.[230]

THE FLEET MARINE FORCE 1933-1940

As the decade of the 1930s dawned, the Marine Corps at last found itself in a position to shed its role as colonial constabulary. The Second Brigade had left the Dominican Republic in 1924. The Third Brigade (minus the

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19 Ibid pp. 92-93.

20 Ibid pp. 93-97.

21 Ibid pp. 97-102 & 108-110.

22 Cosmas op cit, pp. 12-14 and 134-136; and Lerwill op cit p. 146.

23 Urwin p. 139; Mahon & Danysh pp. 33-34; Cosmas 113, and 174-176.

24 Ibid. Some of these figures are interpolated from the official US Army Tables of Organization of February 1914.

25 This account of the war comes primarily from David F. Trask, *The War With Spain in 1898* (New York Macmillan Publishing 1981). Information on the Spanish forces is from US Office of Naval Intelligence, *Notes on the Spanish-American War* (Washington DC, US Government Printing Office 1901) which contains translations of a number of Spanish accounts.

26 Ibid. For the operations and composition of the US Marine battalion, see Shulminson pp. 168-196.

27 Ibid. Shulminson also follows the Shafter-Sampson controversy as does Trask. See also Smith p 64 and Weigley pp. 302-307. For an excellent overall account of the war see Albert A. Nofi, *The Spanish-American War, 1898* (Conshohocken PA, Combined Books 1996).

28 Weigley pp. 307-312; Cosmas pp. 245-294.

29 Mahon & Danysh p 36; John K. Mahon pp. 29-30; Urwin pp. 143-148; Weigley pp. 307-312. Each infantry regiment strengthened its 12 rifle companies with six men each but dropped its three battalion quartermaster sergeants.

30 Weigley pp. 314-317.

31 Mahon & Danysh pp. 36-38; Urwin points out on page 145 that, for example, Company C 9th Infantry when it was destroyed in the infamous "Balangiga Massacre" on 28 September 1901 on Samar had all three of its officers but only 72 of its 150 authorized enlisted men present and fit for duty. On 28 July 1900, the 9th Infantry had sailed from the Philippines for China with a reported strength with 37 officers (four medical) and 1,241 men (*Correspondence* p 419). A battalion (four companies) of the 15th Infantry embarking for China at San Francisco on 2 August 1900 it reported a total strength of 13 officers and 512 men (*Correspondence* p 443).

32 Weigley pp. 317-319; Urwin pp. 148-150; Mahon & Danysh pp. 36-38.

33 Weigley pp. 318-319 & 324. Smith pp. 64-65; and Heinl op cit p. 150.

34 David A. Armstrong, *Bullets and Bureaucrats, the Machinegun and the United States Army 1861-1916* (Westport CT, Greenwood Press 1982) pp. 51-71 and 83-84.

35 Armstrong op cit pp. 75-78. See also Dolf L. Goldsmith, *The Devil's Paintbrush, Sir Hiram Maxim's Gun* (Toronto Canada, Collector Grade Publications 1993) pp. 257-270.

36 Armstrong pp. 96-110 and 114-118.

37 Goldsmith op cit pp. 260-282; Armstrong pp. 125-130.

38 Ibid, pp. 181-185.

39 Armstrong pp. 134-136

40 Ibid pp. 61 & 136-137; Goldsmith pp. 100-119

41 Goldsmith pp. 140-149; Armstrong pp. 138-140.

42 Armstrong pp. 141-144.

43 Ibid pp. 151-165.

44 Ibid pp. 174-180.

45 General Staff of the US Army, "Tables of Organization" (Washington DC 25 February 1914)

46 Ibid.

47 General Staff of the US Army, "Tables of Organization" (Washington DC 25 February 1914)

48 LTC William G. Livesay, "Supply in the New Regiment" *Infantry Journal* Vol. XLVI No 6 Nov-Dec 1939

49 LTC John R. Darrah, USAMC, "The Medical Company, Infantry Regiment" The Infantry School Quarterly Volume XXXI (Fort Benning Georgia, The USA Infantry School, 1947 pp. 81-82.

50 Ibid. See also General Staff of the US Army, "Tables of Organization" (Washington DC 25 February 1914).

51 O. O. Ellis and E. B. Garey, *The Plattsburg Manual* (New York, the Century Company 1918) pp. 86-152. The authors were instructors to the Plattsburg Citizens Military Training Camp at Plattsburg NY. They instructed at other camps in 1917. The book reflects prewar organization and doctrine, its publication having been delayed by American entry into the First World War.

52 General Staff of the US Army, "Tables of Organization" (Washington DC 25 February 1914)

two-battalion Fourth Regiment, left behind in Shanghai) returned from China in early 1929. In January 1933, the last Marines left Nicaragua. In August of 1934, they would be out of Haiti as well. However this apparent reduction in Marine responsibilities caused the Hoover administration in 1932 to order the reduction of Marine troop strength by nearly a quarter. When added to the Marines' remaining commitments, this would have made it impossible for them to form expeditionary forces and this would have endangered the Marines' future as a separate organization. This may well have been the intention, as the then Army Chief of Staff General Douglas MacArthur, a strong advocate of the absorption of the Marines by the Army, appears to have been behind the move. However, the Marines had lost none of their old political survival skills and they mustered enough support on Capitol Hill to get Hoover's order rescinded. This domestic political crisis was still in progress when the Japanese seizure of Manchuria in 1932 provoked another "China Incident." The resulting disturbances again required the United States to augment its garrison in the foreign concessions at Shanghai to a full brigade. This time, quite possibly in anticipation of the demise of the Marine Corps, the United States Army would furnish the necessary reinforcements

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[53] Shulminson pp. 197-198; and LtCol Kenneth J. Clifford USMCR *Progress and Purpose: A Developmental History of the United States Marine Corps 1900-1970* (Washington DC, History and Museums Division Headquarters Marine Corps 1973) p 1. The total number of companies in the three Marine battalions at Cavite is not given in any source this writer has been able to uncover. However, four companies was the preferred number in a battalion and the fact that there were 43 officers strongly suggests that that this was the case (i.e. 12 companies with three officers in each, plus three battalion commanders, three battalion adjutants, and a force commander). The number of enlisted men also "tracks" (i.e. 12 companies of 81 men each plus three battalion sergeants major, and a force sergeant major).

[54] Clifford pp. 6-7

[55] Shulminson pp. 111, 146, 148, and 211; and Clifford pp. 8-10; see also BGen Dion Williams USMC "The Fleet Landing Force" Marine Corps *Gazette* Volume XI No 2 June 1926 (Quantico Virginia) pp. 116-127.

[56] Clifford pp. 8-13

[57] Clifford, pp. 12-13; and Introduction to the Index for US National Archives (Washington DC) Record Group 127 p 31; and Heinl, *Soldiers of the Sea*, op cit pp. 165-166.

[58] Record Group 127, Ellsdran File 2385-60, letter from the Commandant of the Marine Corps to the Secretary of the Navy dated 16 September 1913, giving the then current deployment of the Marine Corps. Maj. James H. Johnstone *A Brief History of the First Marines* (Washington DC, Historical Div HQ Marine Corps 1960 revised 1962) p. 2; and Capt. Robert J. Kane *A Brief History of the Second Marines* (Washington DC, Historical Div HQ Marine Corps 1962) p. 6

[59] Author's own survey of surviving records of early Marine regiments. Too many sources to be noted here but see Record Group 127 Ellsdran file 2385 US National Archives and published Marine regimental histories.

[60] Clifford p. 16; Record Group 127, Ellsdran File 2385-30, letter from the commander of the 1st Marine Brigade at Vera Cruz, Mexico to the Commandant of the Marine Corps, July 17, 1914; see also Johnstone & Kane op cit.; and see Maj. David N. Buckner *A Brief History of the Tenth Marines* (Washington DC, History & Museums Div. HQ Marine Corps 1981) pp. 3-5; Heinl op cit p. 161.

[61] The best recent account of the Vera Cruz operation is Jack Sweetman, *The Landing at Veracruz 1914* (Annapolis Maryland, Naval Institute Press 1968). See also the pamphlet "Organization of the First Brigade U.S. Marines Operating in Eastern Mexico" May 1st 1914 (New York, USMC Recruiting Publicity Bureau 1914). A copy is at the Marine Corps Historical Center, Washington DC.

[62] Weigley pp. 341-350; Urwin p. 153; John K. Mahon pp. 34-39; and US War Department, *Order of Battle of the United States Land Forces in the World War* Vol 3 part 2 (Washington DC Center for Military History 1988, first pub 1949) pp. 1238-39, 1270-72, 1329-30, 1372-84. See also John Garry Clifford *The Citizen Soldiers, The Plattsburg Training Camp Movement, 1913-1920* (Lexington Kentucky, The University Press of Kentucky 1972) for the pro- and anti- preparedness politics.

[63] See *Order of Battle of the United States Land Forces in the World War* op cit Vols 1 to 3.

[64] US War Department, *The United States Army in the World War Vol 1, Organization* (Washington DC, Center of Military History 1988, first printed 1948) War Dept Document No 571, May 3 1917, Tables 2 and 3; pp. 162-163.

[65] Ibid.

[66] Ibid pp. 74-75

[67] Leonard L. Lerwill et al, *The Personnel Replacement System in the United States Army* (Washington DC, USA Center for Military History 1988, first published 1954) pp. 169-171.

[68] Weigley pp. 355-356; Armstrong p 189; Buckner pp. 16-17; Allen R. Millett, *The General, Robert L. Bullard and Officership in the United States Army 1881-1925* (Westport Connecticut, The Greenwood Press 1975) pp. 304-312; See also David F. Trask, The AEF and Coalition Warmaking, 1917-1918 (1993 Lawrence Kansas, the University Press of Kansas) p 19. For some additional reasons why the War Department preferred to take its advice from the French, see the beginning of the next chapter.

[69] US War Department, *The United States Army in the World War Vol 1, Organization*, pp. 117-118; Virgil Ney, *Evolution of the US Army Division 1939-1968* (Fort Belvoir Virginia, US Army Combat Development Command 1969) pp. 18-24.

[70] US War Department, *The United States Army in the World War Vol 1, Organization*, pp. 55, 74, 75, 95, & 121-123; For British companies see US National Archives Record Group 165 Box 638 Ellsdran File 2017-153 for description of British Infantry Division in 1918. See also John A. English, *A Perspective on Infantry* (New York, Praeger 1981) pp. 8-9 and M. A. Ramsay, *Command and Cohesion, The Citizen Soldier and Minor Tactics in the British Army 1870-1918* (Westport CT, Praeger Publishing 2002) pp. 77, 97 & 184-87. For the French organization see Pierre Guinard et al, *Inventaire Sommaire des Archives de la Guerre, Série N 1872-1919 Introduction: Organisation de L'Armee Francaise* (Troyes, Etat-Major de L'Armee de Terre Service Historique 1975) pp. 123-131.

[71] James W. Rainey, "Ambivalent Warfare The Tactical Doctrine of World War I" *Parameters* September 1983

[72] See Guinard op cit; and *Manual of the Chief of Platoon of Infantry* (Translation from the French edition of January 1917, HQ AEF August 1917) pp. 27-38.

for Shanghai in the form of the 31st Infantry from the Philippines, although the Marines did contribute 400 men to fill the Fourth Marines' third battalion. The 31st Infantry proved to be poorly trained and disciplined and to have little idea of what its neutrality protection mission was all about. It soon antagonized both the foreign community (led by the British) and the local Chinese. Although nothing was said officially, it appears that the incident caused the Army's bid to assume the Marines' peacekeeping and neutrality protection roles to lose a great deal of its momentum.[231]

Nevertheless, despite its uneven progress Marine disengagement overseas began to allow a resumption of amphibious exercises and further progress on amphibious doctrine. A reinforced battalion operated in the Caribbean in December 1931 and 700 men under a regimental headquarters conducted joint landings with the Army in Hawaii a few months later. The Hawaiian exercises were a fiasco that served to highlight the Marines' lack of the equipment and training needed to carry out their own doctrine, despite all the progress they had made during the 1920s.[232]

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73 Ibid; and see F. I. Maxse "Battalion Organization" *Journal of the Royal United Service Institute Volume* (London January 1912)

74 US War Department, *The United States Army in the World War Vol 1, Organization,* p 347; *Manual of the Chief of Platoon of Infantry*pp. 27-38; and Henry H. Burdick "Developmet of the Half-Platoon as an Elementary Unit" *Infantry Journal* April 1919.

75 Millett pp. 336-337; Captain A. M. Patch Jr. "Machine-gun Organization" *Infantry Journal* , August 1920; and see "Extracts from the Report of the Infantry Board, AEF, On Organization and Tactics" (reprint of unpublished manuscript made for the General Staff College 1919-1920) pp. 6-7. For machinegun types see Leonard P. Ayers, *The War With Germany, A Statistical Summary* (Washington DC USGPO 1939) pp. 65-66; see also "Notes from the Chief of Infantry - M1925E Infantryb Cart" Infantry *Journal* Dec 1927 (Washington DC) p 627.

76 US War Department, *The United States Army in the World War Vol 1, Organization,* pp. 343, 345, 352, 354, 362, & 363; and Chief of Staff United States Army, *Field Service Regulations 1923* (Washington DC US Government Printing Office 1923) pp. 29-31; LTC Walter R. Wheeler, *The Infantry Battalion in War* (Washington DC, The Infantry Journal 1935) pp. 20-21; "... Report of the Infantry Board, AEF, On Organization and Tactics" op cit p. 3.

77 Ibid; and Millett, & Murray, p 145; "...Report of the Infantry Board, AEF, On Organization and Tactics" op cit pp. 8-12.

78 US War Department, *The United States Army in the World War Vol 1, Organization,* p. 344; and LTC Ronald E. Olson ILARNG, "The Little Old 37" Field Artillery *Journal* Vol 52 No. 2 (Fort Sill, OK March-April 1982) pp. 41-42.

79 Ibid, p. 346.

80 Ibid.

81 Allan R. Millett and Williamson Murray ed *Military Effectiveness* Vol I (Boston Massachusetts, Unwin Hyman Inc, 1989) pp. 150-151; Donald B. Adams "Engineers in Combat" *The Military Engineer*, Vol XXXII No. 156 November-December 1940.

82 Ibid and Allen R. Millett, *The General,* pp. 337-338; Denis Winter, *Haig's Command* (London, Viking Press 1991) pp. 216-221.

83 See "Report of the Secretary of War" for FY 1925-26 (Washington DC. US GPO 1926) p 210; and *Order of Battle of the United States Land Forces in the World War* op cit pp. 1401-02.; *The United States Army in the World War Vol 1, Organization* op cit pp. 220-223. For a complete account see Moses Thisted, *Pershing's Pioneer Infantry of World War I* (Hemet CA, Alphabet Printers 1982).

84 *The United States Army in the World War Vol 1, Organizationon* op cit pp. 344 and 378; Denis Winter pp. 219-220; and "Report of the Secretary of War" for fiscal year 1925-26 op cit pp. 192-240.

85 US War Department, *The United States Army in the World War Vol 1, Organization* pp. 341-384.

86 Weigley pp. 348-349 and 356-357; Lerwill op cit pp. 199-216; Millett & Murray pp. 147-148.

87 "Report of the Secretary of War" for fiscal year 1925-26 op cit pp. 192-240; this contained the latest revisions of AEF battle casualty figures. See also Leonard P. Ayres, *The War With Germany, A Statistical Summary* (Washington DC US Government Printing Office 1919) pp. 113-130; and Lerwill op cit pp. 213-216. John Mosier in his recent and excellent book, *The Myth of the Great War* (New York, Harper-Collins, 2001) disputes many of these figures. He notes (pp. 12 and 341) that an actual count of AEF war graves shows that some 85,252 American soldiers and Marines died in France, though not all of these would necessarily have been battle deaths. However he also cites (p. 365 fn 4) correspondance in the Congressional archives that reveals the dissatisfaction of key officers with the casualty statistics published by Colonel Ayres, the War Department's chief statistician. It also reveals a War Department insistance on manipulating casualty figures, presumably in order to protect the repuations of influential senior officers.

88 Millett & Murray op cit pp. 148-150; and "Extracts from the Report of the Infantry Board, AEF on Organization and Tactics" copy of unpublished manuscript produced by thhe AEF in France and dated April 8, 1919 pp. 4-6. See also Lerwill pp. 208-210.

89 Ayres op cit pp. 21-22; Millett & Murray pp. 146-147; Lerwill pp. 194-198; see also "Extracts from the Report of the Infantry Board, AEF on Organization and Tactics" pp. 6-8; and Edwin N. McClellan *The United States Marine Corps in the World War* (Washington DC Us Government Printing Office 1920, reprinted 1968); for an account of the MTCA movement see John Garry Clifford, *op cit*.

90 "Extracts from the Report of the Infantry Board, AEF on Organization and Tactics" pp. 6-8; Lerwill op cit pp. 194-196; Armstrong op cit pp. 143-144; and Millett and Murray op cit p 149.

91 Denis Winter op cit pp. 217-218; and Millett & Murray pp. 146-147.

92 Millett & Murray p. 147.

93 Denis Winter op cit pp. 216-221. For German views see also Record Group 165 Box 623 Ellsdran File No. 2016-1068, US War Dept G-2 "German General Staff Views of the United States Army in the World War" (Military Attache Berlin Report No. 9549 June 26, 1928).

94 David Trask op cit pp. 174-175. John Mosier in his book op cit insists that the AEF made a critical contribution without which an Allied victory would probably have been impossible in 1918 and makes some persuasive though not entirely conclusive arguments in that direction. Mosier is right to point out that not only did the United States contribute two million soldiers late in the war but all along had furnished the Allies with money and raw materials, without which they could probably not have stayed in the fight.

In order to make further progress the then Commandant of the Marine Corps, Major General John H. Russell managed to persuade the Secretary of the Navy that the Marine Corps should have its own striking force. This force would operate as an integral part of the Fleet and which would replace the old East and West Coast Expeditionary Forces. Such a force would clearly be valuable in any war with Japan. The Navy did not wholeheartedly agree, there still being a strong body of opinion within that service that amphibious operations required no special expertise and could be performed well enough by the Army or even by the Navy itself. Nevertheless, in December 1933 the Secretary authorized the creation of a Fleet Marine Force. For its doctrinal basis the Marines published the subsequently well-known *Tentative Manual for Landing Operations* a few months later.[233]

It soon proved easier to authorize this new force than to actually build it. In September 1933, the Commandant had organized the Seventh Marines to deal with troubles that had recently broken out in Cuba. The crisis subsided before the regiment could reach Cuba so in February 1934 the Commandant ordered it converted into the first three battalions of the FMF. Under its original organizational concept the FMF was to consist of separate ground and air

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95 Major Edwin N. McClellan USMC, *The United States Marine Corps in the World War* (Washington DC, USPO, 1920; reprinted 1968) pp. 11-17; Major John H. Johnston USMC, A Brief History of the First Marines (Washington DC, Historical Div. HQMC; revised version 1962) pp. 11-12; Captain Robert J. Kane USMC, *A Brief History of the Second Marines* (Washington DC, Historical Div. HQMC; revised version 1964) pp. 9-11; Benis M. Frank, *A Brief History of the Third Marines* (Washington DC, Historical Div. HQMC; revised version 1968) pp. 3-4; James S. Santelli., *A Brief Hostory of the 4th Marines* (Washington DC, Historical Div. HQMC; 1970) pp. 9-10; and Heinl op cit pp. 186-187.

96 Major David N. Buckner USMC, *A Brief History of the Tenth Marines* (Washington DC, Historical Div. HQMC; 1981) pp. 16-17.

97 Tables of Organization Numbers 1 (infantry regiment) dtd 1 August 1918 and 5 (rifle company) dtd 1 September 1918. Copies of both are at the Marine Corps Historical Center at the Washington Navy Yard, Washington DC; and "Report of the Secretary of War" for fiscal year 1925-26 (Washington DC. US Government Printing Office 1926) p 210; and Heinl op cit pp. 219 and 250.

98 Heinl pp. 191-228; and J. Robert Moskin, *The Story of the U.S. Marine Corps* (New York, Padington Press Ltd. 1979) pp. 138-139; LtGen William K. Jones USMC(Ret) *A Brief History of the 6th Marines* (Washington DC, History and Museum Div. HQMC 1987) p 1.

99 Heinl pp. 194-195 and 208-210; Allan R. Millett, *Bullard* op cit p. 321.

100 Heinl op cit pp. 200-203; Moskin op cit pp. 112-124; Jones, *6th Marines* op cit pp. 6-12; War Dept, Office of the Adjutant General, *German Divisions Which Participated in the War* (Washington DC, US Govt Printing Office 1920) pp. 181-183, 378-381, 563-565, and 729-730. However, Mosier op cit on p. 173 casts a good deal of doubt on the reliability of this source, pointing out that the British and French intelligence services that provided most of the data could not draw a line between propaganda and intelligence and actually altered German order of battle data to cover up their own blunders. However, the 237th was certainly not an elite unit and German morale at this stage of the war was falling. See also James W. Rainey "Ambivalent Warfare" *Paramaters* September 1983 op cit p. 44. For the German side of Belleau Wood the standard work is Ernst Otto, *Under dem Stahlhelm, Einzelchriften aus dem Weltkrieg*, Vol. I (Berlin, Wilhelm Rolf, 1930) pp. 1-39.

101 Ibid and Millett, *Bullard* p. 315 op cit.

102 *Order of Battle of the United States Land Forces in the World War* op cit pp. 310-314 and 1372-1379. A battalion of United States Guards was allowed 31 officers and 600 men. These units were recruited mainly from draftees physically disqualified for overseas service. The 27th and 31st Infantry when sent to Siberia were configured as AEF regiments, though they were never part of the AEF. Large numbers of men had to be drafted out of the 8th Division to build these two regiments up to AEF strength. This seriously disrupted the 8th Division's organization.

103 *Order of Battle of the United States Land Forces in the World War* op cit pp. 1372-78; Truman R. Strobridge, *A Brief History of the Ninth Marines* (Washington DC, Historical Division HQ US Marine Corps; revised version 1967) pp. 1-2; James S. Santelli, *A Brief History of the Eighth Marines* (Washington DC, Historical Division HQ US Marine Corps; 1976) pp. 1-3; and James S. Santelli, *A Brief History of the Seventh Marines* (Washington DC, Historical Division HQ US Marine Corps; 1980) pp. 1-5.

104 Record Group (RG) 127 Entry 18 Box 345 Ellsdran File 2385-30 Memo for the Quartermaster 8 November 1917 (description of the Eighth Regiment) plus an undated strength summary, US National Archives Washington DC.

105 McClellan op cit pp. 62-67; "Report of the Secretary of War" for fiscal year 1925-26 (Washington DC. US Government Printing Office 1926) p 210; Record Group 127 Entry 18 Box 345 Ellsdran file 2385-30 "Organization of the (Marine) Heavy Artillery Regiment" 18 March 1918, US National Archives Washington DC; Buckner *Tenth Marines* op cit pp. 16-20; 2nd Lt Robert Emmet USMCR, *A Brief History of the Eleventh Marines* (Washington DC, Historical Div HQ US Marine Corps; revised version 1968) pp. 1-2; and Heinl op cit pp. 221-223.

106 RG 127 Entry 18 Box 345 Ellsdran file 2385-30, a letter (undated but probably October 1918) from the Major General Commandant to Major Julian Smith USMC orders Smith's Second Machinegun Battalion to "temporary foreign expeditionary service" and describes its composition. In the same file is another letter dated 29 October 1918 ordering the First Regiment to convert to infantry for foreign service. The 2nd Machine Gun Battalion headquarters would have included a major, an adjutant (lieutenant), a quartermaster (lieutenant), a warrant officer ("Marine gunner" ordnance specialist), a sergeant major, a quartermaster sergeant, and 11 other enlisted, including a corporal (commissary).

107 LtCol Ronald J. Brown, *A Brief History of the 14th Marines* (Washington DC, Historical & Museums Div HQMC 1990) pp. 1-3; and Capt Stephen M. Fuller USMCR and Graham A. Cosmas, *Marines in the Dominican Republic 1916-1924* (Washington DC, Historical & Museums Div HQMC 1974) pp. 28-33.

108 For Winfield Scott's impact on US Army doctrine see John S. D. Eisenhower, *Agent of Destiny, the Life and Times of Winfield Scott* (New York, The Free Press, 1997) pp. 100-101; and Winfield Scott, *The Memoirs of Lt-General Winfield Scott, LL.D* Vol. 1 (New York, Sheldon and Co. 1864) pp. 118-121. For some good material on the military incapacity of the British Army see John Mosier, *The Myth of the Great War* op cit, especially his account of the Battle of the Somme in Chapter 12. For more on this subject see Denis Winter, *Haig's Command* op cit and Tim Travers, *The Killing Ground* (London, Unwin Hyman Ltd. 1987). For some material for Irish anti-British sentiment in America see Tim Pat Coogan, Michael Collins, The Man Who Made Ireland (Boulder Colorado, Robert Rinehart Publishers 1992).

109 The 1923 edition of the US Army *Field Service Regulations*, which was the equivalent of today's doctrinal manual, FM 100-5 was cloaely based on French field manuals published during 1917-19. When General George C. Marshall too command of the US Army Infantry School at Fort Benning, he published the *Manual for Commanders of Large Units* (USAIS Fort Benning, Georgia 1929). It was a straight translation of the French Army manual of the same name. Though always a "tentative" and never an "official" doctrinal publication most officers followed it very

elements divided between East and West Coasts. The ground force would be built around six separate infantry battalions (numbered 1 through 6) of which two would only be maintained at cadre strength during peacetime. One of these battalions (from San Diego) participated in a landing exercise at San Clemente, California, as early as February 1934. Initially the battalions would have used a version of the 1929 organizational tables that would presumably have included some sort of organic service element since the battalions had no regimental service company to call upon. To get manpower for the FMF the Marines disbanded all their regiments except the Fourth. They had already stopped numbering their companies. "Semi permanent" Marine companies no longer freely moved between temporary battalions and regiments as they had before 1917 so companies no longer needed separate designations outside their parent organizations. In August 1934, however, it was suggested that the FMF ground forces on the East and West Coast reorganize as brigades, each built around an infantry regiment that could expand to two regiments in wartime. The new regiments were designated the Fifth and Sixth Marines, in honor of their First World War predecessors. The Fifth would be established at Quantico in September as the nucleus of the

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closely. For an example of a prewar US Army manuals, see War Department *Manual for Noncommissioned Officers and Privates of Infantry in the Army of the United States* (Washington DC, Document No. 574, USGPO 1917). See also Carlo D'Este, *Patton, A Genius for War* (New York, Harper Collins 1996) p. 126.

110 For a discussion of pre-1794 formal French military education see Maj Ernest Picard and Lt. Louis Jouan, *L'Artillerie Francaise au XVIIIeme Siecle* (Paris, Berger-Levrault, 1906) pp. 1-44. For a description of St.-Cyr and the Ecole Polytechnique in 1876 see Upton, *The Armies of Europe and Asia* op cit. pp. 240-247. Fire and movement material came from the manuscript of a forthcoming new book titled "The Army Personnel System" by Major Donald Vandergriff USA. It is to be published by Presidio Press, Novato California. For information on West Point see their home page at www. usma edu / Public Affairs / history.

111 The author is much indebted to Maj Don Vandergriff USA for allowing him to use pre-publication material from his book *Path to Victory, America's Army and the Revolution in Human Affairs* (Novato CA, Presidio Press 2002). See also Martin van Creveld, *Fighting Power*, (Westport Connecticut, Greenwood Press 1982) pp. 28-34 and Robert Allen Doughty, *The Seeds of Disaster, The Development of French Army Doctrine 1919-1939* (Hamden Connecticut, Archon Books 1985) pp. 2-9.

112 Ibid and see also US Army, *Manual for Commanders of Large Units* (Washington DC 1929).

113 Ibid.

114 Trask, op cit p 1; Weigley op cit pp. 395-97 and 599.

115 Weigley op cit pp. 397-398; Maj A. W. Lane, Gen Staff "Tables of Organization" Infantry *Journal*, May 1921 (Washington DC, US Infantry Association) pp. 486-487.

116 John B. Wilson, "Mobility Versus Firepower, The Post World War I Infantry Division" *Parameters* September 1983 p. 47; "Extracts from the Report of the Infantry Board, AEF, On Organization and Tactics" (one of 160 copies of an unpublished manuscript reprinted for the General Staff College 1919-20).

117 "Extracts from the Infantry Board" op cit pp. 9-12, 20, & 23-25; "Infantry Organization" staff article from Infantry *Journal*, June 1920 (Washington DC, US Infantry Association) pp. 1029-33; and Maj A. W. Lane, Gen Staff "Tables of Organization" pp. 486-487.

118 A good review of the composition of a typical British battalion headquarters can be found in Rudyard Kipling, *The Irish Guards in the Great War, the First Battalion* (reprinted New York, Sarpedon Publishers 1997; originally published 1923); see also M. A. Ramsay, *Command and Cohesion*, op cit. German organization comes from a personal interview with Mr. Bruce Gudmundsson; see also *Inventaire Sommaire des Archives de la Guerre, Série N 1872-1919 Introduction: Organisation de L'Armee Francaise* op cit.

119 Personal interview with Bruce Gudmundsson op cit.

120 "Extracts from the Infantry Board" op cit pp. 12-13.

121 Ibid pp. 14-15.

122 John B. Wilson, "Mobility Versus Firepower" op cit pp. 48-49; and Maj A W Lane, Gen Staff "Tables of Organization" pp. 486-487.

123 Wilson op cit pp. 49-51; and A.W. Lane op cit pp. 487-491.

124 Chief of Staff US Army *Field Service Regulations* (FSR) 1923 (Washington DC US Government Printing Office 1924) p. 80; this was the counterpart to today's FM-100-5. It will be refered to below as FSR 1923.

125 US Army "Tables of Organization - Infantry and Cavalry Divisions" Table 28 W, "Rifle Company, Infantry Regiment" 15 April 1921 (Ft Leavenworth Kansas, The General Service Schools Press 1922); see also LTC Allan J. Greer, 5th Infantry, "Infantry Attack Formations" Infantry *Journal* February 1921 pp. 144-148; and LTC Walter R. Wheeler USA *The Infantry Battalion in Wat* (Washington DC, The Infantry *Journal* Inc 1936) pp. 1-7.

126 US Army "Tables of Organization" Table 28 W, "Rifle Company, Infantry Regiment" 15 April 1921 op cit; see also Gudmundsson interview op cit.

127 US Army "Tables of Organization" Table 28 W, "Rifle Company, Infantry Regiment" 15 April 1921.

128 US Army "Tables of Organization" Table 28 W, "Rifle Company, Infantry Regiment" 15 April 1921 and Table 29W, "Machinegun Company, Infantry Regiment" 15 April 1921 op cit.; see also "Notes From the Chief of Infantry - Three Platoon Machinegun Company" Infantry *Journal* August 1927 (Washington DC) pp. 177-179; For British machinegun practice see Dolf L. Goldsmith, *The Grand Old Lady of No Man's Land, The Vickers Machinegun* (Cobourg, Ontario Canada, Collector Grade Pubs 1994) p. 93; and Wheeler *op cit* pp. 7-12.

129 Tables of Organization" op cit Table 27W "Headquarters and Headquarters Company, Infantry Battalion" 15 April 1921; Wheeler op cit pp. 13-16; and FSR 1923; pp. 28-31; "Notes From the Chief of Infantry - Signal Communication Equipment" Infantry *Journal* October 1925 pp. 429-430. Note that all sergeants and above, the driver, cobbler, cooks, and most of the communication personnel carried service pistols.

130 Ibid. See also The Infantry School's "Signal Communication" reference text (revised) published in the Infantry School *Mailing List*, Fort Benning Georgia, 1927.

131 Tables of Organization" op cit Table 24W "Headquarters and Headquarters Company, Infantry Regiment" 15 April 1921; and Wheeler op cit p. 26; Notes From the Chief of Infantry - Signal Communication Equipment" Infantry *Journal* October 1925 pp. 429-430; and Maj W. J. Tack,

First, or East Coast Brigade, while the Sixth would be reborn soon afterwards at San Diego for the Second, or West Coast Brigade. Each regiment would receive three of the new FMF infantry battalions plus a token headquarters consisting of a colonel, a lieutenant colonel, a captain (serving as adjutant and intelligence officer), a sergeant major, and a clerk.[234]

In November 1934, the Marine Corps published its first organization tables specificially designed for the new FMF. These covered only the six infantry battalions and their component rifle and machinegun companies (see Appendices 4.13, 4.14 and 4.15). Tables covering the rest of the FMF did not appear until the following February. The new tables reflected much of the experience gained in China and Nicaragua. Nicaragua had been a war of patrols and ambushes. Units larger than companies rarely operated tactically. Patrolling was typically done with a reinforced platoon. Such a platoon needed extra firepower, an extra officer and its own cook and Navy hospital corpsman. Also, Nicaragua showed that a rifle company really needed at least three platoons rather than two (though companies found it hard to find cooks and hospital corpsmen for three platoons). FMF rifle companies would therefore have three platoons but in order to keep them within manpower constraints, no platoon could have

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Infantry "Radio in the Infantry" Infantry *Journal* November 1927 pp470-472.

132 Tables of Organization" op cit Table 30W "Howitzer Company, Infantry Regiment" 15 April 1921; see "Accompanying Arms for Infantry" Infantry Journal June 1925 pp. 544-45,; this was a review (unsigned) of a book recently published on guns and mortars by a Maj Biswang of the French Army; and "Notes From the Chief of Infantry - Experimental Howitzer Company" Infantry *Journal* April 1929 p 415.

133 FSR 1923 op cit pp. 134-137; see also Infantry School Reference Text, "The Supply of an Infantry Regiment in Campaign" published in the Infantry School Mailing List 1926-27 issue (Fort Benning GA) pp. 16-17 and 36-37. Tables of Organization" op cit; Table 25W "Service Company, Infantry Regiment" 15 April 1921; and see "Notes from the Chief of Infantry - Experimental Escort Wagon" Infantry Journal January 1927 (Washington DC) pp. 64-65.

134 Tables of Organization" op cit; Table 23W "Infantry Regiment (consolidated table)" 15 April 1921; Wheeler op cit pp. 16-17 and 28-29; and FSR 1923 p. 146; see also LTC Harry C. Ingles, Signal Corps, "The New Division" *Infantry Journal* November 1939 (Washington DC, The Infantry Association) p 525.

135 Tables of Organization" op cit; Table 22W "Headquarters and Headquarters Company, Infantry Brigade" 15 April 1921.

136 Instructions from the Adjutant General, "The New Tables of Organization, Peace Strength" published in the Infantry *Journal* January 1921 (Washington DC) pp. 63-74.

137 US Army Table of Organization 28P "Rifle Company, Infantry Regiment" peace strength (Washington DC 23 Nov 1920).

138 US Army Table of Organization 29P "Machinegun Company, Infantry Regiment" peace strength (Washington DC 23 Nov 1920).

139 US Army Table of Organization 27P "Headquarters and Headquarters Company, Infantry Battalion" peace strength (Washington DC 23 Nov 1920).

140 US Army Table of Organization 24P "Headquarters and Headquarters Company, Infantry Regiment" peace strength (Washington DC 23 Nov 1920).

141 US Army Table of Organization 30P "Howitzer Company, Infantry Regiment" peace strength (Washington DC 23 Nov 1920).

142 US Army, Table of Organization 24P "Headquarters and Headquarters Company, Infantry Regiment" peace strength; and Table of Organization 25P "Supply Company, Infantry Regiment" peace strength (both Washington DC 23 Nov 1920).

143 Mahon & Danysh op cit pp. 48-49; *Order of Battle of the United States Land Forces in the World War* op cit p 632.

144 Mahon & Danysh op cit pp. 48-50; Mahon op cit pp. 39-41& 60-61; Weigley op cit pp. 400-402 & 599; and US Army "Index to Tables of Organization" dated 15 August 1927. Unpublished list of tables of organization and authorized strengths of infantry units. A copy is maintained in the Center for Military History in Washington DC; see also War Department *Army List and Directory* July 1, 1928, (Washington DC, US Government Printing Office 1928) pp. 9-12 & 25-26; see also "Notes From the Chief of Infantry - Re-Organization of the 24th Infantry" and "Re-Organization of the Regiments in Panama" both from Infantry *Journal* September 1927 p 288.

145 "Notes From the Chief of Infantry - New Infantry Weapons" Infantry *Journal* January 1925 pp. 81-82; "Notes From the Chief of Infantry - New Weapons for Howitzer Companies" Infantry *Journal* November 1926 p 539; and Captain John K. Rice, Infantry "New Infantry Accompanying Weapons" Infantry *Journal* April 1928 pp. 376-383.

146 "Notes From the Chief of Infantry - New Water-Ration Cart" Infantry *Journal* May 1925 pp. 544-45; "Notes From the Chief of Infantry - Tractors and Cargo Carts" Infantry *Journal* October 1925 p 429; "Notes From the Chief of Infantry -Experimental Escort Wagon" Infantry *Journal* January 1927 pp. 64-65; "Notes From the Chief of Infantry - Weight of Pack Reduced" Infantry *Journal* March 1927 pp. 292-295; "Notes From the Chief of Infantry - M1925E Infantry Cart" Infantry *Journal* December 1927 p 627.

147 US Army "Tables of Organization" Table 28 W, "Rifle Company, Infantry Regiment" 23 June 1928. Note that the 23 June 1928 tables superceded those of 11 June 1927, wherein most of the important changes were made. The June 1928 tables are used here because they are more available and, for the infantry regiment at least, almost exactly the same as those of the previous year.

148 Tables of Organization" op cit; Table 29W "Machinegun Company, Infantry Regiment" 23 June 1928; "Notes From the Chief of Infantry - Three Platoon Machinegun Company" Infantry *Journal* August 1927 pp. 177-179; and see "The New Infantry Regiment" published in The Infantry School *Mailing List* Vol XI January 1936, pp. 4, 6, and 16.

149 US Army "Tables of Organization" Table 27W, "Headquarters and Headquarters Company, Infantry Battalion" 23 June 1928

150 US Army "Tables of Organization" Table 24W, "Headquarters and Headquarters Company, Infantry Regiment" and Table 23W "Infantry Regiment," both 27 June 1927.

151 US Army "Tables of Organization" Table 25W, "Service Company, Infantry Regiment" 27 June 1927.

152 US Army "Tables of Organization" Table 30W, "Howitzer Company, Infantry Regiment" 23 June 1928.

153 "Notes From the Chief of Infantry - Experimental Howitzer Company" Infantry *Journal* April 1929 p 414-15.

154 "Notes From the Chief of Infantry - Motorized Infantry Regiment" Infantry *Journal* April 1929 pp. 413-14.

more than three squads. The rifle sections would therefore disappear. To beef up firepower, each squad would include a Thompson sub-machinegun in addition to its BAR. Contrary to later practice, this weapon did not go to the squad leader but to a private who acted as an extra "close quarters" automatic rifleman.

A further complication for the new FMF rifle company (Appendix 4.13) was that, officially, at least, it could have no more than three officers. This left no officer to command its third platoon so each company would receive a gunnery sergeant who would supposedly act as the third platoon commander. In practice, however, there were plenty of extra officers available to command that third platoon. As in the previous decade, Congress continued to officer the Marines for about 40% more enlisted men than Congress was actually paying for. Thus all platoons normally had officers and the gunnery sergeant usually ended up at company headquarters assisting with supply and ordnance matters and providing the company commander with additional senior enlisted leadership. Gunnery Sergeants were already serving in a similar fashion in the machinegun and howitzer companies.[235]

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155 "Notes From the Chief of Infantry - Reorganization of the Infantry Battalion" Infantry *Journal* September 1929 pp. 315-316; "Notes From the Chief of Infantry - Reorganization of the Infantry Battalion" Infantry *Journal* November 1929 pp. 516-518; "Notes From the Chief of Infantry - Reorganization of the Infantry Battalion" Infantry *Journal* January 1930 pp. 70-71; and "Notes From the Chief of Infantry - Reorganization of the Infantry in the Division" Infantry *Journal* March 1930 pp. 293-295.

156 "Notes From the Chief of Infantry - Reorganization of the Divisional Infantry" Infantry *Journal* June 1930 pp. 648-651.

157 "Notes From the Chief of Infantry - Reorganization of the Divisional Infantry" Infantry *Journal* July 1930 pp. 87-89.

158 The Infantry School, "The Provisional Infantry Reorganization" published in The Infantry School Mailing List Vol I 1930-31 (Published by the Infantry School Book Shop, Fort Benning Georgia) pp. 13-25. Under current doctrine, additional duties for the infantry's machineguns included both air defense and the security of the regimental train.

159 MajGen S. O. Fuqua, Chief of Infantry "The Trend of Development of Infantry" Infantry *Journal* November 1930 pp. 467-77.

160 LTC C. A. Dravo, Infantry "The Light Machinegun and Infantry Fire Power" Infantry *Journal* December 1930 pp. 620-624; "Notes From the Chief of Infantry - Summary of the Infantry" Infantry Journal March-April 1932 pp. 140-144 this was a statement by the Chief of Infantry, Major General Stephen O. Fuqua, delivered to the Military Affairs Committee of the House of Representatives by COL Lawrence Halstead and LTC C. H. White of the Office of the Chief of Infantry; and Joseph e. Smith, Army Material Command, *Small Arms of The World*, 10th Edition (Harrisburg PA, the Stackpole Company 1973) pp. 688-89, 694-95, and 712.

161 Major General Fuqua's statement to the House of Representatives op cit; and see Peter Chamberlain and Terry Gander, *Mortars and Rockets*, World War II Fact Files Series (New York, Arco Publishing Co 1975) pp. 5 and 22.

162 "Notes From the Chief of Infantry - Radio Set SCR-131 Recommended to Replace Existing Radio Equipment in Infantry" Infantry *Journal* November 1929 pp. 518-519; and CPT Elbridge Colby, Infantry "The Critical Condition of Infantry Communications" Infantry *Journal* October 1929 pp. 382-390; 1LT Loren G. Windom, Infantry NGUS "Long Range Radio Communication with Radio Sets SCR-131, 161, and 171" Infantry *Journal* May-June 1936 pp. 257-261; and "The Infantry - Stepping Up the SCR-131 Radio Set" Infantry *Journal* January-February 1936 p 72.

163 Heinl op cit pp. 228, 315-16, and 611; Clifford op cit pp. 27-30; McCllelan op cit p. 17; and Letter from the Major General Commandant to the Secretary of the Navy December 1920, Record Group 127 Ellsdran File 2385-60 US National Archives Washington DC.

164 Heinl op cit pp. 253-254; Moskin op cit pp. 219-222; and Clifford op cit pp. 25-29 and 61-64.

165 Capt E. H. Ellis USMC FMFRP-45 "Naval Bases: Their Location, Resources, and Security" (Washington DC, HQ Marine Corps - a reprint 1992 of the original 1913 document made from a photocopy); and Maj Earl H. Ellis USMC FMFRP-46 "Advance Base Operations in Micronesia" (Washington DC, HQ Marine Corps - a reprint 1992 of the 1921 original).

166 Moskin pp. 221-222; and Heinl pp. 228-229.

167 Letter from Major General Commandant to Secretary of the Navy December 1920, op cit; Letter from the Third Brigade Commander to the Commanding General at Quantico Virginia 6 October 1921 Record Group 127 Ellsdran File 2385-30; Maj L. W. T. Waller, "Machineguns of the Fourth Brigade" Marine Corps *Gazette* March 1920 pp. 1-31; "Professional Notes - New Tables of Equipment," Marine Corps *Gazette* March 1920 pp. 112-113; "Professional Notes - Revision of the Tables of Organization," Marine Corps *Gazette* June 1920 p 218.

168 Ibid. See also "Professional Notes - The Marine Corps Machinegun Cart," Marine Corps *Gazette* September 1920 pp. 317-318; "Professional Notes - The New Army Organization Tables," Marine Corps *Gazette* March 1921 pp. 117-119.

169 Letter from the Commanding General at Marine Base Quantico to the Major General Commandant 5 January 1922, found in Record Group 127 Ellsdran file number 2835-40, US National Archives Washington DC.

170 Ibid; and see also Letter from the Major General Commandant to the Department of Medecine and Surgery 18 June 1924, Record Group 127, Ellsdran file number 2385-45 US National Archives Washington DC.

171 US Army Table of Organization 28P "Rifle Company, Infantry Regiment" peace strength op cit; "Table of Distribution for the Second Brigade to be effective 1 May 1923" Enclosed in a letter from the Commanding General Second Brigade to the Major General Commandant dated 1 April 1923, Record Group 127 Ellsdran File 2385-45 US National Archives Washington DC.

172 US Army Table of Organization 29P "Machinegun Company, Infantry Regiment" peace strength op cit; Letter from the Commanding General at Marine Base Quantico to the Major General Commandant 5 January 1922 op cit; and Letter from the Major General Commandant to Post and Station Commanders, 6 November 1923, enclosing tables of organization, including Table 21-P for a Marine Machinegun Company, Record Group 127 Ellsdran Fine 2385-45, US National Archives Washington DC.

173 Letter from the Commanding General at Marine Base Quantico to te Major General Commandant 5 January 1922 op cit; and Letter from the Major General Commandant to Post and Station Commanders, 6 November 1923, enclosing tables of organization op cit.; see also regimental histories previously cited and LtCol Lewis B. "Chesty" Puller's remarks about officers' pack mules contained in United States War Office *Fighting on Guadalcanal*, (Washington DC USGPO 1943) which was a compendium of various "lessons learned" gleaned from statements of those involved in the Guadalcanal fighting; Puller refers to some of his earlier experiences.

In the machinegun and howitzer company (Appendix 4.14), the howitzer platoon remained much as it had been in 1929. However, in order to work in a third machinegun platoon (so that one could be attached to each rifle company), the two existing machinegun platoons had to be reduced to near the vanishing point. A machinegun squad would have only five men (with a PFC as squad leader) or about half as many as a wartime squad. A corporal would command a section of two squads. Even a full strength squad could barely move its gun and ammunition on its two very heavy Cole carts, with their elaborate caisson and trailer arrangement. Draft animals could help but were only infrequently available. However, the seven men in each platoon headquarters' ammunition squad would have eased this situation somewhat though they could not handle a cart for each machinegun squad.

Ironically, the third machinegun platoon was, in practice, usually left unmanned as an economy measure. Its impact was therefore mainly symbolic. As in 1929, the machinegun and howitzer company was authorized rifles for most of its enlisted men so that it could supplement the rifle companies in performing guard duties. When machinegun and howitzer company functioned in its primary role, the rifles remained in the company chests.[236]

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174 1stLt Vernon E. Megree USMC "Motor Transportation for Expeditionary Units" (Quantico Virginia Marine Corps *Gazette* December 1928) pp. 271-276; Letter from the Connanding General at Quantico Virginia to the Major General Commandant dated 9 July 1926 about the need for additions to the tables of equipment for antiaircraft battalions due to excessive fuel use by the tractors, Record Group 127 Ellsdran File 2385-25/4 US National Archives Washington DC; and Buckner *A Brief History of the Tenth Marines* op cit pp. 27 and 39.

175 Johnstone, *A Brief History of the First Marines*, op cit p 12; Frank, *A Brief History of the Third Marines*, op cit pp. 4-5; Letter from the Major General Commandant to the Brigade Commander, First Brigade USMC, Haiti, 25 April 1922, Record Group 127 Ellsdran Fine 2385-60, US National Archives Washington DC; and Letter from the Major General Commandant to Post and Station Commanders, 6 November 1923, enclosing tables of organization, op cit.

176 Letter from the Major General Commandant to the Commanding General of the Second Brigade, 2 August 1922 and a table showing the distribution of the Second Brigade, dated at the Brigade Headquarters, Santo Domingo City on 7 April and to become effective 1 May 1923; both items in Record Group 127 Ellsdran folder 2385-45, US National Archives Washington DC.

177 Ibid; and see Heinl op cit pp. 255 and 611; on the officer surplus and enlisted shortage see Letter from the Director of the Division of Operations and Training to the Major General Commandant on the need to modify tables of organization (peace strength) 27 February 1928, Record Group 127 Ellsdran Files 2385-30 and 2385-25/5-3 US National Archives Washington DC.

178 Heinl pp. 258-260; and BGen Dion Williams, "Blue Marine Corps Expeditionary Force" Marine Corps *Gazette* (Quantico, Virginia, September 1925) pp. 76-88.

179 For an excellent account of the Marine intervention in Nicaragua see Neil Macaulay, *The Sandino Affair* (Duke University Press 1985) passim; and Bernard C. Nalty, *The United States Marines in Nicaragua* (Washington DC HQMC 1968) ; see also Heinl pp. 260-287

180 See Heinl pp. 287-290.

181 Letter from the Director of Operations and Training to the Major General Commandant dated 25 August 1927 regarding the reorganization of the Provisional Regiment (with a battalion each of the Fourth and Sixth Marines) and the Provisional Battalion (formed in the Philippines to be the third battalion of the Fourth Regiment) into the Twelfth Regiment; the letter also includes a troop list of the Third Brigade Record Group 127, Ellsdran File 2385-30, US National Archives Wasington DC; "Equipment and Tonnage Tables for Expeditionary Organization, United States Marine Corps, Peace and War Strength" approved 9 September 1929 Record Group 127 Entry No. 27 US National Archives Washington DC; and see Heinl pp. 290-292.

182 Letter from the Commanding General at Quantico Virginia to the Major General Commandant dated 17 November 1925 about eliminating the howitzer companies, Record Group 127 Ellsdran Files 2385-25/7-344 and 2385-45, US National Archives Washington DC; Letter from Major General Commandant to the Commanding Officer of Marine Corps Base San Diego California dated 26 February 1926 about the howitzer company reorganization making official what had always been done in practice, Record Group 127 Ellsdran Files 2385-25/9-4 and 2385-45, US National Archives Washington DC; and "Equipment and Tonnage Tables for Expeditionary Organization, United States Marine Corps, Peace and War Strength" approved 9 September 1929 op cit.

183 "Equipment and Tonnage Tables for Expeditionary Organization, United States Marine Corps, Peace and War Strength" approved 9 September 1929 op cit; "Professional Notes - Communications in Nicaragua" Marine Corps *Gazette* September 1927 p 191; and Capt Francis E. Pierce USMC "Infantry - Air Communications" Marine Corps *Gazette* December 1928 pp. 266-270.

184 "Equipment and Tonnage Tables for Expeditionary Organization, United States Marine Corps, Peace and War Strength" approved 9 September 1929 op cit.

185 Ibid.

186 Ibid.

187 Ibid.

188 LtCol Walter N. Hill USMC, "The Employment of a Marine Corps Expeditionary Force in a Major Emergency" Marine Corps *Gazette* Vol. 16 No. 1 (Quantico, VA May 1931) pp. 16-20.

189 "Notes from the Chief of Infantry - Statement made to the Military Affairs Committee of the House of Representatives" *Infantry Journal* March-April 1933 (Infantry Association Washington DC) p 142; Infantry Digest "The Infantry Regiment-New Style" *Infantry Journal* January 1936 (Washington DC) pp. 69-70; and see LTC Harry C. Ingles, Signal Corps, "The New Division" *Infantry Journal* November 1939 (Washington DC) pp. 521-29.

190 The Infantry School, "The Motorized Infantry Regiment" published in The Infantry School *Mailing List* Volume VIII 1933-34 (The Infantry School Fort Benning Georgia) pp. 87-102.

191 The Infantry School "The New Infantry Regiment," The Infantry School *Mailing List* Volume XI January 1936 (The US Army Infantry School, Fort Benning Georgia) pp. 4-7; The Infantry School "The Tactics of the New Infantry Rifle Platoon," The Infantry School *Mailing List* Volume XI I July 1936 (The US Army Infantry School, Fort Benning Georgia); and Col Lloyd R. Fredendall, Infantry "The Place of the Modified BAR in Organization", Infantry *Journal* July 1939 (Washington DC) pp. 334-337.

The FMF battalion headquarters company (Appendix 4.15) was also very austere. However, the battalion headquarters was actually a little larger than its Army counterpart. Furthermore, the Marines departed from the Army's practice of placing not only staff officers in the battalion headquarters but also some of their enlisted assistants. However the Bn-4's assistants remained in a separate supply section and the Bn-2's assistants stayed in the intelligence section. The battalion adjutant and intelligence officer also commanded the headquarters company as an additional duty. Medical arrangements were at least equally austere. Only enough hospital corpsmen were available to allow one per rifle or machinegun company with enough left over to man a skeletal aid station. The communication platoon still operated mainly by runner or messenger, visual signal, or telephone. There was only enough telephone equipment to link the rifle and machinegun company headquarters to the battalion headquarters. The platoon's three Cole carts (including its RL-16 reel-laying cart) were not assigned to specific entities in the platoon but one cart normally carried the radio while the other two hauled wire and telephone equipment.[237]

The remaining FMF organization tables that were published in February 1935 described no unit larger than a regiment (see Appendix 4.16). All units would instead serve as "building blocks" for the construction of task

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192 Ibid; and "Notes from the Chief of Infantry - Statement made to the Military Affairs Committee of the House of Representatives" *Infantry Journal* March-April 1933 (Washington DC) p 141; BGen C. D. Davis "The Infantry Division" *Infantry Journal* March-April 1936 (Washington DC) p 141; and MGen George A. Lynch, Chief of Infantry "Tactics of the New Infantry Regiment" *Infantry Journal* March-April 1939 (Washington DC) pp. 102-104. See also "Infantry Digest - The Infantry Regiment-New Style" *Infantry Journal* Jan 1936 pp. 69-70.

193 Ibid. See also The Infantry School "The New Regiment, Tactical Aspects," The Infantry School *Mailing List* Volume XI January 1936 (The US Army Infantry School, Fort Benning Georgia) pp. 44-45.

194 "Infantry Digest - The Infantry Regiment-New Style" *Infantry Journal* January 1936 pp. 69-70 op cit; LTC T. J. Camp "The Fourth Battalion" *Infantry Journal* May-June 1936 pp. 201 ff op cit; LTC Veron G. Oldsmith "Tanks, Trucks, Troops" *Infantry Journal* September 1936 (Washington DC) pp. 402-407; see also The Infantry School "The New Infantry Regiment" and "Tactical Aspects of the Proposed New Regiment" The Infantry School *Mailing List* Volume XI January 1936 (The US Army Infantry School, Fort Benning Georgia) pp. 1-52.

195 LTC Vernon G. Oldsmith "Tanks, Trucks, Troops" *Infantry Journal* September 1936 op cit.

196 Virgil Ney, The Evolution of the U. S. Army Infantry Division, 1939-1968, (Combat Operations Research Group (CORG) Memorandum A 3280 prepared under DA Contract DAAG 05-67-C-0547 for Headquarters US Army Development Command, Fort Belvoir VA January 1969) pp. 110-111; and The Infantry School, "The Rifle Platoon in Foreign Armies" The Infantry School *Mailing List* Vol XV 1938 (Fort Benning Georgia) pp. 181-193.

197 Robert R. Palmer et al *The Army Ground Forces - The Organization of Ground Combat Troops* (Washington DC, Historical Division United States Army 1947) pp. 271-2 and 274-5; and LTC Harry C. Ingles, Signal Corps, "The New Division" *Infantry Journal* November 1939 (Washington DC, The Infantry Association) pp. 521-29.

198 Ibid. See also "Special Report based on Field Service Test of the Provisional 2nd Division conducted by the 2nd Division, U.S. Army" 1939 - unpublished manuscript AG 390.2 dated 23 October 1939 currently held by the US Army War College Library Carlisle Pennsylvania.

199 Ibid. See US Army Adjutant General Table of Organization T/O 7-11 "Infantry Regiment, Rifle (Motorized)" (Washington DC 6 December 1938)

200 Ibid; and see US Army Adjutant General Table of Organization T/O 7-17 "Infantry Company, Rifle" (Washington DC 6 December 1938); Major General George A. Lynch, Chief of Infantry USA "Some Reflections on Infantry Material and Tactics" *Infantry Journal* July 1938 (Washington DC, Infantry Association) pp. 292-300; and MajGen George A. Lynch, Chief of Infantry USA "The Tactics of the New Infantry Regiment" *Infantry Journal* March-April 1939 (Washington DC) pp. 98-113.

201 US Army Adjutant General Table of Organization T/O 7-17 "Infantry Company, Rifle" (Washington DC 6 December 1938); Infantry Digest "Toy or Tool?" staff item *Infantry Journal* July-July 1936 (Washington DC) pp. 359-60; CPT Harold G. Sydenham, Infantry "The Infantry Mortars" *Infantry Journal* May-June 1939 (Washington DC); and Lynch,"The Tactics of the New Infantry Regiment" *Infantry Journal* March-April 1939 op cit.

202 US Army AG T/O 7-17 "Infantry Company, Rifle" 6 December 1938 op cit.; and Lynch,"The Tactics of the New Infantry Regiment" *Infantry Journal* March-April 1939 op cit.

203 US Army Adjutant General Table of Organization T/O 7-18 "Infantry Company, Heavy Weapons (Motorized)" (Washington DC 6 December 1938); Lynch "Some Reflections on Infantry Material and Tactics" *op cit* pp. 291-300; and Lynch,"The Tactics of the New Infantry Regiment" *Infantry Journal* March-April 1939 op cit.; Infantry School, "Loads of Infantry Vehicles" *Mailing List* Vol XX July 1940 (Fort Benning Georgia) pp. 217-260 op cit; and The General Board, United States Forces European Theater Study No. 15 "Organization, Equipment, and Tactical Employment of the Infantry Division" Unpublished report produced 1945-46, copy at the US Army War College Library Carlisle Pennsylvania, p 8 (quoting FM 7-15 of 1941).

204 Ibid.

205 Ibid.

206 US Army Adjutant General Table of Organization T/O 7-16 "Infantry Headquarters and Headquarters Detachment, Battalion, Rifle (Motorized)" (Washington DC 6 December 1938) and US Army Adjutant General Table of Organization T/O 7-12 "Infantry Headquarters and Headquarters Company, Regiment, Rifle (Motorized)" (Washington DC 6 December 1938).

207 US Army Adjutant General Table of Organization T/O 7-12 "Infantry Headquarters and Headquarters Company, Regiment, Rifle (Motorized)" (Washington DC 6 December 1938).

208 Infantry Digest "Squad Cars T-1 and T-2" *Infantry Journal* May-June 1936 (Washington DC); The Infantry School, "The 1939 Infantry" Vol XVIII July 1939 pp. 243-275; "Loads of Infantry Motor Vehicles" Vol XX July 1940 pp. 217-260; "Infantry School Reference Data" Vol XXII July 1941 pp. 191-220; all are from The Infantry School *Mailing List* (The US Army Infantry School, Fort Benning Georgia).

209 The Infantry School, "Infantry School Reference Data" *Mailing List* Vol XXII July 1941 pp. 191-220 op cit; and "Notes on Infantry" Sect I "Command Post Operations" *Mailing List* Vol XIX Feb 1940 pp. 77-95.

organized brigades or infantry task forces built around battalions or regiments. However, since only about 4,400 enlisted men could be allocated for the entire FMF (including its aviation) there was not a lot to work with. Therefore, the two FMF infantry regiments were generally unable to form their third battalions or their service companies. Their headquarters companies existed only as small cadres (three or four officers and 17 enlisted men each) and their service support had to come from the service companies of their respective brigades.[238] The regimental headquarters company's organization was supposed to parallel that of the battalion headquarters companies. The R-2's intelligence section had only scouts and observers. The regimental pioneer platoon survived despite even though the Army was phasing it out in favor of a battalion level section. The Marine unit however seems to have been more for light engineering work than merely furnishing ammunition-carrying parties. The Navy medical section included a dental officer. The communication platoon was but an enlarged version of its battalion level counterpart.[239]

The staff and supply sections of the rarely existing regimental service company were supposed to function in much the same way as they did in Army service companies. However, the supply section did not include an ammunition group, the munitions officer and sergeant being part of regimental headquarters. The regimental supply

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210 US Army Adjutant General Table of Organization T/O 7-13"Infantry Company, Service, Regiment, Rifle" (Washington DC 1 October 1940); Office of the Chief of Infantry "The Service Company" *Infantry Journal* June 1941 (Washington DC) pp. 53-57; and The Infantry School, "The 1939 Infantry" Vol XVIII July 1939 pp. 243-275; and "Loads of Infantry Motor Vehicles" Vol XX July 1940 pp. 217-260; both from The Infantry School *Mailing List* (Fort Benning Georgia) op cit.

211 LTC William G. Livsay, Infantry "Supply in the New Regiment" *Infantry Journal* November 1939 (Washington DC); and The Infantry School "Supply (An Infantry School Teaching)" The Infantry School Mailing List Vol XXII July 1941 (The Infantry School Fort Benning Georgia).

212 Ibid; and Lynch,"The Tactics of the New Infantry Regiment" *Infantry Journal* March-April 1939 op cit.; Tindall, "Ammunition Supply in the New Regiment" *Infantry Journal* March-April 1939 op cit pp. 150-153; and CPT Harold G. Sydenham, Infantry "The Infantry Mortars" *Infantry Journal* May-June 1939 (Washington DC).

213 Ibid.

214 US Army Adjutant General Table of Organization T/O 7-14 "Medical Detachment, Infantry Regiment, Rifle" (Washington DC 6 December 1938).

215 US Army Adjutant General Table of Organization T/O 7-11 "Infantry Regiment, Rifle " (Washington DC 6 December 1938, 1 March 1940, and 1 October 1940). The extra officers in the later table amounted to a fourth officer for each battalion staff, four officers for the regimental antitank unit which was expanded from a platoon to a company, and a third regimental chaplain,

216 Lynch "Some Reflections on Infantry Material and Tactics" *op cit* pp. 294-295; US Army Adjutant General Table of Organization T/O 7-17 "Infantry Company, Rifle " (Washington DC 6 December 1938, 1 March 1940); and The Infantry School, "Tactics of the Auto Rifle Squad" The Infantry School *Mailing List* Vol. XXI February 1941 (The US Army Infantry School Ft Benning GA) pp. 1-13.

217 Office of the Chief of Infantry "Tactics of Rifle Company Elements" *Infantry Journal* May-June 1940 (Wash DC) pp. 292-298.

218 Ibid.

219 Ibid.

220 The Infantry School "Supply" The Infantry School *Mailing List* Vol. XXII July 41 (Ft. Benning GA, USA Infantry School) pp. 257-60.

221 US Army Adjutant General Table of Organization T/O 7-17 "Infantry Company, Rifle " (Washington DC 1 October 1940). For a discussion of Chief of Infantry's view that firepower is more dependent on ammunition supply than on the number of weapons see MG George Lynch, Chief of Infantry "Firepower, Manpower, Mameuver" *Infantry Journal* November 1939 (Washington DC) pp. 498-505 and 606.

222 US Army Adjutant General Table of Organization T/O 7-18 "Infantry Company, Heavy Weapons " (Washington DC 1 October 1940).

223 Office of the Chief of Infantry "The Heavy Weapons Company and its Units" *Infantry Journal* Jul-Aug 1940 (Wash. DC) pp. 381-391.

224 Ibid.

225 US Army Adjutant General Table of Organization T/O 7-16 "Infantry Headquarters and Headquarters Detachment, Battalion, Rifle " (Washington DC 1 October 1940); and see Office of the Chief of Infantry "The Rifle Battalion" *Infantry Journal* September-October 1940 (Washington DC) pp. 508-517.

226 US Army Adjutant General Table of Organization T/O 7-12 "Infantry Headquarters and Headquarters Company, Regiment, Rifle " (Washington DC 1 October 1940); and see Office of the Chief of Infantry "The Rifle Regiment" *Infantry Journal* October 1941 (Washington DC) pp. 62-69.

227 Office of the Chief of Infantry "The Intelligence Platoon" *Infantry Journal* March 1941 (Washington DC) pp. 61-65.

228 The Infantry School, "Infantry School Reference Data" *Mailing List* Vol XXII Jul 41 pp218-220 op cit.

229 US Army Adjutant General Table of Organization T/O 7-117 "Infantry Company, Antitank, Regiment," (Washington DC 1 October 1940); and see Office of the Chief of Infantry "The Antitank Gun Company" *Infantry Journal* April 1941 (Washington DC) pp. 57-65.

230 Office of the Chief of Infantry "The Service Company (Contiued)" *Infantry Journal* July 1941 (Washington DC) pp. 51-58; and The Infantry School "Supply" The Infantry School *Mailing List* Vol. XXII July 41 (Ft Benning Georgia, The US Army Infantry School) pp. 257-60.

231 Heinl op cit pp. 246-247, 250-251, 290-292, and 296-297; see also letter from Commanding Officer 4th Marines (Shanghai) to the Commandant of the Marine Corps, 12 February 1932 Record Group 38 number 20971B F5c Box 902, US National Archives Washington DC.

232 Heinl pp. 299-301; and Holland M. Smith and Percy Finch, *Coral and Brass* (Washington DC, Zenger Publishing Inc 1948; reprinted 1979 by the US Marine Corps as FMFRP 12-37) pp. 58-60.

233 Ibid.

234 Heinl pp. 301-303; and Memorandum from the Director, Division of Operations and Training to the Major General Commandant, 14 August 1934, Record Group 127 Entry 18, Ellsdran File 2385-60 US National Archives Washington DC.

officer or quartermaster (R-4) was also supply company commander even though he resided in the regimental headquarters. The diagram shows only a first lieutenant commissary officer in the service company headquarters. The pay section was a standard feature of any regimental sized Marine Corps unit. There was no transportation unit. Transportation would be attached on an "as needed" basis and would consist of a number of attached motor transport sections, platoons, or companies. In general, these motor transport units were meant to support battalions, regiments, or brigades, respectively, though there were no firm rules on this. Each came equipped with a number of cargo vehicles (either two-ton trucks or Holt tractors towing three-ton trailers) plus 1/2-ton trucks, five-passenger automobiles, water trailers, motorcycles (with or without sidecars), and ambulances.[240]

In July 1936, the Fourth Marines, still in Shanghai, reorganized under the new tables. Because it operated without the support of a brigade headquarters or service company, it received its own regimental headquarters company, service company, and motor transport company to support its two reduced-strength battalions.❷ The service company included its own post exchange and bakery sections.[241]

In the following year, the ongoing troubles in China again reached crisis proportions with the incident at the Marco Polo Bridge and the Japanese invasion of China proper. Expecting a brief punitive campaign, the Japanese were unpleasantly surprised to find themselves in an extended war of attrition, a burden that their tottering economy was ill equipped to bear. Shanghai's foreign community, as usual, appealed for protection. The Marines send a brigade again. This time, the headquarters of the Second Brigade at San Diego would be in charge. It would command the Fourth and Sixth Regiments and a battery of .50-caliber anti-aircraft machineguns but it would have no field artillery or other combat support elements (such as tanks, engineers, etc.). Many other units would have to be stripped of men in order to reconstitute the headquarters and service company of the Sixth Marines, the missing rifle companies and machine gun platoons in Fourth Marines, and both regiments' missing third battalions.[242]

After the fighting had moved away from Shanghai Second Brigade and Sixth Marines returned home, arriving there by May 1938. Both the Fourth and Sixth Regiments quickly reverted to their pre-crisis strengths.[243]

Seventeen months after the Marine Corps adopted the February 1935 tables for its peace strength FMF units, it also promulgated a set of wartime tables. These called for a wartime brigade of more than 8,000 men that would have two infantry regiments, a two-battalion field artillery regiment (75mm pack howitzers), an engineer battalion, a medical battalion, two motor transport companies, and a company each of service, signal, light tank, military police, and chemical (actually 4.2-inch mortar) troops.

An infantry regiment from this wartime brigade is shown in Appendix 4.17. The rifle companies essentially reverted to the old 1929 war organization of three four-squad rifle platoons. The machinegun and howitzer company would become just a machinegun company when its howitzer platoon, having doubled in size to two sections of two guns or mortars each, moved over to the battalion headquarters company. Within the machinegun platoons, the squads increased to nine men each. Company headquarters carried six spare machineguns for issue to the platoons in "defensive" situations. The service company received its own transportation platoon, which could employ either trucks (shown above) or light tractors.

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❷ The Fourth Marines' headquarters company had 10 officers, a warrant officer, and 38 men. Its service company had four officers, five warrant officers and 91 men. The motor transport company had two officers and 69 men. Each of its two battalions had only two rifle companies (full strength) and a machinegun and howitzer company (minus a machinegun platoon). This gave each battalion 18 officers, a warrant officer, and 386 men.

235 US Marine Corps, *Small Wars Manual* (Washington DC USGPO 1940; reprinted 1987 as NAVMC 2890) paras 2-38 to 2-42; USMC Organization Tables, "Rifle Company, Marine Infantry Battalion (peace strength)" Table No. 1P and "Machinegun and Howitzer Company (peace strength)" Table 3P (both Washington DC 1 November 1934).

236 USMC Organization Tables, "Howitzer Platoon, Machinegun and Howitzer Company (peace strength)" Table No. 2P and "Machinegun and Howitzer Company (peace strength)" Table 3P (both Washington DC 1 November 1934).

237 USMC Organization Tables, "Headquarters Company, Marine Infantry Battalion (peace strength)" Table No. 4P and "Marine Infantry Battalion (peace strength)" Table 5P (both Washington DC 1 November 1934).

238 Letter from the Major General Commandant to the Chief of Naval Operations 18 May 1936 regarding the FMF staffing plan for Fiscal Year 1937, Record Group 127 Entry 18 Box 219 Ellsdran File 2385/5-1.

239 USMC Organization Tables, "Headquarters Company, Marine Infantry Regiment (peace strength)" Table No. 7P (Wash. DC 6 Feb 1935).

240 USMC Organization Tables, "Service Company, Marine Infantry Regiment (peace strength)" Table No. 6P (Wash. DC 6 Feb 1935).

241 USMC Organization Tables, "Detached Marine Infantry Battalion (peace strength)" Table No. 9.5P (Washington DC 6 February 1935); and Letter from the Director of the Division of Operations and Training to the Major General Commandant, dated 8 June 1937 on the authorized allowances for the 4th Marines, Shanghai China; Record Group 127 Entry 18 Box 224 Ellsdran File 2385/9-4, US National Archives Washington DC.

242 Letter from the Director, Division of Operations and Training to the Major General Commandant, regarding the Organization of the 2nd Marine Brigade ... For duty in China, dated 10 September 1937; Record Group Entry 18 Box 224 Ellsdran File 2385, US National Archives Washington DC.

243 Force General Order 1-38 for Reorganization of the Fleet Marine Force dated 2 May 1938; Record Group 127 Entry 18, Box 224 Ellsdran File 2385/5-2, US National Archives Washington DC.

The quartermaster and depot section in the supply platoon performed the same functions (supply office and receiving and distributing) as the supply section did in the peacetime organization. Like the 1929 wartime organization that this one replaced, it was never actually used and it existed only in war plans. It is interesting to note that the Marine Corps built its peacetime organizations first, and then constructed its wartime tables based on peacetime experience. The Army's approach was exactly the opposite. It built its wartime organizations first and then incorporated what it could afford into its peacetime structure.[244]

The Marine Corps, however, would soon reverse its policy of building peacetime units first. No sooner had the organization of the FMF infantry battalions been finalized in November 1934 that General Russell, ordered the Commanding General at Quantico Virginia to organize an experimental rifle company (see Appendix 4.18). This unit would test how peacetime rifle companies could best be organized to facilitate expansion to their wartime strengths while minimizing the loss of efficiency caused by the need to use incompletely trained reservists and/or raw recruits. The concept behind the experiment was that in war, the organizational *structures* of combat units generally remained constant (barring some catastrophe or voluntary reorganization) but the individual *strengths* of those structures constantly fluctuated. Thus, basic peacetime and wartime unit structures could remain the same. Only their strength levels would have to change. In the case of the experimental rifle company, it was based on nine rifle squads that would each increase from eight men in peacetime to 13 in war. Company and platoon headquarters would also expand. A wartime squad would be led by a sergeant, assisted by two corporals, and carry two BAR (in lieu of one BAR and one Thompson). The squad could split into two elements if desired, although no such subdivision was formalized. Company headquarters would gain an executive officer and additional enlisted personnel. Gunnery sergeants would serve as platoon sergeants but the platoon guides (corporals) would disappear. The experimental company greatly facilitated training and mobilization because existing combat elements merely got larger. Key leaders were already in place. New squads or platoons would not have to be hastily formed and trained.[245]

Like the Army's 12-man squad of 1936, the 13-man Marine squad could absorb more losses and still remain effective. It also simplified platoon organization by eliminating sections and reducing the number of squads.[246]

Unfortunately, talking about the concept was easier than actually testing it. Manpower was so tight in 1934 that the combined requirements of recruit training, annual rifle practice, and the ongoing amphibious exercises at Culebra made the formation of an experimental rifle company impossible for almost a year after the original instructions for it were issued. New tables incorporating the experience gained did not appear until June 1938. These tables also incorporated new weapons, such as the M1 rifle, the M1 81mm mortar and the M3 37mm antitank gun. They abandoned any use of separate war or peacetime organizations. Instead, the principal of varying strength rather than structure would be applied across the board. The war tables would be used in peacetime but they would not be fully manned. In fact the current allowance of 20 officers, a warrant officer, and 457 men per infantry battalion would continue and this tended to minimize the reorganization's practical impact.[247]

When it came to adopting new weapons, the Marines tended to be more deliberate than the Army. It was certainly convenient for them to be so since the Army could expect to be the first to receive any new gear that was available. Also, experience in Nicaragua had given the Marine Corps a different perspective on how best to use the new weapons. The Army had slated M1 Garand rifle, for example, to replace not only the reliable and highly accurate M1903 Springfield rifle but also the BAR (except in its LMG role) and the Thompson sub-machinegun. The Garand's firepower was very attractive. The Marines understood that it would have to replace their beloved M1903 though they did not object to losing the Thompson gun, given the latter's non-standard ammunition and limited range. However, they were not so eager to drop the improved BAR from their rifle squads. To them, Nicaragua had firmly established the value of fully automatic weapons in small units. The effectiveness of the rifle grenade launcher had also been demonstrated but since there was no grenade launcher for the Garand, at least some Springfields would have to be retained for the rifle grenadiers. The 60mm mortar was supposed to replace the rifle grenades but many Marines doubted whether it could do so. The Marines therefore kept their BARs and rifle grenade launchers, though noting in their organizational tables that M1 rifles might later replace them. The new rifle

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244 USMC Organization Tables, "Marine Brigade (war strength)" Table No. 1W and subordinate organizations (Wash. DC 1 July 1936).

245 Letter from the Major General Commandant to the Commanding General, Fleet Marine Force dtd 2 November 1934 on "Experimental Rifle Co (War)" Ellsdran File 2385-30, Copy in the Marine Corps Historical Center Washington DC; for the Marine Corps readiness issue see Heinl op cit.

246 For Army rifle squad issues see George A. Lynch "Some Reflections on Infantry Material and Tactics" *Infantry Journal* July 1938 op cit.

247 Letter from the Commanding General, Fleet Marine Force, to the Major General Commandant on the organization of infantry regiments dated 3 September 1938; Record Group 127 Entry 18 Ellsdran File 2385-60/4-c, US National Archives Washington DC; and Letter from the Director of the Division of Operations and Training to the Major General Commandant, dated 14 September 1938 on the formation of antitank platoons; Record Group 127 Entry 18 Box 220 Ellsdran File 2385/50-2, US National Archives Washington DC.

company would not include an Army-style weapons platoon since neither manpower nor equipment could be spared for it.[248]

Based on these concepts, the Marines issued new tables of organization for their FMF units in 1938. The table for the new rifle company (see Appendix 4.19) continued the basic company structure adopted in 1934 though the increased the strength of the rifle squads (on paper at least) from eight men each to nine. Plans also existed for larger squads when more manpower became available. The new tables also strengthened company and platoon headquarters, "padding" them with additional non-commissioned officers (such as having two "guides" in each platoon) who could be used to support further expansion.

Among other things, these new tables would, for the first time, follow Army practice by introducing specialist ranks for those with special skills justifying more pay but not more responsibility. This had the biggest impact on Marine cooks, who had previously ranked as privates despite the difficulties and importance of their thankless task. Henceforth, a company mess was to be led by a mess sergeant or mess corporal (a Grade 4 or 5 NCO). Supervising them at the battalion level would be a staff sergeant (mess), or Grade 3 NCO, and at the regimental level, a technical sergeant (mess), or a Grade 2 NCO. In addition there would be chief cooks, who would be paid as sergeants (Grade-4) though ranking below them; field cooks (Grade 5 or corporal equivalents), and assistant cooks (Grade 6).[249]

The 1938 tables also instituted the planned change in the 1936 wartime tables under which the machinegun and howitzer companies would become pure machinegun companies by transferring their howitzer platoons to their battalion headquarters companies (see Appendix 4.20). The three machine gun platoons that each machinegun company retained would also lose their ammunition squads but the gun squads would be larger and platoon headquarters would expand to handle fire control, observation, and communication. Transportation would depend on handcarts, since Marine infantry battalions did not have their own motor vehicles. This considerably reduced shipping space requirements and eased movement by boat or over terrain that was untrafficable for motor vehicles. However the loads that could be carried would be much smaller. Supply distances would therefore have to be short but on the numerous small Japanese-held Pacific islands, this was not expected to be a problem. To improve their load carrying abilities the Marines chose to adopt the Army's new handcart to replace the Cole cart. This cart had been developed before 1936 in order to assist weapons crews after they had dismounted from their trucks. It weighed only about 80 pounds in its initial version, though later versions had to be strengthened and made heavier. The cart carried a 200-pound payload though this could be doubled in an emergency. The Marines assigned two carts to each machinegun squad (one for the gun, one for ammunition), thus tripling the payload that the men could have hand carried.[250]

In addition to the 12 machineguns in the squads, each machinegun company would also have 12 spare guns so that each squad could be issued a second gun for defensive use. Unlike Army practice, company headquarters held control of these guns instead of routinely issuing them to the squads. Brigade level motor transport was probably delegated the task of actually moving the spare guns around during the times when they were not needed.

One more change in armament of the machinegun company was in its small arms. Until 1938 all or most machinegun company personnel were armed with pistols so as to leave their hands free. Though this limited their ability to defend themselves it was assumed that the rifle companies could always provide sufficient local security. Doubts about the validity of this assumption led to the decision to arm about two thirds of the enlisted men in each machinegun company with rifles. Rifle-armed men could use the same ammunition as the machineguns while still being able to carry ammunition boxes or pull handcarts.[251]

The battalion headquarters company was similar to that of 1936 (see Appendix 4.21). The principal addition was the 81mm mortar platoon. Having no vehicles the Marine platoon needed 70 men and two officers (one of whom served as liaison officer at battalion headquarters) in order to carry sufficient ammunition for its four mortars. It received additional ammunition bearers on 23 August 1939. Because of its motorized weapons carriers, the Army needed only one officer and 44 men to support four mortars. However, the Army platoon with its vehicles would take up more shipping space, would have considerable difficulty crossing a beach that had not been well prepared by the engineers in advance, and would find its mobility restricted by the extent and quality of the local road network. The Marine unit, on the other hand, could operate almost anywhere, albeit at the end of only a very short supply line. Unlike its Army counterpart, it was not expected to position itself where it could see most of its parent battalion's frontage. Instead, the Marine unit would have its own observers able to establish at least two observation posts and its own telephone linemen and operators to link the observation posts to the guns (and, if practical,

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248 US Marine Corps, *Small Wars Manual* (Washington DC 1940; reprinted 1987 as NAVMC 2890) para 2-40.

249 USMC Organization Tables, "Rifle Company, Marine Infantry Battalion" Table No 1 (Washington DC 6 Jun 1938 updated 23 Aug 1939).

250 The Infantry Digest "Hand Carts for the Infantry" *Infantry Journal* July 1936 (Washington DC).

251 USMC Organization Tables, "Machinegun Company, Marine Infantry Battalion" Table No. 2 (Washington DC 6 June 1938 and, with update, 23 August 1939).

battalion headquarters). Thus the Marine unit was expected to function more like field artillery, in contrast to the Army unit which was mainly a direct fire unit intended to clean up what other supporting firepower had missed.

Unlike the machinegunners, most mortarmen were so heavily loaded the only personal defense weapons they could carry were pistols. However, to beef up the platoon's defensive firepower, its mortar and ammunition squad leaders carried BAR's. These weapons were of course a very heavy additional burden and it is surprising that sub-machineguns were not used instead since, as local security weapons, they would have been very nearly as effective and much lighter. However, eyewitness accounts speak of BARs still being carried by mortar platoons even as late as the Guadalcanal fighting in 1942.[252]

Naturally, in peacetime, this new organization could not attain its full strength and numerous economies had to be made. A rifle company could field no more than four officers and 95 men while a machinegun company would have no more than three officers and 85 men and only two of its three machinegun platoons. Rifle and machinegun squads could not be filled beyond eight men each. A consolidated battalion mess replaced all the company cooks. Similar cuts in the battalion headquarters company reduced the new mortar platoon to little more than a training unit with an officer, a warrant officer, and 36 men (see Appendices 4.19, 4.20 and 4.21 for details).[253]

Apart from its skeletal battalions an FMF infantry regiment in 1938-39 continued to exist mainly on paper. Its regimental headquarters and headquarters "company" was allowed just three officers and 17 enlisted men (15 of them in the communication platoon). Its service company was not manned at all. In August 1939 the regimental headquarters and service companies officially combined into a single headquarters and service (or H&S) company (see Appendix 4.22). This was done by eliminating the service company headquarters and the transportation platoon (ending any further attempts to give the regiment its own trucks) and moving the pay and supply sections (unchanged) into the regimental headquarters company. At the same time the H&S company also acquired an antitank platoon similar to that of a December 1938 Army infantry regiment although there was still no one available to man it. Further cuts in the battalion mortar platoons yielded enough men to serve as cadre for a future platoon.[254]

This was the last significant change to Marine infantry organization until March 1941 when the Marines adapted their infantry regiment to form the fighting core of the newly authorized Marine divisions.

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[252] USMC Organization Tables, "Headquarters Company, Marine Infantry Battalion" Table No. 2; "81mm Mortar Platoon, Headquarters Company, Marine Infantry Battalion" Table No. 3; and "Communication Platoon Headquarters Company, Marine Infantry Battalion" Table No. 4 (Washington DC 6 June 1938 and, with updates dated 23 August 1939 and 1 October 1940).

[253] Letter from the Commanding General, Fleet Marine Force, to the Major General Commandant on the organization of infantry regiments dated 3 September 1938 op cit.

[254] Letter from the Director of the Division of Operations and Training to the Major General Commandant, dated 14 September 1938 on the formation of antitank platoons op cit; US Marine Corps Organization Tables, "Headquarters Company, Marine Infantry Regiment" Table No. 11; "Antitank Platoon, Headquarters Company, Marine Infantry Regiment" Table No. 9; "Service Company, Marine Infantry Regiment" Table No. 8; and "Marine Infantry Regiment, Marine Brigade" Table No. 10 (all Washington DC 6 June 1938).

CHAPTER 5 - THE TESTING TIME - INFANTRY IN WORLD WAR II, 1941-45

ARMY INFANTRY

The US Army entered the Second World War in the fairly confident expectation that ground combat forces in general and the infantry in particular would have a much smaller role to play than they had in the First World War. The war in the Pacific would be primarily naval in character and in Europe there was hope that the Anglo-American strategic bombing campaign would bring Germany to its knees at a relatively low cost in lives and without the need for an extended land campaign. Early reports about the 1940 French Army being overwhelmed by hoards of German tanks and clouds of German dive bombers were given far too much credibility and prompted plans to create vast numbers of tank, tank destroyer, and anti-aircraft units to counter these exaggerated threats. Even after cooler councils had prevailed, considerable doubt remained about how useful conventional infantry was going to be. It was only late in the war that the Army realized that it needed far more of it than it had planned for.

Once it had established the infantry's basic organizational framework the War Department was reluctant to make further changes beyond what was needed to incorporate new equipment and new ways to conserve manpower. Tactical organization was closely linked to doctrine and significant innovations to one almost invariably meant a ripple effect on the other. In an army of long service professionals who would have the time and experience to adapt themselves to new ways, major changes might have been practical. In an army of conscripts, however, whose members scarcely had time to learn one organizational-doctrinal system, major change could produce large-scale confusion.

Tactical organization was also critically important for mobilization and other preparatory planning. Tactical units were the building blocks with which the wartime army would be assembled and from on which the Army's troop basis would largely be determined. Training, much of it little more than the inculcation of doctrine, would also be profoundly affected by organizational change. Consequently, the War Department was keenly aware of the need to establish sound wartime organization and doctrine well in advance. Hence, the rush of testing and experimentation with infantry organizations from the mid-1920s onward to get the Army ready for its next European war.[255]

Nevertheless, there was still room for some innovation, especially while the ground forces' buildup was still in its early stages and the new recruits were not yet wedded to any particular system of doing things. In order to incorporate the lessons learned in the 1941 maneuvers as well as the new equipment that was at long last becoming available, the Army launched a general reorganization of all its combat units in April 1942. Combat experience did not influence this reorganization. The Regular Army regiments stationed in the Philippines had been fighting the Japanese since December 1941 using essentially the December 1938 tables, diminished somewhat by manpower and equipment shortfalls. The regiments of the newly organized Philippine Army also attempted to follow the 1938 tables but were in much worse shape in terms of both equipment and readiness. That the defense of the Philippines ended in disaster was far more a consequence of high level indecision and a general lack of preparation than it was the result of any defective tactical organization. In any case, few details of these early battles became available until after the survivors had emerged from Japanese prison camps in 1945.[256]

The new weapons and equipment that helped to bring about the April reorganization included a hollow charge rifle grenade called the M-10 which offered much better armor penetration than any previous infantry weapon. In order to use the M-10, the Army would have to bring back its rifle grenade launchers but these could also fire the new fragmentation rifle grenades that would soon be available. Such developments finally led the Army to agree with the Marines that, despite its excellence as a company support weapon, the 60mm mortar could not replace the rifle grenadier. However, the M1 rifle still had no grenade launcher so the M1903 rifle would have to be reintroduced to make its launcher available for the M-10. Soon, the lighter but still effective M9 grenade would replace the inconveniently heavy M-10. Rifle grenade launchers (with M1903 rifles) would be issued to infantry units at all echelons (as shown in the diagrams below) to provide local antitank defense.[257]

A second major innovation was the M1 carbine. Like the M1919A4 LMG this weapon had a prolonged development and began to appear in tables of organization long before it was actually available. It was intended as

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[255] Robert R. Palmer "The Reorganization of Ground Troops for Combat", Greenfield et al *The U.S. Army in World War II - The Organization of Ground Combat Troops* (Washington DC, Office of the Chief of Military History 1947) pp. 265-67.

[256] Two excellent accounts of the U. S. Army's role in the Philippine Campaign of 1941-42 are Louis Morton, *The Fall of the Philippines* (Washington DC, US Army Center for Military History , first published 1953); and John W. Whitman, *Bataan, Our Last Ditch* (New York Hippocrene Books 1990).

[257] Most infantry branch tables of organization for 1 April 1942 include M1903 rifles and BARs specifically for antitank, and anti-air defense, respectively. For the story of the M-10 granade, which later became the warhead used by the first "bazooka" anti-tank rocket launchers, see John Weeks *Men Against Tanks* (New York, Mason/Charter Publishers 1975) pp. 95-98.

an ultra light semi-automatic rifle that would replace all .45 caliber pistols except for those carried by "field grade" officers (majors and above) and by the gunners and assistant gunners in most machinegun and mortar squads. The carbines would also replace some rifles, including those carried by senior enlisted men (mainly first sergeants and sergeants major), and company buglers, messengers, and communication personnel. Rifle platoons continued to use mostly rifles but weapon platoons switched completely to carbines except for their squad leaders and basic privates. Antitank platoons also issued rifles to drivers and their liaison and transport corporals. Because the carbine fired a .30 caliber bullet, it was assumed that by replacing .45 caliber ammunition it would allow the infantry to operate exclusively with .30 caliber ammunition, thereby simplifying small arms ammunition supply. In reality the carbine fired an elongated pistol cartridge of very limited range and hitting power and that was in no way interchangeable with the far more powerful .30-06 cartridge used by the M1 and M1903 rifles. The carbine cartridge was really meant as a compromise between the range, power, and accuracy of a rifle and the portability of a sidearm. Though initially popular and made in huge numbers, combat experience gradually exposed the carbine as a weapon that not only lacked stopping power but was also mechanically unreliable, especially in extreme climates.[258]

The final development in infantry weapons during the early months of the war was the increased production of M3 37mm antitank guns. This allowed .50-caliber machineguns to be retired as antitank weapons and to instead become convoy defense weapons. Fired from a ring or pedestal mount the .50-caliber was normally carried by the new 2.5-ton 6x6 cargo trucks to give anti-aircraft protection.

In addition to new weapons, the Army also introduced a new range of tactical transport vehicles. First, a 2.5-ton 6x6 truck that combined ruggedness with excellent off-road mobility and a considerable increase in payload would supplant the commercial 1.5-toners in most roles. Second, a newly designed 3/4-ton truck configured in either weapons carrier or C&R versions would displace many existing 1/2-ton trucks. Though the 1/2-tonners had themselves only been in service a short time, their numerous commercial components lacked durability. Also, their relatively narrow track width reduced their cargo space and gave them too high a silhouette. The 3/4-tonners had been designed from the start as military vehicles and were much more reliable and efficient in consequence. Lastly, an Army design competition for a 1/4-ton 4x4 tactical truck produced the famous "jeep." Although rated as a 1/4-ton vehicle, the jeep's designed payload was actually 730-pounds, or just under 3/8-ton, and it could also pull a loaded 1/4-ton cargo trailer. Small and handy enough to replace sidecar motorcycles, the jeep's seats suited it for the C&R role while its trailer allowed it to be a weapons carrier also. Originally intended only for limited use the jeep soon became one of the most ubiquitous vehicles in the Army. With some help from the 3/4-ton trucks, the jeeps (as soon as there were enough of them) would replace nearly all 1/2-ton trucks, motorcycles (except in certain airborne units), and five-passenger automobiles.[259]

The Army's new radio equipment would also have a major impact. By 1942, infantry radios came in "small," "medium" and "large" sizes. The "small" size was the "ultra light" or "handie-talkie" SCR-536. This was a hand held HF voice radio that resembled a large handset with an antenna. Weighing only about 5.5 pounds (without accessories), it was so simple to use that non-signalers could easily be trained to operate it. In many respects the SCR-536 was the most important of the new radios because it brought radio communication down to the platoon level. On the debit side, the SCR-536's dependable transmission range was only about a mile, though this was usually adequate for intercommunication within a company. It also had to be set to a fixed frequency that only a technician could adjust. Hence, SCR-536s belonging to one company (which would have its own internal radio net and frequency) could not communicate with those of another. Even when technical assistance was available, the SCR-536 lacked the frequency range needed to communicate with other radio types, especially the "medium" or man-packed VHF radios. The earliest of these was the SCR-195, replaced early in the war by the SCR-511 and, later on, by the much-improved SCR-300. The SCR-300 "walkie-talkie" weighed about 38 pounds with its largest battery. The vehicle-mounted version was known as the AN/VRC-3. It could reliably transmit to about three miles and was normally used for battalion level communication. The "large" infantry radios consisted of the heavy long-range HF sets used for regimental and division level communications and able to send or receive voice or CW transmissions. While usually mounted in vehicles they could be hand carried in multiple loads. Some could utilize hand generators for power and this capability was especially valuable in extremely cold or hot climates where batteries usually failed. Initially the large radios had consisted of the obsolescent SCR-131s and SCR-171s but the

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[258] Joseph E. Smith, *Small Arms of the World* (Harrisburg Pennsylvania, The Stackpole Co. 1973) pp. 89-91 and 641; S. L. A. Marshall, *Infantry Operations and Weapons Usage in Korea Winter of 1950-51* (Chevy Chase, Maryland, Operations Research Office The Johns Hopkins University 1951) pp. 67-71. In addition, an examination of published infantry tables of organization (many of which will be cited later) will show heavy use of the carbines from the time they became available in quantity in late 1942 until mid-1944 when carbine usage dropped off in favor of additional rifles and pistols. Korea seems to have been the carbine's "swan song" with the Marines phasing out the weapon completely by the end of the war and the Army following suit during the next several years after that.

[259] The new vehicles began appearing in tables of organization during 1942. Descriptions can be found in Thomas Berndt, *Standard Catalog of U.S. Military Vehicles* 1940-1965 (Iola Wisconsin, Krause Publications 1993) and Bart H. Vanderveen ed *The Observer's Fighting Vehicles Directory World War II* (New York Frederick Warne & Co 1969).

SCR-284 soon replaced them. This new set offered greatly superior range (30 miles in CW mode or seven in voice mode) while weighing only 80 pounds. However, later in the war the SCR-284 gave place to the SCR-694 which, though heavier (90 pounds in its ground version or 150 pounds in its vehicle version), could transmit out to 15 miles in voice mode or 30 miles in CW. It could even communicate with an SCR-536 if the operator adjusted it to the latter's preset frequency. Although the new SCR-536, SCR-300, and SCR-284/694 extended radio communication within the infantry as never before, it was only well into 1943 that they became available in substantial quantities.

Advances in other types of communication gear were much less striking. Telephone equipment remained much the same although the quantities issued were increased to where the rifle and weapons companies could be included in battalion level phone nets. Hand flashlights with pushbutton flashers replaced signal lamps. Semaphore and panel signaling gradually fell into disuse.[260]

In the infantry regiment, the impact of all this new equipment, plus some rethinking about the best uses for the old, reached down to the rifle squad and platoon. The most noticeable change was the elimination of the BAR squad. Instead, a BAR man would replace a rifleman in each of the platoon's three 12-man rifle squads. Another rifleman per squad would act as an assistant BAR man (though he continued to carry a rifle) while a third helped to carry BAR ammunition. This writer has been able to find little discussion of this change in contemporary publications but the Army appears to have concluded that a BAR in each rifle squad would not only make the BAR squad unnecessary but greatly simplify the organization of the rifle platoon. On the other hand, there was concern that including a heavily laden BAR man in a rifle squad might hurt the squad's mobility. The Army still saw the BAR only as a source of emergency firepower that would always be limited by its ammunition supply. It firmly resisted calls to increase the squad's automatic firepower with additional BARs. It did, however, issue BARs to selected truck drivers (including both drivers in each rifle company) for the antiaircraft defense of their vehicles. Within its rifle squads, the Army was particularly concerned about maintaining the maximum number of M1 rifles, yet this number would suffer further reduction brought on by the reintroduction of rifle grenadiers. For antitank protection and as another means of lobbing high explosive the squad would need a rifle grenadier, who would have to be armed with the slower firing M1903 rifle because no grenade launchers for the M1 were available. When the M1 compatible M7 grenade launcher appeared later in the war the M1903 rifle could be safely retired as a front line combat weapon.

Apart from the changes in its rifle platoons, the rifle company (see Appendix 5.1) changed very little from 1940. It did replace its two 1/2-ton weapons carriers with a 3/4-tonner and one of the new jeeps.[261]

In 1942 the weapons company (see Appendix 5.2) lost its antitank platoon to the new battalion headquarters company but the organization and mission of its two HMG platoons remained the same. They initially exchanged their 1/2-ton weapons carriers for 3/4-ton trucks. Many of the drivers carried either BAR's or M1903 rifles with grenade launchers for the security of their vehicles. Until the new bazookas were ready the War Department assumed that M1903 rifles with grenade launchers firing M-9 or M-10 grenades would provide much of the Infantry's organic antitank defense while those BAR's not aorganic to the rifle squads would provide local air defense for the infantry's tactical vehicles. Enough BAR's would be issued so that between one half and one third of all drivers would have them. Another one third or so of the drivers would have M1903 rifles and most of the others would carry M1 rifles.

The 81mm mortar platoon, in addition to new vehicles, acquired a third mortar section. This made it possible to assign a mortar section to each rifle company in the battalion, not just the two that were normally deployed forward (while the third usually stayed back). The mortar section of any company not engaged with the enemy could assist one of the other two and during tactical displacements two mortar sections could fire while the third one moved. Although the typical frontage of a battalion in the attack was only about 500 yards (1,000 yards in the defense) the mortars were still depended on their own observers (usually the section leaders) to acquire nearly all their targets. In darkness, fog, or in wooded or other "closed" terrain, these observers might not be able to see very much, thus effectively making the mortars "blind." In addition, an observer from one section could not call in the fires of another. In part this was a doctrinal limitation. The Chief of Infantry's belief that concentration of fire belonged to the artillery and distribution of fire to the infantry was still very much alive. A target requiring the fires of the full mortar platoon should be handed off to the artillery instead. Then too, mortar observers were severely limited by their communication means. The observer normally positioned himself within 50 yards or so of his own guns and communicated with them (and them only) by telephone. As for radios, the entire mortar platoon could not expect to receive more than one or two SCR-536s. This was only enough to enable radio communication between the platoon headquarters and the company headquarters and for perhaps one observation post.[262]

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[260] The Infantry School "Infantry School Reference Data" *Mailing List* Vol XXII July 41 pp. 219-220 op cit; "Organization and Use of the Infantry Communication System" *Mailing Lis*t Vol XXVII Feb 44 pp. 159-192; and "Infantry Radio Communications" *Mailing List* Vol XXIX Oct 1946 (Fort Benning Georgia, US Army Infantry School) pp. 145-157.

[261] US Army Adjutant General Table of Organization T/O 7-17 "Infantry Rifle Company " (Washington DC 1 April 1942).

The former battalion headquarters detachment became a company in 1942 as a result of some substantial increases in its size (see Appendix 5.3). First, the War Department combined the communication section that had been habitually attached to the battalion from the regimental communication platoon with the battalion's own messenger section and thereby created a battalion communication platoon. Second, it expanded the pioneer section to a platoon by giving it a third squad. Third, it transformed the old battalion intelligence section into a battalion headquarters section. This included not only an intelligence element (a sergeant and six scout/observers) but also the enlisted members who mainly supported the S-3. There were no support personnel for the S-1 or S-4. Supply and personnel administration activities took place either at the company level (through the company clerks, supply sergeants and mess details) or at the regimental level (through the service company). Though a battalion had an S-1 he was usually kept busy running the headquarters company. A battalion headquarters was expected to concern itself with mainly operations and intelligence and to leave logistical and administrative matters to others. Lastly, as already mentioned the War Department moved the battalion antitank platoon from the weapons company to the new headquarters company. The practical effect of this move, however, was mainly limited to a shift in responsibilities for the platoon's training, logistical, and administrative needs. The battalion commader still controlled the platoon for operational purposes as he had in 1939-40. However, it would now be easier to employ the platoon as a security unit for battalion headquarters. In its new role, the platoon enjoyed a substantial increase in its firepower, it having received M3 37mm towed antitank guns in lieu of its older .50-caliber machineguns. For its mobility the platoon would use jeeps rather rather than 3/4-ton trucks. The jeeps were better suited for use in forward areas but two were required to move each antitank gun with its crew and ammunition. Thus, each squad needed two drivers.[263]

The regimental antitank company, first introduced in October of 1940, was now one of two combat companies directly subordinate to regimental headquarters. It retained its 12 37mm and, like the other companies, and replaced its 1/2-ton trucks with 3/4-tonners (see Appendix 5.4). The rifle squads were eliminated. The increased capacity of their new trucks meant that antitank sections could replace their ammunition vehicles with jeeps that could also serve as C&R vehicles. In early 1942 the Army planned to upgrade the 37mm guns in the antitank company to a self-propelled version called the M6. In the M6 the 37mm was permanently fixed to the bed of an unarmored 3/4-ton truck. This was in imitation of a British scheme to mount a 2-pounder (40mm) antitank gun on a truck chassis for use in North Africa but changing conditions made these guns obsolete by mid-1942. Some of them did go to North Africa where they proved to be useless. The infantry regiments had definitely dropped them by October 1942. In the place of its rifle squads, the antitank company now deployed its own mine-laying platoon. This was a strictly defensive unit with a small headquarters and three eight-man rifle-armed squads that placed antitank mines by hand. The platoon headquarters included two 2.5-ton trucks to carry the mines and a surveyor and a topographic draftsman to map the minefields. Unfortunately, the platoon lacked the firepower (and probably the training) to serve as infantry when it was not needed for mine laying. As in the 1940 regiment, the antitank company was fully motorized. The company headquarters 3/4-ton truck carried a long-range SCR-284 radio. Manned by two operators, this set not only communicated with the regimental headquarters it also served as a station on the tank warning net in the antitank company's parent division. As in 1940, three of the company's five man-pack radios (SCR-511 or 300) were normally issued to the antitank platoons. The other two stayed at company headquarters (one might be given to the minelaying platoon). Company headquarters also included its own maintenance section.[264]

The other combat company under the regimental commander was the cannon company. This was an entirely new organization, though it had been under discussion for years. Together with the 81mm mortar and the 37mm gun, the War Department hoped that the cannon company would make the infantry sufficiently independent of division and higher level artillery support that it would not be too adversely effected if the artillery, as had so often occurred during the First World War, proved unable to keep pace with the infantry's advance or to engage targets of opportunity that the infantry requested.

Foreign armies, however, were approaching this problem rather differently. The British Army, for example, saw its 3-inch mortar as the complete solution and therefore eliminated the Royal Artillery "light batteries" that it had created to give the infantry close support. The French also put their faith in the 81mm mortar and in a new 120mm weapon that they were not able to introduce before their 1940 defeat. The German, Russian, and Japanese

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262 US Army Adjutant General Table of Organization T/O 7-18 "Infantry Heavy Weapons Company " (Washington DC 1 April 1942); also see CPT Charles Multop, Infantry "A Heavy Weapons Company in Korea" The Infantry School Quarterly Vol XXXIX October 1951 (Fort Benning Georgia, The Infantry School) pp. 80-87; and The General Board, United States Forces European Theater Study No. 15 "Organization, Equipment, and Tactical Employment of the Infantry Division" Unpublished report produced 1945-46, copy at the US Army War College Library Carlisle Pennsylvania, p 8.

263 US Army Adjutant General Table of Organization T/O 7-16 "Headquarters and Headquarters Company, Infantry Battalion" (Wash. DC 1 April 1942).

264 US Army Adjutant General Table of Organization T/O 7-117 "Infantry Antitank Company" (Washington DC 1 April 1942). For an account of the failure of the self propelled 37mm gun see MG E. N. Harmon USA "Operations of the 1st Armored Division in Tunisia" Part II reprinted in AFV-G2 Magazine Vol. 6 No 10 (La Puente California, Baron Publishing Co Mar-Apr 1980) pp. 35-36.

armies, however, considered the 81mm mortar alone to be inadequate and employed guns that they had specially designed for infantry use. Although the US Army agreed with this assessment it had no purpose designed infantry guns available. True infantry guns deliberately sacrificed range and caliber to achieve the low weight and small size necessary for mobility and survival in forward areas and standard field artillery pieces were far too large and heavy. However, the Army believed that self-propelled weapons that also had some armor protection could best achieve the mobility and survivability required of infantry guns. The easiest way to produce self-propelled weapons was to mount standard light field guns and howitzers (without their wheels and trails but with their gun shields) on the beds of the M3 armored half-tracks that were just entering production. The guns would be able to fire directly forward (with limited traverse from side to side) over the half-track driver's cab. By far the most common of these conversions was called the M3 or T12. It mounted the standard 75mm field gun and served not only as an infantry support weapon but also as the Army's first self-propelled "tank destroyer." An experimental variant, called the T-30 and issued only in small numbers, carried the 75mm pack howitzer. Another variant was the T-19. Though also experimental it appeared in greater numbers (324 were built) and carried the M2 105mm howitzer. Although the infantry cannon companies' 75mm platoons were supposed to get the T-30 75mm howitzers, they generally received T-12 75mm guns instead. The 105mm platoons received T-19s. The cannon company that emerged is shown in Appendix 5.5.[265]

The regimental headquarters company was built around its communication platoon and a reorganized intelligence platoon that was now called the intelligence and reconnaissance (I&R) platoon (see Appendix 5.6). The communication platoon was just the former regimental section of the former 1938-41 platoon. However, the old regimental section had greatly enhanced its capabilities. Its radios increased from six to 14 and there was a substantial increase in telephone equipment as well. Some of this equipment was intended to support the regimental service company, which had no radio or telephone equipment of its own.[266]

The new I&R platoon existed solely to support the regimental commander. It assumed all the functions of the old intelligence platoon, including counterintelligence and assisting the S-2 in collecting, interpreting, and disseminating information either through office work, manning outposts, or accompanying patrols provided by other units. Neither its headquarters nor its two squads were meant for attachment to any battalion except for occasional missions of very limited duration. Instead, it was the regimental commander's personal ground reconnaissance force. He could call on it at any time to obtain information on the terrain and hostile forces in the regiment's sector without having to delegate the job to some outfit that had been improvised for the purpose by reducing one of his battalions. Though trained to carry out its mission on foot, the I&R platoon was expected to use its jeeps to operate primarily as a motorized unit. The platoon's firepower was deliberately limited since it was only to be used for defense or for breaking contact. The platoon would not fight for its information. Generally, an I&R patrol would be of at least squad size (three jeeps with crews), though the whole platoon might be used. Any patrol would include at least one radio since this was recognized as the fastest way to report whatever information it might obtain.[267]

The regimental service company had changed very little since 1939-41 (see Appendix 5.7). The headquarters platoon's staff section still supported the regimental S-1 and S-3 officers but it also had morale and welfare personnel including a special services officer (who was supposed to work for the S-3) and an athletic instructor and entertainment director (seemingly a bit out of place in a combat unit!). The supply section acquired a 2.5-ton truck and driver to assist its ammunition group. This vehicle was to be used at the munitions officer's discretion to reinforce a battalion or company section in moving additional ammunition to a hard-pressed unit.

The principal changes to the service company were in its transportation platoon and resulted mainly from the introduction of the 2.5-ton cargo truck. The much larger payload of this vehicle allowed a reduction in the size of the transportation platoon's three battalion sections to seven trucks each. However, seven of the new 2.5-ton vehicles offered a significantly larger total payload than nine of the earlier 1.5-ton vehicles. Likewise, the new

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[265] US Army Adjutant General Table of Organization T/O 7-14 "Infantry Cannon Company" (Washington DC 1 April 1942); Robert R. Palmer "The Reorganization of Ground Troops for Combat", Greenfield et al *The U.S. Army in World War II - The Organization of Ground Combat Troops* (Washington DC, Office of the Chief of Military History 1947) p 302; for an account of the non-development of British infantry guns and of weapons used in US Army cannon companies see Ian V. Hogg *British and American Artillery of World War II* (New York, Hippocrene Books 1978) pp. 37, 53, 58, and 61; for German infantry guns see Ian V. Hogg, *German Artillery of World War II* (New York, Hippocrene Books 1975) pp. 17-28; and for Japanese and Soviet Weapons see Peter Chamberlain and Terry Gander, *Infantry, Mountain, and Airborne Guns* (New York, Arco Publishing Co 1975) pp. 38-42 and 60-63.

[266] Radio data was taken from The Infantry School "Infantry School Reference Data" *Mailing List* Vol XXII Jul 41 op cit ; see also US Army Adjutant General Table of Equipment T/E 7-12 "Headquarters and Headquarters Company, Infantry Regiment" (Washington DC 15 July 1943); this data was substantially the same as in 1 April 1942.

[267] US Army Adjutant General Table of Organization T/O 7-12 "Headquarters and Headquarters Company, Infantry Regiment" (Washington DC 1 April 1942); and The Infantry School, Intelligence and Reconnaissance Platoon" The Infantry School *Mailing List* Vol XXV Feb 43 (Fort Benning Georgia, The US Army Infantry School) pp. 53-85.

trucks enabled the headquarters, antitank, and cannon company sections to contract to one truck with trailer and driver (with BAR) each. The service company's own kitchen and baggage truck and trailer became part of the service company headquarters. In each battalion section five trucks with one-ton trailers served as kitchen and baggage vehicles for the supported battalion's five companies. Though their payloads were still not entirely adequate for the job, they represented a huge advance over the 1.5-ton trucks. The other two trucks carried reserve ammunition for the three rifle companies plus additional ammunition for the mortar platoon. However, company level jeeps and weapons carriers still handled the bulk of the battalion's ammunition supply requirements.[268]

Finally, the regimental medical detachment also increased. Each battalion section supplied medical aidmen ("medics") at the rate of one per rifle, HMG, mortar or antitank platoon. A captain (surgeon), a first lieutenant (medical service corps) and 11 men formed a battalion aid station. There would also be three four-man stretcher squads. As before, the emphasis was on rapid casualty evacuation, accompanied by essential treatment only.[269]

No sooner had this first set of wartime tables of organization (see Appendix 5.8) been introduced that the responsibility for creating tables of organizations for the infantry was placed in new hands. The former Colonel Leslie J. McNair, now a lieutenant general, had in the previous month (March 1942) been appointed the first head of the Army Ground Forces (AGF). The AGF resulted from an Army reorganization prompted primarily by the Army Air Corps' energetic and ambitious chief, General Henry H. "Hap" Arnold. Arnold had proposed that all Army units outside of the combat theaters, in other words, all combat units located in the Continental United States, plus training organizations, be placed under three administrative commands. Besides the AGF, these included the Army Air Forces (AAF), and the Army Service Forces (ASF). This step would give the air forces administrative parity with the ground combat arms and move them closer towards their ultimate goal of becoming a separate service. The AGF itself assumed the duties and responsibilities of the Chiefs of Infantry, Cavalry, Field Artillery, Coast Artillery (including anti-aircraft), and Armored Force branches, all of whose offices were suspended except that of the Chief of the Armored Force. Among other things, the War Department made the AGF particularly responsible for drawing up and updating the tables of organization for all of these branches plus the service elements (engineer, signal, ordnance, quartermaster, medical, chemical, military police) assigned to the ground forces. Although the implementation of any tables of organization required War Department approval, such approval was rarely withheld.

General McNair believed in lean combat units that produced the maximum amount of striking power. As we have already noted, he carried with him a long experience with organizational issues that reached back well before his proposed 10,275-man infantry division of 1938. McNair refused to be intimidated by the complaints of field commanders, especially after he discovered that these men rarely gave serious thought to organizational issues. They would embrace new ideas, if they were properly explained, and they were, in effect, relying on the AGF to solve their organizational problems for them. So McNair proceeded to do just that. The first major sticking point was the April 1942 tables. McNair saw them as so fat with extra men and equipment that they completely negated the advances made by the streamlined organizations of 1935-41 in the restoration of mobility to the battlefield. General McNair made no secret of his disapproval of the new tables although the AGF had been established too late to prevent their promulgation. McNair also needed time to establish the authority of his new command.[270]

Tactical mobility and simplicity were not the only considerations that would affect the Army's organization. Manpower shortages were already looming even though American forces had hardly begun to engage their enemies in battle. Even with the great increase, since the First World War, in the importance (and manpower requirements) of US naval and air forces, it still seems remarkable that a nation as populous at the United States could not find enough men for its ground forces. The fact that the US Army was so hard pressed to maintain a mere 89 combat divisions, whereas Hitler's Germany, with only two thirds the population, was maintaining over 300 was not just because the US was maintaining larger naval and air forces and a lot of non-divisional ground units. The US draft deferred or exempted many men that other armies would have been glad to accept. There was also much waste and inefficiency in the management and treatment of those that were drafted. America's geographic isolation from powerful enemies, the lack of any martial tradition within its higher social classes, and the fact that its true power lay in its industrial economy caused the direction of its efforts in both world wars to fall into the hands of businessmen, industrial managers, and engineers. While such men worked miracles to convert a peacetime economy into a military powerhouse, they also inappropriately extended their industrial principles to the battlefield. In the name of "efficiency" (and it probably *was* efficient in an administrative sense) the Army maintained a relatively small number of divisions but always kept them at full strength with a constant stream of individual replacements. A

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268 US Army Adjutant General Table of Organization T/O 7-13 "Service Company, Infantry Regiment" (Washington DC 1 April 1942).

269 US Army Adjutant General Table of Organization T/O 7-11 "Infantry Regiment" and "Medical Detachment, Infantry Regiment" (Washington DC 1 April 1942).

270 Robert R. Palmer "The Reorganization of Ground Troops for Combat", Greenfield et al *The U.S. Army in World War II - The Organization of Ground Combat Troops* (Washington DC, Office of the Chief of Military History 1947) pp. 268-291.

division became a kind of "black hole" that consumed men far more rapidly than anyone expected. After mid-1943, large, centralized and "efficient" factory-like depots that treated trainees like the cannon fodder that far too many would later become conducted nearly all the infantry's training. Just as in the First World War, the infantry became the repository for those considered unfit for anything else. Contrary to the popular assumption of universal equality, infantrymen of below average intelligence were much less effective than those of average or better intelligence and got killed much faster. This alone represented a significant manpower drain. Worse, the best men soon learned to avoid infantry service by volunteering early to get the pick of the plum jobs in the Continental United States (CONUS). By the time the "manpower crunch" had been recognized they were too well established in their positions to be easily removed. By June 1944 the number of enlisted men qualified for overseas employment and holding CONUS jobs exceeded all the combat infantrymen serving in both the European and Mediterranean Theaters. If one added all armored, tank destroyer, cavalry, field and coast artillery troops the CONUS people were still 92% as numerous. They also exceeded the total number of Air Corps enlisted men in both theaters. Moreover, by mid-1944 infantry casualties were exceeding all expectations.[271] Badly trained officers proved to be incapable of properly using the tactical doctrine that General McNair and others had worked out before the war. In 1989, retired General William DePuy recalled his experience as an infantry battalion S-3 during the Normandy fighting.

> "…Our infantry went into World War II just about the way it had come out of World War I. Suppression was done primarily by artillery. And although the troops were told in all the manuals published … between the wars that open warfare by skirmishers was the way to go and that fire suppression had to be achieved by the infantry itself, it was rarely tried and more rarely accomplished.
>
> "In Normandy in 1944, it was standard practice to fire mortars at the first hedgerow, where the first layer of German defenders were, 105mm howitzers at the second hedgerow, 155mm howitzers at the third, and then (you guessed it) to line up the infantry and assault straight forward into the killing zone.
>
> "In its six weeks in Normandy, the division to which I was assigned lost 48 percent of its rifle platoon leaders each week. That meant that the on-the-job time for a lieutenant was two weeks plus a day or two and the losses were 300 percent in six weeks. The end effect, of course, was that few were seasoned and few were around long enough to learn how to fight.
>
> "In the face of these kinds of problems some units resorted to marching fire to fill the gap between the lifting of the indirect fire and the arrival of the assault line at the enemy position. In marching fire the soldiers simply fired a round every few steps, aimed or from the hip, to try to retain fire superiority while moving. The anomaly was, of course, that when they needed fire superiority most, they rose up from their positions behind the hedgerow and lost most of it. And generally they were masking their own machineguns. This, incidentally, is a problem you have today."[272]

The new American way of war was supposed to avoid another World War I bloodbath by using America's wealth and technology to save American lives but its success was at best problematic. The air war that was meant to bring Germany to its knees ended up costing the lives of more than 36,000 Army airmen and failed to prevent Army ground force casualties from exceeding 675,000 (over 140,000 dead) in the European Theater. Air power succeeded better in the Pacific but even here its greatest contribution lay more in its ability to isolate and starve Japanese island garrisons and industrial plants than in its ability to destroy military targets by direct attack. In the Pacific, US Army ground combat losses were only 140,000. Of the Army's total of 936,000 battle casualties (nearly 235,000 dead), the Air Corps sustained more than 115,000 (52,000 dead). Of the remainder, more than 80%, or 661,000 (143,000 dead) were from the infantry. Another 92,656 soldiers died of non-battle causes of which 56,000 were accidents (26,843 involving aircraft) and 26,500 were from disease (nearly half of them inside the United States). The Army fought its bloodiest battles in Europe. The Normandy fighting cost the US Army over 63,000 casualties (including 16,300 dead and 5,000 POW) in 48 days. The "Battle of the Bulge" cost 105,000 casualties (over 19,000 dead and 23,000 POW) in 40 days. Most striking of all were the 62,700 battle casualties (15,000 dead and 3,700 POW) that the US Army (excluding its forces in Italy) incurred during the last 51 days before Germany surrendered.[*] By that time many Germans were giving up but the fact that those who were still fighting were so effective appears to have been a result of the Army's continued use of French-style "methodical battle" tactics. Since air and artillery

[*] German losses, at least in terms of killed and wounded, had been generally less. For more information see Endnote 275.

[271] Robert R. Palmer "Mobilization of the Ground Army", Greenfield et al *The U.S. Army in World War II - The Organization of Ground Combat Troops* op cit pp. 189-197; and Martin van Creveld, *Fighting Power* op cit pp. 37-38, 58-60, and 68-74. For an account of Air Corps "empire building" see Arthur T. Hadley *The Straw Giant* (New York, Random House 1986) pp. 58-60.

[272] General William E. DePuy, US Army, Retired "Infantry Combat" Infantry Magazine (Ft Benning Georgia, March-April 1990) pp. 10-11. Carlo D'Este (*Patton, A Genius for War*, op cit p. 618) quotes a French general who Patton had known in World War I reminding Patton during the Normandy fighting that "The poorer the infantry is the more artillery it needs; and the American infantry needs all it can get." Though no one believed in the American soldier more than Patton, Patton agreed that his friend "…was right then and still is."

delivered firepower were the keys to the French system, the US Army slowed its operating tempo and sacrificed opportunities to exploit success in order to better coordinate the fires of its supporting arms and to ensure that they had sufficient ammunition. Few seemed to appreciate that this was making the defending Germans more effective by allowing them breathing space between battles. Worse, the Americans (and the British) also tended to apply their firepower in a very unimaginative manner, eschewing any attempt at deception or maneuver.[③] During the war's later months the US Army's overreliance on firepower seems to have been costing rather than saving, American lives.[273]

Other major drains on the Army's manpower included the gross mismanagement of psychiatric casualties and the widespread failure of the military justice system to prosecute soldiers for desertion and other purely "military" offenses. As a result, desertion became such an easy means of escaping combat duty that by 1944 the desertion rate in the victorious US Army greatly exceeded even that of the disintegrating German Army. In addition, the number of Army psychiatric casualties nearly equaled its total of killed or wounded in action and taken prisoner.[274]

By May 1945, General Joseph Stilwell was writing about the "disappearing ground combat army."

As a result of all these factors, the strength of all Army ground force units, including its engineers and signals, never exceeded 2,300,000 during the war (2.7 million if one includes service units in forward areas), despite the Army's maximum strength of just over eight million. Thus, if the War Department was to have any chance of reaching its goal of an Army of 100 or more divisions, strict manpower conservation would have to be observed.

Unfortunately, manpower was not the only problem. The Army's new found motorization was boosting its tactical mobility at the expense of its strategic mobility. The proliferation of motor vehicles in the April 1942 tables dramatically increased the shipping space requirements of ground combat units while the amount of shipping available to move them overseas was itself shrinking due to air corps requirements and the need to support our allies. Worse, the War Department even ordered the creation of a number of motorized infantry divisions. In essence, these were standard infantry divisions with some additional support units and enough trucks to motorize all their infantry. They were intended to work with armored divisions but the only unit to actually convert to the motorized configuration was the 4th Infantry Division. Although this unit was ready to deploy overseas in August 1942 no theater commander requested it. It needed almost as much shipping as an armored division but lacked the equivalent combat power. The division's proliferation of motor vehicles also substantially raised its consumption of such vital war materials as rubber and gasoline. The rubber and fuel demands of a standard infantry division were bad enough but those of a motorized division, with over 1,000 more vehicles, were ruinous. Nevertheless General McNair was unable to get the 4th Infantry Division converted to standard infantry until mid-1943. Subsequent combat experience would show that motorized divisions were indeed unnecessary. Standard divisions could move very rapidly simply by piling troops onto trucks, tanks, and other vehicles attached to their infantry regiments. Although a 1943 cross-channel invasion of Europe had been ordered in March 1942 the lack of shipping forced its postponement by more than a year, even though the necessary troops were ready and available. Indeed, the Allied invasion of Europe might not even have occurred when it did had not the Army, at the behest of General McNair, embarked on a crash program of "streamlining" to cut its shipping requirements and trim its organizational "footprint" to more realistic levels.[275]

[③] A combat report from the 10th *SS Panzer* Division noted that during the fighting in Normandy their Anglo-American enemies rarely launched a major attack without at least one hour, or as much as three hours' intense artillery preparation (using everything from mortars to heavy naval guns). Despite their ample supplies of ammunition, the Anglo-Americans almost never used their artillery for deception but always directed it at the object of their attack. The Germans also noted how their enemies would halt and reorganize after seizing intermediate objectives instead of pressing their advantage. They focused on terrain rather than the enemy. See US War Department Military Intelligence Service "How the Allies Fight, Views of a Panzer Division" *Military Reports* Issue No. 24 (Washington DC Dec 1944).

[273] US Army, Statistics and Accounting Branch, Office of the Adjutant General, *Army Battle Casualties and NonBattle Deaths in World War II, Final Report* (7 December 1941- 31 December 1946) (Washington DC 1953). German losses in killed and wounded appear to have generally been much smaller than those of the Allies despite the latter's massive superiority in airpower, artillery, and overall numbers. It should also be noted that all Allied units in France were motorized while the Germans still had to rely heavily on animal transport (making it hard for them to escape and difficult for them to maneuver in open country). For one set of casualty estimates see John Ellis, *World War II, A Statistical Survey* (New York, Facts on File, 1993) pp. 255-256. Niklas Zetterling in *Normandy 1944, German Military Organization, Combat Power and Effectiveness* (Winnipeg, Manitoba, Canada, J.J. Fedorowicz Publishing Inc. 2000), using Army Group B's weekly casualty reports puts German losses in Normandy during the first 48 days at 116,863. About half of these were killed or wounded. The rest were mainly prisoners and included the product of several mass surrenders, such as at Cherbourg. Total Allied losses were roughly the same (except that they had many more dead and wounded) even though at this point they outnumbered the Germans by more than three to one on the ground and also enjoyed overwhelming superiority (probably 100 to one) in the air. Carlo D'Este in *Patton, A Genius for War*, op cit on p. 699 quotes the German High Command's estimate of 81,834 (12,652 KIA, 38,600 WIA, and the rest missing) for German losses at the Battle of the Bulge. However, most of D'Este's figures for German losses come from US Army intelligence estimates, which tended towards considerable exaggeration when estimating enemy killed and wounded. D'Este also describes Patton's frustration with US Army "methodical battle" (he did not use that term) practices on numerous occasions.

[274] Ibid pp. 75-79, 90, 94-97, 99-100, and 115-117.

[275] Robert R. Palmer "The Reorganization of Ground Troops for Combat", Greenfield et al *The U.S. Army in World War II - The Organization of Ground Combat Troops* op cit pp. 268-291 and 337-39.

Overall, General McNair dealt with the Army's structural problems in two ways. First, he sought to streamline all organizations by cutting all the manpower and equipment that they could possibly do without. Second, he instituted "pooling." Under this concept, a combat unit was only allowed what it would need for most of its anticipated missions. Whatever was required only occasionally would be pooled at a higher echelon and made available when needed. Thus, an infantry platoon received rifles and BARs with which to execute its normal missions. LMGs and 60mm mortars were pooled at company level because their range exceeded the normal frontages assigned to rifle platoons and their fires could thus be easily concentrated within a company sector. Likewise, HMGs and 81mm mortars were pooled at battalion level since their ranges exceeded rifle company sectors. What was more controversial was the decision to limit the infantry regiments' organic anti-air defense to .50-caliber and lighter machineguns and their anti-tank defense to 37mm (later 57mm) guns, rifle grenades and, later on, bazookas. General McNair wanted all heavier antitank and anti-aircraft weapons, especially the highly mobile self propelled types, pooled so that they could be concentrated to deal with the most dangerous air or armored attacks since these would likely appear *en masse*. Even so, many commanders wanted heavier weapons permanently assigned to them. Infantry divisions especially wanted tanks since, by 1944, combat experience had demonstrated their usefulness for supporting infantry attacks and providing antitank protection. Less controversial was the pooling of the bulk of field and heavy artillery, cavalry reconnaissance squadrons, combat engineers, truck companies, and medical and ordnance units. Requirements for the support that such units provided could fluctuate dramatically from day to day and no infantry unit expected to be able to meet peak loads out of its organic resources. In keeping with American industrial philosophy, these pooled units were uniformly organized and equipped in order to be as interchangeable as possible. Pooling would be used so extensively by the Army that nearly half its combat troops were in non-divisional units. There were even some pooled infantry battalions and regiments but most non-divisional infantry units operated only as garrison, training, or special purpose units. Divisional infantry did most of the actual fighting even though they only amounted to some 200 standard regiments besides parachute, glider, and armored infantry units and some dismounted cavalry. Though these units could call on ample air, armor, artillery, and logistical support, the total amount of infantry available proved to be no more than barely sufficient.[276]

Another difficulty with pooling was that it is difficult to make different combat units genuinely interchangeable, however similarly they might be organized and equipped. Each is made up of different groups of individuals and these individuals work much more efficiently with people whom they know than they do with strangers. Thus by 1944 the assignment of supposedly pooled tank, tank destroyer, and anti-aircraft resources to infantry divisions tended to become permanent as division commanders became reluctant to give up attached units with which they were familiar in favor of others with which they were not. Pooling worked better in the case of artillery, engineer, and service support units since these tended to work *for* rather than *with* the infantry units that they supported.

As soon as General McNair got the authority to modify the April 1942 tables, he began his streamlining program by replacing most of the infantry's 3/4-ton trucks with jeeps and trailers. This reduced these vehicles' collective payload only slightly but saved 6,500 pounds of rubber and 15,360 cubic feet of shipping space per infantry regiment. However, the extra cubic footage required by the new battalion headquarters companies and the cannon company completely negated these economies. Even the old 1939-41 regiment had been far too "heavy" in terms of its shipping space and resource requirements. Many more economies would be needed.[277]

Meanwhile, during the last months of 1942 the new regiments were seeing combat for the first time in Papua-New Guinea, on Guadalcanal, and in North Africa. The troops in North Africa fared best since, at first, only the Vichy French opposed them. The German and Italian troops encountered later proved tougher. They even managed to inflict some stinging tactical defeats on their American opponents before being overwhelmed. In many respects this final phase of the North African campaign was very fortuitous for the US Army. The overall Axis position in Africa had become hopeless even before the Americans arrived. The fighting that remained was challenging enough to offer real experience without posing any risk of disaster. From most American accounts, it appears that the opportunity to learn was well used. Although infantry operations in the desert tend to be overshadowed by armor (but Tunisia is not all desert by any means), North Africa revealed no major defects in American infantry organization and doctrine. However, the infantry's antitank weapons were not a success and AGF headquarters also questioned the need for the cannon companies, given that division level artillery could perform most of their tasks. It saw these companies' self-propelled guns as requiring vast amounts of fuel and shipping space, too heavy for light bridges, excessively conspicuous in battle, poorly protected, and, in the case of the 105mm howitzer armed T-19, badly overloaded.[278]

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[276] Palmer op cit pp. 290-293. For details about the service of non-divisional infantry units see Shelby L. Stanton *Order of Battle US Army World War II* (Novato California, Presidio Press 1984) pp. 197-278.

[277] Ibid, pp. 285-286. See also the April 1942 tables already quoted above, which include McNair's initial changes.

On New Guinea and Guadalcanal, the situation was quite different. The physical environment was totally unlike anything that had been anticipated when the infantry regiments were designed. The dense forests and the alternately swampy or mountainous terrain rendered the use of heavy weapons or vehicles impossible. The high humidity quickly ruined tactical radios and their batteries. (Radios powered by hand generators fared better.) Tropical diseases and bad water filled the hospitals. Inadequate or inappropriately designed rations plus constant rain, and oppressive heat sapped the men's strength. In New Guinea, the cannon and antitank companies did not even try to bring their guns with them and instead served as additional infantry or supply carriers. The service companies had to rely on native bearers supplemented (where possible) by jeeps. It soon became clear that if troops were to reach any destination more than 10 or 20 miles away they would have to move by water or air if they expected to arrive in a condition to fight. Pistols had to replace carbines because the latter weapons were still unavailable in the Southwest Pacific area (SWPA). Hardly any field artillery was usable but the few tanks available proved remarkably effective. The use of crew served weapons of any kind was severely constrained by the need to move everything by hand. Handcarts were of little value on the soggy soil, narrow trails, and near vertical slopes. However, photographic and anecdotal evidence suggests that the rifle companies were usually able to keep at least some of their 60mm mortars and LMGs in action. Within the weapons companies, the 81mm mortars would have had priority for whatever transportation was available since they were usually the primary, if not the sole means of artillery support. Probably very few HMGs saw action. LMGs would have served as HMG substitutes in many cases.

Conditions on Guadalcanal for American forces were considerably mitigated by the fact that their mission was the defensive one of holding a perimeter around Henderson airfield. Not only did this mean a lot less hacking through jungle but also it meant that the engineers could create a road network within the perimeter that would greatly facilitate motor vehicle operations. Although infantry regiments arrived on the island without most of their transportation, the road network permitted easy supply distribution by such vehicles as were available. It also insured artillery support for units operating within range of the perimeter. On the other hand, disease and (earlier in the campaign when food was short) malnutrition were still widespread. However, as was the case on New Guinea, though the diseases disabled many, thanks to good medical support they killed few. Nevertheless these early campaigns brought home the need for infantry units to be able, when called upon, to operate without most of their heavy weapons and transportation. This requirement would later more receive direct AGF attention.[279]

Meanwhile, at the same time as he was ordering cuts in the motor vehicle allocations of the April 1942 tables General McNair prepared to go much further by establishing an AGF Reduction Board. The Board's "no-men," as its members came to be called, reviewed and modified all the tables of organization for ground force units in order to achieve reductions of 15% in personnel and 20% in motor vehicles, but without cutting combat effectiveness. McNair personally participated in the Board's work and soon became the biggest "no-man" of all, often saying "no" to his own "no-men." McNair quickly established "ground rules" for most unit types. The proportion of orderlies to officers was slashed. As many light truck drivers (still called "chauffeurs") as possible would work in the kitchens in place of cook's helpers (carried in the diagrams as "cooks" - normally there were three cook's helpers per company). Most other drivers also received additional duties so that extra men could be cut. "Luxury" items were also ruled out. Company headquarters lost their tents and were restricted to one portable typewriter each. No chairs, safes, or tables were allowed in any headquarters below division level. Vehicles were allocated to carry specific personnel and equipment. No "reserves" were permitted. The use of trailers was much increased since these considerably extended the payload of the available trucks. Elements whose only function was to make units more self-sufficient in security or supply were eliminated, though all "offensive" weapons (and the personnel to man them) were retained.[280]

In particular, General McNair wanted to counter attempts at "empire building." This was the tendency of every arm and service to augment itself and extend its capabilities as if in an effort to win the war alone. A good example was the persistent demands by many division commanders for their own tank, tank destroyer, anti-aircraft, reconnaissance, and military police battalions so that their organic assets could handle every contingency, not just the ones most likely to occur. There was also the tendency, deeply rooted in American society, to encumber the military with comforts, conveniences, gadgets, "experts" of every stripe, technicians, special services, complex command-control systems, and undoubtedly kitchen sinks as well. Naturally, the effects of it all were cumulative. For example, if one wanted to increase the number of dentists one would also have to increase the number of dental

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278 Robert R. Palmer "The Reorganization of Ground Troops for Combat", op cit p 302; MG E. N. Harmon USA "Operations of the 1st Armored Division in Tunisia" Part II op cit pp. 35-36; litary History 1947) p 302; and Ian V. Hogg *British and American Artillery of World War II* op cit p 61.

279 Numerous good accounts of the Guadalcanal and New Guinea campaigns exist. Two examples are Samuel Milner *Victory in Papua* (Washington DC, US Army Center for Military History 1957) and Richard B. Frank, *Guadancanal* (New York, Penguin Books 1990).

280 Robert R. Palmer "The Reorganization of Ground Troops for Combat", op cit pp. 297-299.

technicians. Dentists and technicians have to be fed and that requires more cooks. Cooks, dentists, and technicians need transportation and that means more drivers and mechanics. Cooks, dentists, technicians, drivers, and mechanics need medical care and that requires doctors, nurses, and medical technicians. The cooks, dentists, technicians, drivers, mechanics, doctors, nurses, etc all need clothing and that means more quartermasters. All these people had to be coordinated and that means more staffs and of course all need dental care and that increases the requirement for dentists. General McNair was determined to nip such proliferation in the bud.[281]

Armed with their new mandate the "no-men" revved up their chainsaws and went to work. Within the infantry regiments, a number of principles were uniformly observed (with the results shown above). Smaller numbers of the much more effective .50-caliber machineguns replaced the BARs previously issued for vehicle antiaircraft defense. The new guns could either be mounted on trucks of 1.5-tons or larger or fired from the ground. Henceforth, BARs would only go to rifle squads. Second, the new 2.36-inch antitank rocket launcher M1 or "bazooka" would be issued for antitank defense. Bazooka gunners were not designated. Any available man could use one and company commanders were to train a sufficient number of their men to do so. Secondly, not only the quantity but also the number of different vehicle types within the infantry regiment, was cut. Standard 1.5-ton trucks with trailers replaced all 2.5-tonners on a one for one basis and, without trailers, they also replaced as many 3/4-tonners and jeeps (with trailers) as possible on a one for two basis. This not only saved fuel and rubber but also drivers and mechanics.

Not even the medical detachment could escape the "no-men." McNair wanted to cut the number of stretcher-bearers in each battalion section to eight until it was explained to him that stretcher parties (unlike in AEF days) had four men each rather than two. He did, however, have two stretcher-bearers do double duty as jeep drivers so the section's two full time drivers could be eliminated. Company aidmen were also cut back from three to two per rifle or weapons company. One difficulty that was not addressed was that the rifle companies were receiving the same number of aidmen as the weapons companies even though the rifle companies were larger and First World War experience demonstrated that they could expect to take a much higher proportion of the casualties.[282]

Regarding manpower reductions, the ax fell least heavily on those elements of the infantry who served closest to the enemy. The rifle companies changed hardly at all. Each company exchanged its two jeeps for a 1.5-ton truck (with .50-caliber machinegun). That allowed the elimination of the transport corporal in the weapons platoon and of one driver. The "no-men" also cut a cook's helper, a messenger, an orderly, and a basic private from company headquarters. In every company in the regiment, the "no-men" consolidated all basic privates at company headquarters. The company commander could then allocate them to vacancies elsewhere in his unit as he saw fit. The change would also make future reductions in the total number of basic privates easier to implement.

In the weapons company, a 1.5-ton truck replaced the two jeeps and trailers in each mortar or machinegun section. Each platoon received a .50-caliber machinegun as well. Five platoon and company messengers and the company motor mechanic also served as drivers and this allowed the elimination of 13 drivers. Also cut were the corporal liaison agents from the HMG and mortar platoons, plus a cook, a cook's helper, an orderly, and two basic privates (from the now consolidated basic privates) in the company headquarters.

The battalion headquarters was cut more sharply, especially in its defense platoon. General McNair did not approve of a special unit for the defense of the battalion CP. However, it was also the battalion's antitank platoon and its new bazookas would have a much better chance against most tanks than its 37mm guns. Therefore, the platoon was cut to three six-man antitank squads. Each squad replaced its two jeeps with a 3/4-ton truck and an LMG. The platoon's four drivers were issued M1903 rifles (with grenade launchers). The ammunition and pioneer platoon exchanged its two 3/4-ton trucks for a single 1.5-ton. The communication platoon picked up a .50-caliber machinegun but lost a message center clerk, a switchboard operator, and four of its five full time drivers (the fifth drove the 1.5-ton truck, which replaced the platoon's two 3/4-tonners). The battalion headquarters section lost a driver. Company headquarters lost a mechanic, a cook's helper, an orderly, two drivers, and three basic privates. The remaining orderly and the remaining mechanic would drive the company headquarters' two vehicles.

At the regimental level, the antitank company reorganized as four three-gun platoons (similar to the battalion defense/antitank platoons but with only one LMG each) and lost its mine-laying platoon. Three cannon platoons in the regimental headquarters company replaced the cannon company. Each cannon platoon employed two M3 (towed) 105mm howitzers (supplemented by a .50-caliber machinegun and a bazooka) towed by 1.5-ton trucks. Platoon headquarters rode in a third truck. The M3 howitzers had been recently developed for airborne use and at 2,500 pounds each they weighed only about half as much as the standard M2A1 105mm howitzers used by the

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281 Ibid pp. 273-276.

282 US Army Adjutant General Table of Organization T/O 7-11 "Infantry Regiment" and "Medical Detachment, Infantry Regiment" and Tables 7-12 "Headquarters and Headquarters Company," 7-13 "Service Company," 7-117 "Antitank Company," 7-15 "Infantry Battalion," 7-16 "Headquartrs and Headquarters Company, Infantry Battalion," 7-17 "Rifle Company," and 7-18 "Heavy Weapons Company" (Washington DC 1 March 1943).

division artillery. However, the M3 howitzers could only range to about 8,000 meters as compared to 11,000 for the M2. Still, McNair felt confident that the M3s would be at least as useful as the ungainly T-12 and T-19 half-tracks had been. The rest of the regimental headquarters company remained much the same though the communication platoon lost most of its drivers, five linemen, and a switchboard operator. The regimental band was officially dropped. Few regiments actually had bands at this point, a single band per infantry division having been regarded as sufficient. The service company lost its cannon company section. Its other sections suffered from the substitution of 1.5-ton for 2.5-ton trucks. The increased use of 1-ton trailers only partly compensated for this. This move was made with considerable hesitation since the capacity of the April 1942 service company had been closely calculated.

The results of the "No-Men's" handiwork appeared in March 1943 (see Appendix 5.9) to a chorus of shrieks and howls of protest as every commander saw his own ox gored far more than he thought it fairly should have been. The wailing, "gnashing of teeth," and other less printable protestations were led by no less a personage than General Dwight Eisenhower, already the Army's theater commander for Europe.

Army Chief of Staff General George C. Marshall, however, supported McNair. In September 1942 he noted that "...if we gave each theater commander what he asked for (rather than allocating resources based on overall requirements) we would have only one theater and all the rest would have to be evacuated for lack of means."

Nevertheless, Eisenhower's influence was strong and McNair's was weakened by the fact that he had been wounded while on an inspection tour in North Africa. This cost him the opportunity to fully make his case as to why his reductions were needed. Eventually a compromise was reached under which each infantry regiment regained about 160 men. (Each division would get back a total of about 800.) Transportation also increased due to the reversal of McNair's attempt to supplant jeeps and 2.5-ton and 3/4-ton trucks with 1.5-tonners (see Appendix 5.17).[283]

For the rifle company (see Appendix 5.10), the changes only meant the replacement of its 1.5-ton truck by two jeeps. Though less economical than a 1.5-ton truck, two jeeps were better suited to a combat area, owing to their smaller size, ease of concealment, and their ability to traverse lighter bridges and narrower trails.[284]

Changes to the weapons company occurred along similar lines (see Appendix 5.11). Fourteen jeeps with trailers replaced seven 1.5-ton truck weapons carriers but the seven extra drivers that were needed had to come from the weapon squads themselves. The company did get a transportation sergeant to oversee the platoon transportation corporals while the latter supervised the operation and maintenance of the new vehicles. Company headquarters also acquired another cook and each of the 81mm mortar squads was restored to eight men (including an ammunition bearer acting as driver). However, the HMG squads remained at seven men each (including a driver) and of course the HMG and mortar sections lost their drivers as well. Thus the company's enlisted strength actually had a net increase of only one man. However, officer strength got a substantial boost from the assignment of a lieutenant to command each 81mm mortar section. This was done partly because by 1943 the Army had unwisely commissioned a huge surplus of junior officers (this meant, among other things, that men enlisting after early 1943 stood little chance of gaining a commission, however well qualified they might be) and partly because the sections often operated independently. Having both a section officer and a section sergeant allowed one of them to act as section forward observer while the other commanded the section firing position and calculated its firing data. Experience showed this to have been a significant improvement.[285]

The infantry battalion headquarters and headquarters company did not gain any officers but it did get 14 of the 18 enlisted men restored to each infantry battalion after McNair's cuts (see Appendix 5.12). The communication platoon picked up an extra telephone lineman and received a radio repairman in lieu of its one remaining truck driver (the platoon's five jeeps would now all be driven by communicators as an additional duty, the 1.5-ton truck having been eliminated). Battalion communications would now be based on a jeep mounted SCR-284 and eight man-pack (ideally SCR-300) radios of which one would be issued (without an operator) to each rifle or weapons company for battalion level communication. This equipment was in addition to the six SCR-536 radios in each rifle or weapons company.

The most important change in the battalion headquarters company, however, concerned the antitank or defense platoon. This unit replaced its 37mm guns with the new M1 57mm antitank gun. The M1 was a US-built copy of the British "six-pounder" antitank gun that had been successfully used in North Africa. Unfortunately, improvements in German armor had already made it obsolete though it was much heavier and less mobile than the 37mm gun. The 57mm was too heavy for a jeep and needed a 1.5-ton truck as its prime mover. Worse, since no high explosive shells were available for it (only armor piercing solid shot), it had little value as an infantry support weapon. The

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283 Robert R. Palmer "The Reorganization of Ground Troops for Combat", op cit pp. 286-287 and 314-318.

284 US Army Adjutant General Table of Organization and Equipment T/O & E 7-17 "Infantry Rifle Company" (Washington DC 15 July 1943).

285 US Army Adjutant General Table of Organization and Equipment T/O & E 7-18 "Infantry Heavy Weapons Company" (Washington DC 15 July 1943); Van Creveld op cit pp. 140-141; CPT Charles Multop, "A Heavy Weapons Company in Korea" Infantry School *Quarterly* Oct 1951 op cit pp. 83-84.

37mm gun, because of its lighter weight and wider range of ammunition and because it could still defeat Japanese tanks without difficulty, remained in service in the Pacific Theater. To accommodate the heavier 57mm gun the defense or antitank platoon's three antitank squads increased from six to 10 men each but platoon headquarters was cut back partially compensate for this. Each 57mm squad also received two bazookas but one per squad was removed in 1944 in order to make more bazookas available to the rifle companies. However, later in the war in Europe, the 57mm guns were often discarded in favor of additional bazookas.[286]

The 57mm gun also rearmed the antitank company (see Appendix 5.13). This unit now had three gun platoons that were essentially the same as the battalion antitank platoons. As a result of North African experience the antitank mine platoon also reappeared in its original form. Radio equipment remained essentially the same, with five man-pack radios and one long range SCR-284. Telephone equipment for use in positional combat was included also.[287]

At the regimental level, the cannon company was rebuilt around the three cannon platoons dropped from the regimental headquarters company (see Appendix 5.14). Cannon squads were increased to 10 men apiece; each platoon headquarters picked up a radio operator to help with the company's five SCR-300 (or 511) man-pack radios. Each platoon exchanged its 1.5-ton ammunition truck for a 2.5-tonner. Despite its shortcomings, the cannon company was too popular with regimental commanders to be easily done away with. Though it had merely rearranged rather than increased the regiment's organic artillery, it did provide a more efficient means of tactically controlling the cannon platoons.

Despite opposition from General McNair, some regiments managed to obtain cannon companies armed with self-propelled weapons in lieu the M3 howitzers. In post-war evaluations held that these companies were superior to those equipped with the M3. In the September 1944 attack on the Japanese held island of Angaur, for example, the cannon companies in the 81st Infantry Division employed M3 (T-12) self propelled 75mm guns. In February 1944, the War Department published a special table for a cannon company armed with six M7 self-propelled 105mm howitzers and the infantry regiments in several divisions are known to have used it.[288]

Only the regimental headquarters company actually got smaller as a result of the compromise tables (see Appendix 5.15). This was only because it transferred its three cannon platoons to the new cannon company. Its I&R platoon remained unchanged. Its communication platoon became slightly larger.[289]

The only major change to the service company (see Appendix 5.16) was the replacement of the 1.5-ton trucks that General McNair had prescribed for it with a smaller number of the larger and more expensive 2.5-ton trucks but at least they offered a greater collective payload capacity and could save a few drivers, though a new section had to be created to support the cannon company. However their maintenance requirements led to a slight increase in the number of service company mechanics.[290]

The regimental medical detachment (see Appendix 5.17) returned to its April 1942 strength. It could once again supply three medical aidmen per rifle or weapons company (a no more than marginally adequate number as events would soon show) and two more (plus four medical technicians) for the battalion aid station.[291]

Although the July 1943 regiment, more of a strain on manpower resources than General McNair would have liked it still enabled the US Army to field 66 infantry divisions with the same manpower required for only 60 April 1942 divisions. Subsequent battle experience showed the July 1943 organization to be satisfactory in most respects. Given the manpower situation as it existed, it is very doubtful if anything better could have been achieved without radical force restructuring. A realization of this fact gradually percolated into the combat theaters and muted the

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286 US Army Adjutant General Table of Organization and Equipment T/O & E 7-16 "Headquarters and Headquarters Company, Infantry Battalion" (Washington DC 15 July 1943); see also John Weeks *Men Against Tanks* (New York, Mason-Charter Publishers 1975) p 95; Ian V. Hogg *British and American Artillery of World War Two* op cit pp. 75-78 and 83-86; and The General Board US Army Forces European Theater of Operations APO 408 "Minutes of the Conference on the Infantry Division" 20 Nov 1945 (unpublished manuscript , copy at Carlisle Barracks, Carlisle Pennsylvania) pp. 6-7.

287 US Army Adjutant General Table of Organization and Equipment T/O & E 7-19 "Infantry Antitank Company" (Washington DC 15 July 1943); and see MG E. N. Harmon USA "Operations of the 1st Armored Division in Tunisia" Part II op cit pp. 35-36.

288 US Army Adjutant General Table of Organization and Equipment T/O & E 7-14 "Infantry Cannon Company" (Washington DC 15 July 1943); also see T/O & E 7-14S 12 February 1944; Robert Ross Smith *The Approach to the Philippines* (Washington DC, US Army Center for Military History 1953) pp. 517-519:and "Minutes of the Conference on the Infantry Division" 20 Nov 1945 op cit pp. 7-9. In his very readable, insightful, and interesting but sometimes inaccurate and rarely footnoted survey of the war in the Southwest Pacific, *Touched By Fire* (New York, Penguin Books 1996) Eric Bergerud refers, on page 307, to a type of cannon company with four 75mm howitzers but he cites no instances of when it was used and gives no references.

289 US Army Adjutant General Table of Organization and Equipment T/O & E 7-12 "HQ and HQ Company Infantry Regiment" (Washington DC 15 July 1943).

290 US Army Adjutant General Table of Organization and Equipment T/O & E 7-19 "Service Company, Infantry Regiment" (Washington DC 15 July 1943).

291 US Army Adjutant General Table of Organization and Equipment T/O & E 7-11 "Infantry Regiment" and "Medical Detachment, Infantry Regiment" (Washington DC 15 July 1943).

complaints. As it was, the new organization was implemented rather slowly. Units stationed in CONUS reorganized in September 1943 while those overseas only followed suit over the next several months.[292]

In October 1943 the staff section of the service company's regimental headquarters platoon received an assistant S-1 athletic and recreation officer. To assign an officer full time to such a post seems rather bizarre but the War Department did this in every regimental-sized combat unit. One would suppose that the permanent staff of a rest area could have better (and more economically) performed morale and welfare functions but perhaps the position was found to be a convenient pigeonhole for an extra officer. The other changes were much more understandable.

In February 1944 the War Department reissued the July 1943 tables mainly to reflect a restructuring of the non-commissioned officer ranks. This was based on combat experience but that experience was relatively limited since by February 1944 the bulk of the US Army had not yet been in battle. Anxious about the often-mediocre performance its rifle squad leaders, the AGF believed that giving them a step up in rank might improve their morale and experience levels. Thus, rifle squad and antitank (57mm gun) squad leaders rose from sergeant to staff sergeant. The assistant squad leaders in rifle squads only and the leaders of machinegun, mortar, and pioneer squads rose from corporal to sergeant. However, non-commissioned officers occupying positions in headquarters or service support units (including the regimental service company) received no promotions. The I&R squad leaders in the regimental headquarters company, the antitank mine squad leaders in the antitank company and the howitzer section leaders received no promotions either though some radio operators received technician rank that had not previously had it. The increase in squad leader rank meant that platoon sergeants would have to receive promotions also. Rifle, rifle company weapons, machinegun, mortar, antitank and pioneer platoon and antitank mine platoon sergeants would move from staff sergeant to technical sergeant. The proportion of the privates authorized to hold PFC rank increased substantially. Previously, few soldiers had occupied the rank of technical sergeant (there were not many master sergeants either) and as the title implies most had been promoted to that position from the technical specialists. After this change, however, the rank of technical sergeant became quite common for non-specialists.

There is little evidence that this proliferation in enlisted rank led to anything besides pay grade inflation. One unintended consequence was the near disappearance of the grade of corporal since the new organization left very few leadership positions that corporals could still occupy. In a rifle company, for example the number of corporal billets had dropped from 15 to only one (the company clerk). In the battalion weapons company they went from 21 to seven. With so few corporals not many men would spend much time in that rank before they became sergeants (with only the same experience levels that corporals would have had previously). With so many more technical sergeant and staff sergeant billets that had to be filled the new sergeants might expect yet another promoton in the near future, usually before they had acquired the additional maturity that sergeants or staff sergeants once had. Thus there would have been little gained from the extra stripe.

On a more material level, the availability of the M7 rifle grenade launcher for the M1 rifle and of a sniper version of the M1, the M1C, made it possible for the Army to fully retire its M1903 rifles (though many remained in service until the 1950s). On 30 June 1944, shortly after D-Day, each rifle company received six spare BARs and six spare sub-machineguns for the company commander to use to selectively strengthen the firepower of his rifle squads. In the past, rifle squads belonging to regiments that had been in combat had often acquired additional BARs to bolster their firepower "unofficially." Similarly, each battalion headquarters company received six spare LMG and two spare sub-machineguns to strengthen its defensive firepower.[293]

MARINE INFANTRY

In sharp contrast to the Army, which had settled on its basic combat organization before it entered combat, the Marines made repeated and substantial changes to the structure of their fighting units throughout the war. This was pissible in part because, unlike the Army in Europe, which fought more or less continuously, Marines in the Pacific fought only intermittently. They had plenty of time between battles to reorganize, and digest lessons learned. Their organizational evolution began in February of 1941 when the Fleet Marine Force's 1st (East Coast) and 2nd (West Coast) Brigades were ordered to expand into the 1st and 2nd Marine Divisions.[294]

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292 Robert R. Palmer "The Reorganization of Ground Troops for Combat", op cit pp. 317-318.

293 US Army Adjutant General Table of Organization and Equipment T/O & E 7-11 "Infantry Regiment" and "Medical Detachment, Infantry Regiment" and Tables 7-12 "Headquarters and Headquarters Company," 7-13 "Service Company," 7-117 "Antitank Company," 7-15 "Infantry Battalion," 7-16 "Headquartrs and Headquarters Company, Infantry Battalion," 7-17 "Rifle Company," and 7-18 "Heavy Weapons Company" (Washington DC 26 February 1944).

294 Benis M. Frank and Henry I. Shaw Jr. *History of US Marine Corps Operations in World War II Vol V - Victory and Occupation* (Washington DC Historical Branch G-3 Division HQ Marine Corps 1968) p 691; to be referred to as *Official History* Vol. V; see also the proposed Marine Division organization published in the Marine Corps *Gazette* (September 1949). A tentative division organization had already been published in October 1940. A copy is in the Marine Corps Historical Center Washington DC.

The first Marine infantry unit to see actual combat was the 4th Regiment. This unit had been hurridly transferred from its semi-permanent station in Shanghai to the Philippines just prior to the outbreak of the war. Soon after its arrival in the Philippines it absorbed most of the Marines attached to the naval base at Cavite. These became the regiment's third battalion and they also helped to "flesh out" the other two. At this point it seems to have resembled a two-thirds strength June 1938 regiment with no antitank platoon, only one BAR and probably a sub-machinegun per rifle squad, and only two platoons (eight guns) per machinegun company. The battalion mortar platoons were still using 3-inch Stokes mortars and may have had some M1916 37mm guns as well. Subsequently the regiment received a heavy infusion of US Army and Navy and Philippine Army personnel and then took charge of defending the island of Corregidor. It surrendered on 6 May 1942.[295]

Like their Army counterparts, the new Marine divisions would be "triangular" formations based on three infantry regiments. The March 1941 FMF tables introduced a new and expanded organization for these regiments. Unlike previous series of organization tables, which were known only by their publication dates, the new tables received an alphabetical designation and became known as the "D-series." There was never any "A," "B," or "C" series. Presumably these letters were either assigned to provisional tables that were not actually adopted or were retroactively assigned to the FMF tables introduced since 1934. The D-series regiments utilized much of the development work done by the Army but with drastically motor transport. At the battalion level or below everything would have to move by hand or hand cart. As before, the objective was to satisfy the need to minimize the shipping space requirement of an organization that would only have to move its supplies from a nearby port or beachhead.

The D-Series Regiments

If the diagrams of the D-series regiment that appear in Appendix 5 (see Appendix 5.23 for a summary of the D-Series regiment) seem confusing, then they have perhaps successfully captured the state of organizational chaos that reigned within the Marine Corps during the first year of the war. Mobilization did not always go smoothly. The Marines depended on the Navy for their equipment but the Navy preferred to spend its money on battleships and aircraft carriers. Much of what the Marines required was still unavailable when they began to move overseas. Substitutes had to be found at the last minute. Worse, instead of being allowed six months for its training and organization, the 1st Marine Division went overseas almost immediately and soon found itself in action on Guadalcanal. By that time the division had received major revisions to the March 1941 D-Series tables dated in January and July 1942 and its combat organization included elements of all of them. Just which organizations and what equipment the Marines were actually using on Guadalcanal has been an issue to trouble historians ever since.

The way that the new tables of organization (or disorganization) worked can be seen in the D-series rifle company in Appendix 5.18 (additions made to company during the January and July 1942 reorganizations appear in italics). The new company included an Army style weapons platoon with an LMG section that had three rather than two ammunition bearers per squad. The 60mm mortar section had only two five-man (with only two ammunition bearers in each) squads. On Guadalcanal a weapons platoon did not have enough men to hand-carry its full complement of mortars and machineguns through jungle or rough terrain, even with such assistance as the rifle platoons could give. In addition, Marine infantry had very few organic vehicles. In fact, a March 1941 battalion was allowed no motor vehicles at all but in January 1942 Headquarters Marine Corps changed the table to allow one jeep (but no trailer) for each rifle company headquarters (mainly to carry 60mm mortar ammunition).[296]

The rifle platoons were similar to those of the Army under the 1940 organization in that they each had three rifle squads and the BAR squad that the Army had dropped in April 1942. With eight men and two BARs for "offensive" situations, the Marine BAR squad was generally the same as its Army counterpart. Like the Army squad, the Marine squad had a third BAR for "defense" or when ammunition was plentiful. However, a corporal commanded the Marine squad rather than a sergeant and all Marine squad members except the two BAR men carried rifles. The three rifle squads had only nine men each rather than 12 but each squad included a BAR since no M1 rifles were available. The Marines had delayed their decision to adopt the M1 too long and the Navy was reluctant to pay for new rifles when their warehouses were still full of the old reliable M1903 Springfields. Although the Marines mustered more than 70,000 men by December 1941 (or about as many as they had in 1918) their two FMF divisions had reached less than half of their authorized strengths. They were barely full by mid-1942. The Marines hoped that they could later expand their nine-man squads into 13-man squads (commanded by

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295 LtCol Frank O. Hough USMCR, Maj Verle E. Ludwig USMC, and Henry I. Shaw Jr. *History of US Marine Corps Operations in World War II Vol I- Pearl Harbor to Guadalcanal* (Washington DC Historical Branch G-3 Division HQ Marine Corps 1989 reprint) pp. 155-202; to be referred to as *Official History* Vol. I.

296 USMC Organization Tables, "Rifle Company, Infantry Batalion, Marine Division" Table D-1; (HQMC Washington DC 28 March 1941, 28 March 41/10 January 1942, and 1 July 1942). See also US War Department Military Intelligence Service "Lessons from Guadalcanal" *Military Reports on the United Nations* Number 2 (Washington DC February 1943) p. 37 for difficulties in moving heavy weapons.

sergeants with corporals as their assistants), using expansion methods already tested by the 1934 experimental company but their manpower shortfalls defeated this plan. The January 1942 change to the D-series tables called for M1 carbines to replace all pistols except those carried by field grade officers (majors and above) but the carbines did not arrive until 1943. In partial compensation for this, the July 1942 edition of the D-series tables called for the large-scale issue of .45 caliber sub-machineguns. Most of these were to be of a new design introduced as a low cost and lightweight alternative to the Thompson and called the Reising. The Marines actually received Reising guns in some numbers before leaving for Guadalcanal. Though basically a sound design the Reising soon acquired a bad reputation for unreliable performance in the tropics. The Marines dropped it from combat use before the end of 1942 while the Army opted for the much more reliable but still relatively light and cheaply made M3 "grease gun." The Thompson gun itself worked well enough if it was kept clean but it lost much of its popularity with the Marines when they discovered that in the jungle its report sounded enough like that of a Japanese LMG to draw friendly fire.[297]

The extent to which the Reising sub-machineguns were actually available is very uncertain. They only arrived at the last minute and not in the intended quantities. Most weapon (60mm mortar or machinegun) squad leaders probably carried them because they had been authorized to since March 1941. Though rifle squad leaders were to be given sub-machineguns in July, anecdotal evidence from veterans suggests that few received them. Photographic evidence, however, shows large numbers of them in the battalion and regimental communication platoons.

Finally, in order to provide for local antitank defense, the January 1942 tables called for three .60-caliber antitank rifles for each rifle company headquarters. Though never issued, they were to have been "weapons of opportunity" manned by spare company headquarters personnel, such as cooks, clerks, cobblers, tailors, etc. who did not perform their primary duties in combat. The July 1942 tables called for their replacement by M1 bazookas but the bazookas did not arrive until 1943. Fortunately for the Marines, Japanese tanks proved to be a very minor threat.

Besides changes in weapons, the January 1942 version of the D-series tables introduced the Army's system of specialist or "technician" ranks (allowing more pay without more authority) for Marine enlisted men. However, the system seems to have been unpopular. The July 1942 tables abolished it again and substituted non-commissioned ranks and titles for specialist personnel. Thus the carpenter and armorer in each company headquarters became corporals instead of technicians. The January 1942 tables also included modest manpower increases, adding a barber and a cobbler (and a man to act as tailor) to every company (rifle, weapons, or headquarters). In battle such men could serve as messengers or additional riflemen or help to man the extra antitank weapons that each company headquarters was supposed to receive. In addition, the new tables increased the number of "other duty" ("basic") privates to about five percent of enlisted strength, or about half of what comparably sized Army units would receive.[298]

The old battalion machinegun company of the 1938 and 1939 regiments became a battalion weapons company (see Appendix 5.19). It did this by taking back the 81mm mortar platoon from the battalion headquarters company and by forming a new anti-aircraft and antitank (AA/AT) platoon. The new company rarely (if ever) functioned as a tactical unit. It usually attached its machinegun platoons out to the rifle companies (another legacy of the fighting in Nicaragua, which tended to emphasize the importance of self-contained battle groups) while its mortar and AA.AT platoons served directly under the battalion commander's control. In battle the weapons company commander usually worked with the S-3 as a fire support coordinator. In recognition of the importance of his role Headquarters Marine Corps ordered that he rank as a major. His executive officer (a captain) was also the battalion machinegun officer. In that capacity, he oversaw machinegun training and served as an advisor on tactical machinegun employment.

Since it lacked motor vehicles the weapons company had to rely heavily on handcarts for its tactical mobility. The handcarts do not seem to have been a success in the soggy soil on Guadalcanal, though a lighter design with wider tires might have been more effective. Though the company was not road-bound and was easy to move by sea it was severely severely limited in what it could carry. One ammunition bearer could handle no more than six 81mm mortar rounds or two boxes of machinegun ammunition. The January 1942 update gave the headquarters company four jeeps for use by (or on behalf of) the weapons company. However, the July 1942 tables moved these jeeps and their drivers to the weapons company and added two more jeeps for the mortar platoon.[299]

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[297] Ibid. Also see LtCol R. E. Hogaboom, HQMC Plans and Training Officer "Memorandum to Staff Officers" 20 May 1942, unpublished memo, copy in the Marine Corps Historical Center Washigton DC; see also Eric Bergerud, *Touched by Fire* op cit pp. 292-293 quoting Guadalcanal veterans' opinions on the Thompson and other weapons.

[298] Ibid.

[299] USMC Organization Tables, "Weapons Company, Infantry Batalion, Marine Division" Table D-3; (HQMC Washington DC 28 March 1941, 28 March 41/10 January 1942, and 1 July 1942); reporting on the hand carts is anecdotal, from conversations with Guadalcanal veterans photographic evidence shows that they were used at least some of the time.

The weapons company headquarters held twelve spare HMGs for the three HMG platoons. This permitted each HMG squad to be issued a second gun for defensive combat. As was the case in the Army this system does not seem to have worked well. Even in defensive combat when a squad needed less mobility it's ammunition men would likely still be too busy fetching additional ammunition to man a second gun. On Guadalcanal it appears that at least some units used LMGs as spare guns so that these could serve in lieu of HMGs when mobility was more important than firepower. In fact, on Guadalcanal it generally proved impossible to hand-carry HMG's or 81mm mortars through jungle or rough terrain and the use of lighter substitutes (LMG's for HMG's and 60mm mortars for 81mm) became essential to enable the weapons companies to participate in the offensives launched later in the campaign.[300]

The mortar platoon was a little smaller than its 1939 version, the size of its two ammunition squads having been somewhat reduced. Each squad included a corporal and three privates trained in chemical decontamination in case of gas attack. Pre-war planning called for the use of 81mm mortars for chemical delivery in lieu of the 4.2-inch mortar because the latter was too heavy for hand carrying. Since they were already involved in chemical delivery, the 81mm mortar sections had also shouldered the battalion's chemical defense responsibilities and personnel as well. However, poison gas was not used in the South Pacific so the "decontaminators" would have served as additional ammunition carriers instead. One of the two mortar platoon lieutenants was also supposed to have acted as battalion gas officer but he was relieved of this duty by July. For local defense, the D-Series tables initially followed the practice of having mortar squad leaders and ammunition and decontamination corporals carry BAR's. The July D-Series tables ordered that sub-machine guns replace the BAR's (though this frequently did not occur).[301]

The new AA/AT platoon was supposed to receive a 20mm gun that it could use as either an antitank or anti-aircraft weapon. As this weapon never materialized the .50-caliber machinegun became the substitute. The platoon functioned as two three-man gun crews and an 11-man ammunition squad.[302]

Except for the loss of its mortar platoon the battalion headquarters company had changed less since 1939 than any other element of the infantry battalion (see Appendix 5.20). The adjutant was headquarters company commander and the supply section still served as a receiving and distribution group for the companies (with the companies themselves providing most of the labor). The intelligence section remained only a modest "office" section plus a few observers and a trained scout for each rifle company. The authorized enlisted strength of battalion and company headquarters enlisted men gradually increased between January and July 1942. The battalion staff was to have gained two liaison officers but LtCol Lewis B. "Chesty" Puller, commanding the 1st Battalion, 7th Marines on Guadalcanal reported that while he never received them the five staff officers he already had were far more than he needed.[303]

The internal structure of battalion and regimental medical sections was never formalized until the 1960s. However, the battalion surgeon was expected to attach about three hospital corpsmen to each rifle or weapons company while the regimental surgeon furnished "corpsmen" for the regimental weapons company. The remainder of each section manned battalion or regimental aid stations. The regimental section also had a dental officer and a medical service corps officer. To collect wounded men and bring them to the aid stations, stretcher teams could be improvised from regimental or battalion headquarters company personnel (cooks, barbers, cobblers, mechanics, etc) whose primary duties did not have to be performed during combat. Ambulances and stretcher-bearers from the evacuation platoon of a company of the division medical battalion would evacuate casualties from both the regimental and battalion aid stations of a designated infantry regiment to a clearing station. The clearing platoon from the same medical company would operate this clearing station, which was actually a small field hospital from which casualties might be further removed to a division hospital or a hospital ship.[304]

The infantry regimental headquarters and service (H&S) company that had been introduced in August 1939 as an economy measure experienced little change under the D-Series tables (see Appendix 5.21). Its supply section could plan, supervise, and administer but had to rely on the division's service battalion to do the actual work of getting the supplies to those who needed them. In March 1941 this unit had only two transport companies available

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300 Ibid; and "Fighting on Guadalcanal" (Washington DC, a USGPO pamphlet 1942) it is a compilation of interviews with Guadalcanal veterans; pp. 34 and 44. See also US War Department Military Intelligence Service "Lessons from Guadalcanal" op cit.

301 USMC Organization Tables, "81mm Mortar Platoon, Infantry Battalion, Marine Division" Table D-2; (HQMC Washington DC 28 March 1941, 28 March 41/10 January 1942, and 1 July 1942); "Fighting on Guadalcanal" op cit pp. 28, 29, 33, and 44; Bergerud op cit p 351; and Col A. R. MacKechnie "The Rifle Company in the New Guinea Jungle" Infantry *Journal* April 1944 (Washington DC) pp. 19-21.

302 USMC Organization Tables, "Weapons Company, Infantry Battalion, Marine Division" Table D-3 op cit.

303 USMC Organization Tables, "Headquarters Company, Infantry Battalion, Marine Division" Table D-5; and "Communication Platoon, Infantry Battalion, Marine Division" Table D-6 (both HQMC Washington DC 28 March 1941, 28 March 41/10 January 1942, and 1 July 1942); and "Fighting on Guadalcanal" op cit p 33.

304 Ibid. See also USN Bureau of Medicine and Surgery *Combat and Field Medicine Practice* (Washington DC USGPO; originally published 1956; reprinted 1989 as FMFRP 12-19) pp. 21-22.

for this purpose. One of these was supposed to be kept in reserve. The other could support each infantry regiment with a transport platoon.

Each of these transport platoons totalled 11 1.5-ton trucks, three light tractors (towing one-ton trailers) a jeep, 10 motorcycles (for messengers). The platoon included three sections of three trucks and a tractor each. This was only a little more than a third of what an Army regimental service company would have had, though the Marine regiment was more lightly armed, and would operate over much shorter distances. The January 1942 revised tables ordered that 2.5-ton trucks[❷] replace the tractors and 1.5-ton trucks on a one for one basis. Each section of four trucks would also have a one-ton cargo trailer, two 300-gallon water trailers, and a jeep. The tables also replaced the motorcycles (which would have been useless in the Pacific) with a couple of jeeps. These changes boosted a Marine motor transport platoon to about half the lift capacity of an Army regimental service company. Finally, the July 1942 tables increased the number of transport companies from two to four but each company would have only two platoons. Each platoon would get 11 2.5-ton trucks, four jeeps, and three cargo and four water trailers. Three companies could support the infantry regiments while the fourth company acted as the division reserve. This brought the number of 2.5-ton trucks authorized per regiment from 14 to 22 despite a much smaller increase in the total number of trucks in the service battalion. The new motor transport units were also well armed, all drivers carrying sub-machineguns, each jeep mounting an LMG and each 2.5-ton truck a .50-caliber machinegun.[305]

It is unknown whether the 1st Marine Division's service battalion underwent the July 1942 reorganization before it left New Zealand for Guadalcanal. However, it probably did not matter much because the division left at least three quarters of it's 2.5-ton trucks (including most of those in the Service Battalion) behind. This was done partly to save space in the ships and partly out of a belief (incorrect, as it turned out) that the trucks would perform poorly in the Guadalcanal mud. Although the transport companies did acquire some captured Japanese trucks, the loss of their 2.5-tonners produced something of a transportation crisis. The available one-ton trucks and jeeps proved to be too light to move heavier items, such as the 105mm howitzers, off the beach. It was the division's battalion of 100 LVT-1 amphibian tractors that saved the day. These heavy, remarkably mobile and capacious but mechanically unreliable machines could move from ship to shore, cross streams, rivers, and coral reefs with ease, move through mud and swamps and do whatever might be required of an amphibious transport unit. They moved the artillery and heavy equipment inland and distributed the division's stores among numerous small caches to preserve them from destruction and make them available where needed. Predictably, it was impossible to maintain the tractors adequately and very few were still operational at the end of the campaign. Nevertheless, they had played a vital role and demonstrated their usefulness as an alternate source of motor transport.[306]

The regimental staff remained much as the wartime tables from the 1930's had described it but in January 1942 it received two liaison officers. One of these would serve at division headquarters and keep the regimental commander informed of events there. The other would typically be stationed with an adjacent regiment.[307]

Apart from increases in manpower and equipment the regimental communication platoon had changed very little from 1939. From July 1942 it was supposed to get some jeeps for its wire section (replacing two reel carts) and most of its men were to carry sub-machineguns. Communications on Guadalcanal were a great challenge. As already noted the radios performed poorly and the heavy vegetation made visual signaling, even pyrotechnics, useless. Only field telephones and messengers (if the distances were not too great) were practical. Patrols even tried to lay wire behind them as they went in order to maintain telephone communication with the rear but "Chesty" Puller derided this practice as putting too many restrictions on the patrol's mobility.

The regimental intelligence section did not attempt to duplicate the capabilities of the Army regiment's I&R platoon and just mirrored the battalion sections by providing a squad of scout/observer and a small office element. In January 1942 the section was authorized a small photo-interpreter element led by a lieutenant.[308]

The regimental weapons company held most of the regiment's antitank and antiaircraft weapons as well as most of its trucks (see Appendix 5.22). As was the case in the battalion weapons companies a major was the

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[❷] These "deuce and a halfs" had been built especially for the Navy and were cleverly designed so as to have no parts commonality with similar trucks used by the Army.

[305] Ibid; and "Transport Company, Service Battalion, Marine Division" Table D-58; and "Reserve Transport Company, Service Battalion, Marine Divisio US Marine Corps Organization Tables, "Headquarters and Service Company, Infantry Regiment, Marine Division" Table D-9; and "Communication Platoon, Infantry Regiment, Marine Division" Table D-8 (all HQMC Washington DC 28 March 1941, 28 March 41/10 January 1942, and 1 July 1942)n" Table D-59 (both HQMC Washington DC 28 March 1941 and 10 January 1942); and "Regimental Transportation Company, Service Battalion, Marine Division" Table D-59; and "Divisional Transportation Company, Service Battalion, Marine Division" Table D-60 (both HQMC Washington DC 1 July 1942).

[306] Victor J. Croizat, Across the Reef, The Amphibious Tracked Vehicle at War (Quantico Virginia, The Marine Corps Association, first published 1989, reprinted 1992) pp. 43-50; and see Official History op cit Vol I pp. 250 and 256-258.

[307] US Marine Corps Organization Table D-9, Headquarters and Service Company, Infantry Regiment, Marine Division, 1 July 1942.

[308] "Fighting on Guadalcanal" op cit p. 33; "Headquarters and Service Company, Infantry Regiment, Marine Division" Table D-9; and "Communication Platoon, Infantry Regiment, Marine Division" Table D-8 op cit.

company commander. A captain assisted him as executive officer and another captain, together with a master gunnery sergeant, supervised the company's three AA/AT platoons. As shown in the diagram company headquarters functioned as a headquarters section and a maintenance and supply sectrion. The former provided command, communication, mess, and administrative support for the company's personnel. The latter was for the supply and maintenance of the company's vehicles and crew-served weapons. The existence of and distinctions between these two sections was not formalized until the publication of the July 1942 version of the D-Series tables. The regimental H&S company's medical section included five additional Hospital Corpsmen in July 1942 for attachment to the weapons company.

The AA/AT platoons were to have been armed with the same type of dual-purpose 20mm guns, which had been ordered for the battalion AA/AT platoons. However in a regimental AA/AT platoon each gun would have its own squad of gunners and its own motorized prime mover. Therefore, when the promised 20mm weapons failed to appear, the Marines could afford to choose a much heavier substitute weapon than the .50-caliber machinegun. Thus they selected the M3 37mm antitank gun. This weapon was not just a better tank killer, its high explosive and canister ammunition could be very effective against Japanese infantry. Of course, a 37mm antitank gun was of no use against air attack but prewar planning seems to have considerably overestimated the vulnerability of infantry to this threat, especially in jungle terrain. Nevertheless the weapons company was far from being devoid of antiaircraft weapons. Under the March 1941 tables the weapons company commander received 18 .50-caliber machineguns for mounting on his vehicles as convoy defense weapons. This number of machineguns was a very generous allowance when one considers that the weapons company at the time had only 17 motor vehicles of all types and these were already heavily laden and the jeeps and 1/2-ton trucks were too small to carry a .50-caliber gun in any case. Extra men to operate and maintain these guns would be in short supply also. In July 1942 the situation was partially resolved (on paper) by a decision to increase the number of vehicles in the weapons company to 30, including 19 jeeps that would, among other things replace the one-ton trucks previously used by the AA/AT gun squads. All the jeeps except one at company headquarters would carry .30-cal LMG and the eight remaining one-ton trucks would continue to carry .50-calibers. It is doubtful if many of these changes were implemented in time for Guadalcanal.[309]

The 75mm gun platoon was supposed to be the regiment's heavy antitank unit. However, since the 37mm guns could easily defeat any Japanese tank, 75mm guns were not really needed as antitank weapons. The 75mm gun platoons therefore tended to function as miniature cannon companies. The towed 75mm field guns had new split trail carriages that permitted wide ranging traverse and sufficient elevation to enable them to actually outrange every other field artillery weapon in the division. This included the new M2 105mm howitzers and the older Schneider designed M1918 155mm howitzers. With a firing weight of some 3,500 pounds a 75mm gun was a heavy load for a one-ton truck but the gun was unlikely to have to move either very fast or very far. A section with a squad of gunners and another squad of ammunition handlers served each gun. One of the two lieutenants in the gun platoon headquarters commanded the platoon while the other acted as forward observer or as liaison with regimental or weapons company headquarters. In July 1942, the gun platoons were to have been rearmed with half-track mounted M3 or T-12 75mm guns. This change required the two gun sections to be reduced to six-man squads. Platoon headquarters would include an ammunition section. However, these changes could not be carried out in time for Guadalcanal. Most regiments kept their towed guns until the end of 1942, although a few self-propelled 75mm did serve on Guadalcanal with the 1st Marine Division's Special Weapons Battalion.[310]

The E-Series Regiments

The E-Series tables became effective in mid-1943. By this time the Army was doing most of the fighting on the islands in the central Solomons. The 1st and 2nd Marine Divisions were recovering from Guadalcanal and the 3rd was not yet ready. No Marine division or separate infantry regiment would back be in combat until November.

In essence, the E-series accomplished what, under the July version of D-series tables, the Marine Corps had attempted but, due to time and resource constraints, was unable to implement (see Appendix 5.29 for a summary of the E-Series regiment). In the area of small arms, the M1 rifles and carbines that were supposed to have been issued to D-series organizations finally became available as the E-Series tables were coming into effect. Carbines would replace pistols to an even greater extent than originally planned and, officially at least, pistols would disappear from the infantry regiments entirely. Indeed, so much was expected from the new carbines that during the invasion of the Marshalls inexperienced troops sometimes carried them as substitutes for M1 rifles and BARs. However, they soon learned the error of their ways and they were glad to get their older and heavier but much more powerful weapons back again.[311] Also eliminated were sub-machineguns. This was partly due to the belief that the new carbines would

[309] US Marine Corps Organization Table D-7, "Weapons Company, Infantry Regiment, Marine Division" (1 July 1942).

[310] US Marine Corps Organization Table, "Weapons Company, Infantry Regiment, Marine Division" Table D-7 (HQMC Washington DC 28 March 1941, 28 March 41/10 January 1942, and 1 July 1942); Official History Vol I p. 275 op cit ; and Official History Vol V pp. 702-703.

make a superior substitute, partly because of negative experiences with sub-machineguns on Guadalcanal, and partly out of a desire to simplify logistics by eliminating (or at least drastically reducing) the need for .45 caliber ammunition. The heavy, elderly and expensive Thompson gun, however, did continue to be issued to tank crews. Sometimes individual infantrymen carried it unofficially as a carbine substitute.

Few of the changes that the E-series introduced were the result of combat experience but many of those that were applied to the rifle companies and platoons (Appendix 5.24). Like the Army in April 1942, the Marines sought to simplify their rifle platoons by dropping the BAR squads and increasing their rifle squads from nine to 12 men each. These new rifle squads were actually updated versions of the 13-man squads originally planned for the D-series but included a second BAR. In theory the second BAR permitted a squad to operate as two six-man teams but there is little evidence that this was often done in practice. The second BAR also reflected the Marine Corps unwillingness, based on its Nicaraguan experience, to rely too heavily on the firepower of the M1 rifle. For the Marines the extra load imposed by a second BAR and its ammunition (and the increased burden on the squad leader of controlling two automatic weapons rather than one) was an acceptable price to pay for enhanced squad-level automatic firepower.

In the weapons platoon, both the mortar and LMG sections expanded to three squads each and the company's jeep acquired a 1/4-ton trailer to help it carry the extra ammunition that these new weapons would require. Marine doctrine and practice with regard to the 60mm mortars continued to be very similar to that of the Army although the Marines, in keeping with their Nicaraguan experience, were inclined more towards splitting both the mortar and LMG sections among the rifle platoons rather than using them as sections. This also reflected current experience in jungle combat when the visibility was often only a few feet and where squads and platoons carried the burden of the fighting much more than companies and battalions.

Just as the Army did with its "basic" privates in July 1943, the Marines, in both their rifle and weapons companies, pulled most of their "other duty" privates from the combat platoons and concentrated them in company headquarters so as to allow greater efficiency in allocating replacement personnel. As a minor exception, however, each rifle platoon still retained one "other duty" private under the E-series. Each company headquarters now also included a gunnery sergeant who looked after ordnance and logistical matters and several bazookas for local antitank defense and "bunker busting." However, the bazookas were not actually delivered until the end of the year. The 1st Marine Division used a few at Cape Gloucester in December 1943 but none of the 2nd Marine Division's bazookas had arrived in time for its assault on Tarawa in November.[312]

The biggest change to the E-Series weapons company (Appendix 5.25) was the replacement of the D-Series AA/AT platoon with two .50-caliber machinegun teams that belonged to the company headquarters. Each team just a corporal and two privates. Weapons company personnel not otherwise employed could act as ammunition bearers and any available vehicle might be used for transportation. The ammunition squad that the AA/AT platoon had provided was not really necessary. Other changes to the E-series weapons company were "detail" alterations intended to economize on personnel and shipping space and increase efficiency. All 11 of the company's "other duty" privates went to company headquarters but three of the company's jeeps and drivers went to the machinegun platoons.

In the mortar platoon, the ammunition squads in the mortar sections were broken up, extra ammunition bearers being added to section headquarters and the mortar squads. The jeeps and drivers that had formerly been in platoon headquarters went to the sections. The addition of cargo trailers to the jeeps helped to compensate for the platoon's net loss of eight ammunition bearers and six handcarts. A new gas section (with a lieutenant, a sergeant, two corporals, and six privates) replaced the gas and decontamination personnel in the mortar platoon.

In the machinegun platoons, each gun squad lost two ammunition bearers and a handcart but each platoon headquarters picked up four ammunition bearers, thus reducing the net loss of ammunition bearers per platoon from eight to four. The platoons carried HMGs as their primary weapons and LMGs as spares. This gave official approval to the unofficial arrangements made on Guadalcanal to use LMGs in lieu of HMGs in situations where mobility was essential. Of course in theory a squad might still use both of its guns at once but it seems unlikely that circumstances would have often permitted this. As further proof of their status as skilled technicians, E-series machinegun platoon sergeants would now rank as gunnery sergeants (equivalent to Army technical sergeants).[313]

The E-series infantry battalion headquarters company (see Appendix 5.26) differed little from the D-series beyond its incorporation of the new small arms. Battalion headquarters only added a gas officer, a postal clerk, the chemical and decontamination personnel from the 81mm mortar platoon, a barber and a cobbler from headquarters

311 Official History op cit Vol III p 209.

312 US Marine Corps Organization Tables, "Rifle Company, Infantry Battalion, Infantry Regiment," Table E-1 (all HQMC Washington DC 15 April 1943). See also numerous comments (on sub-machineguns etc) in "Fighting on Guadalcanal" op cit.

313 US Marine Corps Organization Tables, "Weaponss Company, Infantry Battalion, Infantry Regiment" Table E-3 (HQMC Washington DC 15 April 1943)

company headquarters, and a driver for the battalion commander's radio jeep. The headquarters company headquarters received a company gunnery sergeant plus the "other duty" private who had formerly been attached to the communication platoon. In the communication platoon the wire section lost a jeep and driver while the radio, visual, and panel (RVP) section gained one, which mounted its own radio. The battalion medical section (officially carried as part of battalion headquarters) expanded from 20 Navy hospital corpsmen to 32. Six rather than three corpsmen could now be attached to each rifle or weapons company. Carbines were also made available for issue to medical personnel for use "in accordance with the Rules of Land Warfare." This was perhaps symptomatic of the "no holds barred" nature of the Pacific War wherein, among other things, medical personnel enjoyed little immunity.[314]

In the E-Series regimental headquarters and service company (Appendix 5.27) the regimental headquarters itself acquired a gas officer (a captain), a second Navy chaplain, plus 10 Marine and five Navy enlisted men (the latter were all hospital corpsmen included for attachment to the regimental weapons company). The extra Marines included a staff sergeant camofleur, three mail clerks (for a total of five), and six more drivers (for a total of eight). Five of the additional drivers were to operate jeep ambulances of which three were for the use of the battalions. Although the Navy was responsible for supplying the Marines with trained medical personnel and chaplains the Marines still had to furnish the drivers, cooks, and other non-medical support personnel that the medical people needed. As was the case at the battalion level, carbines were available for all Navy medical officers and men but chaplains were officially exempted, though they often went armed "unofficially." The gunnery sergeant assistant to the munitions officer was transferred to the supply section, reducing the net gain in Marine enlisted to nine.

The regimental communication platoon underwent the same changes as the battalion platoons, losing its "other duty" private, subtracting a jeep and driver from its wire section (reducing it to 14 men) and adding one to its RVP section (increasing it to 25). The message center retained its original strength of 12 men (including six messengers).

The regimental intelligence section was further strengthened by a couple of "public relations correspondents." These were sergeants who acted as regimental censors and dealt with the press. Finally, the supply section received 100 commercial type 12-gauge pump shotguns for issue as required. As was the case with the spare LMGs in the battalions, these weapons were actually stored with the division service battalion since the regiment had no facilities for moving or caring for them. Shotguns had been found to be of considerable value as patrol and counter-sniper weapons, since they could be fired "half blind" through heavy foliage and limited visibility.[315]

The regimental weapons company (Appendix 5.28) had also benefited from "lessons learned" on Guadalcanal. Its three AA/AT platoons had become antitank platoons armed officially as well as in practice with the M3 (or M3A1) 37mm towed antitank gun. The platoons' gun squads were no longer grouped into sections. Each of them lost an ammunition man but two ammunition handlers were added to platoon headquarters.

Although the 75mm gun platoon gained a radio operator, it lost eight ammunition handlers, including one per gun squad (a self-propelled gun could only carry five men in any case). The rest came from platoon headquarters.

Weapons company headquarters now comprised separate headquarters, communication, and maintenance sections. The former included eight of the company's 10 "other duty" privates (the others were with the 75mm gun platoon) as well as six antiaircraft machinegun teams of the same type as those found in the battalion weapons companies. In addition, there were four unmanned .50-caliber machineguns for mounting on 1-ton trucks and six .30-caliber for mounting on jeeps (a much smaller but far more manageable quantity than what the D-series tables had authorized). The weapons company communication section had been separated from the headquarters section but it still had the same ten members as before, plus two radio jeeps. The remaining company headquarters vehicles were in the maintenance section that now had a warrant officer and 15 men.[316]

When it came to transportation the regiment was still very austere. Each battalion had only a dozen jeeps (two of which were radio vehicles) and 9 trailers, though this was more than what D-Series units had. The regimental weapons company transportation remained as before. Though it had almost as many trucks as all the rest of the regiment combined this was still not enough to enable it to displace itself in a single lift. If the company was to move itself anywhere its vehicles have to make multiple trips. The regiment still depended heavily on attached transportation. Except in the early stages of an amphibious assault, this would normally come from the motor transport companies. In an E-series division Headquarters Marine Corps had taken the four motor transport companies that had once been part of the service battalion and formed them into a divisional motor transport battalion. This unit would have only three truck companies but with three platoons in each rather than two but the three truck companies could provide a platoon for each infantry battalion in the division. However, a platoon (of

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314 US Marine Corps Organization Tables, "Headquarters Company, Infantry Battalion, Infantry Regiment" Table E-4 (HQMC Washington DC 15 April 1943)

315 US Marine Corps Organization Tables, "Headquarters and Service Company, Infantry Regiment" Table E-9 (HQMC Washington DC 15 April 1943); and Bergerud op cit pp. 297-299.

316 US Marine Corps Organization Tables, "Weapons Company, Infantry Regiment" Table E-7 (HQMC Washington DC 15 April 1943).

two sections) totalled only seven 2.5-ton trucks (one with a .50-caliber), two cargo trailers, three water trailers, and three jeeps (two with LMG and one with a trailer). Such a platoon was only a little inferior to a battalion section of an Army infantry regimental service company but this left a division transportation reserve of just one reinforced truck platoon (with three sections rather than two) in the motor transport battalion headquarters and service company.[317]

The period in which the E-series tables were used saw the transition of Marine Corps operations from the Southwest Pacific jungles mainly on the islands of Bougainville and New Britain to the series of assaults of fortified Japanese islands in the Central Pacific. The assault on Tarawa, in particular, revealed many deficiencies. However when the Marines landed in the Marshalls, still under the E-series tables, they overwhelmed the Japanese defenders at relatively little cost. It was true that the Japanese defenders of the Marshalls were ill prepared and included a much higher proportion of non-combatants than had been the case on Tarawa but it was also true that the Marines had learned many lessons well. However, a changeover to the F-Series tables of organization began in March 1944 with the 4th Marine Division. Other organizations followed soon after.[318]

The F-Series Regiments

The F-Series tables (at least insofar as the infantry was concerned) represented a much more radical change than the E-series. Given that its initial release date was January 1944, the F-Series would actually have been designed at about the same time as E-Series organizations were first entering combat. Thus the battle experience baseline of the F-Series was still mainly that of D-series units on Guadalcanal, though Tarawa probably had some influence as well. The heavy losses and narrow avoidance of disaster in that battle came as a considerable shock and experience from it was assimilated and disseminated very quickly. Experience gained in the fighting on Cape Gloucester and Bougainville, since it revealed far fewer "surprises" would have been much less influential.[319]

For the infantry, the major impact of the F-Series tables was, (1) a new rifle squad and (2) elimination of the rifle company weapons platoons and the battalion weapons companies. The new rifle squads were unique in that they were designed to operate as three self-contained "fire teams" rather than as a single element. This was the result of experimentation that had really been going on since the war in Nicaragua. In Nicaragua, it was quickly discovered that for fighting guerrillas in the often mountainous and jungle-covered terrain of that country, the then standard eight-man squad was too large and unwieldy. The Marines and the Marine trained and officered Nicaragua *Guardia Nationale* experimented with various smaller "fire groups" of four to six men each, usually centered on a BAR or Thompson sub-machinegun. Much of the inspiration for these "fire groups" had come from Thomas E. Lawrence, the British officer who led the Arab revolt against the Turks in World War I. For guerrilla war, Lawrence stressed extreme dispersion. He believed that single men were best because their purpose was to hit and run while avoiding casualties. Several men together presented too large a target. On the other hand, the Marines' own experimentation with four-man teams for riot control duty in Shanghai, China, seems to have had relatively less influence.

After the start of World War II, dissatisfaction with the eight and nine man squads then in use led to more experimentation with alternatives. At first most of this experimentation was confined to the new raider and parachute battalions then being organized (of which more later). However, in the summer of 1943, Lieutenant Colonel Homer L. Litzenberg, commanding 3rd Battalion, 24th Marines, was able to produce and test an organization of his own. The result of some trial and error, Litzenberg's squad consisted of a squad leader, a three-man scout group, two three-man fire groups which included a BAR in each, and a support group with a corporal and a rifle grenadier. The new organization proved to be better than the standard E-Series squad. In the latter, individual action quickly produced confusion and caused the squad leader to lose control. Dividing the squad into three-man groups, each led by the best man in the group, made it a well-coordinated team that readily adapted itself to changes in its situation. After further testing, Litzenberg forwarded the results to his regimental commander in August 1943 with the suggestion that his experimental squad be adopted throughout the regiment. Litzenberg's recommendations were then forwarded, with strong endorsements, to Headquarters Marine Corps. By December, additional reports on squad organization were arriving at Headquarters not only from the raiders and parachutists but also from the 3rd Marine Division, which had experimented successfully with four-man fire groups on Bougainville. In October 1943

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317 US Marine Corps Organization Tables, "Motor Transport Battalion, Marine Division" Table E-60; "Headquarters and Service Company, Motor Transport Battalion, Marine Division" Table E-59; and "Transport Company, Motor Transport Battalion, Marine Division" Table E-56 (all are HQMC Washington DC 15 April 1943).

318 Official History op cit Vol III p. 241. See also letter from the Commanding General Fourth Marine Division to the Commanding officers of 23rd, 24th, and 25th Marines dated 1 Mar 1944 (copy in the Marine Corps Historical Center Washington DC).

319 For accounts of these battles and their effects on Marine Corps doctrine and tactics see *Official History* Vol III passim. For an excellent and detailed account of the Tarawa battle see Col Joseph Alexander USMC (Ret) *Utmost Savagery* (look up ref).

Headquarters Marine Corps directed the Commandant of Marine Corps Schools in Quantico Virginia to take up the matter. It convened a board of officers in December to study the various reports on squad organization. All of the board members had previously commanded troops in combat. The board's chairman, Lieutenant Colonel Samuel Griffith had designed the 2nd Raider Battalion with its squads based on three-man fire groups. After rapid but careful consideration the board reported on 7 January 1944 recommending that the future Marine rifle squad be based on a four-man fire team. Three-man teams were rejected as too brittle and inflexible. If just one member of a three-man team became a casualty the team's firepower and offensive capability would be seriously and probably fatally degraded. The BAR man would also be left with insufficient ammunition (since the team would have only one other man available to carry it). If the team wished to flank an objective under covering fire from its BAR, the BAR man would have to be left by himself or there would be only one man available to make the flanking movement. For armament the board recommended that each fire team include one BAR but that its other three members (team leader, assistant BAR man, and rifleman) all carry the M1 rifle since this would allow all members of the team to use the same type of small arms ammunition. However, Headquarters Marine Corps' Director of Plans and Policies disagreed with this and ordered a carbine for the assistant BAR man instead. The carbine's lighter weight would enable the assistant BAR man to carry more BAR ammunition but its inferior range should be of very little significance in close quarter jungle fighting. This finalized the organization of the rifle squad just six days after the Griffith Board submitted its report. The report recommended a squad consisting of a sergeant squad leader armed with a carbine and three fire teams. Each team would have a corporal as leader armed with an M1 rifle, a BAR man with a BAR, an assistant BAR man with a carbine, and a rifleman with a rifle. The rifles could carry M7 rifle grenade launchers as required and the carbines could use M-8 grenade launchers.[320]

Though the new squad became a big success and has remained the standard squad for the Marine Corps ever since (barring a few brief interludes) it was not without its shortcomings. It is noteworthy that although this type of squad was once strongly recommended for the German Army by Major General Hans Uhle Wettler, it has only been adopted by the United States Marine Corps, foreign organizations trained by it, and by Communist China. The Chinese chose a three-team 12-man squad (in which the squad leader was also a team member) as much for political reasons as military ones since a team could double as a Communist Party cell. The North Vietnamese appear to have used a similar squad organization during the Second Indochina War but they maintained their squads at such low average strengths that it probably had little practical impact. Critics outside the Marine Corps have pointed out, and tests conducted by the US Army during the early 1970s, confirmed that while a 13-man squad does well at full strength, its fire teams are very brittle. Casualties will soon deprive the squad any practical ability to execute simultaneous fire and maneuver at the squad level. Instead, the squad tends to maneuver and fight as a single (non-divisible) entity and thus forfeits the principal advantages conferred by its size and team structure. Even so, the new Marine squad could bring three BARs into action and included three corporals to extend the sergeant squad leader's control. This was especially important in jungle terrain where visibility might be only a few feet. The fire teams were also useful for organizing short-range patrols and attacks on fortified positions.[321]

A mere six days after the squad organization was ironed out, Headquarters Marine Corps produced the first edition of the F-Series tables to incorporate them. A major modification was issued in March. This not only reflected the latest combat experience it also took advantage of the fact that the new tables saved about 1,300 men per Marine division. The manpower shortage that was already afflicting the Army had not yet struck the Marine Corps. In order to maintain total FMF strength in the Pacific Theater, the F-Series tables were modified in order to restore some of the manpower saved. In addition, the Commandant of the Marine Corps ordered the 1st, 2nd, and 3rd Marine Divisions to each form a separate infantry battalion, reinforced by an artillery battery. The 4th Division would form an additional artillery battalion. These units later became part of the 6th Marine Division.[322]

In addition to reorganizing its squads, each rifle company replaced its weapons platoon with a machinegun platoon from the old battalion weapons company (see Appendix 5.30). The LMG section from the former weapons platoon became the third section of the new company machine gun platoon. Each of the six squads in the new

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320 This account is drawn largely from an official memorandum (author not identified) produced at Headquarters Marine Corps as A03-sd and dated 31 August 1955. It gives a full account of the development of the fire team during 1942-44, together with the origins of the idea in Nicaragua. A copy is in the Marine Corps Research Center Quantico Virginia; The Official History Vol V pp. 696-700 also discusses the development of the fire team but cites the use of four-man teams for riot control duty in Shanghai as an important piece of early experience leading to fire team development. Given that experiences with organizations designed for such semi-military functions as riot control would be unlikely to carry the same weight as combat experience, the author believes the 1955 account to be more authoritative.

321 MAJ Paul E. Melody USA "The Infantry Rifle Squad, Size Is Not the Only Problem" A Monograph (unpublished) written at the School of Advanced Military Studies, US Army Command and General Staff College, Fort Leavenworth Kansas Aug 1990 - a copy is in the Pentagon Library Washington DC; see also Hans Uhle Wettler "The Problem of Overdependence on Technology in the Infantry" ...

322 Letter from the Commandant of the Marine Corps to the Commanding Generals of Fifth Amphibious Corps and the First, Second, Third, and Fourth Marine Divisions dated 17 January 1944 and enclosing F-Series Tables of Organization; Copy in the Marine Corps Historical Center Washington DC.

platoon operated the .30-caliber LMG as its primary weapon. The HMGs would henceforth be the spare weapons. Battle experience, now that the United States was on the offensive in the Pacific Theater, showed that the LMGs' superior mobility trumped the HMGs' superior firepower in the great majority of combat situations. Initially each machinegun squad had only five men and a handcart but the changes issued in March 1944 increased this to six men. Platoon headquarters also obtained a corporal to supervise ammunition supply. The new tables also moved the 60mm mortar section to company headquarters and strengthened strengthened its squads to six men each. Lacking handcarts, however, they could (at best) carry only 40 to 45 rounds of ammunition per mortar. However the mortar section usually had priority for the services of the company jeep. As in the Army 81mm mortar sections, both an officer and a sergeant led the Marine 60mm mortar section. One acted as observer or liaison agent with company headquarters while the other commanded the section. Since the new tables had centralized personnel administration at battalion level, each company headquarters lost its clerk. The tables also boosted the rank of the company mess sergeant to technical sergeant and added extra cooks and three "other duty" privates to company headquarters. In March 1944, the tables gave each company headquarters a demolition sergeant, and each rifle platoon a demolition corporal in order to enhance their ability to assault fortified positions.[323]

Besides distributing the former weapons company's machinegun platoons among the rifle companies, the new tables also gave the 81mm mortar platoon to the battalion headquarters company. The mortar platoon itself remained exactly as it had been under the E-Series tables except that it now had a spare set of 60mm mortars that it could use in lieu of the 81mm when mobility was a paramount consideration. This would most likely occur when jeeps could not be used and everything had to be carried by hand (or by hand cart if these were usable). Although an 81mm mortar was significantly heavier than a 60mm the real weight difference lay in ammunition. An 81mm shell weighs about twice as much as a 60mm and each 81mm mortar required an on-hand supply of 60 to 80.

Battalion headquarters (see Appendix 5.31) kept the same number of officers but in March 1944 the Bn-3 (operations and training) was made a major rather than a captain and the Bn-4 (supply) became a captain rather than a lieutenant. Another new captain relieved the Bn-1 (adjutant) of the duty of being H&S company commander. Battalion headquarters also acquired additional clerks and a "sanitary squad." The clerks were there to permit personnel administration, formerly handled at company level to be centralized at battalion. The sanitary squad was a corporal and two privates who controlled the insects, rodents, and other pests which spread disease in what was often a very unhealthy climate. They replaced the eight decontamination specialists (two corporals and six privates) who worked under the battalion chemical sergeant (by now promoted to platoon sergeant). In future, they would work with the company supply and property sergeants (by now also responsible for chemical defense and decontamination) against the increasingly unlikely prospect that the use of chemical weapons would be initiated. Besides these changes the battalion headquarters also picked up another jeep and driver and two more "other duty" privates.

In the rest of the headquarters company (Appendix 5.31) there were only minor changes and most are illustrated above. However, it is worth noting that beginning in March 1944 the battalion supply section received 27 portable flame-throwers and 27 demolition packs, or enough to issue one of each to every rifle squad in the battalion. Previously, flame-throwers had only been issued in small numbers and then only to the combat engineers. The E-Series tables allowed only 24 flame-throwers for an entire division. Tarawa demonstrated that this was not nearly enough. Though the F-Series provided for ten times as many, it would be some months before there were enough flame-throwers in the Pacific Theater to meet this new demand. Also, to use a flame-thrower effectively required skill and experience as well as a good deal of courage and (because they were so heavy) physical strength. A flame-thrower equipped squad would have to move much more slowly in order to allow the flame-thrower man to keep up. A special napalm mixture extended the flame-trhrowe's range and burn times but the reloading process required several hours during which the napalm mixture had to be allowed to "age." Thus, only a fraction of the portable flame-throwers on hand could be in use at any one time and flame-thrower men were constantly moving to the rear to refuel. The infantry regiments in the Peleliu assault averaged 19 flame-throwers per battalion. Each battalion responded both to the shortage of weapons and the need for extra operator training by creating ad hoc battalion assault platoons. Each of these units would draw about 60 men from the rifle companies (especially the demolition sergeants and corporals and "other duty" privates - rifle squad members were taken only as a last resort). It would operate all of the battalion's flame-throwers, demolition packs and (typically) three bazookas.

Finally, despite the reduction in battalion strength, the size of its medical detachment increased from 32 to 40 Navy hospital corpsmen. This allowed eight hospital corpsmen per rifle company, or two per rifle platoon, one per machinegun platoon and one with company headquarters.[324]

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[323] US Marine Corps Organization Tables, "Rifle Company, Infantry Battalion, Infantry Regiment," Table F-1 (HQMC Washington DC 17 January 1944 and 27 March 1944).

[324] US Marine Corps Organization Tables, "Headquarters Company, Infantry Battalion, Infantry Regiment," Table f-4 (HQMC Washington DC 17 January 1944 and 26 March 1944); *Official History* Vol V pp. 696-700.

The regimental headquarters and service company expanded significantly under the F-Series tables (see Appendix 5.32). The regimental headquarters itself, however, merely re-absorbed the regimental intelligence officers (the R-2, his assistant, and the aerial photo interpreter or API) from the intelligence section in March 1944. The headquarters did gain nine enlisted men (11 as of March 1944). These included a gunnery sergeant serving as regimental chemical NCO, and extra clerks to facilitate the administration of both headquarters and service company and weapons company personnel. There was also a small increase in the communication platoon (mainly in the wire section). The intelligence section received additional scout-observers but lost its interpreter.

The H&S company headquarters actually shrank somewhat due to the transfer of its clerks to regimental headquarters. However, the big change was in the regimental supply section, which expanded into a regimental service platoon that was nearly three times as large as the old section. Prior experience with D- and E-Series regiments had shown that the old supply section had to be augmented by men detailed from the battalions in order to perform most of its non-administrative functions. The new platoon retained a supply section but augmented it with a property section (including a one-ton truck), a motor maintenance section (with a jeep and a light repair truck), a commissary section (also with a truck), and a munitions and ordnance section. The property section received, stored, and distributed supplies and equipment. The commissary section kept track of food, water, and post exchange supplies. The munitions and ordnance section (the regimental munitions officer, his gunnery sergeant assistant, and two clerks) supervised the receipt and distribution of ammunition and ordnance material.[325]

The Marine division's special weapons battalion had been a collection of antitank and antiaircraft weapons that at this stage of the war had become either unnecessary (Japanese tanks were not a real threat) or redundant (other units were now providing antiaircraft defense). The special weapons battalions thus disappeared but their 75mm self-propelled guns (T-12s) were still useful and the F-Series tables distributed these among the infantry regimental weapons companies and this permitted them to double their 75mm gun platoons from two guns each to four (see Appendix 5.33). New bazookas further augmented the firepower of the weapons companies' 37mm and 75mm platoons. However, in March 1944 the 37mm and 75mm platoons lost all their communication personnel to the weapons company communication section. Half of the men in the augmented section were telephone linemen and six were radio operators or operator-mechanics. There was also a radio repair sergeant, the section chief, and two drivers.

Weapons company maintenance personnel were also reduced. The 75mm platoon lost its motor mechanic and the company maintenance section lost six men. However, the presence of a maintenance section in the regimental H&S company had reduced the need for one in the weapons company.[326]

The F-Series tables carried the Marine Corps through the later and more decisive phases of the Central Pacific Campaign, beginning in the second quarter of 1944. The performance of the units organized under these tables in the amphibious assaults on the Saipan, Guam, Peleliu, and Iwo Jima was generally considered to be highly satisfactory although the designers had had the considerable advantage of being able to build these units to meet a specific situation, the general nature of which was already well known. Even so, combat experience in the Marianas and on Peleliu revealed that a number of shortcomings remained.

The G-Series Regiments

Although dated in May 1945, the G-Series tables were already in use by the infantry regiments that landed on Okinawa in April. Though these tables were, for the most part, merely "detail" improvements on the previous F-Series they did introduce a few changes that were genuinely significant (see Appendix 5.39).

The significant changes, however, did not occur at the rifle company level. The minor changes included the exchange of the carbines carried by assistant BAR men in the rifle squads for rifles (the superior firepower of the M1 rifle having trumped the lighter weight of the carbine). Machinegun squads received additional ammunition bearers. To further lighten their load, mortar and machinegunners and assistant gunners replaced their carbines with pistols.

All company headquarters lost their cobblers. Shoe repair would now be centralized in the division service battalion. However, company mess sections were strengthened. Each rifle company acquired a relief driver for its jeep and the remaining "other duty" privates became "supernumeraries for mess duty" (SMD) (see Appendix 5.35). They would help out in the kitchens until they were needed to act as replacements.[327]

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[325] US Marine Corps Organization Tables, "Headquarters and Service Company, Infantry Regiment," Table f-9 (HQMC Washington DC 17 January 1944 and 26 March 1944).

[326] US Marine Corps Organization Tables, "Weapons Company, Infantry Regiment," Table f-7 (HQMC Washington DC 17 January 1944 and 26 March 1944).

[327] US Marine Corps Organization Tables, "Rifle Company, Infantry Battalion, Infantry Regiment," Table G-1 (HQMC Washington DC 1 May 1945); and *Official History* Vol V op cit pp. 699-700.

Probably the most important change introduced by the G-Series tables was, as far as the infantry was concerned, the addition of a permanent assault platoon to the battalion headquarters company (see Appendix 5.36). This unit replaced the improvised assault platoons that most battalions had previously been using. The new platoon fielded three assault sections, with a leader and two assault squads in each. A squad included a leader, two flame-thrower men, two bazooka men, and two demolition men. The new platoon would employ a total of 12 flame-throwers, which at first glance, seems like a step backward from the 27 flame-throwers allowed for an F-Series battalion. However the G-Series battalion could use its flame-throwers much more efficiently. Each two-man flame-thrower team would operate one of its two flame-throwers while the other was being reloaded. After the war, each team got a third flame-thrower so that it could have two reloading while one was in use. It hardly mattered how many flame-throwers an F-Series battalion possessed. Without a dedicated unit to employ them they were of little practical use. Each assault squad also included a bazooka team and the battalion had a total of nine bazookas for six teams. This left three spare bazookas available for flame-thrower or demolition teams in situations where neither flame-throwers nor demolitions were needed. Other headquarters company changes were very minor. The separate battalion officers' mess was abolished. The communication platoon added another wire team (a corporal and three privates).[328]

In the regimental headquarters a captain (to be stationed at division headquarters) replaced the two lieutenants who had served as liaison officers. The staff sections replaced the old designations of "Bn" for battalion staff sections or "R" for regimental sections with the Army's "S" designations. Thus the assistant regimental S-2 (formerly R-2) also became the battalion demolitions officer since good intelligence was needed on the location and construction of bunkers. Under the F-Series tables this function had been performed by an assistant R-3. H&S company headquarters grew by absorbing the cooks from the regimental officers' mess and the "other duty" or SMD privates from the regimental headquarters. Other (mostly minor) changes in the headquarters and service company were generally aimed at economizing on manpower. The manpower crunch that had plagued the Army for the past two years was only just beginning to affect the Marine Corps (see Appendix 5.37). However, the service platoon headquarters' managed to avoid losing its 13 "other duty" privates (who were needed for work details) by calling them "riflemen." The maintenance section was not so lucky and lost 10 of its mechanics.

The regimental weapons company (see Appendix 5.38) lost one of its 37mm gun platoons but rearmed its 75mm gun platoon with M7 self propelled 105mm howitzers. Based on the M4 Sherman tank chassis, the M7 offered far better mobility and armor protection than the old M3 half-track, though it still lacked overhead cover and could not elevate its howitzer sufficiently to enable it to deliver high angle fire. However, the M7's 105mm shell was much more effective than the 75mm against Japanese fortifications. Possibly in order to supply some crew reliefs, and/or to facilitate manhandling the 37mm guns and their ammunition, the gun sections in both the 37mm and 105mm platoons were each increased from five men to seven.

The weapons company headquarters was substantially reduced, mainly by the loss of its six .50-caliber machinegun teams. It would still retain the guns but it would have to improvise the crews.[329]

Okinawa proved to be the last battle of the Pacific War. The organization of the Marine infantry for that war had undergone many twists and turns but had finally arrived at a point where all concerned were well satisfied with it. It would be retained, insofar as peacetime manning constraints would allow, for the Marines' occupation of North China and other postwar garrison and fleet duty in the Pacific Theater.

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328 US Marine Corps Organization Tables, "Headquarters Company, Infantry Battalion, Infantry Regiment," Table G-4 (HQMC Washington DC 1 May 1945); and see *Official History* Vol V op cit..

329 US Marine Corps Organization Tables, "Headquarters and Service Company, Infantry Regiment," Table G-9 and "Weapons Company, Infantry Regiment" Table G-7 (both HQMC Washington DC 1 May 1945). Some of the equipment figures, particularly vehicles may not be accurate. The original tables of equipment for the G-Series organization tables have been lost. Those that survive are dated 30 October 1947 and many changes had been made by then. There is a listing of equipment for a G-Series regiment in Volume V of the Marine Corps Official History that seems to have been compiled when the original tables of equipment were still available but it is incomplete, does not break down equipment by battalions or companies, and appears to show some errors made by the compilers.

CHAPTER 6 - SPECIAL INFANTRY IN WORLD WAR II

During the Second World War, the US Army devised a wide variety of special infantry organizations adapted to missions for which it had deemed standard infantry unsuitable. In general, these special units sacrificed firepower and logistical sustainment for high mobility in certain specific situations. They can be broadly classified into two categories: (1) those designed to use unique means of entry into and/or exit from the battlefield ("special delivery") and (2) those designed to operate in unusually rugged or forbidding terrain ("light" infantry). The special delivery types can be further subdivided between those designed to reach their objectives by air or by surface means.

Both the Army and Marine Corps treated most of the special delivery type units as elite organizations and ensured that they received men of better quality (in terms of intelligence, physical fitness, etc.) than those given to more conventional combat units. Their superior quality manpower not only lay behind many, if not most, of their battlefield successes but it also constituted (for the Army especially) yet another manpower drain from the basic infantry. Further, unless strongly (and expensively) reinforced by armor and artillery and/or given the advantage of surprise and/or favorable terrain these special troops could not readily face conventional enemy forces (especially those that were strong in armor and/or artillery) on anything like equal terms.

PARACHUTE AND GLIDER TROOPS - "Special Delivery by Air"

In this section, we will examine the special units designed for delivery to the battlefield by air. Collectively known in the US Army as "airborne," they can be divided into parachute troops who reached their objectives by jumping out of "perfectly good airplanes" and the more sensible glider or air landing troops who rode gliders (or in certain cases, powered aircraft) to their objectives. Gliders were cheaply built of wood and canvas and if they smashed themselves upon landing (as they often did) they were expendable. They approached their targets silently, having been released from their towing aircraft while still a long way out. A skilled glider pilot could land his aircraft fairly close to where he wanted it. The troops on board would all be together with their weapons ready for action and they could start fighting as soon as they exited the glider. On the other hand, when parachutists landed they might find themselves scattered over a wide area. They would also have to assemble their weapons or retrieve them from containers before they could fight. The Germans (and to a lesser degree the British) trained their parachutists to use gliders as well. For the Germans, the issue of whether glider or parachute troops should lead an airborne attack would depend on the size of the area available for the landing. If it was very small, such as at Fort Eben Emael or Mussolini's prison in the Hotel Campo Imperatore, and the troops had to be placed on the ground with great precision, the initial waves would land by glider though follow-on waves might parachute. If the drop or landing zone was a large one, such as an airfield, and landing accuracy was of less importance then parachutists would lead. Under American doctrine, however, parachutists would always lead. US glider troops were strictly a follow-on force that used an insertion means that enabled it to be better armed than the parachutists. Once on the ground airborne forces of whatever nationality followed a "seize and hold" doctrine. They would move offensively, using their air mobility to seize an objective behind enemy lines, preferably by surprise. They would then fight defensively to hold that objective until conventional ground forces could rescue them. This rescue would have to happen fairly soon. The airborne troops' mobility and ability to sustain themselves on the ground were both very limited. Though airborne troops could (in theory at least) also conduct raiding operations, the fact that airborne troops could get in by air but could not get out by air severely constrained this capability.

The successes of German airborne troops in Belgium and Holland in 1940 sparked a keen interest in airborne operations by both the Army and the Marine Corps. Reports of the airborne corps being built up by the Soviet Union also attracted attention. By 1939-1940 the Army had begun to practice the movement of conventional ground combat units by air. Converted bombers had to serve as transports since few real transports were available. The men wore parachutes but at first this was only for "bailing out" in emergencies. On 16 September 1940, the Army activated the 1st Parachute Infantry Battalion, which became the 501st on 1 October. This was the first American unit that was actually capable of executing a combat jump. A year later the Army had four parachute and two airborne (actually, air landing or glider) battalions.[0] Considering that the United States was just starting out, this effort compared rather well to that of the Germans, who had built only four regiments, and was well ahead of the British, who were still struggling with their first brigade. Although the Soviets dwarfed everyone else with their five division-sized airborne corps, their airborne troops could not rely on an adequate supply of transport aircraft like their German, American, and British counterparts could. The US Marines, meanwhile, having noted the potential

[0] The Army activated the 502nd Parachute Battalion on 1 July 1941, the 503rd on 22 August and the 504th on 9 October 1941. It also activated the 550th Airborne Battalion (an air landing unit) in the Panama Canal Zone on 1 July 1941 and the 88th Airborne Battalion on 10 October 1941. See Shelby Stanton, *Order of Battle, US Army, World War II* (Novato CA, Presidio Press 1984) pp. 268 and 271-72.

that parachute landings had for friendly troops behind an enemy's beach defenses in the opening stages of an amphibious assault, began to build their first parachute battalion in May 1941.[330]

Acquiring the specialized equipment that an airborne force demanded presented a number of unique challenges. Safe and reliable parachutes alone were not enough. Real difficulties were experienced with the men's individual weapons. Anyone who has ever tried it knows that a rifle's length makes it difficult to control during a parachute landing. A jumper who carries a rifle with him risks serious injury through involuntarily colliding with it when he hits the ground. At first the Germans solved the problem by placing all "long arms" (rifles, light machineguns etc.) and ammunition in weapon containers. A German 13-man squad would typically require four containers weighing up to 260 pounds each when loaded. Each man would jump with only a knife (for cutting away his parachute harness, should he become entangled in it) and a pistol (for self-defense until he could reach his squad's weapon containers). The squad leader would also carry a sub-machinegun (which could fold into a manageable package). Of course, the disadvantages of this system should be obvious. The men and their weapons containers could easily get separated even if dropped from the same aircraft at the same time. Once on the ground the men might have to retrieve and unload their weapons containers under fire. The solution, of course, was to find a way to enable the men to jump with at least their personal weapons, while reserving the weapon containers for crew-served weapons and ammunition. A technique duly evolved whereby a soldier carried his weapon in a sleeve, typically made of canvas or webbing. This sleeve was attached to him as he jumped. Upon nearing the ground, he used a lowering line to lower the sleeve to the ground so that it did not land at the same time he did. Even M1 rifles and BARs could be carried in this way if partially disassembled first. Shorter weapons, such as carbines or folding stock sub-machineguns were much easier to jump with and generally preferred. The men still carried pistols during jumps as extra "insurance." However the value of heavier weapons once the fighting on the ground began was also appreciated.

A further limitation of 1940s era parachute delivery lay in the impossibility of delivering even the smallest motor vehicle by parachute. Certain transport aircraft and some of the larger gliders could land jeeps but only if a secure landing field was available. Parachutists on the ground could initially expect to be without any means (apart from hand carts and their own backs) of moving their ammunition or other supplies. In such a situation they could only subsist for a very limited time. They therefore needed rapid reinforcement in the form of a "ground" echelon that would comprise the motor vehicles and other non-droppable equipment and the personnel (such as drivers, cooks and supply men) not needed for a parachute landing but essential for sustained ground combat. This ground echelon would join the "air" echelon as soon as possible after the landing. Typically it would usually accompany the conventional ground troops who were to link up with the parachutists. However, the ground echelon's lighter equipment and some men might arrive with the glider troops as they executed their follow-on air landings.[331]

Both Army and Marine parachute battalions were considered an elite from the start. Even their uniforms were different. Marine parachutists, for example, in their early days sported a jump suit modeled on the one used by Germans. Requirements were stiff. Marine jump training had a 40% washout rate. In case elite status was not enough, both Army and Marine parachutists were highly paid. At first, every Army enlisted man in a parachute battalion was rated as a first class specialist (equivalent to a master sergeant). This changed in July 1941 when both Army and Marine paratroopers instead got an extra $50 a month (a substantial sum in those days) in jump pay.[332]

An Army parachute battalion of 1940-41 is shown in Appendix 6.1. Authorized strengths from October 1940 to March 1941 are shown in brackets. The battalion was kept as small as possible in order to minimize its transport aircraft requirements. It therefore had just three small rifle companies supported by a very austere headquarters company. The battalion had bicycles for its messengers but was no reconnaissance element except for three scout-observers in the battalion headquarters. All men in the battalion headquarters and the rifle companies had parachutes

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330 Stanton *Order of Battle US Army World War II* op cit pp. 214-266; Charles L. Updegraph Jr. *Special Marine Corps Units of World War II* (Washington DC, Marine Corps Historical Section 1972) pp. 36-38; LTC David M. Glantz USA *The Soviet Airborne Experience* (Fort Leavenworth Kansas, US Army Command and General Staff College 1984) pp. 1-26; Roger Edwards, *German Airborne Troops* 1936-45 (Garden City New York, Doubleday & Co 1974); US Army Historical Study "Airborne Operations, A German Appraisal" CMH Pub 104-13 (Washington DC US GPO 1989 facsimile edition); for progress in airborne training by the US Army prior to the Second Workd War, see Lt John J. Tolson, "A Company Flies to Battle" Infantry *Journal* op cit November 1939 pp. 533-34 and LTC William C. Lee, Inf, "Air Infantry. Infantry *Journal* op cit January 1941 pp. 13-17; for the role of Army paratroopers see the report of The General Board US Forces European Theater "Organization, Equipment, and Tactical Employment of the Airborne Division" Study Number 16 File: R 320.2/49 unpublished and undated manuscript, copy in the US Army Library at Carlisle Barracks, Carlisle PA, pp. 24-26; two good histories or airborne forces in general are Michael Hickey, *Out of the Sky* (New York, Scribner's 1979) and (highly recommended) Gen John R, Galvin USA (Ret) *Air Assault: the Development of Air-mobile Warfare* (New York, Hawthorn Books 1969).

331 "The Tenative Parachute Battalion" Infantry *Journal* Nov-Dec 1940; Roger Edwards *German Airborne Troops* op cit pp. 24-25; for complaints that the M1 rifle was too long to easily jump with and on the need for more weapons of the BAR type in parachute organizations see The General Board "Organization, Equipment, and Tectical Employment of the Airborne Division" op cit p 31 and p 4 of Appendix 7.

332 Updegraph op cit p. 38; Photos of the Marine jump suits are printed in Arthur C. Farrington's personal memoir, The Leatherneck Boys (Manhattan Kansas, Sunflower Press 1995) p 42; see also the Army Parachute Battalion T/O & E for 29 March 1941 cited below.

and were jump qualified but in the headquarters company only the only the officers and some operations, communication and parachute riggers were jumpers. The rest constituted the ground echelon. In contrast to the prevailing practice in the German and Soviet armies, American parachutists did not pack or maintain their own parachutes but left that job to full-time riggers. Because the companies had no LMG sections and because the BAR alone was deemed insufficient to provide automatic firepower, each parachute squad had to carry its own LMG. A second LMG per squad was kept in reserve. One man per squad also carried a Thompson sub-machinegun. As we have already noted, the LMG was a relatively heavy tripod mounted beast that lacked the mobility needed in a squad weapon. In consequence, it was common for a squad to substitute a BAR for one of its LMG. Parachute rifle platoons substituted a 60mm mortar squad for a third rifle squad. This was done to give the rifle platoon greater tactical independence, in case the jumpers in a parachute landing became widely scattered. Since two C-47 transports were typically needed to lift one platoon (the whole battalion, minus its ground echelon, could be carried by about 30-35 C-47s) each rifle platoon had two officers so as to ensure an officer in each aircraft. The battalion headquarters company would assume all supply and administrative normally delegated to the rifle companies. This allowed the latter to focus on command and communication and to be considerably reduced in size.[333]

Inadequate jump training facilities (and a parachute training program that was excessively long because it included a full infantry course) delayed the completion of the 1st Marine Parachute Battalion until August 1941. Unlike Army units, who expected to engage in large-scale airborne landings, Marine parachute battalions planned to conduct smaller scale raiding or reconnaissance operations or to seize key terrain in advance of an amphibious landing. They were even seen as being useful as guerrillas in hostile territory for extended periods. They thus structured themselves to operate either as independent companies or in no more than battalion strength.[334]

For this reason most of the assets of a Marine parachute battalion were divided among its three rifle companies (see Appendix 6.2). Each had its own supply echelon, its own weapons platoon (until July 1942), and even its own surgeon. Rifle squads had only 10 men each but there were three such squads per platoon and, at least initially, they were sensibly armed with two BAR, two Thompson sub-machineguns, and six rifles apiece. Also, the Marines seem to have felt no need to assign two officers per platoon as the Army did. The weapons platoon had separate mortar and LMG sections. In each company, the administrative section, commanded by the company executive officer, and including the company's first sergeant and its administrative, mess and supply personnel, constituted the company's own ground echelon. A company even had its own riggers. For communication, the company headquarters section itself included only five radio operators and two messengers. The battalion headquarters company, by contrast, provided only a very small command element plus the battalion vehicles and additional supply and parachute maintenance personnel. The only jumpers were the battalion commander, executive officer, Bn-3, Bn-2, two radio operators, and the intelligence section (less one "other duty" private). The rest of the headquarters company would constitute the ground echelon under the Bn-1 and Bn-4.[335]

In January 1942, Headquarters Marine Corps issued modifications to its 1941 tables that added supply and service personnel and ordered the replacement of nearly all of the parachute battalion's small arms with Reising sub-machineguns, once these weapons became available (Appendix 6.2). The Reising offered plenty of close range firepower and folded into a package that was easy to jump with. The Marine Corps had hoped to complement it with a special folding LMG that would replace the BARs in the rifle squads on a two for one basis. However, the effort to procure such such an LMG failed and none were delivered. Many BARs undoubtedly remained in use.[336]

The new D-Series tables issued in July 1942 introduced a number of changes to the Parachute battalions (see Appendix 6.3). In the rifle companies Headquarters Marine Corps followed the Army's lead and eliminated the weapons platoons, replacing them with a 60mm mortar squad in each rifle platoon and light machineguns that were supposed to go to the rifle squads. Because the standard tripod-mounted Browning M1919A4 LMG was unsuitable as a squad automatic weapon and because the folding light machinegun that had been called for in January was unlikely to be available any time soon, Headquarters Marine Corps decided to equip its Parachute squads with the new Johnson LMG. This modern looking 20-pound weapon used a 20-round magazine and broke down into a fairly

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333 US Army Adjutant General Table of Organization and Equipment T/O & E 7-35 "Infantry Battalion, Parachute" and "Medical Detachment, Infantry Infantry Battalion Parachute" and T?O & E 7-37 "Infantry Company, Parachute" (Washington DC 29 March 1941 and 1 July 1941); and "The Tenative Parachute Battalion" Infantry *Journal* Nov-Dec 1940.

334 Updegraph op cit pp. 36-37.

335 US Marine Corps Organization Tables, "Parachute Company, Parachute Battalion, Marine Division," Table 56 (HQMC Washington DC 7 March 1941); US Marine Corps Organization Tables, "Parachute Battalion, Marine Division," Table D-83; "Headquarters Company, Parachute Battalion, Marine Division" Table D-82; and "Parachute Company, Parachute Battalion, Marine Division" Table D-81 (all HQMC Washington DC 28 March 1941).

336 US Marine Corps Organization Tables, "Parachute Battalion, Marine Division," Table D-83; "Headquarters Company, Parachute Battalion, Marine Division" Table D-82; and "Parachute Company, Parachute Battalion, Marine Division" Table D-81 (all HQMC Washington DC 28 March 1941 modified 10 January 1942); according to Farrington op cit p 66, the Parachutists were able to solve most of the Reising's reliability problems by screwing two recoil springs together so as to retuen the bolt to the firing position with greater force.

small package for parachuting. However, its firepower was only marginally superior to that of an improved BAR. Until enough Johnsons became available, the unsatisfactory combination of BAR (for mobility) and LMG (for firepower) would have to continue. Rifle squads would fight as three three-man fire groups with an LMG/BAR in each. This (at the time) unique organization was only experimental but Headquarters Marine Corps officially supported it.

The July 1942 changes to the parachute battalion headquarters company were less dramatic. The new tables broke up the unwieldy administration, maintenance and supply section into separate communication and headquarters company headquarters sections plus a maintenance and supply section. They also added a demolition platoon that was sufficiently well armed that it could have acted as an additional rifle platoon if required. Headquarters Marine Corps saw the conduct of raiding operations as as a role for which its parachute battalions might be very suitable, if an appropriate means of extracting them afterwards could be devised. The Army also envisaged raiding as mission for parachute units though it was only willing to allow a demolition squad per parachute battalion rather than a full platoon. Marine parachutists, however, also worked closely with the new Marine Raider battalions at this time, though Army parachutists maintained no corresponding relationship with the Army Rangers.[337]

To what extent the Marine 1st Parachute Battalion had adopted the July organization prior to its participation in the Guadalcanal landings is unknown. That the demolition platoon existed is very unlikely, as the battalion, owing to the shortage jump-qualified personnel, had only 397 officers and men (including its Navy Corpsmen but excluding its ground echelon) when it went ashore on August 7. It lost seventy-five men in the first day's fighting even though the opposition came mostly from the poorly armed air and ground crew members of a Japanese floatplane fighter group. The battalion never received any replacements and after the battle of "Bloody Ridge" in September, only 86 of its men were still fit for duty. These withdrew from Guadalcanal soon afterward.[338]

Marine paratroopers did not reenter combat until more than a year later but they did so as a three-battalion regiment. This unit fought mainly on Bougainville in the northern Solomons (though it also executed a raid on nearby Choiseul). Once again, the "chutes" landed on their objectives by boat since neither a parachute landing was impossible. Suitable drop zones for paratroopers were either non-existent or enemy occupied and the Navy could never collect enough transport aircraft to lift more than a single parachute battalion.[339]

The organization of the principal fighting elements of the new regiment, the former 1st, 2nd and 3rd Parachute Battalions is shown in Appendix 6.4. Each of these battalions resembled a July 1942 D-Series parachute battalion fairly closely. Although the new battalions replaced most of the unpopular Reising sub-machineguns with carbines, they did deviate from the almost universal Marine Corps rejection of sub-machineguns for infantry use, by retaining a few (probably Thompson guns) in their rifle squads. Bazookas were finally available for the new battalions as were Johnson rifles and LMGs. The Johnson rifle was a smaller, lighter, and semi-automatic version of the LMG that shared with it the feature of breaking down into a conveniently-sized package for jumping. The supply of jumpers had finally risen to meet demand and most battalion personnel were jump qualified. The new battalions' rifle squads were perhaps the most significant change since July 1942. Each one now had a sergeant squad leader, a corporal assistant squad leader, and three three-man teams armed with an LMG, a rifle and a sub-machinegun each. Unlike the 1st Parachute Battalion on Guadalcanal these battalions entered combat at full strength and were thus in a good position to evaluate their new squad organization. It appears to have been satisfactory.[340]

The Marine parachute regiment adopted the organization shown in Appendix 6.5. The service platoon included 24 parachute riggers but in spite of this, the battalions retained their own riggers. The supply section carried nine spare flame-throwers for attacking fortified positions. It also carried 100 extra pistols to be issued for combat jumps. The ground echelon consisted of most of the supply section, the company headquarters, and the supply and administrative members of the regimental headquarters. Of greater interest is the weapons company. This unit was intended to make heavy crew served weapons available to the battalions whenever the situation favored their use. The machinegun platoons had Browning .30 caliber LMGs as their primary weapons and although the company headquarters held heavy M1917A1 Brownings as alternate weapons there were not evough men in the machinegun platoons to make these weapons mobile. The 81mm mortar platoon, on the other hand, was very similar to the one used by the standard (E-Series and later) infantry battalion.[341]

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337 US Marine Corps Organization Tables, "Parachute Battalion, Marine Division," Table D-83; "Headquarters Company, Parachute Battalion, Marine Division" Table D-82; and "Parachute Company, Parachute Battalion, Marine Division" Table D-81 (all HQMC Washington DC 1 July 1942).

338 Updegraph op cit pp. 39-42; and Richard B. Frank *Guadalcanal* op cit pp. 75, 79, and 241.

339 Updegraph op cit pp. 42-46.

340 US Marine Corps Organization Tables, "Parachute Battalion, Parachute Regiment," Table D-317; "Headquarters Company, Parachute Battalion, Parachute Regiment" Table D-316; and "Parachute Company, Parachute Battalion, Parachute Regiment" Table D-315 (all HQMC Washington DC 12 February 1942)

The Marine Parachute Regiment fought for about three months in the Bougainville area. However, the continued lack of transport aircraft and combat jump opportunities in the Central Pacific caused the Marine Corps to break up its parachute regiment plus a fourth parachute battalion that had not yet been in combat and use them as the infantry cadre for a new 5th Marine Division.[342]

The New Airborne Regiments

The Army, meanwhile, had not been idle. In February 1942, it began to regroup its five existing parachute battalions into three regiments under a new set of organization tables (see Appendix 6.9). By November the Army had built eight parachute regiments plus a separate battalion that was supposed to become a regiment but never did. The Army created six more parachute regiments in 1943 but it later had to break up one of these for replacements and reduce another to a training battalion. A separate parachute battalion raised in 1944 never went overseas. The 12 regiments and one separate battalion that did, however, effectively constituted the Army's wartime parachute force.① As with the original battalions, the Army intended that its parachute regiments operate either alone or under the control of airborne task forces controlling various combinations of parachute and glider units (see Appendix 6.6).[343]

The fact that it had become part of a regiment had a substantial impact on the organization of a parachute battalion (see Appendix 6.6). The effect on its rifle companies was not very great but the fact that there was now a regimental service company to assume many of the battalion's administrative and logistical responsibilities permitted the headquarters company to form an LMG platoon and an 81mm mortar platoon without significantly increasing its manpower. However, the additional weapons and equipment for these these new platoons boosted the battalion's airlift requirement to about 40 C-47 sorties. In addition, once on the ground the new platoons were relatively immobile. Though they could hand carry their own weapons their lack of motor vehicles or hand carts and the fact that they did not have many ammunition bearers meant that at best they could lift only about 18 to 21 rounds per mortar and 1,250 rounds per LMG. The battalion had no pioneer unit that could have provided additional ammunition bearers. Like the previous independent parachute battalions the new regimental battalions tried to save manpower by concentrating all their cooks into a single section in the battalion headquarters platoon where they would prepare meals for all the companies. These cooks were the only non-parachute personnel in the battalion.[344]

The parachute regiment's headquarters company differed as much from its counterpart in an ordinary infantry regiment as a parachute battalion did. The regimental staff was similar except that the parachute regiment had no liaison officers and its S-4 was not part of the service company. The communication platoon was almost as large as its counterpart in an infantry regiment but an additional officer who actually commanded it while the communication officer (a captain) also commanded the headquarters company. The company headquarters was very small because the service company had assumed all its mess and supply functions. However there was an operations section that included the enlisted personnel that in an ordinary regiment would have supported the S-3 from the staff section of the headquarters platoon in the service company. Presumably it was easier to place them in the headquartersw company where they could parachute with the S-3. Finally instead of an intelligence and reconnaissance (I&R) platoon a parachute regiment only had a small intelligence section without vehicles and less

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① These parachute regiments were the 501st (activated 15 November 1942 after the former 501st Battalion went to Australia and became the 2nd Bn/503rd Parachute, 502nd (activated from the former 502nd Battalion on 24 February 1942), 503rd (activated from the former 503rd and 504th Battalions on 24 February 1942), 504th (1 May 1942), 505th (6 July 1942), 506th and 507th (both on 20 July 1942), 508th (20 October 1942), 509th (activated in England from the former 2nd Battalion, 503rd Parachute; saw a lot of combat but never exceeded battalion strength; redesignated the 509th Battalion 10 December 1943 and inactivated to provide replacements for other units on 1 March 1945); 511th (5 January 1943), 513th (11 January 1943); 515th (31 May 1943 – did not reach France until 26 January 1945 and was never in action), and 517th (15 March 1943). The 503rd Parachute (as an independent regiment) and the 511th (as part of the 11th Airborne Division) fought in the Pacific Theater. The rest fought in Europe and the Mediterranean. The 541st Parachute (activated 12 August 1943) reached the Philippines in July 1945 only to be broken up to bring the 187th and 188th Glider Regiments (of which the 188th was then converting to parachute regiment), up to strength. The 542nd Parachute (activated 1 September 1943) like the 555th Parachute Battalion (Colored) (activated on 25 November 1944) never went overseas. The 551st activated its first battalion in the Canal Zone on 26 November 1942. The remainder of the regiment was never activated but the 1st Battalion fought in Italy and Southern France from June 1944 until its inactivation on 10 February 1945. See Shelby Stanton, *Order of Battle, US Army, World War II* (Novato CA, Presidio Press 1984) pp. 262-65 and 271-72.

341 US Marine Corps Organization Tables, "Parachute Regiment," Table D-320; "Headquarters and Service Company, Parachute Regiment" Table D-319; and "Weapons Company, Parachute Regiment" Table D-318 (all HQMC Washington DC 12 February 1943).

342 Updegraph op cit.

343 Stanton op cit.

344 US Army Adjutant General Table of Organization and Equipment T/O & E 7-35 "Infantry Parachute Battalion," T/O & E 7-36"Headquarters and Headquarters Company, Infantry Battalion Parachute," and T/O & E 7-37 "Infantry Rifle Company, Parachute" (all Washington DC 17 February 1942).

than half as many scouts. Until February 1944 it included a photography section but attached units later assumed its functions.

One thing that a parachute regiment had that an ordinary infantry regiment did not was a demolition platoon. This grew out of the early war idea that a parachute force should also be a raiding force and should be able to rapidly destroy any enemy installations it might capture before the enemy could regain possession. As we have seen, from July 1942 every Marine parachute battalion was supposed to include a demolition platoon whereas an Army parachute regiment could only furnish a demolition section (together with a demolition officer) for each of its battalions. However, the Marine demolition units made more sense given the more dispersed nature of the fighting in the early Pacific campaigns and the fact that Marine parachutists worked closely with the Marine Raiders. However by the time the Army parachute regiments began to see action in Europe the emphasis was much more on large-scale operations where it was likely to be much more important to capture installations intact than to destroy them. Nevertheless the Army was unwilling to discard its demolition units. They could still be used against fortified positions or to limit an enemy's ground mobility by destroying or mining roads and bridges. The commander of the demolition platoon was a captain who was actually part of the headquarters company headquarters.[345]

Like the parachute regimental headquarters companies the structure and functioning of the parachute regimental service companies differed considerably from the service companies of infantry regiments (see Appendix 6.8). The company headquarters included an oversized mess detail that provided food service not only for the service company itself but the regimental headquarters company as well. The staff section of the regimental headquarters platoon, service company contained mostly personnel administration types who supported the regimental S-1 or were involved in troop welfare and recreation (some of which fell within the S-3's domain). The non-commissioned officers and clerks that supported the S-3 in his plans and training functions were all in the staff section of the regimental headquarters company even though in an infantry regiment they would have all been part of the staff section of the service company. In spite of this the staff section in the service company of a parachute regiment was actually larger than its infantry regimental counterpart because it included the company clerks (who performed basic personnel administration at the company level) for all the companies in the regiment. In a parachute regiment the service company headquarters, the staff section of the regimental headquarters platoon and most of the transportation were non-jumping and, together with the three battalion mess sections constituted the ground echelon. Certainly personnel administration was not (and is not) a vital function during and immediately after a combat jump though it is difficult to see why the War Department withdrew all the clerks from their companies so they did not have to be parachute qualified. Such a small economy in parachute school graduates hardly seems justified though earlier in the war when parachutists really were in short supply not qualifying the company clerks might have made more sense.

The supply section of the parachute regiment service company was also much larger than its infantry regiment counterpart because it included not only a sub-section for regimental-level supply (headed by the regimental munitions officer, and including his warrant officer assistant and ammunition sergeant, just as in an infantry regiment) but separate sub-sections for each battalion. Instead of heading a battalion section of the transportation platoon, a battalion supply officer and supply sergeant headed each of these battalion supply sub-sections whose remaining members consisted of the supply sergeants and armorers for each company in the supported battalion. Unlike the staff section, all members of the supply section (and all sub-sections) of a parachute regiment's service company were parachute qualified and could jump with their parent companies during a parachute landing. Since supply, unlike personnel administration, was an important consideration in a parachute landing, we presume that the reason for this peculiar arrangement was to get the supply officer and supply sergeant out of the non-jumping transpartation platoon and into a unit that included battalion-level personnel that they would be working closely with. Since the battalion sub-sections would have no transportation assets available to them until the ground echelon could catch up with the rest of the regiment the War Department authorized seven hand carts for each of them in February 1944 to tide them over. Presumably the supply section would have issued the carts mainly to the mortar and LMG platoons to help them move their ammunition.

Besides the supply section the other significant parachute-qualified element of the service company was the parachute supply and maintenance platoon. As we have noted the War Department had made an early decision that paratroopers should not pack or maintain their own parachutes. Specially trained riggers would do that instead. These riggers would also be trained parachutists and would jump regularly using the chutes that they themselves had packed. Since the riggers had no real combat mission (beyond packing the parachutes before hand) the requirement that they jump was just the War Department's means of ensuring quality control and for all practical purposes the riggers (despite their parachute qualifications) really belonged to the parachute regiment's ground element.

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[345] US Army Adjutant General Table of Organization and Equipment T/O & E 7-32 "Infantry Headquarters and Headquarters Company, Regiment, Parachute" (Washington DC 17 February 1942).

The parachute regimental service company's transportation platoon functioned similarly to the transportation platoon of an infantry regiment but with a number of differences. The platoon headquarters manned and supported not only the vehicles necessary to support the internal functioning of the service company itself but all the vehicles belonging to the regimental medical detachment so that all its members would be free to jump with the regiment's air echelon. Naturally there were no sections for the non-existent regimental cannon and antitank companies but the sections for the three battalions and the headquarters were actually larger and had more (though lighter) vehicles than their counterparts in an infantry regiment would have had even though a parachute regiment was much smaller and more lightly armed. This was because neither the headquarters company nor the parachute battalions had any organic vehicles at all and were thus totally dependent on those that the service company could provide not only for hauling supplies and ammunition but for all other purposes as well. Oddly enough, the only jump-qualified element of the transportation platoon was its maintenance section. This was in spite of the fact that no vehicles could be put on the ground during the initial stages of an air landing and it would only be after the arrival of the ground echelon that there would be very much vehicle repair work to perform.[346]

While the February 1942 tables more or less established the shape of the Army's parachute regiments until the final months of the war, plans for further expansion of the airborne forces would soon be put in motion. An Airborne Command was established in early 1942 in order to coordinate and supervise training and set requirements for organization and equipment. Strategic plans initiated in 1942 envisaged the use of an airborne division in the then intended April 1943 invasion of Europe. This idea was heartily endorsed not only by the Airborne Command but by General McNair who commented that, given the limitations of air transport, such a division would have to be structured "with a stinginess of overhead and transportation which has absolutely no counterpart thus far in our military establishment." Closely derived from the earlier airborne task force idea, an airborne division would have a flexible structure amounting to only 8,500 officers and men and based on one parachute and two glider regiments.[347]

The War Department and the Airborne Command never intended that its glider regiments operate other than as elements of an airborne division and only began to activate glider regiments after the decision to form airborne divisions had already been taken. This was in sharp contrast to the parachute regiments, which could operate either independently or as part of an airborne division or brigade-sized or larger task force. As has already been mentioned, by late 1941, the Army had activated two "airborne" battalions. These were large, extravagantly equipped, and intended for insertion by transport aircraft or gliders into landing zones previously secured by parachutists (see Appendix 6.10). Each battalion featured its own heavy weapons company with 81mm mortars, 37mm antitank guns, and .30-caliber HMGs. In the rifle companies each rifle platoon even had its own light machinegun (LMG) section. One rifle company was completely motorized with jeeps and motorcycles. The other two each had one platoon equipped with folding bicycles. The entire battalion had no less than 71 jeeps and 156 motorcycles, in addition to nine 2.5-ton trucks in a non-flying transport section of the headquarters platoon.[348]

It soon became apparent that the two airborne battalions had far too much equipment and required far too much airlift for them to be effective follow-on elements for the parachutists. The new glider regiments that the War Department devised to replace them were as austere in their allowances of men and equipment as the airborne battalions had been profligate. The reorganization of the three standard infantry regiments assigned to the then 82nd Infantry Division produced the first four glider regiments. The conversion of the two airborne battalions produced one glider regiment and a separate battalion. During the first eight months of 1943 the Airborne Command formed six additional glider regiments (two of which it deactivated before the end of the year) to produce the total of 11 glider regiments (and one separate battalion) that existed during the war, of which only nine regiments deployed overseas and only seven (and the one separate battalion) ever saw combat.②

Structurally, a glider regiment was an ordinary infantry regiment that had been drastically cut down to hardly more than half its original size in order to fit it within the lift capacity of the Army Air Corps' transport and glider

② The 325th, 326th and 327th Infantry, belonging to the then 82nd Infantry Division, became the Army's first glider infantry regiments on 15 August 1942, together with the newly activated 401st Glider Infantry regiment, when the War Department reorganized 82nd Infantry Division as the 82nd and 101st Airborne Infantry Divisions. The then existing 88th Airborne Infantry Battalion became the 88th Airborne Regiment on 28 May 1942 and then the 88th Glider Infantry Regiment on 1 October 1942. The 550th Airborne Battalion in Panama became a separate glider battalion at about the same time. The Army activated its remaining glider regiments in 1943, the 187th and 188th (for the 11th Airborne Division) on 25 February, the 193rd and 194th on 15 April and the 189th and 190th on 13 August but the last two were deactivated in the following December. The 88th and 326th Glider Infantry Regiments (13th Airborne Division) did not reach France until February 1945 and never saw combat. See Shelby Stanton, *Order of Battle, US Army, World War II* (Novato CA, Presidio Press 1984) pp. 214, 234, 245-46,258, 270 and 272.

346 US Army Adjutant General Table of Organization and Equipment T/O & E 7-33 "Infantry Service Company, Regiment, Parachute" (Washington DC 17 February 1942).

347 Robert R. Palmer "The Reorganization of Ground Troops for Combat", op cit pp. 340-341.

348 US Army Adjutant General Table of Organization and Equipment T/O & E 7-45 "Infantry Air-Borne Battalion," T?O & E 7-46 "Infantry Headquarters and Company, Infantry Air-Borne Battalion," T/O & E 7-47 "Infantry Rifle Company, Air-Borne," T/O & E 7-48 "Infantry Rifle Company (Motorized) Air-Borne," and T/O & E 7-49 "Infantry Heavy Weapons Company, Air-Borne" (all Washington DC 15 September 1941).

aircraft (see Appendix 6.14). It had no cannon company and only two infantry battalions. Instead of an antitank company it would have to make do with two antitank platoons in the regimental headquarters company and these platoons would have to use 37mm antitank guns (because the available gliders could carry nothing heavier) rather than the more powerful (but, as of mid-1943, still inadequate) 57mm. Instead of a weapons company each battalion would have one HMG platoon (with heavy water-cooled .30-caliber M1917A1 Brownings) and one 81mm mortar platoon in its headquarters company. However the headquarters company in a glider battalion practically was a weapons company. It was only one HMG platoon short of what an infantry battalion weapons company would have had. The supply section in the battalion headquarters platoon had three squads equipped with hand carts that were almost solely concerned with delivering ammunition for the mortars and HMG's. It would have functioned similarly to the pioneer platoon in an infantry battalion except that it would have had no vehicles or engineering functions. However it could not have compensated for the battalion's lack of weapons carriers in terms of its ability to keep the heavy weapons supplied with ammunition. The only elements of the company not specifically concerned with the care and feeding of its heavy weapons was the company headquarters and the command section of the headquarters platoon. The latter corresponded to the battalion headquarters section of an infantry battalion. Like its counterpart provided a sergeant major plus some scouts and an intelligence chief for the S-2. However its one clerk and one messenger also had to run a battalion message center and it had no operations chief or gas NCO for the S-3. There was no communication platoon since the battalion would routinely have a communication section from the regimental communication platoon attached to it (see Appendix 6.11).[349]

A glider battalion did have three rifle companies but only two rifle platoons in each one. However with three squads in each of its two platoons a glider infantry company maintained the same "foxhole" strength as a parachute rifle company with its three rifle platoons of two rifle squads each. The third platoon in a glider rifle company was a weapons platoon with an LMG section and a 60mm mortar section. The presence of an LMG section at company level made it unnecessary to carry an LMG in each rifle squad and the squads were thus free to use the much more practical BAR instead. As with the parachutists each glider rifle platoon also had a 60mm mortar squad but it was carried as part of the platoon headquarters and not as a separate squad. However the platoon mortar squads existed in addition to the 60mm mortar section in the weapons platoon and this arrangement proved to be rather awkward.[350]

The glider regiment's staff was unusual partly because it included the regimental munitions officer (who would normally be in the supply section of the service company) and because four of its officers were required to be parachute qualified even though the glider regiment was not a parachute unit. This was undoubtedly meant to enable an advance party to jump in with the parachutists so they could be on the ground to direct and coordinate the glider landing that would shortly follow. The regimental communication platoon and the two antitank platoons generally dominated the regimental headquarters company (see Appendix 6.12). The communication platoon, like its counterpart in the June 1941 infantry regiment centralized all the regiment's communication personnel, sections being routinely detached to each of the regiment's battalions. Why this type of platoon survived here when the Army had abandoned it everywhere else is unknown but August 1944 reorganization of the airborne troops would eliminate it. As in a parachute regiment a glider regimental headquarters company had no I&R platoon as such though the intelligence section of the regimental headquarters platoon practically amounted to one.[351]

The glider regiment service company functioned much more like the service company of an infantry regiment than a parachute regiment service company (see Appendix 6.13). The regimental supply officer or S-4 (a major) belonged to the company headquarters together with the actual service company commander (a captain). The staff and supply sections constituting the regimental headquarters platoon functioned in generally the same way as in an infantry regiment except that the regimental munitions officer was part of the regimental staff and the regimental sergeant major and operations chief were in the regimental headquarters company. In the event of an air landing this was presumably to make it easier to place them in the earlier waves than it would be if they were left in the service company, whose elements would arrive with the later waves or with the ground echelon. The transport platoon was more like a collection of transportation sections than an integrated unit since, like the regimental headquarters "platoon," it had neither a headquarters nor an officially designated commander though the maintenance could have doubled as platoon commander. The regimental headquarters company section and the two battalion sections used only jeeps since they were the only motor vehicles that could be air landed. Each battalion section provided a jeep

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[349] US Army Adjutant General Table of Organization and Equipment T/O & E 7-56 "Headquarters and Headquarters Company, Glider Infantry Battalion" (Washington DC 5 September 1942).

[350] US Army Adjutant General Table of Organization and Equipment T/O & E 7-57 "Glider Infantry Company" (Washington DC 5 September 1942).

[351] US Army Adjutant General Table of Organization and Equipment T/O & E 7-51 "Glider Infantry Regiment" and "Medical Detachment, Glider Infantry Regiment;" and Change 3 to T/O & E 7-52 "Headquarters and Headquarters Company, Glider Infantry Regiment" (all Washington DC 5 September 1942).

and trailer for each company and one more jeep (without a trailer) for the battalion commander. Most of the lift capability in the transportation platoon came in the form of heavy transport section with 10 2.5-ton trucks that would have to arrive with a ground echelon since its vehicles were too heavy for any aircraft to carry. However, even with this section available, and even though it had many more ammunition bearers (and handcarts) than a parachute regiment, the glider regiment's ability to sustain itself logistically (and to keep its crew-served weapons supplied with ammunition) was still far inferior to that of a standard infantry regiment.[352]

Army parachute and glider regiments used their September 1942 organizations for the North Africa landings in November, for the landings on Sicily in the following July, and at Salerno in September 1943. At least some bazookas were available in time for the Sicilian landings. In February 1944, as part of the preparations for D-Day, the organization tables for the parachute and glider regiments received a major update. Thes mainly affected their equipment. The availability of M7 grenade launchers for M1 rifles meant that the M1903 rifles could be retired. The issue of bazookas to company commander gave them weapons to distribute among their subordinates to bolster their local antitank defenses. A new version of the M1919A4 LMG that used a buttstock, pistol grip, and bipod to improve its mobility and enable it to be carried in the attack and to serve as a squad automatic weapon (in lieu of or in addition to a BAR) like the German LMGs appeared as the M1919A6. At 32 pounds, however, the M1919A6 was still excessively heavy and awkward, though a light tripod allowed it to be used like an M1919A4, when desired. However, its action lacked power and its lighter barrel soon overheated. At best it was an unsatisfactory compromise. Army parachute units sometimes substituted the Johnson LMG for it. The new tables also withdrew must of the pistols from the parachute regiments on the ground that since improved jumping techniques enabled the troops to jump with their rifles or carbines they would no longer need pistols with which to defend themselves once they were on the ground. Despite the apparent logic in this argument many paratroopers continued to jump with pistols as extra "insurance." To reduce the requirement for .45-caliber ammunition the new changes also replaced most sub-machineguns with additional carbines (except for six spare sub-machineguns for rifle company).

The parachute service company also changed its transportation equipment to improve its air portability. It replaced all eight of its 3/4-ton C&R trucks with two jeeps (for the medical detachment) and 52 motor scooters that were distributed throughout the regiment. It also eliminated the regimental commander's sedan (not of much value on a battlefield) and added a weapons carrier to the maintenance section. In addition, it boosted the payload capacity of its vehicles by adding cargo trailers to the two 2.5-ton trucks not already so equipped and to ten of the jeeps. Finally, the supply section of regimental headquarters platoon received a total of 27 hand carts. Though they were far from ideal as a transportation asset but they could be parachuted with the troops and were much better than nothing.[353]

In July 1944, after five weeks of fighting following the Normandy landings, the airborne divisions withdrew to England. There they rested and prepared for their next operation (which would be at Arnhem). They also reorganized under a set of entirely new organization tables that reflected the "lessons learned" up until that time. Most of the changes aimed at conserving manpower and improving the troops' tactical mobility once they were on the ground.

The parachute regiment is shown in Appendix 6.18, together with changes made under tentative tables issued in December 1944 (to be discussed below). Anachronisms like the regimental band were officially dropped (few regiments actually had them anyway). Regimental headquarters and headquarters company stayed largely the same (see Appendix 6.16). The medical detachment got larger because the service company no longer operated its vehicles and it needed to have its own drivers. Also, its battalion sections had ten litter bearers each rather than two and would no longer have to improvise litter parties. Though, the rifle companies would receive only two medical aidmen ("medics") each this was still an improvement since under the old organization they usually received only one.

The loss of its parachute maintenance platoon considerably reduced the size of the regimental service company (see Appendix 6.17). Henceforth parachute packing and maintenance would be performed at the airborne division level but if a parachute regiment was not operating under a division headquarters it would have a parachute maintenance platoon attached to it. In addition the service company would no longer house the company clerks, supply sergeants and armorers nor would it include battalion supply officers and sergeants, all of whom would become members of the units they supported. Even the regimental S-4 became an official member of the regimental staff. The supply section of the regimental headquarters platoon would no longer have battalion sub-sections. Thus the regimental service platoon lost its three battalion supply sections as well as a number of clerks in both the regimental supply section and the staff section. In short, these changes moved the service company away from the

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352 US Army Adjutant General Table of Organization and Equipment T/O & E 7-53 "Service Company, Glider Infantry Regiment" (Washington DC 5 September 1942).

353 See changes to T/O & E 7-31, 7-32, 7-33, 7-35, 7-36, 7-37, 7-51, 7-52, 7-53, 7-55, 7-56, and 7-57 (17 February 1942) op cit.

less orthodox methods of organization and functioning tried out earlier in the war and towards the more conventional organizational model represented by the standard infantry regiment.

The changes made at the battalion level and below were of less significance than those made at the regimental level. However, they also tended to make the parachute regiments conform more closely to the standard model set by the infantry regiments (see Appendix 6.15). The parachute rifle platoons each lost one of their two officer platoon leaders. Company headquarters expanded slightly now that they included their own supply sergeants, clerks and armorers and had received additional basic privates. Each rifle squad still carried a spare LMG. Ground mobility was moderately improved by increases in the number of mortar and LMG platoon ammunition bearers and handcarts. Each mortar squad also acquired a handcart, thus more than doubled its ammunition capacity to about 42 to 45 rounds. The battalion headquarters platoon now included a battalion headquarters section (15 men), a mess section (22 men), a supply section (13 men), and a communication section (27 men), the latter having the four handcarts.[354]

The glider regiments' August 1944 reorganization did not change their basic organizational structure but focused mainly on streamlining their command and logistics elements (see Appendix 6.22). Changes to the rifle companies were minor. The War Department and the Airborne Command very sensibly pulled the 60mm mortar squads out of the rifle platoon headquarters, reduced them to six men each, and added them to the 60mm mortar section of the company weapons platoon where their fires could be concentrated. Each rifle company headquarters also acquired a communication sergeant who would supervise the company's four radiotelephone operators (equipped with SCR-536 radios). As they were doing with the parachute regiments, Army planners also sought to save manpower in the glider regiments by concentrating the mess details from the rifle and headquarters companies into a battalion mess section under the supervision of a battalion mess officer (located in the headquarters company headquarters. With the breakup of the old regimental communication platoon the headquarters platoon also included a battalion communication section, this time with its own message center as well its own wire and radio sub-sections. The battalion communication officer was also headquarters company commander but he had a company executive officer and an assistant communication officer to assist him. The headquarters platoon retained the command section and supply section that it had before the August reorganization but Army planners (probably some of General McNair's "no men") cut the number of ammunition handlers in the supply section by about half. They also sent the supply officer to the battalion headquarters (which also acquitted an intelligence officer) and the supply sergeant to the command section and put an ammunition sergeant in charge of the supply section. The command section also acquired an operations chief and a gas corporal in addition to its sergeant major, scouts and intelligence chief and thus much more closely resembled the battalion headquarters section of a conventional infantry battalion. The headquarters company's mortar and heavy machinegun platoons remained largely unchanged from their original 1942 organization (see Appendix 6.19).[355]

In the regimental headquarters company separate operations and intelligence sections replaced the old regimental headquarters platoon (see Appendix 6.20) and the S-2 (now a major rather than a captain) and the S-4 became part of the regimental headquarters. The communication platoon lost its two battalion sections and had its regimental section reorganized into a new and much more conventional communication platoon. Although the two antitank platoons survived with their original structure and armament they each lost about a quarter of their manpower. In summary it is easy to see that some of General McNair's "no men" had been at work given that the reorganization reduced the headquarters company by more than a third without impairing its essential functions.

The August 1944 reorganization did move the regimental S-4 from the service company to the regimental headquarters but it restored the munitions officer to the regimental supply section and gave him the same warrant officer assistant that he had in other regiments. The reorganization left the service company's regimental headquarters platoon looking and functioning much more like its counterpart in an infantry regiment than it had previously. The mess detail in the service company headquarters also received additional cooks so that it could feed the regimental headquarters company as well as the service company. In the transportation platoon the War Department planners broke up the heavy transport section and spread its assets to the other sections so that each company in the regiment would have its own 2.5-ton truck and trailer. The transportation platoon would supply at least one jeep and trailer for each company but the command jeeps (without trailers) would go mainly to the regimental headquarters company. To enable the maintenance section to handle the regiment's additional vehicles

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354 US Army Adjutant General Table of Organization and Equipment T/O & E 7-31 "Infantry Regiment, Parachute" and "Medical Detachment, Infantry Regiment, Parachute;" T/O & E 7-32 "Headquarters and Headquarters Company, Infantry Regiment, Parachute;" T/O & E 7-33 "Service Company, Infantry Regiment, Parachute;" T/O & E 7-36 "Headquarters and Headquarters Company, Infantry Battalion, Parachute;" and T/O & E 7-37 "Infantry Rifle Company, Parachute" (all Washington DC 1 August 1944).

355 Ibid and US Army Adjutant General T/O & E 7-53 "Service Company, Infantry Regiment, Glider;" T/O & E 7-56 "Headquarters and Headquarters Company, Infantry Battalion, Glider;" and T/O & E 7-57 "Infantry Rifle Company, Glider" (both Wash. DC 1 August 1944).

with only a minimum increase in its size, the Army planners adopted a McNair solution by cutting the section's two drivers, requiring two of the mechanics to double as drivers, and adding a fourth mechanic, a welder and a record clerk to keep track of parts (see Appendix 6.21).[356]

In November 1943, the then Major General Matthew Ridgway, while commanding the 82nd Airborne Division suggested that airborne divisions (and their parachute and glider regiments) be expanded to nearly the same size as an ordinary infantry division. He also suggested that the proportion of parachute to glider troops in the division be reversed so that there would be one glider and two parachute regiments per division instead of one parachute and two glider. The European Theater concurred with this, pointing out their own preference for employing parachute troops in mass. Indeed, Ridgway's own division had already assumed the proposed ratio of glider to parachute regiments even before it had left the United States, though it was the only one of the Army's five airborne divisions to do so before March 1945. However, enough parachute regiments had deployed overseas that every airborne division entering combat in Europe or the Mediterranean was able to have at least two of them under its command. The 82nd and 101st Divisions routinely commanded three parachute regiments apiece from D-Day onward. Therefore General Ridgway's proposals largely reflected what was already reality. However, General McNair still clung to the idea that airborne divisions should be easy to transport. A major increase in the number of parachutists per division would defeat this objective. By 1944, however, the influence of the European Theater had greatly increased and General McNair was dead. An American "close support" air attack had killed him (and many others) as he observed the fighting in Normandy during the opening phases of Operation "Cobra." With the opposition eliminated, so to speak, there was little to stand in the way of General Ridgway's proposal. In December 1944, the AGF, through the War Department, issued a series of test tables that called for an airborne division of nearly 13,000 with two parachute and one glider infantry regiments. All the airborne divisions in Europe (in effect, all the airborne divisions in the Army except for the 11th Airborne, then fighting in the Philippines) converted to the test tables in March 1945. They were used for the Rhine crossing and the final operations in Germany.[357]

For the parachute regiments (see Appendix 6.18, which includes the new revisions) the principal alteration was that each rifle platoon received a third rifle squad, thus at a stroke increasing the regiment's "foxhole" strength by 50%. The officer assistant platoon leaders were also reinstated in each of the now substantially enlarged rifle platoons. The system of saving manpower by using battalion mess sections to feed the troops was finally rejected and the conventional system of feeding the troops through company mess details reinstated. Thus, all company headquarters in the revised regiments increased in size (except that of the regimental service company headquarters, which returned part of its mess team to the headquarters company). In terms of equipment, combat experience had exposed the disadvantages of the M1 and M2 carbines. The new tables dramatically increased the number of M1 rifles and these displaced large numbers of carbines throughout the parachute regiment despite the fact that rifles were much more difficult to jump with (see Appendices 6.18, 6.19 and 6.20). Another recognition of reality and combat e4xperience was the official substitution of a BAR in place of the spare LMG authorized for each rifle squad, thus acknowledging what had long been the usual practice.[358]

The new "test" tables also discarded old stripped down two-battalion glider regiments. In their place, each airborne division would receive one glider regiment organized like a standard infantry regiment except that it had no cannon company and it substituted jeeps for 1.5-ton and larger trucks in the battalion headquarters companies and the regimental antitank company (see Appendix 6.23) since these heavier vehicles could not be air landed. Thus the US Army had finally come round to the method that the Germans had employed since 1940 of using standard infantry regiments with additional training but only minimal changes in equipment and organizational structure to conduct its glider and air landing operations despite the apparent inefficiency of this approach.[359]

The new glider regiment was nearly as large, and as powerful, as two of the old regiments, while the two parachute regiments in the new airborne division constituted nearly a three-fold increase over the one regiment they replaced. To bring themselves up to their new authorized strengths the parachute regiments generally relied on additional replacements sent out from the United States but about half the glider regiments reached their new

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356 US Army Adjutant General T/O & E 7-51 "Infantry Regiment, Glider" and "Medical Detachment, Infantry Regiment, Glider" and T/O & E 7-52 "Headquarters and Headquarters Company, Infantry Regiment, Glider" (Wash. DC 1 August 1944).

357 Robert R. Palmer "The Reorganization of Ground Troops for Combat", op cit p 349.

358 US Army Adjutant General Table of Organization and Equipment T/O & E 7-31T "Infantry Regiment, Parachute" and "Medical Detachment, Infantry Regiment, Parachute;" T/O & E 7-32T "Headquarters and Headquarters Company, Infantry Regiment, Parachute;" T/O & E 7-33T "Service Company, Infantry Regiment, Parachute;" T/O & E 7-36T "Headquarters and Headquarters Company, Infantry Battalion, Parachute;" and T/O & E 7-37T "Infantry Rifle Company, Parachute" (all Washington DC 16 December 1944).

359 US Army Adjutant General Table of Organization and Equipment T/O & E 7-51T "Infantry Regiment, Glider" and "Medical Detachment, Infantry Regiment, Glider;" T/O & E 7-52T "Headquarters and Headquarters Company, Infantry Regiment, Glider;" T/O & E 7-53T "Service Company, Infantry Regiment, Glider;" T/O & E 7-59T "Infantry Antitank Company, 57mm Gun, Regiment, Glider;" T/O & E 7-56T "Headquarters and Headquarters Company, Infantry Battalion, Glider;" T/O & E 7-57T "Infantry Rifle Company, Glider;" and T/O & E 7-58T "Infantry, Heavy Weapons Company, Glider" (all Washington DC 16 December 1944).

strengths by absorbing the men belonging to the other half. Thus at the end of the war the Army had only five glider regiments, including one that would soon convert to a parachute regiment. There were also 13 parachute regiments, including one recently converted from a glider regiment (too late to see any combat in its new role).[②]

Were the Airborne Forces Really a Success?

Evaluating the effectiveness of combat organizations can often be a fairly straightforward task. In the case of the airborne forces, however, there was much uncertainty over what an airborne operation should really be expected to achieve. Of course, there was general agreement that airborne forces should use their mobility to attack an enemy's flank or rear but there was much doubt about the practical details. The Marine Corps believed that airborne troops should support amphibious assaults by landing behind defended beaches and either attacking them from the rear or cutting off their supplies and/or reinforcement. Although the Marines never had a chance to use their airborne troops in this way, the Army seldom used theirs in any other way. Most Army airborne operations during the war occurred either as part of, or in support of, an amphibious landing. Even the Rhine crossings (Operation "Varsity") were essentially amphibious in nature because they were attacks across a substantial water obstacle. The only significant exception was Arnhem (Operation "Market-Garden") and that was also the biggest failure. By the end of the war, General Omar Bradley was convinced that the primary role of future airborne forces should be to "...assist in the assault of prepared positions, particularly where (an amphibious) landing has to be made."[360]

In combat, the difficulties of executing an airborne landing proved to be so great that on more than one occasion the utility of the Army's airborne forces was seriously questioned. The first major airborne operation was part of the invasion of Sicily in July 1943. Darkness, high winds, and inexperience caused the jumpers to be badly scattered. Some troops reached the ground as far as 65 miles from their objectives. On the second night 23 transport aircraft bringing in American reinforcements were shot down and 37 others badly damaged, mostly by "friendly" anti-aircraft fire. Some 600 British glidermen drowned when their tugs released their gliders too far out at sea. Many men sustained jump injuries as well. The Sicilian invasion succeeded despite these losses because (among many other reasons) the airborne portion of it had been relatively small. However, the Allied failure to exploit their success enabled the Germans to evacuate the bulk of their men, and even much of their heavy equipment, by air and water despite Allied air and naval supremacy. Some of the scattering of the parachutists actually proved fortuitous since it positioned them to stop or delay the German counterattacks against the invasion beaches. Nevertheless, Sicily prompted General McNair to doubt the feasibility of airborne operations above battalion level. However, in September on the other side of the world, the landing of the 503rd Parachute Regiment at Nadzab airfield in New Guinea (in support of the Allied amphibious assault on Lae) went very well and made an excellent impression, despite the lack of Japanese opposition. This was followed up by the successful reinforcement by parachute of the Salerno beaches by two regiments of the 82nd Airborne Division, which actually landed behind friendly lines. Even more important was a convincing demonstration by the 11th Airborne Division in the "Knollwood" maneuvers of December 1943 of the technical feasibility of a division sized air landing. Buoyed by these successes, the Army went ahead with the planned D-day airdrop by the US 82nd and 101st and the British 1st and 6th Airborne Divisions. The Germans feared, and General George Marshall advised, that jumps conducted in depth behind German lines might make a major Allied breakthrough possible at the outset. However, General Eisenhower hewed to the much more conservative plan of placing the parachutists just behind the beaches in order to insure the success of the amphibious landings themselves and to secure egress routes out of the beachheads. This was achieved although, as in Sicily, the troops were scattered and many jump and combat casualties occurred. This experience, plus memories of Sicily, persuaded the Army to renounce nighttime parachute jumps. The subsequent Arnhem landings therefore took place in daylight. This lowered their surprise value and contributed to the ultimately successful German defense. Arnhem, and to a lesser extent Sicily, also highlighted the relative inability of airborne forces, once on the ground, to withstand rapid and well organized counterattacks, especially by enemy armor. However, it was expected that improvements in weaponry, especially the introduction of the recoilless rifle, would mitigate this problem. Nevertheless, the significance of the fact that in their last combat actions the 82nd and 101st Airborne Divisions fought solely as ordinary infantry against the German Ardennes offensive of December 1944 was not lost on the US

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② Under this reorganization, 188th Glider Regiment of the 11th Airborne Division was redesignated a parachute regiment (after absorbing the 541st Parachute) on 20 July 1945. The 187th Glider converted to parachute after the war. The 326th Glider of the 13th Airborne Division absorbed the 88th Glider on 1 March 1945. The 194th Glider of the 17th Airborne Division absorbed the 193rd Glider Regiment and the 550th Glider Battalion and the 327th Glider (101st Airborne Division) absorbed the 401st Glider on the same date. The 325th Glider (82nd Airborne Division) appears to have expanded itself, like the parachute regiments, by absorbing replacements and certain "odds and ends" like the 509th and 551st Parachute Battalions. See Shelby Stanton, *Order of Battle, US Army, World War II* (Novato CA, Presidio Press 1984) pp. 214, 234, 245-46,258, 270 and 272.

360 The General Board US Forces European Theater "Organization, Equipment, and Tactical Employment of the Airborne Division" Study Number 16 File: R 320.2/49 op cit, pp. 15-16.

Army's planners. Once on the ground, an airborne unit had to be organized and equipped as much like standard infantry as possible.[361]

RANGERS AND RAIDERS - "SPECIAL DELIVERY BY SEA"

The Army Rangers

Although the US Army (and even the Marine Corps) had contemplated the use of airborne forces since well before Pearl Harbor, a need for special raiding organizations was not anticipated. During the first six months of American participation in World War II, the small but cheering successes of British "commandos" against occupied Europe provided much of what little good news was available. This attracted the US Army's attention and during the spring and summer of 1942, the Army experienced a kind of commando "mania" in its eagerness to involve itself in similar operations. The Army saw commando operations not only as a way of striking back at the enemy but also as a means of perfecting amphibious warfare techniques for the upcoming invasion of Europe without having to rely on the Marines. A number of Army divisions and training camps formed their own ad hoc commando organizations. The Army added a commando section to its amphibious training center in Massachusetts. It taught commando operations to division staffs and trained the new divisional commando units in commando techniques. AGF Chief General McNair firmly opposed the formation of specialized commando units but he was overruled. Army Chief of Staff George C. Marshall saw American participation in British commando raids as a good opportunity not only for publicity, but also for Americans to gain combat experience. In early 1942 Marshall sent Colonel Lucian Truscott to London to inspect the British commandos himself. On the day of his promotion to brigadier general (26 May) Truscott proposed that since the British would almost certainly train and operationally control any American commandos the latter should organize (at least provisionally) in British fashion. Truscott further suggested that American commandos be recruited from volunteers from all service branches, not just the infantry. Once they were trained and exposed to combat, new men would replace them and they would return to their original units to impart the benefits of their training and experience. In short, American commando units would function as battle schools whose curriculum would include actual combat. This, in the opinion of many within the Army, would help to turn a generation of young men made weak and spineless by the prosperity of the 1920s, into soldiers. Marshall approved Truscott's scheme two days later and ordered the formation of a commando battalion from the United States Army Northern Ireland Forces (USANIF). The Chief of the War Department's Operations Division, Major General Dwight D. Eisenhower told Truscott that the term "commando" could not be applied to Americans because it was too closely identified with the British. Truscott therefore chose the term "Ranger," which had been popularized by Major Robert Rogers' irregular soldiers in the French and Indian War. The new unit thus became the 1st Ranger Battalion.[362]

Formation of the new battalion began shortly after the 7 June announcement of its authorization. USANIF was tasked to furnish specified numbers of volunteers. Command of the new unit was given to an artillery captain named William O. Darby, who happened to be the *aide de camp* to Major General Russell P. Hartle, the then commanding general of USANIF. Darby was immediately promoted to major and, ten weeks later, to lieutenant colonel. Tentative tables for the new battalion appeared about May 1942 (see Appendix 6.24) but these do not appear to have been utilized since they were never completely filled out. An early revision, among other things, incorporated a weapons squad in each Ranger platoon and on 12 June USANIF adopted the revised tables for the new battalion (see Appendix 6.25). The revised tables followed the structure of a Britich "commando" fairly closely but made certain adjustments to account for differences in American weapons and equipment.[363]

A British "commando" (the term referred not only to an individual but also to a battalion-sized combat unit) consisted of a headquarters and a number of "troops" or companies, of which by 1942 there were usually six. A troop had two "sections" or platoons each designed to fit in a standard Landing Craft, Assault (LCA). An LCA was a British designed and built personnel landing craft about 41 feet long, equipped with a bow ramp, and able to carry up to 35 troops and 800 pounds of equipment. It was partly armored, armed with a couple of machineguns. Fully loaded it could cover 50 to 80 miles at seven knots on its internal fuel. Two LCAs could carry a commando troop, and a flotilla of 12 to 15 could carry a full commando or Ranger battalion. Though not designed for air delivery a Ranger battalion resembled an airborne battalion in that its administrative, supply, and motor transport personnel and equipment effectively constituted a "ground" echelon follow-on for its fighting echelon. Ground echelon

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361 The General Board US Forces European Theater "Organization, Equipment, and Tactical Employment of the Airborne Division" Study Number 16 File: R 320.2/49 op cit, pp. 1-10 and 24-33; John Galvin, *Air Assault,* op cit pp. 97-117, 137-157, and 170-190.

362 Michael J. King, *Rangers: Selected Combat Operations in World War II* (Fort Leavenworth Kansas, US Army Combat Studies Institute. 1985) pp. 5-7; David W. Hogan, *Raiders or Elite Infantry?* (Westport Connecticut, The Greenwood Press 1992 pp. 11-23.

363 King, op cit.

members, together with a few enlisted intelligence and operations staff assistants, resided in the headquarters company's staff platoon. This unit would not go ashore with the battalion on raids or other short-term operations. They would instead support the battalion in garrison and would participate in extended field operations where the necessary time and equipment would be available to put their vehicles ashore and to establish an appropriate logistics system. The ground echelon did not include a mess detail. The men would eat C and D rations in the field and in garrison they would get a subsistence allowance in lieu of normal messing. The communication platoon was purely a radio unit whose members could provide long-range communication with up to six SCR-284 (probably vehicle mounted) sets or tactical communication by attaching up to two SCR-536 "handi-talkies" (with or without operators) to each Ranger company. Although it was not anticipated that a Ranger battalion would occupy a position long enough to establish a wire net, a dozen telephones and a switchboard were available as reserve equipment just in case.

The Ranger companies themselves were very "lean" organizations, containing only the men needed for actual combat. Company headquarters consisted only of the company commander himself, with just the first sergeant, a clerk and a messenger/sniper. There was no executive officer. Even by US Army standards none was needed since the company was small and had no rear echelon. A platoon commander could take over easily enough if the company commander became a casualty. The company was not much bigger than a large platoon anyway.

Each platoon was composed of two assault sections and a special weapons section. The special weapons section was merely a 60mm mortar squad that also included a British (or Canadian) built Boys .55 caliber antitank rifle. The latter weapon seldom saw much use and was in any case a threat to only the most lightly armored vehicles. Each assault section was really a rifle squad with a leader, a five-man assault squad (team) and a five-man LMG squad (team) with either an M1919A4 LMG or (more frequently) an M1918A2 BAR.

The 1st Ranger Battalion also adopted the British system of maintaining a battalion weapons pool. This was an issue of certain heavy weapons, which were surplus to the companies' normal requirements, but which might be needed for certain missions. The availability of these extra weapons gave the Ranger battalion commander the flexibility to "tailor" certain of his companies to meet peculiar situations. Thus, the June 1942 Ranger battalion incorporated six 81mm and six 60mm mortars and six Boys antitank rifles as extra weapons. The 81mm mortars were too heavy for most Ranger missions but Darby (being an ex-artilleryman) believed that their range and firepower advantages over the 60mm could sometimes made them well worth the extra weight.[364]

In July 1942, Colonel Charles A. Vaughn of the Commando School at Achnacarry Scotland suggested to Darby that he could reduce the loads that his men had to carry by reorganizing his companies. The weapons squads should be taken from the platoons, redesignated as mortar squads (dropping their antitank rifles), and made part of the company headquarters. The assault sections' LMGs should also be moved to the battalion weapons pool and be replaced by BARs. The term "assault" should be dropped as well as the sections' internal subdivision into LMG and assault squads. A section should function as a single entity under a section leader and an assistant. Darby followed Vaughn's advice although he did not publish his companies' new organization (see Appendix 6.26) until September.

Even though these changes reduced the Rangers' load considerably it remained heavy enough. The basic load of weapons and ammunition amounted to 1,952 pounds for a Ranger company. A company was also expected to carry an additional load of four Bangalore torpedoes (24 pounds each), 40 extra bandoleers of rifle ammunition (weighting 130 pounds in all) plus extra 60mm shells. This brought the total load of 66 of these "lightly equipped" troops to some 2,200 pounds. This figure did not include the men's rations, clothing, and personal gear, entrenching tools, any antitank rifle or ammunition that might be brought along, or any extra shells for the 60mm mortars.[365]

Although a small detachment from the 1st Ranger Battalion did participate in the ill-fated Canadian raid on Dieppe, the Rangers' first combat action as a battalion was in the North African landings on 8 November 1942. At Arzew, Algeria the Rangers, operating under the 1st Infantry Division, went ashore in their LCAs and easily captured the two Vichy French shore batteries that were their assigned objectives. Company "D" was task-armed for the occasion with four 81mm mortars from the battalion weapons pool. It was thus able to give valuable fire support to the other Ranger companies when the defenders of the larger of the two batteries tried to offer some resistance. The eight handcarts used to move the mortars and their ammunition reportedly worked very satisfactorily even though they had to be pulled across a 15-foot cliff in order to get them off the beach. During the next two days, however, the Rangers participated in conventional combat operations. Company "E" assisted the 16th Infantry in

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364 King op cit p 8; 1st Ranger Bn Journals and Files, organizational charts (undated but referring to 12 June 1942) Record Group 407, Entry 427, INBN-1-0, US National Archives Washington DC; Office of Naval Intelligence (ONI) Manual 226 *Allied Landing Craft and Ships* (Washington DC 1944) reprinted by the US Naval Institute as *Allied Landing Craft of World War II* (Annapolis Maryland 1985) pages unnembered but includes description and tabular data for the LCA.

365 Memorandum from the 1st Ranger Battalion dated 28 September 1942, INBN-1-0 US National Archives op cit.

taking the town of LaMacta and Company "C" was attached to the 18th Infantry for the capture of St Cloud. Nearly all of Ranger casualties incurred during the 8 to 10 November fighting resulted from these two attacks.[366]

During the next three months the 1st Ranger Battalion remained in reserve, training its own replacements with the British techniques that it had learned. In December 1942, the battalion formed a mess section of ten men under a staff sergeant to serve as an alternative to the subsistence allowance, which was not entirely practical in a place like North Africa. The battalion's armament received an upgrade when two bazookas arrived for each Ranger company and carbines replaced many pistols. Though for a time the war seemed to have passed them by the Rangers saw action again during the closing stages of the fighting in Tunisia. Taking advantage of the enemy's disintegration, they conducted successful raids against Italian troops at Station de Sened on 11 February and at Djebel el Ank on 20 March. However, the Germans counterattacked during the next several days, erased most of what the Rangers had gained and engaged the Rangers (and other units) in conventional combat that cost the Rangers three killed and 18 wounded or one more dead and nearly as many wounded as in the Rangers' three previous actions combined.[367]

In April 1943, after the North African campaign had ended, Darby recommended to General Eisenhower that two additional Ranger battalions be created for the upcoming invasion of Sicily. The War Department, through General Marshall quickly approved and authorized the additional personnel. The new battalions would be the 3rd and 4th, a 2nd Ranger Battalion having already been created at Camp Forrest Tennessee. The 1st Ranger Battalion would provide the leadership and training cadre for the new battalions. Darby would be in overall command, though there was no formal headquarters for this force (to become the 6615th Regiment) until December. For the July 1943 campaign in Sicily, Darby's Rangers, further improved their firepower at the expense of their mobility when the 83rd Chemical Mortar Battalion (4.2-inch mortars) was attached to them. However, the 83rd's heavy mortars did not prevent Darby and his 1st and 4th Ranger Battalions from executing another very successful raid that yielded the town of Porto Empedocle and a very gratifying number of (mostly Italian) prisoners. As usual, however, the Rangers were battered in the conventional fighting that followed. Darby reacted to this by obtaining yet another firepower boost in the form of a battery of four self-propelled M3 75mm guns.[368]

At Salerno in September the same pattern was repeated. The Rangers achieved complete surprise and easily captured their objectives. Other Allied units, however, were less successful. This left the Rangers to suffer 20 percent casualties while resisting German counterattacks. The Rangers' 75mm guns and 4.2-inch mortars naturally proved to be very useful in these battles. During the subsequent drive on Naples, the Rangers suffered from mounting losses and a lack of time to train eager but inexperienced replacements. Though the Rangers were included in the decision made in December 1943 to improve morale by giving higher rank to non-commissioned officers holding leadership positions in the infantry this did little to halt a substantial decline in Ranger training quality.[369]

In the Anzio landings of January 1944 surprise was, as usual, achieved but not exploited. German counterattacks soon trapped Allied forces within their own beachhead. The Rangers were ordered to spearhead a major breakout attempt under the overall leadership of their former founder, the now Major General Lucian Truscott, commanding general of the 3rd Infantry Division. The Rangers would lead Truscott's attack by infiltrating German lines to take the town and road junction at Cisterna di Littoria. They would then hold on there until Truscott could relieve them. The 1st and 3rd Ranger Battalions successfully made their way through the rather thinly held German lines (surprising and eliminating a number of small groups) but after that unexpectedly heavy resistance halted them before they could reach the town. Elements of the *Herman Goering Panzer* Division (whose presence Allied intelligence had chosen to ignore) and a Parachute Battalion then counterattacked. Of the 767 Rangers in the two battalions that reached the position just short of Cisterna only six were able to avoid death or capture and return to friendly lines. The 4th Battalion attempted a rescue but suffered heavily in doing so. What remained of the three Ranger battalions was formally deactivated by October. Many of the survivors transferred to the joint US-Canadian 1st Special Service Force, a most unusual organization which had originally been created as a motorized raiding unit for Norway.[ה] Instead, it ended up in Italy, minus its special snow-mobile vehicles, where it served as light infantry.[370]

[ה] Organized at about the same time as the 1st Ranger Battalion, the 1st SSF was a joint US-Canadian brigade intended to employ snow tractors in Norway as a sort of wintery "Rat Patrol" or Long Range Desert Group. The Brigade was based on three 417-man "regiments" each of six small companies grouped into two "battalions." It had 600 tractors. A 600-man service battalion supported the three regiments. The brigade commander, Lieutenant Colonel (later, Brigadier General) Robert Frederick, had actually opposed the Norway mission as wildly impractical (as indeed it was – someone in the War Department had apparently been reading too many dime novels). Fortunately the Norway operation was scrapped and Frederick later managed to improvise a conversion of his brigade to light infantry without changing its basic structure. The brigade's 18 companies were based on three platoons of two combat sections each. Originally, each section was to have had eight men. Frederick raised it to 12 and was able to scrounge up enough LMGs, BARs, bazookas, and 60mm mortars to arm them. Frederick proved to be an excellent leader and trained his unit to a very high standard. After brief service against the Japanese in the Aleutians the Brigade, like most of the Army's other "oddball" units, ended up in Italy where it achieved an outstanding record in patrol and ambush operations but was often misused in conventional combat. It was disbanded in December 1944 after achieving some good publicity but having had no effect on US military organization or doctrine. Its story, though of no small interest, is really beyond the scope of this book.

Meanwhile, before the end of 1943 a 5th Ranger Battalion had joined the 2nd Battalion at Camp Forrest. Originally organized under the same tables as Darby's men, the two battalions did not alter their Ranger companies as Darby had done. However, by early 1944, they were using new organization tables drawn up for them by the War Department. Profiting from Darby's experiences, these tables considerably strengthened the Ranger battalion's support services (see Appendix 6.7). The battalion headquarters company was larger by a third.

Like Darby's men these new Rangers, frequently substituted BAR's for their unwieldy LMG's. Despite the availability of carbines officers (and company messengers) continued to use sub-machineguns and maintained 20 of them in the battalion weapons pool. Officers carried pistols as additional weapons and, in the field most of the men did so as well. For some reason and despite their obsolescence, antitank rifles continued to appear in the new battalions' tables of equipment until July 1944 despite the availability of the far more effective bazookas.[371]

The 2nd and 5th Ranger Battalions had been specially created to secure key objectives in support of the D-day landings and they accomplished their assigned missions successfully. Three reinforced companies (totaling 230 men) from the 2nd Ranger Battalion stormed the German coastal battery atop the cliffs at Pont du Hoc. The Rangers took the position, at a cost of 160 casualties, only to discover that the Germans had removed the guns from their firing positions to protect them from air attack and had thus posed no threat to the invasion force. The 5th Battalion and the three remaining companies of the 2nd went ashore with the 29th Infantry Division at Omaha Beach. The Rangers and the few tanks that managed to land safely were instrumental in knocking out the principal German weapons in the western sector of the beach (mainly some 75mm antitank guns in bunkers that had done considerable exection in the earlier stages of the battle) and this assured the landing's success. Their D-day tasks accomplished the two Ranger battalions were left without a mission and to spend the rest of the war unsuccessfully trying to find one. Despite their heavy casualties the Rangers were not allowed (as the airborne troops were) to return to England to refit. Instead they became just two more independent battalions to be generally misused for executing assignments more appropriate to conventional infantry. In December 1944, the 2nd Battalion captured a vital German observation post on Castle Hill, near Bergstein on the northern flank of the German Ardennes offensive. It then lost more than half its men defending against the subsequent counterattacks. In February 1945, however, the 5th Battalion was able to take advantage of the Germans' lightly held front line to infiltrate into their rear area near the town of Zerf. Here, the Rangers staged several successful ambushes, took about 300 prisoners, directed artillery fire onto German positions, and repelled such counterattacks as the retreating Germans were able to organize. The Battalion was unable to withdraw for some eight days. By then it was down to only about 180 effective men.[372]

The only Rangers to serve in the Pacific Theater were those of the 6th Ranger Battalion. Formed on New Guinea in 1944 by the conversion of the 98th Field Artillery Battalion this unit was intended to assist in the upcoming invasion of the Philippines. Unlike their counterparts in Europe, Southwest Pacific Area Commander General Douglas MacArthur and Sixth Army Commander General Walter Krueger genuinely saw their Rangers as special troops for special missions and used them as such. For the Philippines invasion, the Rangers seized several Japanese held offshore islands in support of the initial Allied landings at Leyte. Only one island presented much of a problem. There the Japanese had fortified a lighthouse protected by cliffs on three sides and approachable only over narrow winding trail. The place was taken by Company "B" under Captain Arthur "Bull" Simmons who later led the American raid on Son Tay Prison in North Vietnam. Thereafter the Rangers were held in reserve and spent their time patrolling, rounding up Japanese stragglers, and reconnoitering drop zones for the 11th Airborne Division's parachute landing at Aparri. Company "C," a platoon of Company "F," plus a contingent of Filipino guerillas, also conducted a raid on a Japanese prison near Cabanatuan on Luzon that freed 511 Allied prisoners of war. The raiders killed some 200 Japanese at a cost of only two killed and seven seriously wounded. For the Cabanatuan raid, the Rangers traveled as lightly as possible, most men bringing only their rifles (a few NCO's brought sub-machine

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366 1st Ranger Batalion Diary for 13 October and 8 November 1942; After action report signed by LTC Darby dated 1 Jan 43; INBN-1-0 US National Archives op cit.

367 Letter AG 320.2/056 A-M 18 December 1942, INBN-1-0 US National Archives op cit.; and King op cit pp. 13-21.

368 King op cit pp. 28-31.

369 Ibid and Letter AG 320.2W from HQ Fifth Army 9 Jan 44; Subj: Changes in TO & E, INBN-1-0 US National Archives op cit.

370 King op cit pp. 32-41; see also Stanton, *Order of Battle*, op cit pp. 266 and 268. For a good "thumbnail" history of the 1st SSF, see Maj Scott R. McMichael, A Historical Perspective on Light Infantry (Fort Leavenworth Kansas, US Army Command and Staff College 1987) pp. 169-218.

371 US Army Adjutant General Table of Organization and Equipment T/O & E 7-85 "Ranger Infantry Battalion" and "Medical Detachment, Ranger Infantry Battalion;" T/O & E 7-86 "Headquarters and Headquarters Company, Ranger Infantry Battalion;" and T/O & E 7-87 "Ranger Company, Ranger Infantry Battalion;" (all Washington DC 29 February 1944).

372 King op cit pp. 43-54; and David W. Hogan Jr. *US Army Special Operations in World War II* (Washington DC, Dept of the Army Center for Military History 1991) pp. 37-47.

guns) and a few hand grenades. The officers carried pistols. Each weapons section limited itself to a BAR and a bazooka.[373]

The Army had disbanded all its surviving Ranger units by the end of 1945. Most of the veteran Rangers wanted to go home and the new men who replaced them seldom met Ranger standards. The Rangers had become the Army's specialists in combat skills (such as patrols, ambushes, and hand-to-hand fighting) and, specifically, for capturing key positions in support of amphibious assaults. In this respect, their role was not unlike that of the German *stoss truppen* of the First World War who specialized in infiltration of enemy lines and in deliberate attacks on fortified positions. Both they and the Rangers relied on speed and surprise rather than heavy firepower for their success but once they had executed their special missions the Rangers generally fared worse in conventional combat and at the hands of superiors who seldom understood or supported them. A product of the military euphoria that reigned early in the war, the Rangers were often criticized for luring the best men away from the conventional infantry and for their rowdiness and indiscipline while off duty. In fact, the Rangers attracted many men from support duties who might not otherwise have been in combat at all. They also tended to attract the reckless and independent spirits who felt stifled by the discipline and regulations that prevailed in most of the Army. Ranger commanders personally chose their own officers and demanded that they be men of the highest caliber who could earn the respect of even the Army's most demanding and distrustful soldiers. It was here that the secret behind the Rangers' successes lay.[374]

The Marine Raiders

The Marine Corps was far less enthusiastic about the early war "commando mania" than the Army. They regarded the whole business as a most unwelcome distraction from the real mission of building up the divisions of the Fleet Marine Force (FMF) whose infantry, the Marines insisted, was already capable of executing whatever "commando" operations might be required. In any case, once a general counteroffensive against the Japanese had commenced the objective would be to capture, not raid enemy held islands. That would call for conventional troops and any commando activity would probably cease. However, when Major James Roosevelt USMCR, the President's son, got "Dad" interested in organizing some US Marine commandos, the die was cast. The Navy also supported the creation of Marine commandos since such troops fitted better into the Navy's concept of the role that the Marines should play in the coming conflict. As a preliminary measure, Captains Wallace Green and Samuel Griffith were sent to England to observe the British Commandos. Based on their recommendations, Headquarters Marine Corps ordered the formation of two "separate battalions." In January 1942, the 1st Battalion, 5th Marines (1/5) at Quantico gave up its commanding officer and most of its men to form the 1st Separate Battalion, soon to be the "commando" force for FMF Atlantic. Its commander, Lieutenant Colonel Merritt A. Edson was authorized to thoroughly disrupt the by now half-formed 1st Marine Division by combing it for suitable volunteers and requesting a great deal of exotic equipment. Meanwhile, in February, four company strength "commando" units that had begun forming on the West Coast at Camp Elliott, California, together with a company from the 1st Separate Battalion, became the 2nd Separate Battalion under Lieutenant Colonel Evans A. Carlson. As a reward for his impertinence in suggesting that raiding units be set up in the first place, Major James Roosevelt became Carlson's executive officer.[375]

In creating these new units, the Marine Corps had little idea of how they should be organized or even what to call them. "Commando" was a British term and therefore off limits. The Army already owned the name "Ranger." Therefore, on 16 February 1942 Marine Commandant, Lieutenant General Thomas Holcomb ordered that they be called "Raiders," based the very bizarre and novel idea that such units ought to be named for their actual mission.

As for organization, the only guidance given the two commanding officers was that each battalion should have at least four rifle companies and, like the Army Rangers, should be able to operate in detachments of less than battalion strength. They also had to be compatible with their primary sea transport vessels but these would not be British LCAs. Pacific raiding operations would have to occur over great distances and in the face of powerful enemy naval and air forces. To take them to their objectives, the Raiders would need fast and well-armed warships.

Fortunately, the Navy had a solution to this problem in the form of a large number of First World War era *Caldwell*, *Wickes* and *Clemson* Class flush decked destroyers. Though obsolete as destroyers, these ships were still suitable for a variety of secondary roles. Most served as convoy escorts but some underwent conversions to fast minelayers (DM), minesweepers (DMS), seaplane tenders (AVD), and high-speed transports (APD). Converting an old destroyer to an APD involved the removal of the ship's two forward funnels and the gutting of the

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373 King op cit pp. 54-71; Hogan *US Army Special Operations In World War II* op cit pp. 84-88.

374 Hogan, *Raiders or Elite Infantry*, op cit pp. 18-75 passim; for a description of German stoss truppen, see Bruce I. Gudmundsson *Stormtroop Tactics* (Westport Connecticute, Praeger Publishers 1991).

375 Updegraph op cit pp. 1-5.

corresponding fire-rooms. This created about 500 cubic feet of usable cargo space (of which 200 would be needed for ammunition) plus bunk space for five officers and 130 men. Though it had lost half its machinery, the APD could still maintain a respectable top speed of about 23-25 knots. Topside, the removal of the ship's torpedo tubes created deck space for four LCP landing craft (each somewhat smaller than an LCA). Rubber boats could be carried as well. However, the APD retained her guns and depth charges and thus could provide not only transportation but anti-submarine and anti-aircraft protection and even a limited shore bombardment capability as well! Unfortunately the Navy converted only six old destroyers to APDs in 1940 and none since then as, prior to the appearance of the Raiders, there had been no real requirement for them. The next batch of six would not be ready until October 1942 and by that time three of the original six had been sunk. Many more conversions would follow but in the early months of the war, the Raiders could plan on having no more than six APDs available. Also, no APD could carry or land motor vehicles or other heavy equipment even though such items would be needed in any operation lasting beyond a few days. However, the Raiders could expect to frequently act as part of a larger conventional landing force and in that context they could count on getting space in one of the attack cargo ships (AK) accompanying the main troop convoy.[376]

Regarding their tactical employment, Edson decided that raider units had to be capable of executing raids, feints and demonstrations, reconnaissance missions, and secondary or diversionary landings in support of a main landing. They should also be usable for the initial seizure of a beachhead to cover a main landing or to be part of a main landing (probably under the control of an infantry regiment or division). Once ashore, raiders could execute flank attacks, cut an enemy's line of communication, interfere with the movement of reinforcements, and also carry out more conventional missions. The battalion might also have to conduct two or more concurrent landings in widely separated and mutually unsupported locations. Each would be made by a separate detachment, varying from a platoon or company in a single APD to two or more companies in two or more APDs. Landings would typically occur at night and would rely heavily on surprise to compensate for the Raiders' probably limited organic firepower and lack of any external fire support (apart from what the APDs themselves could provide). Landings would frequently occur over beaches protected by the coral reefs that surrounded many Pacific islands. Beyond the beaches one would often encounter steep cliffs or other rugged terrain. Even handcarts would be difficult or impossible to use in many situations and though handcarts could land by LCP, they could not land by rubber boat.

Edson reckoned that in most cases tactical mobility would be the key to the Raiders' success. No weapons, ammunition, or other equipment that could not be carried by hand should be used and even the hand carried items should be limited to the lightest types available. Edson envisioned the typical raid as consisting of a landing, a rapid advance to the objective and an attack, followed by an equally rapid withdrawal. The withdrawal would be to a place where the raiding unit could be extracted (usually by the same ships that had landed it) or where it could link up with friendly conventional forces. In such a scenario, any fighting would likely be of short duration. Consequently, the raiding unit could afford to reduce its weapon and ammunition load for the sake of its mobility.[377]

While he still commanded the 1st Battalion, 5th Marines Edson had organized this unit into six identical detachments for operating from APDs during the August 1941 landing exercises held at New River, North Carolina. Even allowing for the fact that there was no room on the APDs to accommodate much of a conventional battalion's heavy weapons and equipment, the results of this experiment had been very disappointing. At the Fort Story Maneuvers (in Chesapeake Bay), Edson again embarked a battalion in APDs. This time he placed his headquarters and headquarters company in one ship and his other four companies in the other five, each company being reinforced with sufficient intelligence, communication, and medical personnel to make it administratively independent. This arrangement was much more successful. As a result of this experience, Edson decided that battalion headquarters should occupy the flagship of the APD division but the other five APDs should each carry a tactical unit.

Edson also noted that many potential raider missions paralleled those of Marine parachutists. Raiders could serve instead of parachutists in situations where sufficient aircraft or suitable drop zones were unavailable. In addition, although a parachute battalion might enter the battlefield by parachute, it could not leave it in that way. Instead, it would have to quickly make contact with conventional forces before it exhausted its very limited firepower and logistical resources. By contrast, Raiders that landed from APDs would almost always have some chance of withdrawing in them. In order to provide firepower to cover this withdrawal as well as to support the attack on its objective, a Raider battalion should, unlike a parachute battalion, include at least one weapons company. The larger cargo capacity of the raiders' APDs, in comparison to transport aircraft would make it easier for the Raiders to carry the additional equipment and ammunition that a weapons company would require. Since a

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376 *Allied Landing Craft of World War II* op cit (pages not numbered); Letter from the Commanding Officer, First Separate Battalion to the Commanding General, Amphibious Force, Atlantic Fleet dated 8 February 1942 (hereinafter cited as Edson Letter), Record Group 127 Ellsdran File 2385 US National Archives Washington DC pp. 1-2; Updegraph op cit pp. 1-5.

377 Edson Letter pp. 1-3.

Raider battalion would have five tactical companies. These could comprise either three rifle and two weapons companies or four rifle and one weapons companies. Edson decided in favor of the latter combination. Neither the headquarters nor the weapons companies could operate outside of a battalion structure; thus a battalion with three rifle companies would have only three elements that could undertake independent operations. Since the rifle companies would have to be small and yet include their own weapons platoons the overall "rifle" strength in a three-company battalion would be insufficient. A four-rifle company battalion would have four elements able to act independently.[378]

Based on these principals, Edson designed his rifle company (see Appendix 6.28). Edson was adamant that any raider company use the same configuration of three rifle platoons of three rifle squads each that pertained in conventional infantry companies. Size limitations, however, forced Edson to reduce his rifle squads to eight men each and to do without BAR squads. To make up for some of the lost firepower, Edson elected to issue two BARs per rifle squad. This could be reduced to one BAR per squad once M1 rifles became available. In addition, one rifleman per squad would be trained and equipped as a sniper. To help incorporate a demolition capability into the rifle company the platoon guide in each rifle platoon would also be a demolitions sergeant[379]

The company weapons platoon commander also had to act as company executive officer so that his company would not exceed the limit of five officers that an APD could accomodate. In keeping with the importance of his position the weapons platoon sergeant ranked as a gunnery sergeant, or one grade higher than the platoon sergeants in the rifle platoons. The weapons platoon would have a section each of mortars, two light machineguns and two antitank rifles. Gun crews were minimally sized at four men (three for the antitank rifles). The antitank rifles were the same British (actually, Canadian-built) .55 caliber Boys that the Army Rangers were using. The Boys' antiarmor capabilities were certainly minimal but it could still defeat the lighter Japanese tanks and there was no real alternative to it since bazookas were unavailable and any other weapon would have been unacceptably heavy. The mortar section would, of course, use M2 60mm mortars. Edson expected a four-man mortar squad to carry up to 27 60mm rounds in addition to its mortar. Rifle platoon personnel might carry a few additional rounds, despite being already seriously encumbered with ammunition for their own weapons. To arm the light machinegun section, Edson was hesitant whether three BARs or two M1919A4 LMGs would be superior. If he used BARs the section would need a leader and three three-man BAR teams. The extra man that this required could come from the company supply section. Each BAR team member could carry 12 20-round BAR magazines (240 rounds) and the assistant gunner and loader would each carry another 100 rounds on a cartridge belt. Three BARs would have had nearly the same sustained and maximum rates of fire as two LMGs. The section could also carry about the same amount of ammunition (3,000 rounds for two LMG vs. 2,760 for three BAR) and the BARs could also use loose rounds contributed by riflemen and squad BAR crews much more easily than LMGs could. Finally, the BAR enjoyed a great mobility advantage. An LMG weighed nearly twice as much as a BAR and had to be carried as two separate components, the gun by the gunner and the tripod by the assistant gunner. As a practical matter an LMG could not be fired unless both gun and tripod were in place. Nevertheless, Edson settled on the LMG. It had three times the effective range of the BAR and a steady mount to which it could be clamped in a fixed firing solution. It could even be cleaned in that position. It was also less subject to jamming than the BAR. For long range supporting fires and for defensive fires along a "final protective line" it was by far the superior weapon and its capabilities, except for sustained and very long-range fires, were not far short of those of the water-cooled M1917A1 HMG. In selecting the LMG, however, Edson did suggest that each rifle company maintain three BARs in reserve for use in lieu of the LMGs in appropriate situations.[380]

Edson divided his rifle company headquarters into a combat section and a supply section. The combat section included the company commander, first sergeant, and the other personnel needed to tactically control the company. The combat section included an RVP detail (Radio, Visual, Panel) of a corporal and two privates who could operate a TBX radio when the company was operating independently of its parent battalion. The TBX was a medium to long-range set that could provide direct communication with an APD. Communication within the company would be primarily by messenger. When the company operated as part of the battalion, the TBX would be unnecessary. The two RVP privates could act as additional messengers while the RVP corporal operated an SCR-536 light radio.

Although the Raider company headquarters' supply section (led by the company supply sergeant) would be with its parent company in the APD it would not go ashore if the current operation was to be of short duration or if the company was operating independently. If the operation was larger or expected to last longer, then the section would go ashore and join a battalion rear echelon under the Bn-4. From there it would continue to forward ammunition, water, and hot meals to the rest of the company, normally with the help of vehicles from the battalion

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378 Edson Letter pp. 3-4.

379 Edson Letter pp. 5-6 and attached Table APD-1, "Rifle Company, Destroyer (APD) Battalion"

380 Edson Letter pp. 6-8 and Table APD-1.

motor transport section. This procedure was similar to that followed by conventional Marine infantry battalions though for the Raiders the divide between forward and rear echelons was less formal since the Raider battalion personnel section handled most of the rear echelon's administrative responsibilities. The part time acting clerk in the combat section would take care of whatever administrative matters remained.[381]

Edson's weapons company, together with subsequent changes that were ordered but generally not implemented, is shown in Appendix 6.29. Edson believed that mobility should be a primary consideration in the design of this company. Lacking any motor vehicles or handcarts it would still have to be able to keep pace with the rifle companies. This put the use of M1917A1 water-cooled machineguns out of the question. Edson believed that the M1919A4 LMGs would be an adequate substitute in most situations, especially since the LMG squads that he was proposing for the weapons company would have five men rather than the four per LMG squad in the rifle company weapons platoon. The extra man would enable each squad to hand carry its gun and up to eight boxes or 2,400 rounds of ammunition (the Marines used 300-round ammunition boxes while the Army used boxes of 250). Two of these enlarged LMG squads made a section and a machinegun platoon would have two sections. Each section leader was also qualified as a demolitions NCO.[382]

The weapons company antitank section was exactly the same as the one in the rifle company weapons platoon.

The mortar platoon presented some problems. The 81mm mortar was desirable for its range and effectiveness. It and its ammunition could also be landed by rubber boat. An APD could carry either a platoon of four 81mm mortars and one machinegun platoon of the type Edson recommended or it could carry two LMG platoons (or one HMG platoon of six guns) if the 81mm mortars were reduced to a section of two guns. However, the weight of the 81mm mortar and its ammunition made it very doubtful whether a mortar platoon or section without carts could keep pace with rifle or LMG units. Edson noted that the 60mm mortar weighed only about a third as much as the 81mm and its ammunition (on average) weighed less than half as much per round. Its 1,700-meter range was barely adequate and its ammunition was considerably less powerful. Each ammunition man could, however carry up to 12 rounds of 60mm vice three to six of 81mm. Given the battalion's overriding mobility requirement, Edson chose a three-squad 60mm mortar platoon vice an 81mm unit. However, he excessively burdened each mortar squad leader by having him carry a BAR for local defense even though a Thompson sub-machinegun would have been much lighter and might have done nearly as well. That left only four men to carry the mortar and its ammunition. However, the mortar platoon also included an ammunition squad with a sergeant (also with a BAR) and eight bearers (who could carry up to 96 60mm rounds). Edson was careful to place sufficient observation and communication (mainly wire) personnel in the platoon headquarters to insure that the mortars could be used at their maximum range.[383]

The weapons company headquarters functioned in much the same way as the rifle company headquarters but its command section included a reconnaissance officer (who also served as executive officer) as well as a company commander. There was a small detail (led by a sergeant) to assist the reconnaissance officer but no RVP detail because the weapons company would never operate independently.[384]

As for the battalion headquarters company, Edson believed that a standard infantry battalion headquarters company (see Appendix 5.20) could actually work for a raider battalion since it was small and light enough and could perform all essential functions. However, he also believed that a headquarters company specially designed for a Raider battalion would have a number of advantages. In Edson's view, such a company should operate in three echelons. Part of the battalion headquarters plus the intelligence section (minus its scout-snipers if these were attached to the rifle companies) and the communication platoon (minus those of its 17 radios that might be distributed to the rifle and weapons companies and to the quartermaster and motor transport platoon) would constitute the forward echelon (see Appendix 6.30). This echelon would control all assault elements of the battalion and participate in all tactical landings. The battalion medical section (two Navy Medical Corps officers and 10 enlisted) would usually accompany the forward echelon, though in a short-term operation it might remain with the rear echelon and set up the battalion aid station aboard an APD. Headquarters company supply and administrative personnel not needed for tactical purposes would constitute the rear echelon (also indicated in Appendix 6.30). Corresponding to the lighter elements of the "ground" echelon in a parachute battalion, it would remain aboard ship during short duration landings. During more extended landings it would go ashore and together with the rifle and weapons company supply sections would form an administrative base element under the Bn-1. The battalion quartermaster and motor transport platoon and casual section would constitute the third or follow-on echelon. This would include all the battalion's vehicles and other gear that was too large or heavy for an APD and would follow

381 Edson Letter pp. 8-9 and Table APD-1.

382 Edson Letter p. 11 and attached Table APD-3 "Weapons Company, Destroyer (APD) Battalion."

383 Edson Letter p. 12 plus Table APD-2 "60mm Mortar Platoon, Weapons Company, Destroyer (APD) Battalion."

384 Edson Letter pp. 10-11.

the rest of the battalion in a cargo ship (AK) from which it could be put ashore to complete the battalion's "ground echelon."[385]

In addition to commanding the headquarters company and its rear echelon the Bn-1 headed the personnel section. This section served as the battalion's sole administrative entity, a practice that Edson adopted from the German army and which the Marine Corps would officially adopt in its F-Series tables of organization. In the event of a lengthy operation ashore, the Bn-1 would land with his section, report to the rear echelon of the senior headquarters (regiment, division, corps, etc.) ashore, and handle the battalion's administrative matters from there. Edson calculated that this section could relieve company commanders of 95 percent of their administrative responsibilities.

The battalion supply section's battalion-level functions were few and mainly administrative. Otherwise, it mainly supported the headquarters company itself. All companies in the Raider battalion handled routine supply requirements such as messing, property control and the initial distribution of ammunition on their own.

The casual section was Lieutenant Colonel Edson's own invention to enable his Raider battalion to deal with the inevitable manpower attrition that afflicts military organizations in peace and war. Such attrition included not only battle casualties but also men who were sick, stragglers, under arrest, etc. The numbers involved in even non-battle attrition could be significant. Edson's own battalion had 51 men absent from the New River maneuvers and 22 from the maneuvers at Fort Story. The usual response to such attrition was to use "other duty" privates (which in most D-Series organizations amounted to about five percent of a unit's strength) to absorb the loss. Unfortunately, this system was impractical for the Raiders. An APD had no space to carry extra men and the "other duty" privates that the Raiders could expect to receive from the replacement depots would lack the specialized training needed to make them useful as Raiders. Worse, APD space restrictions had forced Edson to reduce the size of his rifle and weapons companies to a bare minimum and it was especially important that their full remaining strength be maintained. Therefore the role of the casual section was to induct Raider replacements into the battalion before losses occur and while there was time to train them to Raider standards and familiarize them with APD duty. They could also train with and be trained by the troops that they would ultimately enter combat with. Led by a sergeant, it had six "squads" with a corporal and four privates in each. Each squad would attach itself to a rifle or weapons company for training and skill qualification. One squad would develop special proficiency with the LMG, another with the 60mm mortar, and the other four with rifles and the BAR. The crew served weapons used by the section (two mortars, two LMG, two antitank rifles, and four BAR) also constituted a battalion weapons reserve. Prior to a raiding mission, casual section members would be used to bring all the rifle and weapons companies to full strength. Any remaining "casuals" would join the quartermaster and transportation platoon in the cargo ship.[386]

The Raider battalion Quartermaster and Motor Transport Platoon would receive space in a cargo ship (AK) where it would store the extra ammunition, rations, mess and camp equipment, replacement items, motor vehicles, and anything else that would not fit in an APD. Edson had stored his heavy equipment aboard a cargo ship during the Fort Story maneuvers and this arrangement worked well largely he stationed a lieutenant aboard the AK to act as his representative and see that his battalion's property went to where it was supposed to go. Edson was well persuaded that had that lieutenant not been present he might never have seen most of his gear again. Edson believed that in future the battalion quartermaster should be the accountable officer for the Raider battalion property and should accompany it on the AK. He would also be the senior logistics officer in the battalion. However, Edson added another lieutenant to the battalion staff who could either act as Bn-4 when the quartermaster was not present or as battalion mess officer (a task otherwise requiring the diversion of an officer from a rifle or weapons company) when he was. Assisting the quartermaster aboard the AK should be most of the battalion's quartermaster personnel and of course all its motor transport personnel. Since this made a platoon sized organization Edson decided to establish it as a platoon. The quartermaster section itself included a signal detail (a corporal and two privates with a TBO, TBX or other long-range radio) to maintain direct radio contact with battalion headquarters (or at least the rear echelon thereof). This radio detail would be particularly important in the event that the quartermaster and motor transport platoon had to be put ashore some miles from the raider battalion's location.

As a separate battalion the Raiders would need a few motor vehicles for use in garrison or for extended field operations. Jeeps could serve as reconnaissance vehicles or as ammunition or weapons carriers, or for casualty evacuation, or to fill in for heavier vehicles until these could be landed. One-ton trucks could serve as command and reconnaissance vehicles or for medical evacuation. The 2.5-ton trucks with trailers would carry the heavy loads of ammunition, water, rations, and baggage. One would carry the field kitchen. All would tow cargo or water trailers. However, in February 1942, Headquarters Marine Corps greatly reduced the number of trucks that it would authorize per Raider battalion below the number that Edson had requested.[387]

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385 Edson Letter pp. 11-15.

386 Ibid; plus Table APD-5 "Headquarters Company, Destroyer (APD) Battalion" and Table APD-4 "Communication Platoon, Destroyer (APD) Battalion."

Edson wrote a memorandum in which he described his raider battalion and the thinking behind it at some length. He was persuasive enough to cause Headquarters Marine Corps to adopt his essential ideas only three days after he submitted them. Even so, Headquarters Marine Corps planners could not resist inserting a few "Kilroy was here" changes into Edson's work. They gave each company supply section a barber and a cobbler even though the services these men provided were not vital and could easily have been improvised. They also established a battalion officers' mess by adding a chief cook and an assistant cook to battalion headquarters. This was in spite of the fact that the battalion officers ate in the APD's wardroom when they were at sea, in the general mess when in garrison, or with their men when in the field. Such changes merely applied the Raiders additions made to standard infantry battalions who could afford the extra "fat." It does not seem to have occurred to anyone that adding non-essential people might exacerbate space problems in the Raiders' APDs. A more reasonable addsition was that of a lieutenant to the casual section but much more disruptive was Headquarters' insistence that the battalion weapons company needed an 81mm mortar platoon in addition to its 60mm platoon. Ashore, a standard infantry battalion 81mm mortar platoon of four guns, even with only minimal ammunition, could seriously affect the Raider's mobility unless it was left behind. Worse, the APDs had no space whatever for another two officers and 74 men (plus a lot of additional ammunition and equipment), and the chief cook needed to feed them. Edson had already argued at length why even a section of 81mm mortars would probably be too much but Headquarters Marine Corps ignored him. Of course two could play that game so Edson proceeded to ignore Headquarters Marine Corps. He never created an 81mm platoon and when his battalion left for the South Pacific to fight on Guadalcanal it used his original structure. In September 1942 Headquarters officially changed the mortar platoon into a demolition platoon with the same number of men but far less equipment. One of its four sections could have been attached to each of the raider battalion's rifle companies and, through "hot bunking" it should have been possible to fit it into the APDs for a short voyage. However, the platoon was too lightly armed to serve as additional infantry and its skills merely duplicated those already available in the rifle companies Its services would rarely be needed (see Appendix 6.29).[388]

Petty interference from Headquarters Marine Corps not the only cross that Edson had to bear. His own executive officer, Major Samuel Griffith, while in charge of the rear echelon after the rest of the 1st Raider Battalion had left the United States, wrote to Major General Holland M. Smith, then commanding the Amphibious Corps Atlantic Fleet, criticizing some of his boss's ideas. Griffith offered alternative ideas that Lieutenant Colonel Carlson's 2nd Raider Battalion at San Diego was already applying. Based on his own observations of the British commandos, and consultations with Carlson, Griffith concluded that Edson's unit was not a true Raider battalion at all but a conventional infantry battalion "scaled down" to fit into six APD's. Such a battalion could be a follow-on to a genuine raiding force and play a similar role for the Raiders as glider troops did for parachutists. However, a true Raider battalion, according to Carlson and Griffith, should be structured more like the British Commandos or the Army Ranger Battalions so as to better enable them to conduct raids or "shock" landings. Such landings would be to seize and hold small islands or other key terrain for very brief periods (until relieved by conventional troops) in support of a main amphibious landing. Griffith and Carlson believed that each APD in a raid force should carry a rifle company. Since six APDs were available, the 2nd Raider Battalion should have six rifle companies. However, Griffith and Carlson were careful to point that there was nothing magical about six companies and that a battalion could easily make do with three or four. Having a rifle company aboard each APD would increase the battalion's flexibility and resistance to losses. Any APD or group of APDs could be assigned an independent mission, as none would be carrying units that could only operate as part of a larger group. If one or more APDs were lost a true raider battalion might still be able to accomplish its mission whereas a battalion of the Edson type that had lost its headquarters, heavy weapons, or too large a proportion of its riflemen in any particular ship would be crippled.[389]

To achieve the goal of a rifle company in every APD, Griffith and Carlson believed that Edson's weapons company could easily be eliminated and that headquarters company personnel could be spread among the rifle companies. In their view the weapons company was an expensive luxury since Raiders would seldom need a battalion-level base of fire. Instead, the Raiders should imitate the British and maintain a "pool" of spare weapons with which any rifle company could become a weapons company whenever one was needed.

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387 Edson Letter pp. 15-17 and Table APD-5.

388 Letter from the Commandant, US Marine Corps to the Commanding Generals of the Amphibious Force Pacific Fleet and of Amphibious Force, Atlantic Fleet, dated 12 February 1942 and enclosing tables of organization D-175 "Marine Raider Battalion;" D-174 "Headquarters Company, Marine Raider Battalion;" D-173 "Communication Platoon,Headquarters Company, Marine Raider Battalion;" D-172 " Weapons Company, Marine Raider Battalion;" D-171 " 81mm Mortar Platoon, Weapons Company, Marine Raider Battalion;" D-170 "60mm Mortar Platoon, Weapons Company, Marine Raider Battalion;" and D-169 "Rifle Company, Marine Raider Battalion;" all in Regord Group 127 Ellsdran File Number 2385-60, US National Archives Washington DC; see also US Marine Corps Organization Tables D-175 "Marine Raider Battalion;" D-174 "Headquarters Company, Marine Raider Battalion;" D-173 " Weapons Company, Marine Raider Battalion;" and D-172 "Rifle Company, Marine Raider Battalion" (all HQMC Washington DC 24 September 1942).

389 Letter from Major Samuel B. Griffith II to The Commandant US Marine Corps, subject: Organization of Marine Corps Raider Battalions, dated 7 May 1942 ("Griffith Letter") pp. 1-3 Record Group 127 Ellsdran File number 2385 US National Archives Washington DC.

Carlson and Griffith also criticized Edson's battalion for what they considered to be insufficient light automatic weapons for combat at close quarters or at night. They also maintained that Edson's eight-man rifle squad lacked the internal structure needed to maintain the tight tactical control that raiding operations needed. Finally, they condemned Edson's battalion communication platoon whose heavy radio and telephone equipment were completely out of place in raiding operations. More and lighter radios, especially the "ultra light" SCR-536 should be used instead.[390]

Based on these criteria, Griffith described his tactical Raider companies. For personal weapons, Griffith wanted to eliminate pistols in order to simplify training and ammunition supply. Officers, sergeants and above, and selected rifle squad members would carry sub-machineguns, which they would later exchange for M1 carbines. In theory, most other enlisted men would carry rifles although in practice mortar and LMG gunners and assistant gunners probably used pistols, since rifles would have been difficult for them to handle along with their crew served weapons. Griffith recommended a rifle company with only two rifle platoons. He acknowledged that such a company would have less tactical flexibility, but an APD only had space for two platoons of the kind he wanted. Besides a small headquarters (including an RTO with an SRC-536) a Griffith platoon would have two sections with a sergeant and two 10-man squads in each. A squad would get a corporal squad leader (with rifle) and three three-man "fire groups," each led by its senior private. One man per group carried a rifle, a second had a BAR with 13 loaded magazines (260 rounds), and the third carried a sub-machinegun (with 11 magazines). The BAR gunner's weapon and ammunition weighed some 42 pounds and Griffith and Carlson hoped that a lighter weapon, possibly the Johnson LMG, might later replace it. The new squad certainly had logic, symmetry, and plenty of firepower. Its three-man teams would have been vulnerable to attrition although in a raiding operation the squad could expect to begin at full strength and would probably not have to sustain itself for long. The company weapons platoon was similar to Edson's but without an antitank section. Griffith's rifle company headquarters was even more austere than Edsons but it included a larger signal detail that included a combination messenger and visual signalman and four radiomen (including a corporal) operating an SCR-536 for communication with the platoons and a TBX radio for long range communication with battalion headquarters or an APD. Company headquarters had no supply section since it had no mess or supply men. These were centralized in the battalion headquarters company (see Appendix 6.31).[391]

Carlson and Griffith's headquarters company was designed to embark in the rifle company APDs and since the Griffith-Carlson rifle companies were a little smaller than Edson's there was some room for them. Under Carlson and Griffith's organization, a rifle company sent on an independent mission could expect to receive the additional personnel listed in Appendix 6.31 (mainly cooks, medical and supply personnel, a couple of scouts and a "casual" squad). This slightly exceeded Edson's five officer and 130 enlisted man limit per APD, though if one subtracts the casuals it was pretty close. However, Carlson and Griffith decided that Edson's limit could be significantly exceeded for limited periods of time. In maneuvers off San Diego in early 1942, they found that seven officers and 142 men could be accommodated without undue discomfort to anyone. This would allow the APD's to carry a battalion headquarters and at least part of the headquarters company when several Raider companies operated together.

The Griffith-Carlson battalion headquarters company followed a more austere version of the Edson model (see Appendix 6.32) and retained Edson's three-echelon system. As in Edson's battalion the battalion headquarters (forward), intelligence section, and the communication section constituted the forward echelon. However Griffith and Carlson added an engineer and demolition officer to their battalion headquarters (to direct demolition or other engineering work) and also called for the Navy Medical Corps to supply an officer and six men to operate a battalion aid station and another officer and two enlisted "corpsmen" for each rifle company. Griffith pointed out that while allowing a surgeon per rifle company might seem extravagant, a raider rifle company was an independent unit that might easily be assigned a mission in a locality far from any surgeon or hospital. In addition, an APD was too small a ship to rate its own surgeon. The Raider medical officer could thus serve as the APD surgeon as well.

Griffith's battalion intelligence section would attach a scout-observer and a scout to each rifle company while retaining a platoon sergeant, the chief scout, a corporal scout-observer, and three observers to work with the Bn-2. The communication section was far smaller than Edson's platoon and was purely a radio unit that could attach six men to the rifle companies to operate SCR-536 radios and constitute a short-ranged battalion level radio net. The rest of the section would operate a TBX radio or provide radio maintenance. The headquarters company rear echelon also generally followed Edson's ideas. The Bn-1 was in charge and also acted as headquarters company commander. In Edson's battalion the headquarters company first sergeant had served as such and also as chief of the Bn-1's personnel administration section. Griffith concluded that one man could not do both of these jobs well so

390 Griffith Letter pp. 3-4.

391 Griffith Letter pp. 4-6 plus attached table (Enclosure B) "Detailed Proposed Table of Organization and Equipment, Rifle Company, Marine Raider Battalion."

he added a second first sergeant to take over personnel administration (unlike in the Army, "first sergeant" in the Marine Corps was a rank as well as a job). The Griffith-Carlson battalion supply section furnished a supply corporal to each company (in lieu of a sergeant). It could either operate a battalion mess or establish company messes by attaching a couple of cooks to each company. The section also maintained 15 collapsible bicycles (for messengers, two could be issued per rifle company), 16 rubber boats and the battalion weapons pool (see Appendix 6.32). The latter included all of the battalion's anti-tank rifles. Carlson and Griffith had abolished Edson's company antitank sections in the belief that the likelihood of encounters with enemy armor in the Pacific was not great enough to justify them. It would be enough to maintain some antitank weapons "just in case."

Griffith's casual section functioned exactly like Edson's except that it was smaller. It provided a four-man "squad" per rifle company but this would hardly been enough to absorb even "normal" (let alone combat) attrition.

Griffith's quartermaster and motor transport platoon also functioned exactly like Edson's (see Appendix 6.32).[392]

The combat service of the Raider battalions was brief, eventful, and practically devoid of genuine raiding operations. Although the 2nd Raider Battalion was formed and sent overseas after the 1st Raider Battalion it was the first to see combat. In May 1942, its "C" and "D" Companies provided a much-needed infantry component for the 6th Defense Battalion (reinforced) for its defense of Midway Island. Although conventional infantry would have been better suited to this task, such infantry was still in short supply and the Marine Corps wanted to preserve it for a future offensive. Since they were not part of any Marine division it was much easier to divert Raiders to "peripheral" tasks like defending Midway. As matters turned out, the Japanese never landed and the Raiders in Midway's garrison had to endure nothing worse than an air attack and a few very brief submarine bombardments.[393]

The 1st Raider Battalion, meanwhile, had headed for the South Pacific and, while attached to the 1st Marine Division, participated in the Guadalcanal landings on August 7. Interestingly enough, this battalion had been earmarked to attack the Guadalcanal-Tulagi area alone until General MacArthur vetoed the idea. MacArthur wanted to wait until he could collect a strong enough force to actually seize the key terrain and defend it against Japanese counterattacks. In the actual Guadalcanal campaign, apart from their role in the initial landings (they were especially prominant in the assault on Tulagi), the Raiders mainly performed odd jobs that could have been carried out by any infantry unit. These included sweeping nearby islands for Japanese stragglers and coast watchers and serving as an APD-mobile reserve. In early September the Raiders attacked and destroyed the base camp of Japanese 35th Infantry Brigade. Though it could be considered a raid it was a locally executed operation that required no special skills or structure. Five days later after combining with the much reduced 1st Parachute Battalion to create a provisional Parachute-Raider battalion the Raiders played a prominent role in the successful defense of "Bloody Ridge" against the Japanese 35th Brigade. The 1st Raider Battalion's last battle on Guadalcanal was an assault against Japanese positions on the Matanikau River that ended in one of the few Marine defeats of the campaign. Afterwards, the remnants of the 1st Raiders, now under the newly promoted Lieutenant Colonel Griffith, (Edson himself had taken over the 5th Marine Regiment) withdrew to New Caledonia.[394]

Meanwhile, in August the 2nd Raider Battalion, in addition to supplying two companies for Midway Island, sent out two more companies ("A" and "B") under the personal command of Lieutenant Colonel Carlson, for a raid on Japanese-held Makin Island in the Gilberts. It was hoped that this raid would distract Japanese attention from the Guadalcanal landings, gain useful intelligence, and achieve enough tactical success to raise home front morale. Since all the APDs were currently with the 1st Raider Battalion, Carlson's men would travel to their objective in two large submarines, the *Nautilus* and *Argonaut*. In addition to torpedoes, each submarine carried a pair of six-inch deck guns and could thus contribute some fairly effective naval gunfire support to the raid. Carlson pared his raiding force down to only 13 officers and 208 men (so as to fit it within the 110 or so available troop spaces on each submarine) by leaving behind a rifle section from each of his companies. Like many such places in the Pacific, Makin was actually an atoll. That is, it was the nearly submerged cone of an extinct volcano and consisted of a number of small islands and reefs surrounding a central lagoon. The individual islands were mostly surrounded by coral reefs and regularly pounded by heavy surf where they faced the open sea. Carlson intended to land on the main island (Makin itself) using rubber boats. On 17 August he and his men reached shore through the surf and coral reef only with considerable difficulty. They remained ashore for most of a day and killed about 40-50 lightly armed Japanese sailors (27 others survived, some escaping to other islands).[⚓] Fourteen Raiders died. No prisoners

[⚓] The Japanese had garrisoned Makin with a platoon-sized detachment from the 62nd Naval Garrison Unit, a service element from the 19th Air Group, and a small communication unit. There were 73 men in all, commanded by a Naval warrant officer. At least 11 men from the garrison unit survived the Raiders' attack and remained on the island (others may have swam to other islands).

392 Griffith Letter pp. 4-9 plus attached table (Enclosure A) "Detailed Proposed Table of Organization and Equipment, Headquarters Company, Raider Battalion."

393 Updegraph pp. 5-8; and *Official History* Vol I pp. 216-231.

394 Richard B. Frank, *Guadalcanal* (New York, Penguin 1990) pp. 17, 72-78, 211, 220-223, 229-245, & 263-274; Updegraph pp. 17-19.

were taken or important facilities destroyed. Ironically, gunfire from the submarines did much more damage than the Raiders when it sank a patrol craft and a small freighter in the lagoon. Leaving Makin proved to be even more difficult than landing on it. Although the Raiders had practiced rubber boat operations in Hawaii, the violence of the surf on Makin came as a surprise and they had to fight the surf until late evening before they finally reached the submarines. Seven Raiders drowned and most of the radios and crew served weapons were lost and nine others later turned out to be missing. These Japanese subsequently captured and executed. The raid accomplished none of its objectives. It gained no significant intelligence. It failed to divert the Japanese from Guadalcanal. Recriminations over the responsibility for the large number of Marine casualties plus the reports that men were left behind and allegations that Carlson had once suggested surrender, did nothing to lift home front morale. At best, it was a good lesson on what not to do.[395]

Shortly after Makin, the now reunited 2nd Raider Battalion steamed south to Espiritu Santo to prepare to deploy to Guadalcanal to replace the by now badly depleted 1st Raider Battalion.[&] While at Espiritu Santo, Carlson modified his rifle companies to improve their flexibility and firepower. He reduced each rifle platoon from four squads to three. One section leader became the platoon guide. These changes freed a total of 22 men from the two platoons. Carlson used nine of these to create a second LMG section in the weapons platoon. The others, plus the demolition sergeant in company headquarters, formed a "utility group." Utility group members could serve as snipers, demolition men or as an emergency reserve and to some extent compensate for the absence of a third rifle platoon. The new company is shown in Appendix 6.33.[396]

The 2nd Raider Battalion landed on Guadalcanal at Aola Bay in early November to protect some combat engineers making an unsuccessful attempt to build an airfield there. Soon afterwards, the battalion was ordered into the jungle to pursue 3,000 hungry and exhausted Japanese known to be on the east of the Marine's Henderson Field perimeter and trying to rejoin the rest of the Japanese 17th Army on the west side. For over a month, Carlson's men harassed the Japanese withdrawal. Carlson organized his six companies in three groups. Two groups operated against the Japanese while the third rested at the battalion's base camp and stood ready to reinforce or relieve either of the other two. The battalion kept pace with the Japanese withdrawal, falling on stragglers and trailing units. By the time the Japanese reached their destination, only about 700-800 were still alive and only a few of those could still fight. The Marines claimed to have killed 488. The jungle accounted for the rest. The 2nd Raider Battalion returned to Espiritu Santo soon afterwards. Carlson's achievement was impressive from a logistical standpoint though he had only defeated an already defeated enemy. However, he had demonstrated the value of Raider/Ranger type troops in pursuit operations where they could serve as a kind of substitute "cavalry" force adapted to difficult terrain. In that respect Carlson's success could be compared to that of the 5th Ranger Battalion at Zerf or some of Darby's successes against the Italians in Sicily and North Africa.[397]

Meanwhile, the Marine Corps had created two more Raider battalions, the 3rd on Samoa in September 1942, and the 4th (under James Roosevelt) in California in late October. Both initially adopted the Edson model (as modified by Headquarters Matine Corps). All four Raider battalions were on Espritiu Santo by February 1943 and on 15 March they became the 1st Raider Regiment. This was accompanied by a reorganization that was meant to combine the lessons learned by both the 1st and 2nd Battalions. Experience by this time had shown that as many as 200 men could be crammed into an APD for periods of up to 48 hours without ill effects so the requirement to design a Raider company to fit one of these ships became much more flexible. More APDs plus new types of landing ships and craft suitable for raiding operations were also becoming available. Raider companies could now

[&] The 2nd Raider Battalion arrived at Espiritu Santo in the midst of a serious controversy over strategy that had been stirred up by the Commander of the Amphibious Force South Pacific, Rear Admiral Richmond Kelly Turner. Turner believed that the primary function of the Marines should be to land detachments along the coast of various islands to "mop up" pockets of Japanese who might be there. He believed that Marine Raiders were best suited to such operations, which would typically involve battalion sized or smaller units. Turner could see little reason for any fixed or permanent Marine combat organization larger than a regiment. Given the losses so far sustained by the 1st Raider Battalion and the fact that the 2nd Raider Battalion was not yet in the theater, additional raider units would be needed. Turner ordered the Marines then stationed at Espiritu Santo (mostly support troops which had not been landed on Guadalcanal for one reason or another) to form the 2nd Provisional Raider Battalion with six companies on the Griffith-Carlson model. He also suggested that each Marine infantry regiment reorganize and train one of its battalions for raider operations. Turner's ideas got a cold reception even from the Navy. His chief, Admiral Ghormley was willing to allow the formation of the 2nd Provisional Raiders to proceed but believed that permanent changes in Marine infantry regiments were a matter for the Marine Corps. Admiral Nimitz pointed out that a raider battalion was a specially trained and equipped unit intended for use by division level or higher commanders and was not approrpiate for an infantry regiment. Further, it would not necessarily be easy to convert the support troops on Espiritu Santo to raiders and they were needed for other purposes in any case. The arrival of the 2nd Raider Battalion gave Turner the raider units he needed without the need for a provisional one; copies of Armiral Turner's letter dated 29 August 1942 and endorsements from Admirals Ghormley and Nimitz are in the Marine Corps Historical Center, Washington DC.

395 Updegraph pp. 9-14. For a Japanese account of the Makin Raid see Headquarters Far East Command, Military Historical Section, Japanese Research Division "Inner South Seas Islands Area Naval Operations, Part I: Gilbert Island Operations" Japanese Monograph No. 161 (from documents held by the 2nd Demobilization Bureau 30 September 1952) pp. 9-11.

396 Updegraph pp. 14-17 and 21.

397 Updegraph pp. 19-22; Frank pp. 420-423.

have many more men than they had before but were still constrained by their continued inability to use motor vehicles or even handcarts.[398]

The raider rifle platoon of three 10-man squads generally followed a modified Griffith-Carlson model but while Carlson reported favorably on his squads' three-man "fire groups" the 1943 raider squad had a squad leader, a sniper (an Edson innovation) and two less-brittle four-man fire groups. The headquarters of the new company (organized in combat and supply sections as under the Edson model) commanded three of these rifle platoons plus a huge weapons platoon that included demolition, LMG and 60mm mortar sections. The LMG section used the Johnson LMG rather than the M1919A4 Browning. Like the BAR, the Johnson LMG had excellent mobility and three Johnsons could deliver as much firepower as two Brownings. The Johnson's relative lack of range meant little in the jungle. The demolition section was practically a platoon in itself. With its carpenters and electricians, had become something akin to a combat engineer section and its commander, a lieutenant, was also assistant weapons platoon leader and company engineer officer (see Appendix 6.34).[399]

The new raider battalion (see Appendix 6.35) had only four rifle companies but it generally followed Edson's principles except in its rejection of a weapons company. However, its large headquarters company could still split into forward, rear, and cargo ship echelons but the exact way in which this occurred would vary depending on what kind of transportation was available. Battalion headquarters followed both Edson and Carlson-Griffith in terms of its staff officers except that the adjutant (Bn-1), who was still also the headquarters company commander, was now under the battalion staff instead of being carried as part of the personnel section. The engineer and demolition officer that Griffith and Carlson had introduced now commanded the engineer section. There was still a lieutenant serving as Bn-4 when the quartermaster (with the supply section) was not present or as mess officer when he was. Headquarters Marine Corps even managed slip in a chief cook and an assistant cook for a battalion officer's mess.

Apart from the shifting of its leader, the personnel section remained largely as under Carlson-Griffith but with only one first sergeant personnel chief (the company first sergeant was with headquarters company headquarters). Also, regimental headquarters had assumed responsibility for pay. The intelligence section no longer had a map draftsman but its four scout-snipers were still present. The new battalion supply section replaced the old quartermaster and motor transport platoon and, like its predecessor, most of its members would ride in a cargo ship, together with the motor transport section, if the rest of the battalion were embarked in APDs or similarly sized vessels. The new engineer section coordinated the activities of the company demolition sections and furnished additional engineering specialists. Although the battalion engineers and company demolition sections included a few "other duty" privates, the fighting elements of the battalion still depended on the casual section to furnish qualified replacements. The new section had six five-man squads, just like Edson's casual section as modified by Headquarters but without the extra weapons. Headquarters Marine Corps also retained Edson's communication platoon substantially intact, despite Griffith and Carlson criticisms of it.[400]

The raider regiment's headquarters and service company was much the same as that of a conventional infantry regiment except that being configured for independent operations it also maintained a large weapons pool for its four battalions. Although the Raider regiment was supposed to have been organized according to the diagram in Appendix 6.36 it never actually fought this way. In late May, the regimental headquarters with its 1st and 4th Battalions was ordered to participate in the invasion of the New Georgia Island group to capture Japanese air base complex at Munda. The Raiders and Parachutists were the only Marine infantry available for the operation. The exhausted 1st and 2nd Marine Divisions were still recovering from Guadalcanal, and the new 3rd and 4th Divisions had not yet arrived. After two preliminary landings in Southern New Georgia, the Raider Battalions and two Army battalions landed in northern New Georgia during July to prevent Japanese from bringing supplies and reinforcements through Bairoko harbor on the Dragon's Peninsula and to force the Japanese to divert troops from the defense of Munda Airfield (the main objective). For the Raiders New Georgia was almost entirely a conventional battle in which their lighter armament left them at a relative disadvantage (though the Japanese were even more lightly armed). However, they and the soldiers eventually entered Bairoko though not until mid August and only after the Japanese were gone. Munda itself had already been evacuated. Four US battalions had only diverted about two Japanese battalions from the defense of Munda itself and had failed to cut any Japanese supply or retreat routes. Further, the two Raider battalions had been rendered ineffective. Their combined battle losses of at least 128 killed and 307 wounded, plus hundreds of sick and other non-battle casualties, left them with a total of only about 400 men fit for duty.[401]

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398 Updegraph pp. 22-24; see also *Allied Landing Craft of World War II*, APD article (pages not numbered).

399 US Marine Corps Organization Table D-306 "Rifle Company, Marine Raider Battalion, Marine Raider Regiment" (HQMC Washington DC, 1 February 1943).

400 US Marine Corps Organization Tables D-308 "Marine Raider Battalion, Marine Raider Regiment;" and D-307 "Headquarters Company, Marine Raider Battalion, Marine Raider Regiment;" (both HQMC Washington DC, 1 February 1943).

401 Updegraph pp. 24-32.

In September, the two remaining Raider Battalions, the 2nd and 3rd, joined two Parachute battalions reinforcing the 3rd Marine Division on Bougainville. The fighting was conventional except for an unsuccessful raid by the 1st Parachute Battalion and Company "M" of the 3rd Raider Battalion. The Raiders withdrew in January 1944.[402]

Even in their heyday, Marine Raiders had rarely been called upon to perform the specialized operations for which they had been designed. Now that the Marine Corps was entering a campaign that involved storming heavily fortified Japanese held islands in the Central Pacific, there would be no place for the Raiders at all. The Army Ranger mania had long since subsided. Political pressure to retain the Raiders in service had ceased. Headquarters Marine Corps ordered that the four Raider battalions be converted into a new and entirely conventional 4th Marine Regiment. Ironically this occurred just as the Army was forming its own 6th Ranger Battalion for Pacific operations. However, the 6th Rangers would serve in the Philippines where there were many more possibilities for raiding operations.[403]

For the first two years of the Second World War the Marine Corps had been an elite all volunteer force. Consequently, in terms of training and motivation there was less difference between conventional Marine infantry and Marine Raiders and Parachutists than there was between the largely draftee Army infantry and the volunteer Army Rangers. Nevertheless, the Marines' experience with elite infantry had not been a wasted one. The thought and effort expended in devising their special organizations paid dividends in terms of new ideas that could be applied to conventional units. This was particularly so in the case of the fire team concept for the rifle squad which both Griffith, Carlson, and the Parachutists (who generally worked very closely with the Raiders) had pioneered. Because Ranger and Parachute battalions did not count as part of the nine infantry battalions that the 1st Marine Division was authorized, they provided additional infantry that the 1st Division desperately needed and might not otherwise have had during a critical phase of the Guadalcanal campaign. That alone may have justified their brief existence.

OPERATIONS IN UNFRIENDLY TERRAIN - THE ARMY'S LIGHT INFANTRY

By mid-1942, it was clear to both the War Department and the AGF that the Army would have to be prepared for a variety of operations under extreme climatic conditions. Examples could be envisaged in Norway, North Africa, and the Southwest Pacific. The question was how far the Army should go in organizing special units to meet these special situations. The simplicity and economy minded General McNair did not wish to go very far. Some special needs might never materialize while others might require a good deal less effort than anticipated. In any case, as General McNair was quick to point out, special skills and techniques were invariably taught at the expense of general military proficiency. McNair therefore wanted to concentrate on the production of standard units and give special training only when the need for it could be definitely foreseen. Even then, such training should normally be given in the theater in which it was to be used. General MacArthur strongly supported General McNair in this. He insisted that units entering his Southwest Pacific Theater receive their jungle training only from his own instructors and under his own supervision.[404]

By August 1942, the War Department was urging consideration of a light infantry division able to operate in roadless, mountainous, and densely wooded country such as that found in New Guinea. MacArthur was operating or preparing to operate several standard infantry regiments there. These were being forced to leave behind most of their vehicles and heavy weapons in order to gain even minimal tactical mobility. Instead of being an improvisation as MacArthur's regiments were, light infantry regiments would be geared to rely on the muscle power of pack mules and native bearers. They would use far fewer men and equipment and, hence, precious shipping space than standard units, yet they would still have about the same amount of combat power under prevailing conditions. General McNair was still opposed to implementing the idea but agreed to experiment with it. General MacArthur also believed that experimentation with a light division might be profitable. His own troops on New Guinea were wilting in the face of heat, disease, and some of the most militarily daunting terrain on earth. The argument that finally won over General McNair was the proposal, in January 1943, of an "all purpose" light division which, through changes to its organic transportation, could adapt itself to snow, mountains, or jungle terrain. It could even serve as an amphibious or airborne (actually glider) unit. This multi-purpose light division avoided the stigma of overspecialization and preliminary tables for it appeared in March. The Army raised its first three light divisions soon afterwards. They differed from standard infantry divisions in that they had only two thirds as many men and far less equipment. Units from the Mountain Warfare Training Center formed the 10th Light Division (Pack, Alpine). The existing 89th Infantry Division became the 89th Light Division (truck), which used jeeps as its primary

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402 Updegraph pp. 32-34

403 Updegraph pp. 34-35.

404 Robert R. Palmer "The Reorganization of Ground Troops for Combat", op cit pp. 339-340 and 342.

mode of transportation. Units that had received jungle training in Panama formed the 71st Light Division (Pack, Jungle). No light airborne divisions were formed since enough purpose-designed airborne units already existed.[405]

By this time, however, General MacArthur had soured on the light division idea even though it was originally intended to provide special units for his theater. The war in New Guinea had entered a new phase. The Japanese had been pushed out of Papua in what had been primarily a land campaign. Although the light divisions might have been very useful there, MacArthur had since switched to an almost entirely amphibious strategy that called for a series of landings along New Guinea's north coast. Conventional infantry was much preferred for these operations. Maximum firepower was needed from the outset but it was seldom necessary to advance very far inland. Though the movement of heavy vehicles and weapons, even over short distances, required a great deal of engineer support, this was deemed to be well worth the effort. It was far easier to use a standard division to the point of exhaustion and then replace it with another than to worry about light divisions. MacArthur wanted none of them in his theater unless they were in addition to, and not in lieu of, standard divisions. In November 1943 General McNair chided MacArthur for this attitude pointing out that eight light divisions would offer about the same combat power as five standard divisions but would only need one third as much shipping. Nevertheless, McNair agreed that no new light divisions should be organized until the existing ones had been thoroughly tested.[406]

Testing culminated during February to April 1944 when the 71st and 89th Divisions maneuvered against each other in the mountainous and virtually roadless Hunter Liggett Military Reservation in California. The III Corps, which supervised the maneuvers reported unfavorably. The handcarts used were unsuitable. Extra pack and truck transportation had to be provided and additional engineers were also needed to build roads and trails for pack mules and jeeps. Each infantry regiment had to use about a third of its men as porters and thus neither division was able to employ more than six infantry battalions at a time. III Corps also concluded that a light division was incapable of sustaining itself logistically for any length of time.[407]

Feedback from the 89th Infantry Division, including reports on the exercises held prior to the Hunter Liggett maneuvers, was not much more encouraging. The division commander described his division's cooking, transportation, and communication facilities as inadequate to meet even minimum requirements. He also remarked on the unsuitability of the M3A4 handcart for close and difficult terrain. On the other hand, he considered his personnel strength to be only slightly inadequate, that his infantry weapons were generally sufficient and of appropriate types and that the amount of firepower per individual was satisfactory.[408]

A diagram of a light infantry regiment, light division is shown In Appendix 6.37. It is taken from tentative tables published in January 1944 but they did not greatly differ from those proposed in March 1943. A rifle squad had a staff sergeant, a sergeant, and seven men. Both non-commissioned officers and five men would always carry M1 rifles. Another man would have an M1903A4 or M1C sniper rifle. The armament of the remaining man would vary. In the jungle he would have a sub-machinegun, in the mountains a second sniper rifle or for amphibious or airborne operations, a BAR. A light infantry rifle platoon would have three rifle squads and a 60mm mortar squad. The weapons platoon had two LMG sections. The mortars seem to have been distributed to the platoons as a concession to operating in country where platoons would often be out of visual contact with each other.[409]

A section of 81mm mortars contained the only battalion level heavy weapons and the headquarters company would have to manage with a pioneer squad rather than a platoon and a very weak communication section. Headquarters company headquarters doubled as the battalion headquarters and included the sergeant major and operations and intelligence chiefs and the battalion's scout/observers.[410]

Since there was no separate service company the regimental headquarters company had to operate as a headquarters and service company. The supply platoon replaced the service company's transportation platoon. It included three small battalion sections that included the battalion supply sergeants. If the terrain was suitable or could be made suitable for jeep transport, the regiment would receive a total of 21 jeeps with 16 trailers. One jeep (without a trailer) would go to the regimental commander with a driver from the headquarters company headquarters. The administrative platoon would get five jeeps. Three of them (without trailers) would go to the intelligence sergeant and his scouts. The other two would go to the administrative section, one (with trailer) to carry the section's impedimenta and the other (without trailer) for the section's messengers. Ten jeeps with trailers would

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405 Ibid pp. 343-346.

406 Ibid pp. 346-347.

407 Ibid pp. 347-348.

408 "Division Commander's Comment on the Organization of the Light Division" undated report (but probably not written before early 1944) found in Record Group 337, Entry 55, AGF Classified Decimal File 322, Box 398 US National Archives Washington DC.

409 US Army Adjutant General Table of Organization and Equipment T/O & E (Test) 7-77T "Rifle Company, Light Infantry Battalion;" (Washington DC 21 January 1944).

410 US Army Adjutant General Table of Organization and Equipment T/O & E (Test) 7-76T "Headquarters Company, Light Infantry Battalion;" (Washington DC 21 January 1944).

go to the supply platoon, one being kept at platoon headquarters and three going to each battalion section (to be driven by the section's three cargadors or mule drivers). To bring up a normal load of supplies, each jeep was expected to make three round trips a day to a supply point located not more than five miles to the rear. Each battalion headquarters company would get one jeep and trailer mainly to carry rations and kitchen equipment. The last two jeeps and trailers would go to the regimental medical detachment.

If the terrain was too difficult for jeeps then pack mules (or native bearers) would be substituted. The regimental commander, three scouts and a messenger in the administration platoon would get riding mules. The supply platoon would get 79 pack mules of whom four (two to carry grain and two for rations) would remain with platoon headquarters (for the regimental headquarters and service company) and 25 (18 for ammunition and seven for rations) would be handled by the cargadors in each battalion section. Mules would have to make only two supply runs per day. Each battalion headquarters would get three pack mules (for rations and kitchen equipment). Each rifle company headquarters would get one mule, and four more mules would go the regimental medical detachment.[411]

A detailed critique of these arrangements by the 89th Division pointed up a number of shortcomings. It stated that regimental headquarters needed liaison officers and at least 14 scouts (including two corporals) rather than six. It also needed a sergeant, two corporals and 14 privates for the establishment, movement, and security of the regimental command post. The communication platoon needed a wire chief (staff sergeant), four more linemen, five more radio operators, and two more radio repairmen. A regimental transportation section with a master sergeant, a dispatcher, a mechanic, and an unspecified number of vehicles (perhaps eight or ten jeeps) and drivers was also required.

Each battalion needed an additional captain to serve as S-1 so as to allow the existing S-1/S-4 to be a full-time S-4. The new S-1 could also serve as headquarters company commander so that the S-2 would only have to be headquarters company executive officer. The critique also suggested that the pioneer squad become a section with two squads. Additional battalion transportation and headquarters personnel were also needed. Each battalion medical section needed a second doctor, four more litter bearers (for a total of 12), and enough aidmen to allow three rather than two per rifle company. The communication section needed another code clerk to run the message center as well as additional repairmen, more radio and telephone equipment, and extra jeeps to carry it.

For weapons, the critique advocated the increase of the two-gun battalion mortar section to a four-gun (two-section) platoon. Each machinegun or mortar squad should include a sub-machinegun for close in protection. Each pioneer or ammunition squad should have two sub-machineguns and each rifle platoon should include a bazooka.

In other transportation matters the critique recommended that extra jeeps be substituted for the handcarts. The M3A4 carts had been found wanting in rough terrain, mud and snow. The three carts in each rifle company headquarters each day had to move one company ration (950 pounds), 285 gallons of water (based on 1.5 gallons per man per day), about 200 pounds of cooking equipment, and 100 pounds of other company impedimenta. Three carts could not move all this gear over five miles even if they were operated 24 hours a day. The critique recommended that one jeep and trailer replace the three carts. As for weapons and ammunition, handcarts were sufficient to carry all crew served weapons, spare parts, and a limited supply of ammunition forward in one shuttle. An LMG cart would carry spares, five ammunition boxes (1,250 rounds), and presumably the LMG itself for a total weight of 181 pounds. A 60mm mortar cart with 36 rounds of ammunition and (presumably) the mortar and accessories would carry a total load of 204 pounds. An 81mm mortar cart with only 12 81mm rounds besides the mortar and accessories would have a payload of 257 pounds.

The three jeeps and trailers in each infantry battalion supply section (regimental supply platoon) could haul sufficient rations for a battalion in one trip, though repeated trips had to be made for water due to a shortage of water cans. These vehicles could also include a small load of ammunition as part of their second daily shuttle but this made no allowance for transporting baggage. The men could, of course, carry their full packs with them but their combat efficiency would be affected. Testing showed that an infantry regiment, using only its organic transportation (jeeps) could move itself and its prescribed loads of ammunition about five miles in ten hours. Testing also showed that a rifle company, using its carts, could adequately support itself, even under ideal conditions, within only 1,000 to 1,200 yards of its supply point. With a jeep, this distance would increase to 6,000 yards.[412]

The results of all this testing was certainly informative but it also sounded the death knell for the light infantry divisions and regiments. The idea would not be resurrected again until the 1980s. As it was the War Department converted the 71st and 89th Divisions back into standard infantry divisions by using personnel from disbanded anti-

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411 US Army Adjutant General Table of Organization and Equipment T/O & E (Test) 7-72T "Headquarters and Service Company, Light Infantry Regiment;" (Washington DC 21 January 1944).

412 "Division Commander's Comment on the Organization of the Light Division" Annex B "Infantry Report" undated found in Record Group 337, Entry 55, AGF Classified Decimal File 322, Box 398 US National Archives Washington DC.

aircraft units. They were among the last to go overseas. Though trained for jungle warfare both ended up being sent to Europe to counter the German Ardennes offensive, thus illustrating some of the dangers of getting too specialized.

The field test results of the 10th Light Division (Alpine, Pack) were also not encouraging but a general reluctance to waste that division's carefully built up expertise in mountain warfare led to its reorganization as a special mountain division. Its three infantry regiments (alpine, pack) were restructured as mountain infantry regiments. These resembled standard infantry regiments except that they had neither cannon nor antitank companies and they depended on large numbers of pack mules, supplemented by motor vehicles, for their transportation. For antitank support, the division received a small antitank battalion with two standard infantry regimental antitank companies (with 57mm guns). These could be attached to individual regiments on an "as needed" basis. The resulting mountain regiment and its individual components are shown in Appendix 6.38. Standard regiments already in the theater would have similarly adapted themselves to mountain conditions by exchanging some of their motor transport for pack mules and except for the presence of their antitank and cannon companies probably would have resembled the mountain regiments to a considerable extent. The newly re-christened 10th Mountain Division sailed for Italy in December 1944.[413]

THE GALAHAD EXPERIENCE

As the Army finally abandoned its light infantry divisions, another light infantry force, operating under some very different concepts, was taking shape on the other side of the world. The story of the American long-range penetration groups, code named GALAHAD (later renamed MARS), though involving a relatively small force in a relatively minor theater, should be of considerable interest. It is a case study of innovation in the development of modern light infantry tactics and operations and will be described here in some detail. During the first year or so of the Pacific War the British Commonwealth land forces suffered a series of humiliating defeats at the hands of the Japanese. At Singapore, the Japanese had captured an entire army of more than 138,000 men in the biggest single disaster in British military history. In Burma they had then defeated another numerically superior British-led army, plus a reinforcing army of Nationalist Chinese. These reverses had forced the Allies to abandon the Burma Road, a vital supply route that had done much to keep China in the war. Future British operations would have to focus on defending India, recovering the Burma Road, and restoring their own badly tarnished military reputation.

It was true that the British were generally inferior in the air until late 1942 and that their best troops had been sent to the Middle East rather than to Asia. However, it was also true that on the ground they usually outnumbered the Japanese and enjoyed superior firepower at every level from squad to army corps. Also, the thick jungle canopy covering much of the region and a chronic lack of cooperation between Japanese ground and air forces tended to minimize the effects of enemy air power. The principal British difficulty lay in their preoccupation with heavy firepower and North African-style open warfare. This left them fatally dependent on large amounts of motor transport that tied them to the roads. They also overburdened their footsoldiers with weapons and equipment and failed to prepare them, either physically or psychologically, for the jungle. Far from being "born jungle fighters" few of their lightly equipped Japanese opponents had ever been in or even seen a jungle before. However, they were favored by better staff work, superior small unit tactics, more sensibly designed transportation, and a greater willingness to accept the hardships of temporary separation from their own supplies. The superior Japanese ability to maneuver in the jungle made a great impression on the British and was indeed a critical ingredient in Japanese success.[414]

As the British situation in Burma in early 1942 went from bad to hopeless, the British commander in India, Field Marshall Sir Archibald Wavell, finally sought the assistance of Lieutenant Colonel Orde Charles Wingate. Wingate was one of those brilliant but irritatingly eccentric officers who could never have advanced far in a peacetime military but in Palestine and Ethiopia, he had acquired a reputation as a skilled and innovative practitioner of irregular warfare. Wavell was desperate enough for new ideas to be willing to look to an unconventional thinker like Wingate to supply them. After making a personal reconnaissance of northern Burma, Wingate concluded that the way to defeat the Japanese was to form lightly armed columns of infantry designed specifically to operate in the jungle away from the roads and as far as possible from civilization generally. As the

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413 Robert R. Palmer "The Reorganization of Ground Troops for Combat", op cit pp. 348-349; US Army Adjutant General Table of Organization and Equipment T/O & E 7-131 "Infantry Regiment, Mountain" and "Medical Detachment, Infantry Regiment, Mountain;" T/O & E 7-132 "Headquarters and Headquarters Company, Infantry Regiment Mountain;" T/O & E 7-133 "Service Company, Infantry Regiment, Mountain;" T/O & E 7-135 "Infantry Battalion, Mountain;" T/O & E 7-136 "Headquarters and Headquarters Company, Infantry Regiment, Mountain;" T/O & E 7-137 "Infantry Rifle Company, Mountain;" T/O & E 7-138 "Infantry Heavy Weapons Company, Mountain;" and T/O & E 7-145 "Infantry Antitank Battalion, Mountain Division" (all Washington DC 4 November 1944).

414 There are numerous published works on both the Malayan and Burmese campaigns. The above is the author's assessment of them. For one of the better ones see Adrian Stewart *The Underrated Enemy: Britain's War With Japan* (London, William Kimber 1987).

Allies were gaining air superiority, it should be feasible to supply these "long range penetration groups" by parachute. This would allow them to cut Japanese supply routes from so far behind their front lines that the Japanese would be compelled to greatly weaken their front line in order to protect their own rear. With Wavell's blessing Wingate organized the 77th Indian Brigade of about 3,200 British, Gurkha, and Burmese troops. Known as the "Special Force" or "Chindits" (after the combination lion and eagle stone gods that guarded Burmese temples), they launched their first major operation in the spring of 1943. Over a period of four months, the brigade harassed and confused Japanese forces, cut the Mandalay-Myitkyina railway for four weeks, and diverted some six to eight Japanese battalions. However, the cost was high. Between battle casualties, accident, disease, malnutrition, and exhaustion the entire brigade was put out of action. Wingate rated only about 600 of the survivors as able to endure another campaign, though he had rejected many men for psychological rather than physical unfitness. Orthodox officers tended to dismiss the affair as an expensive farce, but it was lionized by the press and gave a great boost to Allied morale. It also attracted the favorable attention of Allied strategists who were anxiously searching for ways to assume the offensive and reopen the Burma Road. Winston Churchill was so impressed that he had Wingate address the Allied leadership conference that met in Quebec in August. Wingate's appeals found a very receptive audience who agreed that the Chindits should increase to six brigades and that Wingate should become a major general. The United States would provide the special air units needed for the Chindits' supply, transportation, and evacuation and would also contribute what amounted to a seventh Chindit brigade composed entirely of Americans and codenamed GALAHAD.[415]

Mindful of the more negative aspects of the 77th Brigade's experience, the War Department saw GALAHAD as expendable. It concluded that GALAHAD could remain effective for, at most, three months of combat after which the War Department would withdraw and disband whatever remained. It would not furnish any combat replacements to maintain GALAHAD's fighting strength. GALAHAD would consist of three long range penetration groups or battalions. Officially these were numbered the 2111th, 2112th, and 2113th, though they were usually known as the 1st, 2nd, and 3rd. Tables of organization for them were drawn up in September, based on Wingate's recommendations. No regimental headquarters was set up, though the group was often called a regiment unofficially. One third of GALAHAD's 3,000 officers and men were to come from the Continental United States, another third from garrisons in the West Indies, and the rest were supposed to be jungle veterans from the Southwest Pacific. Unfortunately, few men who had actually seen jungle combat wanted to repeat that experience. Many who were willing could not since they were still suffering from malaria. Even men without jungle experience were reluctant to sign up for a "dangerous mission" of unspecified nature and GALAHAD soon became a dumping ground for the misfits of half the divisions in the Army. Though such recruits were often discipline problems, like the Rangers, many proved to have a reckless independence that would serve them well in the months ahead. GALAHAD arrived in India in late October as "Casual Detachment 1688." It was then designated the 5307th Composite Unit (Provisional), "5307" being one of a block of numbers given to the China Burma India (CBI) Theater to designate miscellaneous formations.[416]

The three infantry battalions were specially structured to make them easy to supply by air. Regular and reliable air delivery of food, water, and ammunition would considerably reduce what the troops would actually have to carry. There would be no motor vehicles. Few Burmese "roads" or bridges were trafficable even for jeeps and cross-country vehicle movement was usually out of the question. Transportation had to be mainly by pack mule, though handcarts could carry crew served weapons and some radios. An average mule could handle a 160-pound payload, though the stronger ones carried more. Structurally, a handcart could carry considerably more than a mule although the practical limits on what two men could pull made its usable capacity rather less. GALAHAD's tables of organization called for a total of 471 pack mules and 123 handcarts in its three battalions. They actually started their campaign with 700 mules but these included riding as well as pack animals. GALAHAD seems to have used its hand carts without complaint, notwithstanding the 89th Division's experience, though its bicycles proved useless. The local population sometimes provided porters and even elephants. Rubber boats would facilitate river crossings and water reconnaissance. Sub-machineguns were issued in some numbers since both the US and British armies considered them advantageous in the jungle even if the US Marines did not. The primary model was the M3 "grease gun." Officially, M1 carbines replaced most pistols, although many men carried extra pistols to use in emergencies.[417]

The question of who would command GALAHAD was a thorny one. The decision would lie with the senior American officer in CBI, Lieutenant General Joseph Stilwell. A peppery character, Stilwell had been the United

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415 McMichael, *A Historical Perspective on Light Infantry* op cit p 4; Hogan, *Raiderss or Elite Infantry?* Op cit pp. 48-49; and Historical Division, War Department, *Merrill's Marauders February-May 1944* (Washington DC Reprinted by the Center for Military History 1989, originally published 1945 by the Military Intelligence Division, War Department) pp. 1-7.

416 McMichael pp. 14-15; Hogan, *Raiders or Elite Infantry?* Pp. 48-49; Charles F. Romans and Riley Sunderland, *Stillwell's Command Problems* (Washington DC, US Army Center of Military History, reprinted 1985, first published 1956) pp. 34-35.

States military representative and chief advisor to the Nationalist Chinese government. He also commanded the Chinese troops stationed in India and served as deputy to British Admiral Lord Louis Mountbatten, the chief of the Allied Southeast Asia Command or SEAC. Stilwell did not want the only American ground combat troops in SEAC to fight under British command and especially not under Wingate, whom Stilwell especially disliked, probably because his eccentricities resembled those of Stilwell himself. Stilwell used his influence with General Marshall and Lord Mountbatten to get GALAHAD placed under his own command, despite Wingate's furious protests. For the tactical command of GALAHAD, Stilwell chose Brigadier General Frank D. Merrill, which led newspaper correspondents to dub GALAHAD as "Merrill's Marauders." Merrill, a cavalryman with little infantry experience, had been a staff officer on intimate terms with Stilwell. He lacked the physical constitution that duty with GALAHAD required and had to be medically evacuated from the field on several occasions. Colonel Charles N. Hunter, who had temporarily commanded GALAHAD during its transportation to, and training in India and had stayed on as Merrill's executive officer, became GALAHAD's *de facto* commander for much of the campaign.[418]

The organization of a GALAHAD infantry battalion and a rifle company appears in Appendix 6.39. Unique in US Army practice and on Wingate's advice, each GALAHAD rifle company included four rifle platoons rather than the usual three and a heavy weapons section rather than the usual platoon (apparently the Army had some institutional bias against having more than four platoons in a rifle company). Each rifle platoon had its own light weapons section and three rifle squads of the standard 12-man type (except that one "rifleman" per squad actually carried a sub-machinegun). The light weapons section operated two additional BAR (with two-man crews) and a 60mm mortar. The company-level heavy weapons section included two LMG (Browning M1919A4 type) but a single 81mm mortar in lieu of a section of 60mm. The rifle company headquarters included an Army Air Corps (AAC) lieutenant to coordinate supply drops and an assistant supply and mess sergeants to represent the company at the rear base from which the company's resupply flights originated.

Additional equipment issued to each rifle company included portable flame-throwers, 12-gauge shotguns, a rubber boat with outboard motor, radios, and handcarts. All personnel received machetes, though the type initially issued proved to be too long. Remarks from GALAHAD units in Burma relayed through their rear echelon headquarters in India described the flame-throwers as valuable but initially lacking enough fuel filling kits. The remarks also noted that the shotguns had been little used and suggested that they be limited to one per company. They also regarded the rubber boat, designed for 10 men as inconveniently large. SCR-536 radios normally went to each rifle platoon, the heavy weapons section, and the company command post. The company commander also had one for his own use when he was not in the CP. Handcarts sufficed to carry each mortar and LMG.[419]

Battalion headquarters was relatively large and included air liaison officers and a rear base detachment led by a major but otherwise attempted to be as conventional as circumstances permitted (see Appendix 6.40).

The communication platoon was mainly a radio unit, though it did include some wire equipment. Its task was particularly important in that it carried and operated the radios used to request and coordinate air supply drops. Panels were used for aircraft signaling as well. Even a pigeon section of an officer and 10 men was authorized at one point, though it is not included in Appendix 6.40. The radio equipment for one battalion is listed on the battalion diagram in Appendix 6.39. The AN/PRC-1s were relatively light but still had to be mule packed. They had a normal range of 200 to 2,000 miles and therefore were used to maintain contact with General Stilwell's forward headquarters and with the Rear Base Element at Dinjan. Their hand generators contributed to their reliability in extreme weather but made them fatiguing to operate for men already weakened by disease and poor food. The 100+ pound SCR-610s (or SCR-284s) were also mule packed and used to communicate with friendly aircraft. They were reasonably effective out to 20 miles. One SCR-610 (and an SCR-300) would normally go to each rifle company headquarters. GALAHAD received a special mule pack version of the SCR-197 during the latter part of the Myitkyina campaign. This 30-to-100-mile range set was used to contact distant ground units and the temporary command base at Naubum. It proved very reliable under jungle conditions but at 700 pounds it was crushingly heavy and it took at least three of the strongest mules to carry one. As in conventional units the SCR-300 man-pack radios provided battalion-level intercommunication just as the SCR-536s provided company-level communication.[420]

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417 Letter from Rear Echelon, Headquarters US Army Forces China Burma India to War Department General Staff on "Air Supply of Galahad" and forwarding front line troops' comments on equipment items dated 28 March 1944 Record Group 407 Entry 427 92-TF1-0.2 (2627) Box 90 US National Archives Washington DC; MGen S. Woodburn Kirby, *The War Against Japan* Vol II (London, HM Stationary Office 1958) p 501; and Joseph E. Smith *Small Arms of the World* (Harrisburg Pennsylvania, The Stackpole Company 1973) pp. 662 and 680-681; and McMichael op cit pp. 14-18. According to James E. T. Hopkins, *Spearhead,, A Complete History of Merrill's Marauder Rangers* (Baltimore MD, Galahad Press 1999) pp. 100-105, GALAHAD's mules and mule drivers came from the 31st and 33rd QM Pack Troops.

418 Hogan, *Raiders or Elite Infantry?* Pp. 50-51.

419 Ibid and US Army Tentative T/O&E 7-127 Special "Rifle Company, Infantry Battalion, Special" Record Group 407, Entry 363, US Army Adjutant General Classified Decimal File 1940-45 AG 320.2 Box 1850 US National Archives Washington DC.

The pioneer and demolition platoon provided general engineering support for the battalion, as well as blowing things up. Most of its men operated as three sections whose composition varied with their current mission.[421]

Another key unit in the headquarters company was the intelligence and reconnaissance (I&R) platoon. While conventional infantry would have had only one I&R platoon, GALAHAD had one in each battalion. A GALAHAD I&R platoon not only gathered intelligence it was also its parent battalion's main security element against ambush and surprise and so great care was taken in the selection of its members (see Appendix 6.40).[422]

Of less significance, but still important since a battalion had to be able to carry enough to sustain itself between air drops, was a transport "platoon" (actually a section) that carried a supply reserve on 27 pack mules.

There was no heavy weapons company in a GALAHAD battalion. Instead, the headquarters company included a weapons platoon (see Appendix 6.40). Its commander, a first lieutenant had a second lieutenant as his assistant (according to the table of organization, the only second lieutenant in the battalion) who could command part of the platoon if it operated as two separate elements. The HMG (M1917A1 water-cooled Brownings) and 81mm mortar sections were similarly organized with four squads each. By cross-attaching squads they could operate as two independent sections with two guns and two mortars in each. The rocket (or bazooka) section was the sole antitank protection that a GALAHAD battalion had but given the scarcity of Japanese armor in Burma, nothing more was needed. Along with the rifle company flame-throwers, it would have been of use against fortifications as well.[423]

A Medical Corps major led each of the GALAHAD battalion medical detachments (see Appendix 6.39). Each detachment consisted of a medical section and a much smaller veterinary section. Litter teams used two men each rather than the usual four. Presumably, this was done to save manpower or because the carry distances were expected to be short. The table of organization stated that any enlisted member of the medical section might be assigned as an aidman to one of the companies, though only the 13 surgical technicians really qualified for this duty. This was barely enough to attach one to each rifle platoon. Other section members would man an aid station. The veterinary officer carried a pistol for dispatching sick or injured animals that could not be cared for. However, pistols were available issued to all medical detachment members, should this be ordered.[424]

Training began as soon GALAHAD arrived in India. Colonel Francis G. Brink of CBI headquarters took charge of this under Colonel Hunter and both worked under General Wingate's overall supervision. The course of instruction placed much emphasis on building endurance and the teaching of "jungle craft." It also included repeated rehersals of elaborate standard operating procedures (SOPs) for operations that would frequently be performed, such as river crossings or setting up trail blocks, so that they could be carried out in the field with a minimum number of commands. Training also stressed special skills like mule handling. Tactical training focused on squad and platoon tactics. Company and battalion-level operations, while not ignored, received less attention. GALAHAD joined the Chindits for a week of maneuvers in December.[425]

For his 1943 Chindit campaign, Wingate had organized his 77th Brigade into eight self-contained "columns," each built around a rifle company. The standard British Commonwealth infantry battalion was built around four relatively small rifle companies. Mortars and other heavy weapons belonged to a support company. Wingate organized four of his columns around the rifle companies of the (British) 13th King's Liverpool Regiment and the other four from the 3/2nd Gurkha Rifles. Wingate then heavily reinforced these companies with heavy weapons, a "sabotage" group (pioneers), a Burma Rifles platoon (to provide native scouts, guides and interpreters), an RAF

③ Personnel shortages limited each British company to only five officers and 110 men. It could man only three of the four rifle platoons it was authorized. At six officers and 160 men a Gurkha company could field all four of its platoons. Each British or Gurkha rifle platoon had an officer, 30-35 men, three Bren LMG (one per rifle squad), an antitank rifle, and a 2-inch (51mm) mortar. The other elements of each column were as follows (higher personnel strengths apply to Gurkha units, lower ones to British): a column headquarters (two officers and six men), a medical section (one officer and five men), a signal section (11 or 13 men), a "sabotage" group from the 142nd Commando Company (one officer and 29 men), a reconnaissance platoon from the 2nd Burma Rifles (four officers and 41 men), an RAF section (one officer and four men), a support group (30 or 40 men) manning two HMG and two 3-inch mortars (equivalent to 81mm) and a supply and transportation section with two officers, 55

420 US Army Tentative T/O&E 7-126Special "Headquarters and Headquarters Company, Infantry Battalion, Special" Record Group 407, Entry 363, US Army Adjutant General Classified Decimal File 1940-45 AG 320.2 Box 1850 US National Archives Washington DC; and War

422 Ibid. James E. T. Hopkins and Johnn M. Jones (who were, respectively, a medical officer and a company commander with GALAHAD) stated that initially each battalion formed an I&R platoon of one officer and 54 men. Platoon headquarters included the platoon sergeant, four radio operators, a Japanese (Nisei) interpreter and two mule drivers (with one mule for radio equipment and at least one other mule for baggage). The platoon's three sections had 14 men each. What the platoon's remaining four members did is unclear. A similar arrangement for an enlarged pioneer platoon may have existed also. Since one each of these oversized I&R and pioneer platoons in each combat team would have greatly weakened the rifle companies (the official battalion strength of 982 officers and men was not exceeded) it is likely that in practice the I&R and

423 US Army Tentative T/O & E 7-126Special. According to Hopkins and Jones a GALAHAD battalion usually carried a total of seven HMG

424 US Army Tentative T/O & E 7-125Special "Medical Detachment, Infantry Battalion, Special" Record Group 407, Entry 363, US Army Adjutant General Classified Decimal File 1940-45 AG 320.2 Box 1850 US National Archives Washington DC.

regime for the Chindits was harsh and the "washout" rate was high. A shortage of replacements forced one of the British columns to disband in order to fill the other three. Many of the British soldiers that were used were older reservists. GALAHAD, apparently at Wingate's behest, received orders to employ a similar system by dividing each of its battalions into two combat teams. Commanded by a major, each team was to be known by a color code. Thus, the Red and White teams came from the 1st Battalion, Blue and Green the 2nd, and Orange and Khaki the 3rd. Each Battalion commander kept a small command group and accompanied one of his teams. Although the Army's official history includes a detailed description of how these teams were organized, this description is highly questionable. The authors give no sources for their data and they contradict the tables of organization in many respects, even though spot checks of the surviving operational records indicates that these were used largely as written. A popular history published by the War Department at the end of the war says that the matter was left to the discretion of the battalion commanders and this seems the most likely explanation. Initially each battalion seems to have placed two of its rifle companies in one team, and its third company (reinforced) in the other. At other times a rifle company might be split between two teams. In any event, team organization appears to have been flexible and to have varied as the campaign progressed. Each team was supposed to include an I&R platoon and a pioneer platoon even though there was only one of each per battalion. The two platoons may have been split between the teams but an examination of various accounts of the campaign suggests that the platoons were kept together, though they may have been switched between teams fairly frequently. Other accounts indicate that men detailed from the rifle companies reinforced these platoons to where each could operate two platoon-sized elements. It is also possible that certain rifle platoons did I&R or pioneer duty when the appropriate specialist platoons were not present.[426]

General Merrill and Colonel Hunter commanded GALAHAD from a small headquarters that accompanied one of the battalions in the field. Merrill's rank insured that GALAHAD would not be officially constituted as a regiment since that would have made it a colonel's command. To make GALAHAD more like a brigade, and therefore fit for a brigadier general, a Chinese regiment or two was frequently attached. Kachin guerrillas armed and trained by the OSS also gave invaluable assistance. More important than the command element was GALAHAD's Rear Base of about 295 officers and men. Commanded by Major Edward T. Hancock, GALAHAD's S-4 and reinforced by liaison detachments (described above) from each GALAHAD battalion, the Rear Base handled all supply and administrative matters. It was located at Dinjan, together with the Number 1 Air Commando, a unique Army Air Corps unit specially established to support GALAHAD and to assist the RAF in supporting the other Chindit brigades. Its aircraft comprised 13 C-47 and 12 C-46 transports, 12 B-25 medium bombers (often used as transports), 30 P-51 fighter-bombers for close air support, 100 light L-4 and L-5 liaison aircraft, six helicopters, and 225 Waco gliders. Because of their short takeoff capabilities the light aircraft and helicopters were especially valuable for evacuating critically sick or wounded men. The gliders were used for supply, rather than troop delivery.[427]

Rear Base personnel, for their part, operated the warehouses, packed the supplies and parachutes, loaded the aircraft, and provided "kicking" details for pushing the supplies from the planes. No supply was automatic. Everything had to be requested. The field units would state what they wanted, where, and approximately when. This would then be coordinated with the air transport squadron that would perform the drop and the requesting unit would then be told *exactly* when and where the drop would take place and how many aircraft would be involved. Thus, a field unit could make a long march with minimal supplies and expect resupply as soon as it reached its objective. Requests for food and water were relatively predictable and routine. However, the Rear Base also had to respond to ammunition requests on a "surge" basis. Ammunition, pre-packed in drop containers and loaded on trucks for the drive from warehouse to airfield, was maintained in constant readiness. When enemy contact was made or considered imminent, a radio request for ammunition could bring results within three to four hours, including about 75 minutes' flight time. As the campaign progressed the Rear Base spared no effort to conserve the time and effort required of the combat troops for the collection and distribution of the supplies delivered to them. The average weight of loaded drop containers, for example, was cut in half after it was discovered how much more easily the receiving unit could handle lighter ones. Packing individual supplies, such as rations, in individual bags that could be tossed to each man eliminated the need to count separate items and simplified issue. Such innovations reduced supply distribution time at the receiving unit by 60 percent. During a 30 day period in February to March 1944, for example, 17 supply missions were flown each averaging 6.5 sorties delivering 22.1 tons (376 tons were delivered in all). Drops were normally executed only once in three to four days. This, plus the brief time which the cargo aircraft spent over the drop zone, served to minimize the possibility of GALAHAD's position being compromised by the supply drops. In combat, however, the Rear Base greatly accelerated its supply deliveries. For

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426 Romans and Sunderland, *Stilwell's Command Problems* op cit (referred to above as "Official History") pp. 34-35; War Department, *Merrill's Marauders* (1945) op cit pp. 10-15; see also S. Woodburn Kirby op cit pp. 503-504. See also *Spearhead* op cit pp. 68-69.

427 McMichael op cit pp. 14-15 and 35; Hogan, *US Army Special Operations in World War II* p 114; War Department, *Merrill's Marauders* (1945) op cit pp. 12-14.

example, during the battle at Walawbum in early March, it managed to deliver an emergency issue of some 28 tons of ammunition.[428]

To maintain themselves as a large non-indigenous force operating for an indefinite period far behind enemy lines GALAHAD and the Chindit brigades, used technology to the fullest extent possible. For them, cargo aircraft took the place of service company supply trucks and P-51 fighter-bombers replaced field artillery. However GALAHAD's mortars also proved very effective in the jungle, especially when they could be plentifully resupplied with air dropped ammunition. Another fundamental feature of Chindit operations was a reversed system of values regarding terrain. Instead of seeing the jungle as a menacing obstacle and the trails and roads as friendly and familiar, the Chindits looked to the jungle as a place of refuge and the roads as something sinister along which enemies approached. Terrain which even the Japanese considered impassible was a primary avenue of approach for the Chindits and was so precisely because it was unexpected and therefore unwatched. Chindit marches were relatively fast. GALAHAD was particularly noteworthy for this even though its average march speed over the relatively benign terrain of the Ledo Road was only about 10 miles a day. Columns usually moved in single file preceded, by a reconnaissance unit, sometimes by as much as several miles. To avoid, detection, GALAHAD often followed river valleys, crossing and recrossing the same river as many as 40 times in a day. Mountain trails might have to be negotiated on all fours. Where the mules could not climb their gear had to be moved by hand. Losses among the animals often led to agonizing decisions about what would have to be left behind. If a Japanese trail block was encountered, the lead squad of the lead platoon would take the block under fire to pin the enemy in place so they could not interfere while other squads worked round the flanks. Against a stronger block, the lead squad might require reinforcement by mortars, light or heavy machineguns, and/or close air support. Such tactics were slow but minimized casualties. The Japanese usually withdrew to a new position before their retreat route was cut. In the opposite situation in which a GALAHAD defended a roadblock, the reverse procedure was used. One or two platoons would hold the block while the rest of the column cleared a trail to the rear. The blocking force would operate in two echelons, one holding a position and keeping the enemy under fire while the other "leapfrogged" to the next position in the rear.

The typical Chindit/GALAHAD attack relied heavily on surprise, though it was usually conducted during daylight hours. A tactical march to an assembly area close to (but not in sight of) the objective would be followed by a quick reconnaissance to collect critical last minute information about the enemy's situation. Finally, the main body would approach undetected as closely as possible to a vulnerable point in the enemy's position. The attack itself would be accompanied by intense supporting fire from machineguns and mortars, usually delivered from two or more different directions so that at least some flanking enfilade fire would be achieved. The shock effect of such an attack usually drove the defenders from their positions even when they outnumbered the attackers. If their intent was to hold the captured ground, the GALAHAD/Chindits would immediately dig in deeply, adding overhead cover to their defensive positions whenever possible, and sheltering the mules in the center of their perimeter. Though Japanese counterattacks were frequently delayed, their occurrence was nearly inevitable and their prosecution was both ferocious and relentless. To defeat them, the GALAHAD/Chindits placed heavy reliance both on close air support and air resupply of ammunition for organic weapons as well as on good fire discipline (letting the enemy get close before opening fire) and individual marksmanship. GALAHAD's Nisei interpreters, who reported the Japanese orders they overheard and often shouted contradictory and confusing orders of their own were also very valuable. It should also be remembered that, compared to the Japanese, GALAHAD was quite heavily armed.[☞] The result was that the Japanese counterattacks usually failed and sustained heavy casualties that sapped morale. However, had the Japanese been more patient, employed heavier forces, and taken more time to bring up their artillery, GALAHAD's position might have been made much worse but the Japanese were reluctant to divert their best front line units.[429]

Despite the effort devoted to it, Logistics proved to be a major Chindit/GALAHAD vulnerability. Existing medical technology could not prevent the spread of tropical disease, particularly scrub typhus. Atabrine tablets controlled malaria fairly well, though at the cost of making many men feel ill. Hookworms, leeches, and other parasites also took their toll. Food was a weak point as well. GALAHAD subsisted largely on K-rations because they were light, did not spoil, and were easy to supply. However, they were designed as survival rations able to keep

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[☞] Regarding relative firepower, a Japanese infantry battalion of about 800-900 men would carry 400-500 rifles and carbines (all bolt action Mauser types), 27 LMGs (the best ones comparable to the British BREN but many no better than the BAR), 27 50mm light mortars (short ranged grenade throwers but fairly effective), eight HMGs (air cooled guns without the sustained fire capabilities of the water cooled M1917A1 Brownings), and two light 70mm howitzers (which the Japanese regarded as being equal to four 81mm mortars). There were no sub-machineguns or semi-automatic rifles like the M1; see War Department Technical Manual TM-E 30-480 *Handbook on the Japanese Military Forces* (Washington DC 1 June 1945).

428 "Air Supply of Galahad" op cit; War Department, *Merrill's Marauders* (1945) op cit pp. 10-15.

429 McMichael pp. 18-29.

men alive but not necessarily fit. They lacked the bulk needed to sustain men performing heavy labor. The result was widespread exhaustion, and, because the men's stomachs shrank as a result of this unfilling diet, an inability to eat decent solid food even when it was available. However, had GALAHAD remained in the field for only the three months that the War Department had envisaged the worst effects of their diet might have been avoided.

Another problem affecting GALAHAD was that of the non-support of its senior leadership. The British Chindit brigades, though not officially regarded as an elite, were nevertheless seen as engaged in a critical and very demanding task and everything possible was done for them. They already belonged to well-established regiments held together by long histories, common customs, traditions, and personal friendships. Material concerns were well looked after. Mail accompanied every supply drop. Great efforts were made to keep every man's relatives informed that he was still alive and well. Comfort items such as candy, rum, and cigarettes were frequently delivered. Field promotions and decorations were also conscientiously awarded to deserving soldiers. GALAHAD, on the other hand, had no history, colors, patch, or crest. There was only the awkward "5307th" title. When the men designed their own crest, it was disdainfully rejected. No luxury or comfort items were delivered and mail was very infrequent. One unit went without any for two months. GALAHAD's theater commander, General Stilwell, never visited his men in the field or gave out any awards or promotions until after the capture of Myitkyina airfield and he was stingy even then. He seemed completely unaware of the hardships that GALAHAD was suffering and, in general, reserved most of his affection for his Chinese soldiers. Worse, GALAHAD had no charismatic leader like Orde Wingate. General Merrill was ill too frequently to be really effective. Colonel Hunter was competent but colorless. Some of this disparity in senior leadership ended with Wingate's death in an air crash in late March 1944. This enabled General Stilwell to obtain control of all the Chindit brigades as well as GALAHAD. He then proceeded to treat his British soldiers as badly as his Americans. However, within both the Chindits and GALAHAD, middle and lower level leaders appear to have generally displayed courage and presence of mind, and to have enjoyed their men's confidence.[430]

GALAHAD moved to northern Burma for its first offensive, which was scheduled to begin in mid-February 1944. The original plan was that Stilwell's two Chinese divisions, the 22nd and the 38th, would drive up the Hukawng Valley towards the town of Myitkyina, a key transportation center with the only all-weather airfield in northern Burma. The capture of Myitkyina would not only get the Allies much closer to reopening the Burma Road but would also eliminate a fighter base which the Japanese had been using to attack Allied transport aircraft flying supplies to the Chinese from India. At the same time, two British corps would attack in the south, while a Chinese expeditionary force of 11 small divisions attacked across the Salween River into eastern Burma. However, before the offensive could begin, the Japanese attacked in the south towards India, forcing the British to cancel their part of the operation. The Chinese then reneged on theirs. Rather than wait until the Monsoon season began in June, Stilwell decided to go ahead with his part of the offensive, alone. His two Chinese divisions would be facing the Japanese 18th Division, which was one of the three divisions that had captured Singapore. GALAHAD's role was to be as a kind of strategic cavalry, moving round the right flank of the 18th Division to strike its communications but in closer coordination with conventional Chinese attacks than Wingate would have advocated. Nevertheless, GALAHAD began its movement on 24 February. Using obscure trails, receiving supplies dropped into the few jungle clearings, and screened by their I&R platoons, the three battalions successfully reached Walawbum, which was astride the main roads and the expected line of Japanese retreat. The Chinese commanders, fearing heavy casualties to their valuable American trained and equipped troops, did not press their attacks very hard and this freed many Japanese to concentrate against GALAHAD. Fortunately, the Japanese timed their counterattack so that it was too late to prevent GALAHAD from fortifying itself but too soon for the Japanese to bring up their own artillery. The Japanese were shot to pieces, suffering an estimated 800 casualties against GALAHAD's eight killed and 37 wounded. However, disease and other non-battle hazards raised GALAHAD's total loss to about 200. The Japanese retreated into the jungle, bypassed GALAHAD's positions, and fell back to a new defensive line in the Jambu Bum mountain range. On 12 March Stilwell ordered GALAHAD to envelop this position. Reinforced by the Chinese 113th Regiment, the 1st Battalion was able to surprise an enemy force and establish a blocking position south of Shaduzup. The other two battalions swung in further south. However, they had no sooner established their own blocking positions than Stilwell ordered them to move northeast to head off a major Japanese drive against the left flank of the Allied advance. However, the 2nd Battalion was soon forced to take up a static defense position at Nhpum Ga. This was a change from previous policy under which GALAHAD would hold blocking positions only for brief periods of time. The 2nd Battalion held on until the other two battalions could break through the encircling Japanese and relieve it 11 days later on 9 April. A pair of 75mm pack howitzers that the Rear Base air dropped to the 3rd Battalion to provide badly needed artillery support assisted this operation. To man the guns the 3rd Battalion,

430 McMichael pp. 30-35.

called on some former members of the 98th Field Artillery Battalion. The 98th Field Artillery was then on New Guinea undergoing conversion to the 6th Ranger Battalion. The Japanese again withdrew south.[431]

At this point, GALAHAD was approaching its three-month limit. Only half its men were still fit for duty but Stilwell wanted them to make a 65-mile trek over the 6,000-foot Kumon Range to Myitkyina, so as to get there before the Monsoon. Stilwell did promise to evacuate GALAHAD afterwards if all went well. Despite the nearly impossible condition of the mud-greased mountain trails, GALAHAD somehow reached Myitkyina on May 17, took its defenders by surprise and captured the airfield. However, having neither a plan to exploit its success nor good intelligence about the Japanese defenses, it failed to capture the town. As the Japanese reacted, GALAHAD found itself under siege and, by 25 May, desperately required relief. About 75 to 100 men were being evacuated daily from disease alone. GALAHAD at this point had nearly 2,400 casualties but only 101 were reported as killed or missing in action. Another 293 had been wounded but this did not include many minor injuries that were treated on the spot. Most of the others were sick and even these were only the more severe cases. Physical exhaustion was so great that men were falling asleep during firefights. However, substantial Chinese reinforcements were arriving by air and these, together with Kachin guerrillas and the surviving GALAHAD members, finally forced a Japanese withdrawal from Myitkyina on August 3.[🗞] That same day, Stilwell rewarded Colonel Hunter's bitter protests over the treatment and condition of his men by relieving him of command. When word of GALAHAD's situation reached the United States it led to much bad publicity and bitter feeling despite GALAHAD's considerable tactical successes.[432]

In August, the GALAHAD survivors withdrew to India and, took in new men, and reorganized as the 475th Infantry (a real regiment this time!). The three battalions remained essentially the same but the new regiment now officially incorporated both the Rear Base and the command group. This increased the regiment's strength to 152 officers, four warrant officers, and 3,097 men. In November the command group received its own I&R platoon. This unit was similar to the three battalion I&R platoons but it had two officers and two Nisei interpreters rather than one of each. The same change may also have been applied to the battalion platoons. Also the 1944 War Department mandated increase in enlisted pay grades (under which rifle squad leaders became staff sergeants rather than sergeants, platoon sergeants became technical sergeants, and so forth) throughout the Army during early 1944 also affected the 475th Infantry. The 475th Infantry would operate alongside the smaller 124th Cavalry, a Texas National Guard regiment also restructured for the long-range penetration role. The 612th and 613th Field Artillery Battalions (75mm Pack Howitzers) would provide fire support. All these plus the Chinese 1st Separate Regiment (converted from a mortar unit, it never actually fought alongside the Americans) would comprise the MARS Task Force or the 5332nd Brigade (Provisional) under Brigadier General John P. Willey.[🖈] When campaigning weather resumed, MARS flew into Myitkyina and began the long "hike" to the Burma Road terminus at Lashio, arriving there in mid-January 1945. Wishing to avoid the heavy losses that had wrecked GALAHAD, General Willey did not attack Lashio directly but interdicted its supplies and forced the Japanese to abandon it themselves. Willey's men avoided the main roads but kept them under observation from the high ground and used frequent patrols, ambushes, and artillery fire to deny them to the Japanese. With the fall of Lashio, traffic on the Burma Road could be restored. The MARS Task Force then moved into China and was disbanded in July. The war ended a month later.[433]

[🗞] Only 1,310 GALAHAD men actually reached the Myitkyina area and 679 of these had to be evacuated between 17 May and 1 June. LTC William L. Osborne's 1st Battalion and the Chinese 150th Regiment were the units that actually took the airfield. (Osborne later commanded the 475th Infantry). During the subsequent fighting things got so desperate that about 200 previously evacuated and now convalescent GALAHAD were flown into Myitkyina as reinforcements (though some had to be pulled out again soon afterwards). Other reinforcements (besides more Chinese) flown into Myitkyina included the 209th and 236th Engineer Battalions, who fought as infantry. (They had been called away from working on the Ledo Road.) See John H. Randolph, *Marsmen in Burma* (Houston Texas, published by the author, 1946) pp. 27-28.

[🖈] The 124th Cavalry, though fighting as infantry, retained much of its cavalry structure and thus rated only 100 officers and 2,074 men (including medical). It had three "squadrons" but each of these was substantially smaller than one of the 475th Infantry's battalions. However, each battalion or squadron in MARS rated its own platoon of OSS-trained "Kachin Rangers," its own attached Quartermaster pack train (with 320 mules, though many of these were driven by personnel from the supported battalion or squadron itself), a section of Niesi interpreters, and a section of scout dogs. There was also a Chinese pack train to transport the 44th and 49th Portable Hospitals. Taken all together, MARS was enormously better supported than GALAHAD had ever been. See Randolph, *Marsmen in Burma* pp. 28-40.

431 McMichael pp. 36-38; Hogan, *Raiders or Elite Infantry?* pp. 63-65; Official History pp. 119-122; War Department, *Merrill's Marauders* pp. 31-91.

432 McMichael pp. 38-43; Hogan, *Raiders or Elite Infantry?* pp. 65-68; War Department, *Merrill's Marauders* pp. 91-114; and Adrian Stewart, *The Underrated Enemy*, op cit pp. 200-201. See also John H. Randolph, *Marsmen in Burma* (Houston Texas, published by the author, 1946) pp. 27-28.

433 Shelby Stanton, *Order of Battle*, op cit pp. 196, 282, & 318; Hogan, *Raiders or Elite Infantry?* p 68; War Department Letter to Commanding General US Army Forces in CBI, dated 24 May 1944 Subject: Constitution and Activation of the 475th Infantry, Classified decimal file 322, Record Group 407 Entry 427 INRG 475-0.1 to 0.3 US National Archives Washington DC. See also Randolph, *Marsmen in Burma*, op cit pp. 28-40.

GALAHAD/MARS were arguably the most effective light infantry forces ever fielded by the United States Army. Their secret was that they had solved the problem of the footsoldier's lack (from the Nineteenth Century onward) of operational mobility. Operational mobility differs from tactical mobility (moving about a battlefield) in that it refers to moving through a campaign. Foot troops have lacked this mobility because they cannot carry enough food, water, or ammunition to last more than a very short time. They have traditionally used vehicles to make up the difference but this ties the troops to terrain that favors those vehicles. This can be a serious limitation in complex terrain like that of Burma. The use of pack mules (with nearly the same mobility as the men) to carry enough supplies to allow a unit to survive until the next air delivery proved a highly workable solution. The Japanese tried to improve their operational mobility by getting along with less. Even this admittedly half-measure proved devastating against traditionally equipped British forces but it could not beat GALAHAD. The ideas that gave birth GALAHAD had come from outside the U.S. Army but once the Army had accepted those ideas it proved competent enough at implementing them. However, GALAHAD had fought in an obscure theater under wartime officers who could expect to have little or no influence in a postwar Army. Their experience and lessons were soon forgotten. Instead, the Army would remain a heavily equipped and largely road-bound force designed only for a European war.

THE ARMY REDEPLOYS

With the end of the War in Europe in May 1945, the Army began to redeploy its forces for the invasion of Japan. Since the Army would maintain only occupation forces in Europe, it could substantially reinforce its troops in the Pacific. It would disband half its combat divisions but limited manpower would no longer constrain the size and structure of those divisions that remained. Although the occupation divisions in Europe would remain under the old tables of organization, the divisions to be used against the Japanese would have all the manning extras that the Army had always wanted but hitherto could never afford. Plans for these enlarged divisions had been laid as early as February 1945 and by April the War Department notified the Army Ground Forces (AGF) that as far as the infantry regiment was concerned the following changes were most needed:

- Augment the regimental headquarters and headquarters company with a counterfire section (one officer and 19 men) for locating enemy mortars. (German mortarmen had wrought havoc with Allied infantrymen, especially during the Normandy campaign.) The regimental communication platoon would get a dozen extra men to take over driving and other non-communication duties that the operators had previously had to do themselves. The regimental antitank company would transfer its antitank mine platoon to the headquarters company.
- Replace the cannon company's towed 105mm howitzers with nine 105mm howitzer-armed medium tanks. The latter would be much better suited to the cannon company's direct fire missions. To make for any loss of indirect firepower, every battery in the infantry division artillery would six guns rather than four.
- Replace the antitank company's ineffective 57mm antitank guns with nine 90mm-armed medium tanks. A full company of 17 tanks was not used partly because this would have increased the total number of tanks in an infantry division to two thirds the number planned for an armored division. In addition, none of the combat theaters had requested more than nine tanks per regimental antitank company and the AGF was reluctant to make any increase not asked for by the theaters.
- Reorganize the infantry battalions by moving the antitank/defense platoon from the battalion headquarters company to the weapons company. Each rifle company would receive an assault section with three seven-man squads (one per rifle platoon) to handle flame-throwers and bazookas in support of assaults against fortified positions (in similar fashion to the assault platoons in the Marine G-Series infantry tables).[434]

The "R" series tables of organization produced in June 1945 incorporated all of these changes and added extra men (three telephone linemen) to the battalion communication platoons (see Appendix 6.41). They removed the battalion supply officers and sergeants from the service company and made them part of the battalions they supported. Each battalion supply officer (now a captain) became part of battalion headquarters and his supply sergeant (plus a jeep and driver for the supply officer) joined the battalion headquarters section. The June 1945 tables also reorganized the battalion weapons companies. The antitank or former headquarters defense platoon received a pair of the new M20 75mm recoilless rifles in lieu of each of its outdated 57mm guns. Each HMG squad in the two HMG platoons acquired an LMG (M1919A4 or A6) as an alternate weapon to the heavy M1917A1. Later in 1945 the two HMG platoons of two sections each were consolidated into one platoon with three sections. Each

[434] Bell I. Wiley, "Reorganizing for Redeployment" from Greenfield et al *The Organization of Ground Combat Troops* (Washington DC, US Army Center for Military History 1947) pp. 454-465 and 476-477; and US Army Adjutant General Table of Organization and Equipment T/O & E 7-11 "Infantry Regiment" and T/O & E 7-12 "Headquarters and Headquarters Company, Infantry Regiment." (both Washington DC 1 June 1945).

rifle company weapons platoon received not only an assault section but also a "special weapons" section with three M18 57mm recoilless rifles. To handle the extra sections another officer was added as assistant weapons platoon commander. The number of company jeeps and trailers was doubled. Rifle company strength rose to seven officers and 235 men. A weapons company had seven officers (the officer section leaders were dropped from the 81mm mortar platoon) and 188 men. A full battalion had 37 officers and 977 men. The regimental service company, especially its transportation platoon was expanded to meet the increased supply and maintenance requirements of the new cannon and antitank companies. The medical detachment remained unchanged except that dental services would henceforth come from the division medical battalion. This meant that there would no longer be two dental officers and two dental technicians in the regimental section unless the regiment was serving as an independent unit not under a division headquarters. Further changes were under study when the atomic bombs fell on Japan.[435]

The atomic bombs dropped on Hiroshima and Nagasaki not only marked the end of the Second World War but also changed the way in which the US Army thought about itself. The destructive power of the new technology, plus the promise of more to come, persuaded many that all their previous experience was now obsolete. Historical events, therefore, need not be studied except for inspirational or entertainment purposes. Hastily trained American officers, whose knowledge was often superficial at best, did not find it difficult to drift into a process where they practically ceased to follow a profession at all. Though the Army and Marine Corps did not complete this metamorphosis until the World War II general officers (trained under the old system) had retired, the change, while subtle in its character proved revolutionary in its effects. Any profession, such as law, medicine, or the Church, is based on a body of ideas which its members are expected to learn by reading them and then to add to by writing about them. Thus the body of knowledge tends to be comprehensive and continually expanding. In the United States, however, the military "profession" was being abandoned in favor of merely learning and (hopefully) improving upon, the techniques and practices that the Army understood already. It was a combination of Frederick Taylor's ideas for improving industrial efficiency with medieval-style craftsmanship. Both emphasized "cookbook" style technique at the expense of concepts and true understanding. For the Army to de-professionalize itself was fundamentally disastrous. It meant choosing a mostly technology-driven evolutionary response to revolutionary developments driven largely by new ideas and concepts. Technology advantages are short lived at best and techniques only work in situations that they were designed for. Professional knowledge provides continuity and a stable platform for sound choices even in a chaotic environment. While the present will never be the same as the past, the future is ultimately unknowable. The past is all we have to work with and to reject it is to reject knowledge itself. The Army as an institution had always been vulnerable to de-professionalization. Its small core of professional officers easily became lost in the sea of wartime citizen officers who knew only what they had learned in World War II. By 1945 many of these citizen officers had achieved high rank and would soon be taking over the Army within a few years. However they would soon face entirely new challenges for which their past experiences left them completely unprepared.

[435] Wiley op cit pp. 478-483; and US Army Adjutant General Table of Organization and Equipment T/O & E 7-12 "Headquarters and Headquarters Company, Infantry Regiment.," T/O & E 7-13 "Service Company, Infantry Regiment," T/O & E 7-14 "Cannon Company, Infantry Regiment," T/O & E 7-19 "Antitank Company, Infantry Regiment," and T/O & E 7-15 "Infantry Battalion, Infantry Regiment" (all Washington DC 1 June 1945).

CHAPTER 7 - THE POSTWAR ERA AND THE KOREAN WAR, 1945-53

THE POSTWAR INFANTRY REGIMENT

The demobilization that followed the end of the Second World War was as rapid and dramatic as any in the Army's or the Marine Corps' history. For many, however, it was not nearly rapid or dramatic enough. Americans could hardly wait to doff their uniforms and an alarmingly large number of soldiers demonstrated their feelings with widespread acts of desertion, mutiny, and assaults on their officers. Within one year, the Army lost 75% of its manpower. After the Air Force became independent in 1947, the Army's strength fell to about 533,000 from its wartime peak of more than eight million. Those who were still on active duty performed mainly police and administrative tasks. Few combat capable units remained, even on paper, and military skills declined drastically. With the general approval of the American public, the Truman administration concluded that atomic bombs, backed by the nation's naval and air forces which, despite peacetime reductions were still indisputably the world's strongest, should answer the nation's future defense needs. Little, if any recourse need be made to the use of land forces.[436]

Despite these vicissitudes, the Army did its best to make use of its wartime experience in devising a postwar organization for its infantry. Of particular importance to this effort was the Infantry Conference held at Fort Benning, Georgia in June 1946. This was a gathering of battle experienced infantry leaders (many of them marking time until their discharges), staff officers, and civilian technical experts. Its task was to hammer out an organization for the infantry that improved on the June 1945 tables and was based on experience from all combat theaters (not just Europe). The consensus that arose was that the doctrine under which future infantry units would be organized must permit greater interior flexibility to deal with changing battlefield conditions. This meant a larger infantry regiment that included a greater number of specialized sub-units designed to meet specific contingencies.

Reorganization would begin with the rifle squad. The conferees generally believed that combat had shown the 12-man squad to be too large for most men to control, even with the help of an assistant squad leader. The majority agreed that the maximum controllable size for a squad was nine men (including the leader). However, the conferees also noted that rifle squads in combat routinely operated at 80% or less of their authorized strength. Thus a future squad not only had to be small enough to control but large enough to remain fully mission capable even when it was several men short. A squad also needed adequate firepower. Combat experience had also demonstrated the need for an effective squad-level light machinegun (LMG), but the BAR lacked the necessary firepower and the Browning M1919A6 was too heavy, awkward, and unreliable. "Field expedients," such as the use of two or more BARs per squad, had not in general been satisfactory. Most squad leaders found it difficult to control the fires of two (or more) automatic weapons simultaneously. A squad-capable LMG like the German MG-42 was clearly the solution but in 1946 there was no money for, or official interest in the procurement of such a weapon.

Besides weapons and organization, the conferees also considered squad doctrine. The consensus was that previous Army attempts to sub-divide the 12-man squad into separate fire and maneuver elements had not been successful. The teams tended to evaporate as attrition shrank the squad's strength and even when the teams stayed intact, the squad leader could seldom control them adequately. Instead, the squad seemed to function best as a single entity that could *either* fire or maneuver but not do both simultaneously. This, however, ran counter to the Marine Corps experience of operating its 13-man squads as three individual fire teams. The Marine squad had seen extensive combat and the Marines were well pleased with it. However, it was the conferees' position that the squad should be the smallest fighting element above the individual soldier. By this definition, the Marine squad was not a squad at all but a section of three tiny four-man squads. It might do well enough at full strength but would only collapse internally as attrition took its toll. A loss of three or four men would probably force it to reorganize. It might revert to two teams but additional losses might then require it to operate as a single team. The Infantry conference regarded this as too complex and inefficient. It wanted a simpler entity that could shrink to its minimum effective strength without any reorganization. Thus the conferees concluded that the ideal rifle squad would have to be nine men not sub-dived into teams but led by a squad leader and an assistant and organized around a single LMG. The Army decided to adopt this new squad by eliminating the two scouts and the BAR ammunition bearer from its existing 12-man squad. Combat experience had shown that the scouts were ineffective. They tended to become casualties early and their replacements seldom had any scout training. The BAR ammunition bearer was also unnecessary since his load was easily divided among the squad's riflemen. This left the squad with a staff sergeant as squad leader, a sergeant as his assistant, a corporal as automatic rifleman, a PFC as assistant automatic rifleman, and five riflemen. Despite the conferees' strong recommendation of an LMG as the squad's automatic weapon no suitable LMG was available to replace the BAR so the latter weapon had to remain in service.[437]

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[436] For some graphic eye witness accounts of the collapse of the Army at the end of the Second World War, see Arthur Hadley, *The Straw Giant*, (New York, Random House 1986) pp. 61-63.

The conferees also proposed a reorganized rifle platoon that would offer an increase in firepower and tactical independence without an increase in size. This involved replacing the three 12-man squads of the old rifle platoon with four nine-man squads of which the fourth would be a weapons squad. In battle, the 1942-45 era rifle platoons, due in large measure to the inadequacies of the BAR, were constantly in need of reinforcement by machineguns and other weapons. Pre-war machinegun doctrine, around which all infantry regiments since April 1942 had been designed, emphasized the use of indirect machinegun fire and the importance of covering a rifle company's front with flanking enfilade fire. However, actual combat highlighted the importance of direct fire and, in the case of LMGs, the employment of single guns at close quarters and on platoon (or smaller) frontages. Therefore, the Infantry Conference concluded, the weapons squad should include an LMG. The best LMG available to US forces was the Browning M1919A6. Despite this weapon's weight, awkwardness and tendancy to overheat, its bipod mount would enable its crew to bring it into action very quickly. If more time was available, firing from the tripod would increase the weapon's accuracy and stability. The Infantry Conference also concluded that the rifle platoon would need some antitank and anti-material firepower. Therefore the weapons squad should also carry a bazooka. Initially this would have to be the late-World War II M18 2.36-inch (60mm) model but the much more powerful 3.5-inch (89mm) M20 type, developed at the end of the war should replace it. Besides its squad leader the weapon squad itself would have a gunner and an assistant gunner each for its LMG and bazooka. It would also have four ammunition bearers who could each carry either 500 rounds (two 250-round boxes) for the LMG or six rockets for the bazooka. An assistant gunner could carry the tripod and one 250-round box for the LMG or he could carry six bazooka rockets (the bazooka gunner carried three additional rockets). The fact that the weapon squads now provided trained and designated bazooka gunners relieved the rifle company commander of the need to select and train part-time gunners for his bazookas by diverting men from their primary duties. In addition, the platoon weapon squad also ensured that the rifle squads had the support of weapon crews who knew them and had trained with them

The new rifle platoon headquarters showed little change from its World War II predecessor (beyond the redesignation of the platoon guide as the assistant platoon sergeant). In keeping with the procedures that had evolved during 1943-45 the platoon would maintain communication with company headquarters an SCR-536 radio and two messengers. One messenger stayed with the company commander while other was with the platoon commander. When one messenger carried a message he replaced the other who returned to the sender with the reply and insured that one messenger was always at (or on his way to) each station. Any additional messengers needed for intercommunication within the platoon (or to replace a company messenger) would have to come from the squads. The Infantry Conference saw the rifle platoon, with its four squads, as the smallest tactical unit capable of executing both fire and maneuver simultaneously. Though the weapons squad was expected to provide all or a large part of the platoon base of fire, it could act as part of a maneuver element if necessary.[438]

The Infantry Conference also kept the basic rifle company structure of three rifle platoons and a weapons platoon. The rifle platoon weapons squads had made it possible to drop the LMG and assault sections from the rather unwieldy June 1945 weapons platoon. This left a greatly simplified post-war weapons platoon with one three-squad section of 60mm mortars and another of 57mm recoilless rifles. The two jeeps at platoon headquarters served as weapons carriers for both sections. The .50-caliber machinegun (without crew) had been a feature of the weapons platoon's equipment since 1943 (despite its unsuitability for mounting on or firing from a jeep) and it was still included to defend the jeeps from air attack.

The doctrine pertaining to the postwar mortar section placed far greater emphasis on indirect firing at targets not visible to the mortar crew than it had during the early years of the Second World War. New methods focused on the use of observers. Whenever possible, the weapons platoon would establish two observation posts (one for each of the leading rifle platoons) by using ad hoc observers drawn from its own personnel and those of the company headquarters. These observation posts would communicate with an ad hoc fire direction center located with the guns. In other words, the new rifle company light mortars were now behaving much more like conventional artillery but because of the difficulty of bringing ammunition forward, either the company commander or weapons platoon leader would have to approve each target the mortars engaged. Though the mortar section might, at times, attach a mortar squad to a rifle platoon, it tried to employ all of its mortar squads together whenever possible.

The 57mm recoilless rifle section answered the need identified during World War II for a lightweight direct fire cannon to support the infantry against armor, pillboxes, buildings, and similar targets. Light (37mm and 57mm) antitank guns used in this role had often proven to be excessively heavy yet insufficiently powerful. The M18

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[437] US Army Infantry School, "Infantry Organization" printed in The Infantry School *Quarterly* (formerly the Infantry School *Mailing List)* Vol XXXI No. 1 (Fort Benning Georgia, May 1947) pp. 7-13; and Maj Paul E. Melody, "The Infantry Rifle Squad: Size Is Not the Only Problem" (a Monograph written for the School of Advanced Military Studies, US Army Command and General Staff College, Fort Leavenworth, Kansas 1990) pp. 5-8.

[438] "Infantry Organization" op cit (The Infantry School *Quarterly* Vol XXXI No. 1, May 1947) pp. 7-13; and Department of the Army T/O & E 7-17N, "Infantry Rifle Company" (Washington DC 21 April 1948).

57mm recoilless rifle with its bipod was only slightly heavier (44 pounds) than the M2 60mm mortar (42 pounds). Its ammunition weighed about five pounds per round. A squad's two ammunition bearers, assistant gunner, and squad leader, could each carry as many as six rounds. These rounds could be high explosive (HE) or HEAT (High Explosive Anti Tank) but if the rifle was to stand much chance of hitting a target at its maximum range of just under 4,000 meters, it had to be mounted on the 53-pound tripod of the Browning M1917A1 HMG. The rifle could engage targets at considerably shorter ranges, when fired from its bipod or the gunner's shoulder. The section's jeep could carry the tripods, together with reserve ammunition and (on long marches) the rifles themselves. The 57mm HE shell achieved an effective casualty radius of just over 15 meters or slightly better than that of a standard 60mm mortar shell or fragmentation hand grenade. Given that the rifle could place its shells more accurately than either a mortar or a grenadier, it should have been quite effective. However, the Army worried about the rifle's firing position being exposed by its prominent backblast and the disappointing performance of its HEAT projectile. However, the new M20 bazookas could compensate for any antitank shortcomings that the 57mm rifle might have. As was the case with the 60mm mortars, the preferred means of employing the 57mm section was as a single entity in general support of the rifle company. However, individual recoilless rifle squads could be attached to rifle platoons if the company was operating in forest, jungle, urban, or other "close" terrain where the section or individual rifles could not be positioned together and still cover at least substantial portions of the company's sector.[439]

The rifle company headquarters, as proposed by the Infantry Conference would be the same as in June 1945 except for a slight reduction in the number of basic privates (now called "filler personnel") to reflect the somewhat smaller size of the postwar rifle company. The forward echelon or command group was generally as indicated in Appendix 7.1 except that in 1947-48 it included an armorer and only one radiotelephone operator (RTO – who carried an SCR-300). When the Army officially adopted the Infantry Conference's proposals in 1947 the combat group lost its armorer to the administrative group but it gained a second RTO, two orderlies (trained as messengers and observers), and two jeeps with trailers. One jeep was the company commander's C&R vehicle. The other could go to the executive officer or serve as an additional ammunition vehicle.

Until the addition of a warrant officer about December 1949[Ⓓ], the first sergeant commanded the rear echelon or administrative group, rather than the executive officer (who stayed in the command group). The Army also placed the company mess detail under a "mess steward" ranking as a technical sergeant (sergeant first class after November 1950) and gave the administrative group its own 2.5-ton truck (with winch and one-ton cargo trailer). The AGF had proposed this addition in February 1945, though it did not included it in the tables actually issued in June. It was a response to combat experience that had demonstrated the need for a vehicle in each company to carry bedrolls and other baggage and free service company trucks for other duties. This truck could also carry the spare BARs that the War Department had authorized for each rifle company since 30 June 1944.

The new tables also greatly increased the quantity of communication equipment allowed per company, especially radios. As already noted, two SCR-300 radios (carried by the two RTO's in the command group) provided communication with the battalion headquarters. One stayed in the company command post. The other was for the company commander's own use. The number of SCR-536 hand-held radios increased from six in 1943 to seven in 1944 and then to 12 in 1947. Originally, each rifle or weapons platoon headquarters had one, another was for the company command post, and the last was for a company observation post. In 1944 a seventh SCR-536 gave the company commander an extra radio to carry with him whevever he left the command post. One of the five radios added in 1947 went to the 57mm recoilless rifle section, two went to the 60mm mortar section (one for an observation post and one for a mortar fire direction center), and two were spares. There was also a set of sound-powered phones for a company wire net and there was one battery-powered phone for the battalion command net and another for a company observation post).

For supplemental weapons the rifle companies received an even more liberal issue of rifle grenade launchers than had been authorized in February 1944. The launchers could fire both HE and HEAT grenades and since they were just spigot attachments that were inexpensive, weighed very little and were easily fitted to any rifle. The M7 and M7A1 launchers were for the M1 rifle while the M8 was for carbines. In Korea, however, unfavorable reports about the M8's performance soon led to its withdrawal from service. The M7's survived but the fact that the troops tended to be ill trained in their use meant that they were no great success either. Many troops routinely discarded

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Ⓓ This date cames from hand written updates (rather than the actual change sheets, which this writer was unable to find) on a number of copies of the organization tables for Change 1, dated December 1949. The warrant officers were definitely in place by November 1950 when the Army reissued its infantry regiment tables to reflect its new enlisted rank system.

439 US Army Infantry School, "Combat Tactics of the Weapons Platoon;" "Combat Tactics of the Rifle Platoon;" "Employment of the 57mm Recoilless Rifle Section in the Attack;" and "Infantry Weapons" all from The Infantry School *Quarterly* Volume XXXI (Fort Benning Georgia, the US Army Infantry School 1947).

their M7 launchers in the field. A rifle company was allowed 46 M7 launchers of which 36 were in the rifle squads. The bugler carried the company's only M8 grenade launcher.[440]

The rifle company of November 1950 (see Appendix 7.1) differed from 1947 mainly in that it reflected Army-wide instructions for fielding reduced strength units and a new enlisted rank structure introduced by the Army as a result of the findings of the Doolittle Board. Chaired by Major General James Doolittle of "Thirty Seconds Over Tokyo" fame, the Doolittle Board had been assembled to investigate and make recommendations on service conditions in the post-World War II military. Among other things, the Board had recommended improved living conditions, better pay, and much easier discipline. The latter recommendation in particular did little to improve military readiness for the coming Korean conflict. The Board's new enlisted rank structure, which the Army had adopted by 1950, was still based on seven pay grades. However, in a reversal of the old system, E-1 would be the lowest grade and E-7, the highest. The Board abolished specialist or "technician" ranks. A soldier above the grade E-3 (private first class) would carry the rank and title of non-commissioned officer, regardless of what, if any, leadership responsibilities he might have. Of the three grades of private, E-1 was generally used only for recruits who had not completed basic training or for men who had been demoted for disciplinary reasons. In an infantry regiment, the E-2 privates were only the filler personnel, one cook's helper per company and a very few others (such as orderlies). Most privates were E-3 (PFC) and a man could expect to reach this rank fairly quickly. The Doolittle Board undoubtedly hoped that its new rank structure would improve morale by giving the men higher pay plus several promotions early in their careers. The difficulty was that this left only four pay grades for non-commissioned officers and only three of these grades were really usable. Corporals had practically ceased to function in leadership roles ever since February 1944 when the Army decided that the table of organization rank for a rifle squad leader had to be one grade above sergeant. This forced sergeants to take over nearly all the leadership positions originally meant for corporals. Although corporals were still seen as non-commissioned officers in practice they functioned as senior privates and served as BAR, machinegun, mortar, or antitank gunners. Furthermore, Doolittle's insertion of a third grade of private pushed Army corporals up to the same pay grade as Marine sergeants who led 13-man rifle squads and had corporal team leaders working under them. Tied down by its own rules the Army had to use sergeants first class (E-6) to command rifle squads and weapons sections even though they were only one grade below master sergeant (E-7), which was the top of the enlisted rank structure. Thus, master sergeants to fill all platoon sergeant, first sergeant, and sergeant major positions. Since rifle squad leaders had to be fairly young and active, the Army had to advance a man rapidly to E-6 before he became too old to be a squad leader. However this would leave him with only one possible promotion for the remainder of his enlisted career. Even that promotion would have to come fairly soon since the position of platoon sergeant is not an old man's job either. Just as a non-commissioned officer had acquired some experience and started to be really valuable to the Army; his future promotion prospects were cut off. The warrant officer personnel clerk that the Army added in 1950 to each company in the infantry regiment (except the medical company) helped repair some of this damage. He took care of company administration, could act as a *de facto* first sergeant or sergeant major and as a promotion possibility that a master sergeant might aspire to.[441]

Another of the Infantry Conference's accomplishments was its reorganization of the battalion weapons company (which the Army fully adopted – see Appendix 7.2). The conferees reduced the number of HMG platoons from two to one and cut down the antitank and mortar platoons to two sections (or four guns) each. To partially replace the lost HMG platoon, the Conferees strengthened the squads in the remaining platoon to eight men each. In addition to its water-cooled M1917A1, each squad would also receive an M1919A6 LMG for use in situations where the HMG was too heavy. During World War II many HMG squads had used LMG's when they needed additional mobility but the postwar consensus was that the loss of the HMG's firepower could not be compensated for by the LMG's lighter weight. The Infantry Conference did not expect its HMG squads to use both their guns simultaneously except where tactical movement was not required and the gun positions were already well stocked with ammunition. The troops valued their HMG's despite these guns' weight and complexity and they eventually saw the loss of an HMG platoon per battalion as a serious blow. It meant that only an HMG section, rather than a full platoon, could support each of the two rifle companies that an infantry battalion normally deployed forward.[442]

Under the June 1945 tables the battalion antitank platoon replaced its three obsolete M1 57mm antitank guns with six of the new M20 75mm recoilless rifles and then moved from the battalion headquarters company to the

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[440] Dept Army T/O & E 7-17N "Infantry Rifle Company (Washington DC 1 June 1945) & T/O & E 7-17N, "Infantry Rifle Company" (Washington DC 21 April 1948); US Army Infantry School, "Communication in the Infantry Battalion," Infantry School *Quarterly* Volume XXXIII No. 2 October 1948 (Fort Benning Georgia, USA Inf School); and Wiley op cit pp. 463-464; CPT Paul F. Reed, "Do We Need An Exec? Nay!, Infantry Magazine Vol 52 No 4 (Ft Benning Georgia, Jul-Aug 1962) p 35; and S.L.A. Marshall, *Commentary on Infantry Operations and Weapons Usage in Korea, Winter of 1950-51*, (Chevy Chase Maryland, The Johns Hopkins University Operations Research Office 1951; reprinted 1989 by Headquarters US Marine Corps, Washington DC as FMFRP 12-6) pp. 99-102.

[441] For some pointed comments on the Doolittle Board and the new rank structure as it applied to the Marine Corps see Heinl op cit pp

weapons company. The Infantry Conference then reduced the antitank platoon to two sections (as its former squads were now known) with two recoilless rifles each. Similar in principal to the 57mm, the 75mm rifle was still relatively light at 168 pounds and could even be fired from the same 53-pound M1917 HMG tripod. However, its crew could only hand carry it over very short distances, and because its ammunition needed large amounts of propellant it weighed in at a hefty 22.6 pounds per round. The HE ammunition's effective casualty radius, however, was an impressive 22-25 meters, or somewhat less than that of a 4.2-inch mortar shell. This, together with the gun's accuracy, made it very effective against distant bunkers or machinegun nests. White phosphorus ammunition was also available for starting fires or to mark targets for air strikes. Its accurate range was 6,350 meters, though for the same reasons as the 57mm, the armor penetration of its HEAT rounds was limited. However, they could generally defeat the T-34/85 tanks used by the Communist forces. A 3/4-ton truck served as a weapons carrier for a section of two 75mm rifles because the Army considered a jeep to be too light. The section manned both its rifles only when tactical movement was unnecessary. At other times it kept one rifle in reserve aboard the carrier while its four-man gun team handled ammunition for the other rifle. Each antitank section also included a bazooka to help compensate for the 75mm rifle's shortcomings in armor penetration. The antitank platoon also maintained a small platoon radio net with an SCR-536 at the platoon headquarters and each section. This net was necessary since the sections were often widely dispersed. An SCR-300 (or EE-8 field phone) with platoon headquarters maintained communication on the weapons company net. Sound powered phones provided an alternative to the SCR-536s. As was the case with the HMG platoon, it was often necessary to attach sections of the antitank platoon to the leading rifle companies, although the employment of the platoon together under battalion control was preferred.

The Infantry Conferees reduced the 81mm mortar platoon from three sections to two because combat experience had demonstrated that it was hard enough to keep even four mortars supplied with ammunition, let alone six. In addition, the maximum range of the forthcoming M21 replacement for the World War II era M1 mortar was now 4,000 meters and this would allow a four-gun platoon to cover the battalion's front line nearly as well as a six-gun platoon did with the M1. Korean experience would show, however, that shortages of UN infantry often compelled a battalion to place all three of its rifle companies in its front line. In such instances, the lack of a mortar section for each company was seriously felt. Also, when one section moved as part of a platoon displacement the remaining section was seldom strong enough to maintain adequate mortar support for the battalion. Lieutenants no longer commanded mortar sections. Instead each section would only get a staff sergeant (or SFC). If this section leader had to act as forward observer, one of the squad leaders had to take over the section's firing position and this usually caused some loss in efficiency. Mortar platoon headquarters now included two SCR-300 equipped RTO's. This was a change recommended by the infantry school to allow continuous communication on fire control channels during displacements. The mortar platoon also had seven EE-8 electrical field telephones, one for each of the two forward observer teams which the platoon normally deployed, one for the platoon firing position, two for the fire direction center, one for the platoon switchboard operator, and one utility phone for the use of the company.

The weapons company headquarters was generally similar to that of the rifle company. Most of the differences can be seen in Appendix 7.2. Because it had more equipment and vehicles, it included a motor sergeant, two mechanics, and dedicated drivers for all its vehicles. The 2.5-ton truck and the jeeps performed the same functions as they did in the rifle companies. The 3/4-ton truck was a maintenance vehicle. Other differences that should be noted are that the company executive officer was also its reconnaissance officer. A reconnaissance sergeant assisted him. The weapons company deployed its elements on its parent battalion's entire frontage (unlike a rifle company that typically operated on only half of this frontage). Therefore the weapons company included a third SCR-300 equipped radio operator to bolster its radio communications over the wider area in which it was expected to operate.[443]

The Army expanded its infantry battalion headquarters from just four officers in May 1945 to seven in 1948. The June 1945 tables had already moved the battalion supply officer (S-4) from the regimental service company into the battalion headquarters that he actually worked for. This brought the headquarters to five officers. In 1948, the battalion adjutant (S-1) became a full-time staff officer when the headquarters company headquarters received a new captain to take over the S-1's duties as headquarters company commander. Finally, the Army increased the rank of a battalion operations officer (S-3) from captain to major and gave him a lieutenant to act as his assistant. Although these changes seem minor on paper, in practice their effect was profound. Not only had battalion staff

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442 Dept Army T/O & E 7-18N "Infantry Heavy Weapons Company" (Washington DC 16 April 1948 and 15 November 1950); US Army Infantry School "Infantry Weapons," The Infantry School *Mailing List* Volume XXX (Fort Benning Georgia, April 1947); US Army Infantry School "Infantry Organization" op cit; US Army Infantry School "Organization and Principles of Employment of the Heavy Weapons Company in the Attack," and "Use of Heavy Weapons Company Communication and Transportation In Attack," The Infantry School *Quarterly* Volume XXXII No 2 (Fort Benning Georgia Apr 1948); and CPT Charles Multop "A Heavy Weapons Company in Korea" Infantry School *Quarterly* Volume XXXIX No 2 (Fort Benning, Georgia, Oct 1951). For more on HMGs see The General Board, US Forces, European Theater, "Organization, Equipment, and Tactical Employment of the Infantry Division" Study No. 15 (undated but about 1946).

443 Ibid.

officers increased in number, they had increased in rank as well. The S-1, S-2, and S-4 were now all captains and thus equal in rank to the company commanders. In practice (after 1948) all three (especially the S-4) were usually senior to the company commanders because the US Army preferred (and still prefers) to use junior captains as company commanders and senior ones as staff officers. Of more significance was that, as a major, the S-3 outranked all the company commanders. He was also of the same rank as the battalion executive officer. While this smoothed out the "rank pyramid" somewhat by ensuring that the battalion had another major to balance its lieutenant colonel, it also meant that the executive officer could no longer be the battalion's *de facto* operations officer. The S-3 would now be the real S-3 and the executive officer became more of a chief of staff and gatekeeper who controlled access to the battalion commander. This practice was in sharp contrast to the norm in European Armies. In French, and German battalions the company commanders outranked everyone except the battalion commander himself. In British and Soviet battalions the commander did have an executive officer (the Soviets called him a chief of staff) but the company commanders outranked all the other officers. (British company commanders were actually majors; captains did all the staff work.) The Marines, however, sided with the US Army in that they authorized majors as battalion S-3 officers as early as March 1944. However the impact of this seems to have been considerably diminished by the fact that majors were still commanding many Marine battalions at the end of the war.[1] In an Army World War II battalion staff, the S-3 and S-1 were both captains but the S-3 was only the executive officer's assistant and the S-1 (also a captain) was a company commander himself. The S-2 and S-4 were only first lieutenants and the S-4 was not even a member of the battalion. This left the executive officer as the only "bureaucratic layer" between battalion and company commanders. Now the S-3 and (sometimes) the S-4 would form a second layer.

The immediate effect of this in the post-war reorganization was probably not too great. Most field grade officers were used to doing things as they had been done in World War II and staffs tended to be short of officers anyway. However, by the post-Korean era battalion (and higher) commanders began to move towards a situation we have today in which commanders tend to be isolated from their subordinate commanders. Many have even isolated themselves from their staffs, choosing instead to deal with them through their executive officers. This has made the executive officer into a kind of court chamberlain or grand vizier that an oriental monarch might employ to protect himself from unpleasant news or visitors and to filter much of what he knew about the state of his kingdom. Over the years, as the number of operating units relative to the total size of the force has shrunk and opportunities for command have dwindled many commanders have chosen (or at least accepted) this style of leadership. It allows them to conceal their own inexperience and (frequently) lack of professional knowledge and skill and often it is the only style they have ever really known. Meanwhile, their staffs produce plans, more or less by committee, and then supervise their execution. They also exert tight control over their company commanders, partly to keep themselves busy and partly because the company commanders are also inexperienced. The whole effect has been to produce organizations that are ever more inwardly focused and tend to make decisions slowly and by (lowest common denominator) consensus. This, in turn, has tended to stifle rapid action, risk taking, and innovation.

The basic structure of the battalion headquarters company itself was essentially the same as it had been in June 1945 but with a larger communication platoon and a substantially larger company headquarters (see Appendix 7.3). Since the headquarters company was not a tactical unit, its headquarters did not employ separate command and administrative elements. As in the weapons company, the 3/4-ton truck (operated by one of the mechanics) was the maintenance vehicle. The battalion headquarters section, as before, mainly supported the S-2 and S-3 sections. However the Army had removed the intelligence scouts from this section and had organized them seperately as two four-man intelligence "squads." Together they were known as the intelligence section and constituted a miniature version of the regimental I&R platoon. Each had its own SCR-300 radio, and jeep and this enabled it to conduct mounted as well as foot patrols. Despite the communication's larger size its radio section had only seven radios. Five were SCR-300s, mainly for intra-battalion communication. One was a jeep mounted SCR-608. Originally developed for the artillery, the SCR-608 was a voice set with a 10 to 15 mile range but operating outside the frequency bands of both the SCR-300 and the SCR-536. On the other hand, the 115-pound ground or vehicle mounted AN/GRC-9 was capable of both voice and CW transmissions to ranges of 15 and 30 miles, respectively. It could even communicate with SCR-536s and used a hand generator that was very reliable in cold weather. Finally, in November 1950 the Army upgraded the battalion pioneer platoon by including an assistant squad leader, a

[1] During World War II independent US Army infantry battalions had slightly larger staffs than battalions that operated as part of infantry regiments. This included the ranking of the S-3 as a major. However the few such battalions that existed served mostly as garrisons in such backwaters as the Caribbean and the Aleutians. The only units to see combat were the 99th Infantry Battalion, which operated in Northern France for a time before being absorbed by the newly formed 474th Infantry Regiment, and the 100th Infantry Battalion, which served as a *de facto* element of the 442nd Infantry Regiment. See Dept Army T/O & E 7-95 *Infantry Battalion, Separate* and T/O & E 7-96 *HQ and HQ Company, Infantry Battalion Separate* (both Washington DC 21 July 1943). For unit histories see Shelby Stanton, *Order of Battle*, op cit.

construction specialist and a demolition specialist in each pioneer squad. This gave the platoon some real engineering capabilities and enabled it to do more than just furnish work parties to hand carry ammunition.[444]

Numerous changes at the regimental level included a metamorphisis of the former cannon and antitank companies into the new the tank and heavy mortar companies. The headquarters company picked up several platoon-sized additions and the service company inevitably expanded in order to support all these new units.

The regimental staff ballooned from eight officers in 1944 to 14 officers and one warrant officer in 1948. However, this was due much more to a redistribution of officers than to any net increase in officer strength. Three of the new officers were the regimental chaplains who were now an organic part of the regiment instead of being merely "attached" from the Chaplain Corps. The assistant S-1 athletic and recreation officer, the assistant S-3 troop information and education officer and the warrant officer adjutant and assistant S-1 had merely moved into the regimental headquarters from the service company. The communication officer now had a lieutenant to assist him and take charge of the communication platoon while he became a full time member of the staff and the S-1 became a major rather than a captain so that he would be equal in rank to the other staff section leaders (see Appendix 7.4).

The regimental headquarters section provided enlisted support mostly for the S-2 and S-3. Most of the S-1 support and all the S-4 support still came from the service company. Of the seven jeeps in the regimental headquarters section three were for the chaplains and three (equipped with radios and driven by members of the regimental communication platoon) were for the three liaison officers. The seventh jeep was for that indispensable troop information and education officer (an assistant S-3) who had somehow, since 1943, survived General McNair's ax wielding "no men." Other vehicles for the regimental staff would have to come from the headquarters company headquarters, the communication platoon, and the service company. The headquarters company headquarters also provided limited motor maintenance (four mechanics with a 3/4-ton truck) and of course a mess detail that fed the regimental headquarters as well as the headquarters company. It also had four bazookas that it could issue on an "as needed" basis for local defense. In addition, the communication platoon supplied three driver-radio operators for the regimental liaison officers and fourth for the I&R platoon headquarters. It could also furnish two 3/4-ton radio trucks (with an SCR-608 and a GRC-9 in each and two radio jeeps (with an SCR-619 and a GRC-9 each). A third jeep carried a lighter and shorter-ranged SCR-508. This jeep and five others also towed cargo trailers (the others were too heavily loaded for that). There were also two spare SCR-619 sets (that could be mounted in other regimental vehicles). The radio vehicles were mainly for regimental staff use as were two other dismounted radio operators carrying SCR-300 man-pack sets.[445]

Since 1944-45 the infantry regiment had acquired no less than three new combat support platoons in addition to its I&R platoon (see Appendix 7.4). First introduced in June 1945 (and unchanged since then) the counter-fire platoon specialized mainly in locating enemy mortars. It employed observation posts, firing charts, crater analysis and other mechanical techniques to accomplish this task but it had no electronic equipment apart from its radios. It stayed in close touch with the heavy mortar company since it was this unit, plus any available field artillery, that would actually engage any hostile weapons that the counterfire platoon discovered. The platoon could man as many as nine separate radio or telephone equipped observation posts and a base station. Since 1944, the Intelligence and Reconnaissance (I&R) platoon had lost most of its "office" members, who had moved to the regimental headquarters section to work directly with the S-2, but it had gained a third squad. A radioman from the communication platoon operated the SCR-619/GRC-9 combination in the platoon headquarters' radio jeep. Since there were already two four-man I&R teams in each infantry battalion, the regiment had nearly doubled its organic reconnaissance troops since 1944. Though no longer part of an antitank company, the antitank mine platoon of 1948 was nearly identical to its World War II predecessor except that 3/4-ton trucks replaced the two 2.5-ton trucks of 1944. The draftsman and surveyor each drove a jeep. The incorporation of demolition specialists into the three mine squads in late 1950 gave the platoon some engineering capabilities it had not previously possessed. The security platoon answered what was by 1944-45 a keenly felt need for a regimental military police platoon to guard the command post and the prisoners of war cages, and to perform policing and traffic control functions. Hitherto, the men needed for such duties had to be detached from the rifle companies. However the unit lacked the firepower to serve as an emergency rifle platoon.

An optional addition to the regimental headquarters was a light aviation section with two officer pilots and three enlisted mechanics plus a light (L-4 or L-5) fixed wing aircraft and (on paper at least) a light helicopter. Such aircraft had proven useful for observation and liaison purposes during the Second World War. In November 1945 the War Department had actually authorized one observation aircraft per infantry regiment though it is doubtful if

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444 Dept Army T/O & E 7-16N "Headquarters and Headquarters Company, Infantry Battalion," (Washington DC 16 April 1948 and 15 November 1950); see also the US Army Infantry School "Infantry Organization" op cit; and US Army Infantry School, "Communication in the Infantry Battalion," The Infantry School *Quarterly* Volume XXXIII No 2 (Fort Benning Georgia, October 1948).

445 Dept Army T/O & E 7-12N "Headquarters and Headquarters Company, Infantry Regiment," (Washington DC 16 April 1948 and 15 November 1950); US Army Infantry School "Infantry Organization" op cit; p 18.

many regiments actually received such aircraft until several years later. The aircraft themselves were unarmed but the fixed wing ones at least were very stable and dependable and required relatively little in terms of fuel or maintenance.[446]

The June 1945 regiment had replaced the old regimental antitank and cannon companies with two small tank companies, the one with nine tanks (or tank destroyers) armed with 90mm guns and the other with tanks armed with 105mm howitzers. Giving a 105mm howitzer the mobility and armor protection of a tank made it very suitable for direct fire missions. Medium tanks armed with 105mm howitzers had served successfully in a direct fire "assault gun" role with tank and armored infantry battalions during World War II and thus the Army could point to combat experience to justify its use of such tanks in an infantry regiment. The Army more than compensated for any loss in indirect firepower caused by the loss of the cannon companies' towed howitzers by increasing the number of guns per 105mm howitzer (towed) battery in the infantry division's artillery from four to six.

Despite its size and weight, the Army was convinced that the 90mm gun was the only weapon it had that could reliably destroy most (if not all) known tanks. Bringing it into action on a heavily armored tank chassis (rather than towing it or mounting on a lightly armored tank destroyer) made sense, given the Army's view that the best tank destroyer is another tank. Unfortunately, the tanks were vast consumers of fuel, ammunition, and maintenance man-hours. They often proved too heavy for the local roads and bridges but the Army was convinced that they provided the regiment with essential capabilities not realistically achievable by any other means. However, the Infantry Conference elected to simplify matters by recommending that the June 1945 antitank and cannon companies be combined into a single company of 22 tanks. The two tanks in company headquarters would carry 105mm howitzers but those in the tank platoons would have 90mm guns. Although the 105mm-armed tanks could fire effective high explosive and white phosphorus shells, the 90mm-armed tanks could still fire similar but smaller caliber shells as well as superior antitank ammunition. The new 90mm tanks were the heavy, mechanically unreliable but well armed and armored M26 *Pershing*s. Designed in World War II to counter the heavy German *Tiger* and *Panther* tanks, the M26 did not see combat until the last six weeks of the War in Europe. A 105mm howitzer-armed *Pershing*, the M45, also existed but the Army built so few of them that most *Pershing*-equipped companies used 90mm-armed tanks only. Prior to the Korea the Army began to rebuild its M26 tanks to incorporate a more powerful 90mm gun and a new engine and transmission. The Army designated the rebuilt tank as the M46 *Patton*. However, the Army had completed very few of these rebuilds prior to the Korean War. Most infantry regimental tank companies used 76mm gun armed M4A3E8 *Sherman* tanks. Their substantially lighter weight, lower fuel consumption, and superior mechanical reliability (over even the improved M46s) gave them far greater practical value under Korean conditions than the *Pershing* series tanks had with their seldom-needed heavy armor and firepower.

Each *Pershing* or *Sherman* carried a crew of five led by a staff sergeant (or a sergeant first class or SFC after November 1950). Each platoon commander and platoon sergeant also acted as tank commanders. Company headquarters was divided into three sections of which the headquarters section was the tactical command element. It included two tanks, one of which the company commander commanded.[447]

The tank company used by infantry regiment was of a type that the US Army's Armor Branch had originally designed for "heavy" tanks, that is to say M26 *Pershings* and, when they became available, M46 *Pattons*. As shown in Appendix 7.5 it had four tank platoons with five tanks each. A "heavy" tank battalion was to have three of these companies. In practice, however, "heavy" tank companies assigned to infantry regiments almost always used M4A3 *Sherman* tanks with 76mm guns. *Shermans* often equipped one or more companies in a "heavy" tank battalion as well. Likewise a "medium" tank battalion (whose four companies had only three tank platoons each) might have heavy tanks. In fact, during the winter of 1950-51 the 6th "Medium" Tank Battalion had the only M46 *Patton* tanks in Korea and was thus far "heavier" than any of the "heavy" tank battalions. The Army began to abandon the "heavy" and "medium" distinctions for its tank units as early as 1950 though it kept the two different configurations for its tank companies and battalions until the end of the war.[448]

Although the tank company met the doctrinal requirements for both the cannon and antitank companies, Army planners also elected to give the regiment a heavy mortar company so that the regimental commander could have his own indirect fire artillery. The mortars were the 4.2-inch rifled mortars formerly used exclusively by the Army's chemical corps. They were short ranged, rapid-fire weapons firing high capacity projectiles designed to deliver a

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446 Ibid.

447 Dept Army T/O & E 17-37N "Heavy Tank Company," (Washington DC 26 January 1948 and 15 November 1950); see also the US Army Infantry School "Infantry Organization" op cit p 16.

448 Operations Research Office, General Headquarters Far East Command (FEC), and Johns Hopkins University, *The Employment of Armor in Korea* Volume I (Washington DC Operations Research Office Report 1 [ORO-R-1] 8 April 1951) pp. 18-29; see also the Department of the Army T/O&E 17-25N "Medium Tank Battalion" and 17-35N "Heavy Tank Battalion" (Washington DC 5 April 1948, Change 1 20 December 1949, and reissue 15 November 1950).

large payload or smoke or poison gas very rapidly. However, although both sides in World War II maintained chemical munitions neither ever used any in combat (other than smoke). This left the Chemical Corps with very little to do. Fortunately for them, someone prior to the war had decided that it might be a good idea to have a 4.2-inch high explosive (HE) projectile on hand for use whenever gas was prohibited or unavailable. The same design characteristics that enabled the 4.2-inch mortar shell to carry a high payload of compressed gas also made it very suitable for carrying a large payload of high explosive. One 4.2-inch HE shell proved to be almost as effective as a 155mm HE shell except that where a 155mm howitzer could deliver perhaps as many as three rounds per minute, a 4.2-inch mortar could deliver 20. An M21 81mm mortar using its seven-pound "light" HE shells could match the 4.2-inch weapon's rate of fire and 4,000-meter range. However, a standard M3 4.2-inch 24.5-pound HE shell had nearly seven times the high explosive payload and twice the fragmentation material of a light 81mm shell. The "heavy" 11.5-pound M57 81mm HE shell could still carry only half the explosive filler of a 4.2-inch shell and then only at the cost of reducing its maximum range to 2,800 meters. Needless to say, the 4.2-inch mortar won instant popularity in combat as an infantry close support weapon. Typically, a chemical mortar battalion would attach its three companies to the three regiments of an infantry division. For an attack, the mortars would deploy within 800 to 1,200 meters of the front line or to about twice that depth when in the defense. After the war the attendees at the Infantry Conference had recommended getting rid of most of the chemical mortar battalions (something that was going to happen anyway) but retaining their mortar companies as permanent additions to future infantry regiments.

One 4.2-inch mortar platoon in the new company could easily fire off a ton of ammunition in one minute. At 333 pounds each, its mortars could only be broken down sufficiently to allow hand carrying over very short distances. Motor vehicles would be essential for longer moves and jeeps, even with trailers, would not be adequate. Therefore each eight-man mortar squad used a 3/4-ton truck and trailer but because no trailer for the 3/4-ton truck was available a one-ton cargo trailer (intended for the old 1.5-ton truck) had to be substituted. When fully loaded, this trailer was too heavy for a 3/4-ton truck, except on paved roads, so it could only carry a reduced load most of the time. Each mortar platoon maintained one SCR-300 radio for its headquarters and another for a forward observer. The mortar company headquarters included an informal command group (two officers and eight men) that planned and led reconnaissance missions using the reconnaissance officer and sergeant as a nucleus. It also furnished a liaison element for the regimental headquarters as well as carrying out normal command functions. An administrative group, consisting of the remainder of the company headquarters, performed the usual company level supply and administrative functions. One of its 2.5-ton trucks was the company maintenance vehicle (driven by one of the mechanics). Though this group included an ammunition corporal (a sergeant during 1948-50) to help manage the company's ammunition supply, most ammunition transportation was carried out by the vehicles in the mortar squads and by the mortar section of the service company. Of course in an emergency, any vehicle could haul ammunition. The mortar company operations and fire direction section that provided both survey and fire control capabilities. The mortar company communication section linked the company fire direction center (FDC) with the three observation posts and three FDCs in the mortar platoons. The section kept two of its SCR-300s in reserve for "utility" purposes. The company commander or reconnaissance officer could use them when they were away from the command post or the company FDC could use them during displacements (when the FDC had to be split between the old and new company positions). They could also equip additional observation posts. The communication section's jeep mounted SCR-619 radio maintained contact with the field artillery battalion that supported the infantry regiment so that its fires and those of the mortars could be adequately coordinated. The AN/GRC-9 maintained contact with regimental headquarters. Of course wire communications was used as much as circumstances permitted. Enough EE-8 telephones were available to supply an alternate to each SCR-300.[449]

Increased responsibilities caused a great expansion of the service company though its basic operation changed very little (see Appendix 7.7). The regimental S-4 (a major) was part of the company headquarters as well as the actual company commander. For the first time the service company had its own radio (an AN/GRC-9 with two operators) and 10 field telephones (of which four were for the administrative platoon and two were for the service platoon). The regimental headquarters platoon became the administrative platoon but it remained the same informal grouping of the regimental personnel, and supply sections that it had been previously. In wartime it would also include a graves registration section. The personnel section was the former staff section. It controlled most of the regiment's personnel administration but no longer included operations (S-3) personnel, the sergeant major, chaplain's assistants etc. These were now part of the regimental headquarters or headquarters section. The supply

[449] Dept Army T/O & E 7-14N "Infantry Heavy Mortar Company," (Washington DC 26 March 1948 and 15 November 1950); US Army Infantry School "Infantry Organization" op cit pp. 15-16; US Army Infantry School "Comparative Data on 4.2-inch and 81mm Mortars" The Infantry School *Mailing List* Vol XXX (Fort Benning Georgia, US Army Infantry School, April 1947) pp. 195-219; and US Army Infantry School "Employment of the Heavy Mortar Company in the Attack" The Infantry School *Quarterly* Vol XXXIII (Fort Benning Georgia, US Army Infantry School, May 1948) pp. 5-17.

section had retained its original name and functions. The graves registration section was a new addition, and had come about as a direct result of Second World War experience.

The old regimental transportation platoon was now the regimental service platoon though the change in name meant no change in function. The platoon leader was also the regimental motor officer (a captain). The three battalion sections still operated the same number of trucks as they had in 1943-45 but the fact that every company in the regiment now had a 2.5-ton truck of its own to haul its bedrolls, and other baggage freed the service company trucks to focus on ammunition and other essentials. Five trucks with cargo trailers carried field kitchens and rations for the supported battalion's five companies. They could also the other two in hauling ammunition when the need arose. The two ammunition trucks also hauled water. Indicative of their heavy supply and ammunition consumption, the regimental tank and heavy mortar companies each had substantial supply sections of their own. In each section one 2.5-ton truck carried the company field kitchen. Four more hauled ammunition (and each had an ammunition handler in addition to the driver). The tank company section had five additional trucks to haul fuel in "jerrycans." Of course, these loads only reflected planning assumptions. All trucks stood ready to carry whatever was needed. The service company also provided an additional maintenance section for the tank company (replacing tank battalion-level maintenance support) and a maintenance section for the regiment's wheeled vehicles.[450]

The last, but by no means the least important element of the regiment was the medical company, which replaced the old medical detachment (see Appendix 7.8). Here, the Army actually reverted to its pre-Civil War practice of permanently assigning medical personnel to the combat units they supported and not merely attaching them from the Medical Department. The new company was also larger and more capable than the old detachment. Company headquarters provided a field kitchen and looked after equipment maintenance, company administration and other "housekeeping" tasks. It also manned the company's SCR-619 radio. The collecting platoon supplied jeeps and litter bearers for collecting wounded from the battalions and ran a collecting station, or regimental aid station. Just like the battalion sections of World War II medical detachments, the three battalion platoons provided battalion aid stations, aidmen (medics) for the rifle and weapons companies, and some stretcher teams. A medical corps (MC) major, who was also a surgeon working in the collecting station, commanded the medical company. A medical service corps (MSC) captain held overall responsibility for the company's non-medical affairs and the six MSC lieutenants who worked for him supervised mess, maintenance and administrative matters for the company headquarters and the three battalion platoons. They also commanded the litter and ambulance sections of the collecting platoon. For combat operations, four general duty MC officers would reinforce the company. One would join each battalion medical platoon and the collecting station (giving the company 10 MC and 7 MSC officers in all).

In its internal operations the medical company differed from other companies in a number of ways. First, it was essential to keep the field kitchen open whenever the company was in the field. This was because it was not just a company kitchen. It was also a hospital kitchen and it had to have food ready for wounded men at all times. It also had to be nearby and not located in the regimental trains bivouac like other company field kitchens. For these reasons the mess detail had its own 2.5-ton truck and did not have to depend on a service company vehicle to carry its kitchen equipment. Administration was especially important because the company had to maintain hospital records as well as the usual company records. Interestingly, however, it was the only company in the regiment that did not receive a warrant officer administrative chief in November 1950. A third critical area was motor transport. The ambulances in the collecting platoon were emergency vehicles that had to be kept constantly available for their primary mission while being used as little as possible for other purposes. To ensure their readiness the company had its own maintenance detail with a motor sergeant, mechanics, and a 3/4-ton truck. Communication equipment was sparse, however. Company headquarters had a jeep-mounted SCR-619 to communicate with its battalion platoons and the regiment. Each battalion aid station had its SCR-300 and there was also equipment to link the company headquarters, the collecting platoon and the three battalion platoons by telephone whenever practical.

The collecting platoon combined the duties of old regimental aid station with some of the functions of the old collecting companies of the division medical battalion. The platoon collected casualties from the battalion aid stations, brought them to its collecting station and then arranged for their further transportation to the division medical battalion. It operated under the same principals as the battalion aid stations. Though it was capable of providing more elaborate medical care (and would do so when necessary), its emphasis was on doing the minimum to stabilize the patient, save his life or limb, get him comfortable, and then evacuate him. Evacuation would be to the next higher station, be it division, corps, or a base hospital. The collecting station also included the five company aidmen (medics) for attachment to the regimental companies. Two would serve with the heavy mortar company and one each would go to the headquarters, service, and tank companies. The collecting station could employ as few as two or as many as four medical officers (including the medical company commander). It would

[450] Dept Army T/O & E 7-13N "Service Company , Infantry Regiment," (Washington DC 26 March 1948 and 15 November 1950); US Army Infantry School "Infantry Organization" op cit p 16.

displace in two echelons, each carried in a 2.5-ton truck. One echelon would maintain collecting services at the old site while the other moved to the new one and then took over so that the first echelon could move. Both the ambulance and litter sections existed to evacuate casualties from the battalion aid stations to the regimental collecting station. The jeep-ambulances were, of course, the preferred means. The litters would serve when mud, wreckage, and other obstacles made jeep operations impossible. In one of the rare non-emergency uses of ambulance jeeps that were routinely authorized, the litter squads (each of which included a trained medic) would ride the jeeps to their casualty evacuation sites. In battle, the litter squads were never idle. When "business" was slow or when the ambulance jeeps could get to all the battalion aid stations, they reinforced the battalion litter squads as the latter collected their own wounded.

Each of the three battalion platoons functioned as an aid station, a litter section, and a company aidman section. The latter would attach four "medics" to each rifle company and three to the weapons company of the battalion it supported. The litter section evacuated the non-ambulatory casualties from where they fell to the battalion aid station (where the remaining members of the battalion platoon worked). The aid station included a 3/4-ton truck for hauling heavy equipment not normally needed in combat. In order to stay close enough to its infantry battalion for the timely collection and evacuation of its casualties, the aid station would have to move frequently to keep up with the progress of the battle. This demanded a great deal of flexibility on the part of all concerned.[451]

It should be noted that the regimental medical company no longer supplied dental services. These had become the responsibility of the division medical battalion. If the regiment was not part of a division, its medical company would receive an attachment of four dental officers and four dental technicians to provide dental service.

THE POSTWAR AIRBORNE REGIMENT

By the end of the Second World War the Army had concluded that its old system of separate and dissimilar parachute and glider regiments was unnecessarily complex. It had paid too much attention had been paid to making airborne units easy to carry by air and not enough to making them battleworthy. Once their air landing was completed they could expect to carry out the same combat missions as ordinary infantry. Since trained parachutists could ride in gliders without difficulty and would use gliders to deliver their heavier pieces of equipment, even during parachute landings, there was little reason not to combine parachute and glider functions into a single type of airborne regiment. This unit should resemble a standard infantry regiment as much as possible, though some economies (mainly in the support elements) would still be needed to accommodate its air mobility requirements.[452]

A diagram of the new airborne regiment, together with a diagram of a standard infantry regiment, appears in Appendix 7.9. We will not discuss the breakdown of the airborne infantry battalion and its component rifle and heavy weapons companies because so much of what has already been said about the corresponding elements of a standard infantry regiment applies to the airborne regiment as well. However, a complete set of diagrams for the component companies of an airborne regiment do appear in Appendices 7.10 through 7.15. Differences in detail certainly did exist. In general, airborne units economized on vehicles and personnel relative to their infantry counterparts, especially those devoted to headquarters or support functions. Every effort was made to make combat elements as much like those of a standard infantry regiment as possible. This was largely accomplished up to the battalion level. Airborne rifle and weapons platoons and machinegun, mortar and recoilless rifle platoons were essentially the same. However the rifle companies had no company headquarters jeeps and they and the weapons companies had few (or no) orderlies and only a reduced number of messengers and filler personnel. Fewer men were full time truck drivers and more had to combine driving with other duties.

Another peculiarity of the airborne regiment was its tendency to assign enlisted personnel to particular jobs who were of lower rank than their counterparts in a standard infantry regiments. Thus, for example company armorers were corporals (E-4) in an infantry unit but PFC (E-3) in an airborne one. The communication NCO was a sergeant (E-5) in an infantry company but only a corporal (E-4) in an airborne one. Ammunition bearers in weapon squads were always PFC (E-3) in an infantry unit but were frequently privates (E-2) in an airborne one. Presumably the honor of serving in the airborne was worth the loss of a step in rank. Yet another airborne peculiarity was the habit of arming all jeep and 3/4-ton truck drivers with sub-machineguns rather than with M1 rifles with grenade launchers as was the case in standard infantry units. Although a sub-machinegun was easier to jump with than a rifle

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451 Dept Army T/O & E 8-7N "Medical Company , Infantry Regiment," (Washington DC 26 March 1948 and 15 November 1950); US Army Infantry School "Infantry Organization" op cit p 16; and LTC John R. Darrah "The Medical Company, Infantry Regiment" The Infantry School *Quarterly* Vol XXXI (Fort Benning Georgia, US Army Infantry School May 1947) pp. 77-104.

452 The General Board"Organization, Equipment, and Tactical Employment of the Airborne Division" Study Number 16 op cit, pp. 1-10 and 24-33; and Maj John W. Urban "New Organization of the Airborne Infantry Regiment" The Infantry School *Quarterly* Volume XXXVI No 1 pp. 9-10 (Fort Benning, Georgia, The US Army Infantry School January 1950).

most drivers in airborne units did not have to be jump qualified. Their duties would not differ from those of their infantry counterparts so one is left to wonder about the reasoning behind this difference.[453]

The new tables of organization also reverted to the early World War II practice of providing pistols for all parachute-qualified personnel. There were still plenty of World War II veterans in the Army who wanted that extra "insurance" that jumping with a pistol in addition to one's "long arm" provided. Each company commander in the regiment (except the service company commander whose unit did not jump, and the medical company commander, whose unit was not armed) received enough additional pistols to equip all his parachutists should his company be called upon to participate in a combat jump.[454]

Above the battalion level the differences between the airborne and standard infantry regiments became more pronounced. The airborne regimental headquarters company had no security platoon and only a reduced I&R platoon. Since the Army regarded 42-ton tanks or self-propelled artillery pieces as far too heavy for airborne operations it did not authorize a tank company for an airborne regiment. It also prescribed that instead of a mortar company an airborne regiment would get a support company (see Appendix 7.14). This unit resembles the mortar company except that it included an antitank platoon with six towed antitank guns together with only two 4.2-inch mortar platoons. The antitank platoon would give the airborne regiment the long-range antitank firepower that neither its bazookas nor its recoilless rifles could supply. The support company's table of equipment did not specify which antitank gun it would use. The Army in 1948-50 did have a limited supply of towed antitank guns that it had developed and built late in the Second World War before shelving them in favor of self-propelled weapons. The 76mm T3 gun on carriage T4 was available in limited numbers. They would not have been impossibly heavy at 3,820 pounds but the Army did not, apparently, believe that their firepower was sufficient. There were also about 200 T8 90mm guns on the T5 carriage. These guns would have been much more effective than the 76mm but, at 6,800 pounds they would have been too heavy for the 2.5-ton trucks that the Army intended to use as prime movers for these guns. Therefore the Army initially settled on using towed M1 or M101 105mm howitzers with HEAT ammunition. Weighing in at nearly 5,000 pounds they were still light enough for a 2.5-ton truck but in terms of their effective direct fire range and the limited armor penetration capabilities of the M67 HEAT projectile it seems doubtful that they could even equal the 76mm guns. However the howitzers were familiar and available in quantity. Although the support company could only furnish an airborne regiment with two rather than the usual three 4.2-inch mortar platoons, this does not seem to have been a great concern since Army planners doubted their ability to keep even two mortar platoons supplied during an airborne operation. To give the mortars some mobility after an airborne landing but before their vehicles could arrive each airborne mortar squad included two handcarts. The support company headquarters resembled fairly closely that of a mortar company but its operations and fire control section did not include a survey team to assist the mortars in determining their positions.[455]

The principal changes to the service company were the elimination of the service platoon's tank, tank maintenance and heavy mortar sections. The regimental headquarters company section was larger so that it could support both the regimental headquarters company and the support company.[456]

Finally, the medical company followed a reduced version of the standard infantry regimental model (see Appendix 7.15).[457]

THE US ARMY IN KOREA

Both the Army's standard and airborne infantry regiments of 1947-50 were large and lavishly equipped and manned organizations that offered tremendous firepower and good mobility over European style terrain. General McNair would have considered them incredibly extravagant. When the Korean War broke out in June 1950, only 46 infantry regiments (including three regiments in the 1st Cavalry Division, whose elements carried cavalry designations but were standard infantry units in all other respects) and five airborne infantry regiments were active. The airborne regiments and 30 of the infantry regiments made up 12 (10 infantry and two airborne) of the Army's 14 active divisions (the other two were armored divisions). The remaining 16 infantry regiments served either as independent garrisons or as the nuclei of permanent regimental combat teams. Though impressive on paper, the Army was a very hollow force. Only the 1st Infantry Division in Germany, the 82nd Airborne Division at Fort Bragg (the Army's strategic reserve), and the 350th (in Austria) and 351st (in Trieste, Italy) Infantry Regiments were kept in any state approaching combat readiness.② Most infantry regiments manned only two weak battalions. Those stationed in Japan had no tank companies because American medium tanks were too heavy for Japanese roads and

② In May 1950 the US Army had the following divisions in active service: the 2nd Armored Division (Camp Hood Texas), 3rd Armored Division (Fort Knox, Kentucky), 1st Cavalry Division (Asaka Japan), 1st Infantry Division (Bad Tolz, Germany), 4th Infantry Division (Fort Ord, California), 7th Infantry Division (Sendai, Japan), 9th Infantry Division (Fort Dix New Jersey), 10th Infantry Division (Fort Riley, Kansas), 24th Infantry Division (Kokura Japan), 25th Infantry Division (Osaka, Japan), 11th Airborne Division (Fort Campbell, Kentucky) and the 82nd Airborne Division (Fort Bragg, North Carolina).

bridges. The regiments' leftover Second World War equipment was in both short supply and poor repair. Occupation duties had almost completely displaced field training. The troops were bored young men, many of them in the Army just for the GI Bill and other benefits. They lived in a comfortable world of regular workdays, punctuated by formal parties, dances, and athletic events. Many of the troops in Japan had their families with them or were living with Japanese women off base. Combat training did not become a priority until late 1949 after most police and other governmental functions had been handed back to the Japanese. Even then manpower and equipment shortages, the lack of suitable training areas, and most of all, the absence of any sense of urgency greatly hindered any attempts at combat training. Thus, when the new war broke out, it found the Americans who would soon be hurled into the midst of it badly out of shape both mentally and physically. Many lacked even the most basic combat skills. Few could handle long marches or the steep Korean hills. Worse, they knew almost nothing about the enemy.

Few Americans had ever heard of the North Korean Peoples Army (NKPA) before it attacked South Korea. Most assumed (or hoped) that it would be a poorly armed rabble that would flee in panic at the first sight of an American uniform. Unfortunately, it turned out to be a fairly modern Soviet-style force. Though it lacked the more powerful Soviet weapons,[❾] its T-34 tanks proved immune to most of the antitank weapons initially available to the US forces and its men displayed completely unexpected levels of personal savagery and tactical skill. The NKPA's ability to infiltrate behind American positions, the ease with which it moved independently of the road network, its habit of wholesale execution of both civilians and prisoners of war, and its use of refugees as human shields all came as a tremendous shock to its complacent adversaries. Within a few weeks, it had overrun all of South Korea except for the port of Pusan. Pusan's fall would have meant the expulsion of the by now United Nations (UN) Forces from the Korean peninsula and, effectively, the end of the war. However, the NKPA had neither expected American intervention nor reckoned on the effect of American air power on its vulnerable supply columns. Also, the NKPA's Soviet advisors noted that the NKPA staff handled armor and artillery badly and still had much to learn about the tactical control of large units. Partly as a result of this, the NKPA had suffered far more grievously in crushing the surprised and outgunned Republic of Korea Army (ROKA) than anyone realized at the time. The NKPA also made the fatal error of letting itself be diverted into southwestern Korea instead of heading straight to Pusan. This bought Lieutenant General Walton Walker's Eighth US Army just enough time to reinforce Pusan and prevent its capture. On the other hand, the fighting around Pusan, demonstrated that however suitable the American infantry divisions might have been for the plains of Europe, they were seriously out of place in the hilly and largely roadless terrain of South Korea. By early August 1950, the Americans and the surviving ROKA troops defending what became known as the Pusan Perimeter had accumulated twice the manpower and many times the firepower of their NKPA enemies. They had the advantage of defending steep hills fronted by the broad Naktong River. They also had complete command of the air and were close to their supply sources. Though both sides were worn out from previous fighting, the NKPA had nearly exhausted its food and ammunition. However, in spite of their considerable advantages the US/ROKA forces could not prevent major NKPA penetrations of the UN line. Though successful counterattacks averted disaster, the NKPA's siege of Pusan was only broken when the 1st Marine Division landed at Inchon, hundreds of miles to the north and west, and effectively cut off the NKPA from North Korea.[458]

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❾ The NKPA had no heavy tanks or assault guns at all. Its only tanks were T-34/85's its only self propelled artillery were lightly armed and armored SU-76 SP guns and its only other armored vehicles were BA-64 light armored cars (armed with machineguns only). Its artillery was on about the same scale as that of the Soviet Army up to division level but beyond that it had only a handful of medium guns (mainly A19 122mm field guns) and no heavy artillery at all. Its infantry lacked effective antitank weapons with which to protect itself from American tanks and its supporting antitank artillery was hopelessly obsolete. It had none of the newer weapons that the Soviets were issuing to their own forces. Even so the NKPA attack on South Korea nearly succeeded, despite the early American intervention (see HQ Eighth US Army Korea Monograph "Enemy Material;" typed photocopied manuscript publication date uncertain but definitely prior to 3 August 1951 – excellent summary and analysis of captured/destroyed enemy equipment from the first year of the war).

453 Dept Army T/O & E 7-17N and 7-18N op cit and T/O & E 7-37 "Airborne Infantry Rifle Company," and T/O & E 7-38 " Airborne Infantry Heavy Weapons Company" (Washington DC 1 April 1950).

454 These allowances appear in the tables of equipment attached to Dept. of the Army Tables of Organization 7-31 through 7-38 op cit.

455 Dept Army T/O & E 7-34 "Support Company, Infantry Regiment, Airborne" (Washington DC 1 April 1950); and Urban, "New Organization of the Airborne Infantry Regiment" op cit pp. 17-18.

456 Dept Army T/O & E 7-33 "Service Company , Infantry Regiment, Airborne" (Washington DC 1 April 1950).

457 Dept Army T/O & E 8-37 "Medical Company , Infantry Regiment, Airborne" (Washington DC 1 April 1950).

458 Dr. William Glenn Robertson, *Counterattack on the Naktong, 1950* (Fort Leavenworth Kansas, US Army Combat Studies' Institute 1985) pp. 13-22; LTC Roy E. Appleman USA (Ret), *South to the Naktong, North to the Yalu* (Washington DC, US Army Center for Military History, first published 1961) pp. 49-52 and 262-265; US Army (Official) *Directory and Station List og the United States Army* (Washington DC May 1950) pp. 36-65; and Brigadier General Franz Uhle-Wettler Federal German Army *The Danger of Overreliance on Technology by the Armed Forces*, unpublished translation approved by the author undated but probably produced in the late 1970s, p 5. See also T.F. Shtykov, "Report on the Military Situation 26 June 1950" unpublished letter translated by Kathryn Weathersby and quoted on page 11 of R. A. Mobley "North Korea: How Did They Attack Before?" draft version of an unpublished monograph dated 12 December 1999.

A principal reason behind this dismal performance lay in the quality of the American infantry. The importance of infantry in Korea was perhaps even greater than it had been during World War II because the rugged Korean terrain confined motorized units to the valleys while shielding foot soldiers and their equipment from aerial observation and attack. Not only did American infantry suffer from poor training and general unreadiness but also, and despite the lip service paid to it, the US Army was still using it as a dumping ground for the marginally qualified, just as in 1918. The better motivated and more intelligent men who still wanted to see combat were much more likely join an elite like the airborne troops or the Marines. As in the past, the Army believed that a rich nation should devote its wealth to supporting a level of firepower that would spare its own soldiers' lives. Infantry was for holding ground, for directing the air and artillery against the enemy, and then for mopping up afterwards. If the infantry was going to suffer the bulk of the casualties, it was better that its people be of the sort that society could best afford to lose. Armies should rely on infantry as their principal source of combat power only if they could afford nothing better. Unfortunately, this French Army principal of "artillery conquers, infantry occupies" did not survive contact with reality any better in Korea than it had in World War II. Far too often, the Communist forces were able to minimize the effects of UN firepower either by dispersing, camouflaging, digging in, or just moving out of the way. As the burden of the fight shifted to the ill-prepared infantry, casualties caused the rifle companies to melt rapidly away even while their support elements remained intact. Soon, too many "supporters" were serving too few "fighters." Since most "supporters" lacked the equipment, force structure, and combat skills needed to become effective fighters, the "fighter-supporter" imbalance was not easily corrected. Infantry shortages left American divisions disproportionately sensitive to casualties and constantly concerned about threats to their flanks and rear. Over-dependence on motor transport tied them far too closely to the roads and bridges. These weaknesses were very similar to those of the British armies in Malaya and Burma that the Japanese had exploited so effectively during 1941-42. Communist forces would continue to exploit their nominally superior Western-style opponents in much the same way.[459]

Nevertheless, the landing of the Marines at Inchon on 15 September seemed at the time to be the decisive blow that would bring the war to an early and successful close. Most of the NKPA, now trapped around Pusan, fled northward, closely pursued by the Eighth Army. Though enough NKPA men would escape to build a new army later on, they had lost nearly all their heavy equipment and, by November, were reduced to functioning as guerrilla bands. The UN forces, meanwhile, were well on their way to completing their conquest of North Korea and unifying the whole peninsula. North Korea itself is bisected by the rugged Taebek Mountains, which run from north to south and are high and difficult enough to make large-scale military operations within them or movements through them impractical. This caused the country to be split into two operating theaters, neither of which was readily accessible to the other. The two thirds of North Korea that lies to the west of Taebek Mountains is a relatively level plain until one gets well to the north. There the Yalu River forms the border with China and the terrain becomes mountainous. Most of the industry and population of North Korea was (and still is) on this western plain. General Walker's Eighth Army would operate there with the 1st Cavalry, 2nd, 24th and 25th US Army Divisions, four ROKA divisions, a brigade each of British and Turks, the 187th (US Army) Airborne Regimental Combat Team, plus support units. In the far more mountainous east, General MacArthur placed his X Corps, including the 1st Marine Division, the 3rd and 7th US Army Divisions, and two ROKA divisions. Both Eighth Army and X Corps had come a long way since the siege of Pusan. The American units at least were now generally manned and equipped at levels that approached what their tables of organization authorized. The United States had also hastily rebuilt the shattered ROKA. Having had some battle experience the Americans were becoming more proficient in their duties and more confident in their abilities. However, there were still some serious cracks in the cement that held all of this together.

The UN forces, while impressive on paper, had been cobbled together in great haste. Their training and morale were still shaky. Though many shortfalls had been made good, most of the infantry regiments of the formerly Japan-based 1st Cavalry and 24th and 25th Infantry Divisions were still without their tank companies and some rifle companies were operating at half strength. In order to build themselves up quickly, US Army divisions had taken large numbers of South Koreans into their ranks. Known as KATUSAs (Koreans Assigned To the US Army), these men tended to be recently conscripted and untrained peasants who spoke only Korean and were seldom literate even in their own language. Up to 100 KATUSAs could be assigned to a rifle or weapons company, supposedly in addition to, but mostly in lieu of American personnel. Their principal effect, apart from making US Army combat units appear stronger than they really were, was to set up language and cultural barriers within those units that were fit to upset even the best laid plans. Later, after they had learned some English and a few military skills the KATUSAs became much more useful, especially as local translators and guides. The ROKA itself was in the worst shape. The desperate fighting of the first four months of the war had practically annihilated it. Very few experienced

459 Franz Uhle-Wettler op cit pp. 1-14.

soldiers or effective officers from the pre-war army remained. The new "officers" were usually the worthless sweepings of the educated classes who were not clever enough to find a way to avoid military service altogether. Under such leadership their men soon became cowards or shirkers. Many of them had been literally been dragged off the street and hurled into battle. In terms of their organization ROKA infantry regiments generally resembled the February 1944 US Army infantry regiments. However, they had only nine men per rifle squad, no battalion antitank platoons, only six 57mm guns in the regimental antitank company, no regimental cannon company (the 4.2-inch mortars that were to have armed it had not been delivered), and considerably reduced transportation. The ROKA also had no tanks of any kind and only one weak field artillery battalion per infantry division.[460]

Communist China had been preparing to enter the Korean War from the moment the United States became involved in it. However its leaders understood that they could only wage war with the United States on a limited scale. The Chinese People's Liberation Army (PLA) would not fight in Korea as such. Instead, the Government would adopt the fiction that PLA troops in Korea were helping North Korea on their own volition and would call them Chinese People's Volunteers (CPV). However, unlike the NKPA, which at least had all the basic appurtenances of a modern army even if its Soviet weapons were not always of the best or latest types, PLA/CPV was desperately short of nearly everything and much of what it did have was obsolete. It had just emerged victorious from a protracted civil war that had largely been waged as a guerrilla campaign using very limited resources. The PLA had emerged as a light infantry force armed with the castoffs of half the armies of the world. Japanese and American weapons predominated. Soviet arms had not yet started to arrive in quantity. The CPVs were aware that they could never compete with the UN in firepower, so they counted on stealth, surprise, and the superior valor of their hard fighting infantry. To prevent interference by UN aircraft the CPV took elaborate precautions to conceal its movements. Due to the unexpected speed of the UN advance, most of the CPV's artillery had to be left in China or only just inside North Korea. There was no time to gather sufficient motor transportation to enable the guns and their ammunition to follow the infantry. This left a CPV division in November 1950 with only about 8,000 effective men, nearly all of them in its three infantry regiments. Its only antitank weapons were mines, improvised devices such as satchel charges, and the occasional captured bazooka. It's only antiaircraft weapons were a few .50-caliber machineguns and its heaviest artillery was the 82mm mortar. Small arms (including pistols) were available for only about two thirds of the men. Most rifle squads (nine to 12 men each) included an automatic rifle or LMG, one or two sub-machineguns, and five or six rifles. Unarmed men served as ammunition bearers and carried bags of hand grenades that often proved to be of remarkably poor quality. They were expected to obtain weapons from fallen comrades or enemies. Having spent so much of its history as a guerrilla army living off the countryside the PLA had only a weak supply service. Though the CPVs understood that they would need far more logistical support in North Korea than they ever had previously, they had no time to do anything but enter a winter campaign with only the food and ammunition that they could carry on their backs. Finally, and contrary to popular belief, the CPVs did not outnumber their UN adversaries. In western North Korea, 13th Army Corps (equivalent to a western army) had 19 divisions grouped into six "armies" (equivalent to western corps) but, lacking its artillery, it had only about 150-180,000 men to oppose 254,000 in the Eighth Army. In the East, the 9th Army Corps (12 divisions without artillery or about 100,000 men) [&] faced approximately 125,000 in the UN X Corps and ROK I Corps.[461]

As the UN forces approached the Yalu River in early November the CPVs struck. In the west, preliminary attacks destroyed some ROKA units and then overran the USA 8th Cavalry (one of the infantry regiments in the 1st Cavalry Division) near Unsan. In late November, the CPVs launched a second offensive against the Eighth Army's

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[&] Had its artillery and support personnel been available the 13th Army Corps would have mustered somewhat over 260,000 troops. The eight divisions from the CPV 9th Army Corps that fought in the vicinity of the Chosin Reservoir were able to pit perhaps 55-60,000 very lightly armed infantry against about half as many troops from the 1st Marine and 7th Infantry Divisions. However, given their immense superiority in firepower and logistics, the odds that the Americans faced were not nearly so great as they believed them to be at the time.

460 Roy E. Appleman, *Disaster in Korea* (College Station Texas, Texas A&M University Press 1989) pp. 37-44; Appleman, South to the Naktong, North to the Yalu op cit pp. 385-389; Billy C. Mossman, *Ebb and Flow November 1950-July 1951*, (Washington DC, US Army Center for Military History 1990) pp. 23-47; Operations Research Office General Headquarters Far East Command, *The Employment of Armor in Korea* Vol I (Internal US Army report dated 8 April 1951, copy no. 37 at the Library of the US Army War College, Carlisle PA) pp. 19-21; Clay Blair *The Forgotten War* (New York, Doubleday 1987) pp. 51-57, 570, and 575; Army of the Republic of Kores, *Military History of Korea* (Unpublished manuscript translation by 500th Military Intelligence Group dated 5 September 1952; deals only with the 1950-53 war and the post-World War II events leading up to it), Supplements 13-1 through 13-9; and Maj Robert K. Sawyer, *Military Advisors in Korea: KMAG in Peace and War*, (Washington DC, US Army Center for Military History 1988 reprint first published 1962) pp. 144-145.

461 Shu Guang Zhang, *Mao's Military Romanticism, China and the Korean War 1950-53* (Lawrence Kansas, University Press of Kansas 1995) pp. 58-68; Appleman, *Disaster in Korea* op cit pp. 7-19, 40, and 44-45; HQ Eighth US Army Korea, *Enemy Material*, (unpublished monograph dated January 1952 dealing with CPV and NKPA organization and equipment; a copy is in the US Army Center for Military History Washington DC) pp. 15-24, 30-50, and Appendix 3. For more strength comparisons between CPV and UN forces see Shu Guang Zhang, *Mao's Military Romanticism*, op cit pp. 59 and 101; and Roy E. Appleman, *Escaping the Trap* (College Station Texas, Texas A&M University Press 1990) pp. 24 and 340.

right flank where General Walker had imprudently posted three weak ROK divisions. In what later became known as the Battle of the Ch'ongch'on River, the CPVs quickly smashed the ROKs, and then overran the Turkish Brigade and the bulk of the 1st Cavalry Division as they tried to come to the rescue. Pouring into the Eighth Army's rear, the CPVs moved to roll up the Eight Army's front line from east to west, driving back the USA 2nd and 25th Divisions in the center while masking the 24th USA and 1st ROKA Divisions on the left. Eighth Army responded with a general retreat. Captured UN supplies enabled the CPVs to pursue the Eighth Army all the way to Seoul. The US 2nd Division was particularly hard hit. Two of its infantry regiments, having suffered about 2,300 casualties (it is uncertain whether these included KATUSAs), completely disintegrated. Many of their men returned to friendly lines as individual stragglers over the next several days. The remaining regiment became separated from the rest of the division and did not rejoin until after the battle. This left the division's engineer battalion to be smashed while attempting to cover the division's retreat. The division had to abandon most of its artillery, many vehicles and even many wounded. It reported that it had suffered nearly 5,000 casualties (probably excluding KATUSAs). The CPV's had successfully used the same enveloping and infiltration tactics employed by the Germans in 1918. However, like the Germans, they possessed neither a logistical system nor supporting artillery that could keep pace with their infantry's advance. Their lack of organic firepower robbed also them of many well-deserved successes, significantly reduced UN casualties, and saved a number of larger UN units from what should have been certain destruction. Even so, the Eighth Army had suffered a humiliating defeat at the hands of an enemy to whom it should have been vastly superior by every conventional measurement. A key factor in the disaster had been the CPV's ability to consistently outmaneuver and outfight the already depleted UN infantry.[462]

In their own intelligence reports, the Chinese praised American artillery, air support, and transportation but when it came to American infantry, they noted that when they were cut off from their rear they would "...abandon all their heavy weapons, leaving them all over the place and play opossum... Their infantrymen are weak, afraid to die, and haven't the courage to attack or defend. They depend on their planes, tanks, and artillery. At the same time, they are afraid of our firepower. They will cringe when, if on the advance, they hear firing. They are afraid to advance farther ...They specialize in day fighting. ... If defeated, they have no orderly formation. Without the use of their mortars, they become completely lost ... At Unsan they were surrounded for several days yet they did nothing. They are afraid when their rear is cut off. When transportation comes to a standstill, the infantry loses the will to fight." These comments bear an eerie resemblance to those made by the 21st *SS Panzer Grenadier* Regiment, 10th *SS Panzer* Division about Anglo-American infantry in Normandy. The Germans commented that their morale was "… not very high. It depends largely on artillery and air support. In case of a well-placed concentration of fire from our own artillery the infantry will often leave its position and retreat hastily. Whenever the enemy is engaged with force, he usually retreats or surrenders." While both German and Chinese documents may have mixed some propaganda and wishful thinking with honest observation, Lieutenant General Matthew Ridgway when he visited the Eighth Army as an observer during August 1950, was not pleased with what he saw. He reported that soldier quality was not up to the World War II standard. The troops lacked basic knowledge and skills, were too easily stampeded, reacted poorly under fire, and were too dependent on air and artillery support. Most of these problems were still unresolved when Ridgway assumed command of the Eighth Army in early 1951. However, as the Eighth Army recovered its morale, secured its flanks (very important!), and learned to make better use of its superior firepower it began to inflict heavy losses on the CPVs. However, neither side would gain any more decisive victories.[463]

Meanwhile, in the East, the CPV 9th Army Corps' attack on the UN X Corps focused on the Marine and Army troops in the vicinity of the Chosen or Changjin Reservoir. However, just as the CPV offensive got underway disaster struck. A sudden cold snap caused temperatures to plunge to -30 degrees centigrade. Although this took both sides by surprise, the UN forces had plenty of food, warm clothing, stoves, and warming tents and although they still had many cold casualties they did not suffer too badly. For the CPVs, however, the cold was a catastrophe. Knowing little more about Korea than the Americans did, the CPVs had not provided themselves with adequate food, shelter, or even gloves or mittens to protect their hands. Worse, the cold was much worse in North Korea's eastern mountains than on its western plains where the Manchurian soldiers of the 13th Army Corps, who were used to cold weather, were fighting. The men of the 9th Army Corps had been recruited mainly from Shantung whose temperate climate would have done nothing to inure them to Korea's (or Manchuria's) arctic style winters. The

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462 Appleman, South to the Naktong, North to the Yalu op cit pp. 673-720; Appleman, *Disaster in Korea* op cit pp. 76-371; Shu Guang Zhang, *Mao's Military Romanticism,* op cit pp. 95-113; and Bin Yu "What China Learned from its 'Forgotten War' in Korea" *Strategic Review* Vol XXVI No 3 (Boston MA Summer 1998) pp. 4-17.

463 Chinese comments quoted in Appleman, *South to the Naktong, North to the Yalu* op cit p. 720. German comments are from a translation of a captured document published in Military Intelligence Service "How the Allies Fight, Views of a Panzer Division" *Military Reports* Number 24 (US War Department Washington DC December 1944) p. 70; Ridgway quoted in Clay Blair, *The Forgotten War* op cit p 186; and Bin You "What China Learned…" op cit.

result was that 9th Army Corps lost at least a third of its men (including many dead) to frostbite and hypothermia. For the CPVs it was a case of too much infantry and not nearly enough artillery or logistical support to keep it going. Even so, east of the Reservoir, the CPVs destroyed the U.S. Army's ill-fated two-battalion 31st Regimental Combat Team (RCT), better known as Task Force Faith/MacLean. However, they could not deal with the five battalions of Marines west of the reservoir. Besides being more numerous the Marines were better led, did not use KATUSAs, and were aided by a number of tactical blunders committed by the CPVs themselves. The CPVs had opposed the Marines' advance towards the Yalu instead of luring them further away from their communications to where they could have been more easily trapped. Worse, the CPVs squandered a chance to seize the Marines' base at Hageru while it was still vulnerable. Added to the effects of the bitter cold and dwindling ammunition and food supplies the CPV found all its efforts to destroy the Marines stymied. However, the CPVs did succeed in persuading the Marines and the rest of X Corps to evacuate North Korea as soon as they could.[464]

In subsequent fighting the UN forces were able to push their enemies back to (and a little beyond) the old 38th Parallel boundary and the war settled down to a long contest of attrition. The Truman administration abandoned any idea of a second invasion of the North lest the disasters of the first be repeated. Though this decision minimized any chance for a UN defeat, it all but eliminated any prospect for decisive victory. Attempts to bleed the enemy white with casualties failed as the Chinese and the newly revitalized NKPA improved their own firepower and developed techniques to minimize the effects of American weapons. Likewise, massive efforts by Air Force and Navy aviators, CIA supported guerrillas, and coastal raiding parties to starve the Communist armies by cutting their supply lines also failed. The end result was a mere cease-fire. This was a bitter pill to swallow for a US Army that had grown used to demanding the "unconditional surrender" of its emenies. All the wealth and advanced technology of the United States had not kept a rabble of Asian peasants from fighting an American army to a standstill. However, instead of reacting to Korea by reviving soldierly virtue and military professionalism the US Armed Forces redoubled its focus on technology and initiated a massive revival of American defense industries. This was especially the case with the aviation industry, which soon became the beneficiary of a huge modernization program for the US Air Force. This was especially curious in light of the fact that the Air Force had not been especially successful in Korea. It massively damaged both Northern and Southern civil infrastructure and caused numerous friendly and civilian casualties as well as enemy losses. Despite very limited aerial opposition it had failed to halt or even greatly impede the Communist offensives and it could not adequately interdict Communist supplies. Even its success at limiting American casualties was problematic. What Korea had accomplished, however, was to turn Americans against "traditional" warfare. How much easier and less terrible it would be if one could fight future wars from a distance, using only aircraft and artillery. The defense industries, starving since 1945, would get plenty of work. As for the Army itself, it intensified its focus on firepower. Reinforcements arriving in Korea after 1950 consisted mostly of artillery units. Since decisive victory was no longer possible the Army began to measure its success by the numbers of shells it fired and by the size of the small pieces of blood-soaked soil that it occasionally wrested from the enemy. The future lay in science and technology. The importance of traditional arms like the infantry would decline.[465]

THE MARINES IN KOREA

The Marines' first serious post-World War II reorganization of their ground combat units did not occur until the release of the K-Series organization tables in May 1949. H and J-Series tables had been used after 1945 (the I-Series was skipped) but these were merely attempts to adapt the old G-Series tables to peacetime limitations and requirements, especially those of the Marine occupation forces in China and other parts of the Asia-Pacific theater.

The K-Series tables adhered to the notion that the Marines would be the same amphibious assault force that they had been in the Pacific War. However, the tables introduced new weapons and equipment and a new enlisted rank system while incorporating ideas from the Army's own post-war reorganizations. Regarding enlisted ranks the Marines did away with the elaborate system of specialist ranks and titles that had carried it through the Second World War. There would be no more chief cooks, field cooks, quartermaster sergeants etc. Instead the seven Marine enlisted pay grades would each have one title only and would include (as before) only two grades of private. Marine corporals (Grade E-3) and sergeants (E-4) would have responsibilities comparable to those of Army sergeants and SFCs, respectively, who were two pay grades higher. Marine staff sergeants (E-5), technical sergeants (E-6), and master sergeants (E-7) all performed duties (platoon sergeant and higher) that the Army had to assign to master

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464 Shu Guang Zhang, *Mao's Military Romanticism*, op cit pp. 116-118; for full accounts see LtCol Roy E. Appleman, *East of Chosin* (College Station Texas, Texas A&M University Press 1987) and LtCol Roy E. Appleman, *Escaping the Trap* (College Station Texas, Texas A&M University Press 1990); and Mossman op cit.

465 The balance of the war is well covered by Clay Blair *The Forgotten War* op cit; and LtCol Roy E. Appleman, *Ridgway Duels forKorea* (College Station Texas, Texas A&M University Press 1990).

sergeants (E-7). The J-Series tables also show that the Marines were not entirely immune to the Doolittle "reforms." Each company headquarters, battalion headquarters and the regimental headquarters included personal affairs assistants, special services officers and athletic and recreation personnel. However, it appears that when these positions were actually filled the men filling them were frequently performing other duties. By early 1952 the Marine Corps officially eliminated these positions. It also eliminated the "supernumeraries for mess duty" (SMD). Until the G-Series these had been known as "other duty" privates and were supposed to function as "live in" replacements like the Army's filler personnel except that they worked in the kitchens until they were needed elsewhere. However the Marine Corps had difficulty keeping the positions filled. Therefore the Marine Corps eliminated the SMD positions and instead the companies took turns sending "volunteers" to the field kitchens to serve the food and help clean up.[466]

During the Chosin Reservoir Campaign, the Marines' M-2 carbines rendered an especially disappointing performance. The Marines concluded that they were inaccurate, lacked stopping power, unreliable in extreme temperatures, and hard to control in full automatic fire. Thy abandoned them with almost indecent haste and replaced them with larger numbers of rifles and pistols (see Appendixes 7.16 through 7.21). Though they were present in reduced numbers under the new tables the grenade launchers for rifles (M7) and carbines (M8) escaped elimination under the "K" tables. The M7's were to be issued at a rate of one per eight riflemen and the M8's at a rate of one per 20 carbine men. It was up to the company commanders to determine who actually received these weapons.[467]

Of all the elements of a K-series regiment, the rifle companies had changed the least since 1945 (see Appendix 7.16). Rifle squads and platoons remained essentially the same. Because a new machinegun platoon in the newly reintroduced battalion weapons company would operate the heavy water cooled Browning M1917A1 machineguns the machinegun platoons in the rifle companies would use the light air cooled M1919A4 only (except for peacetime training). A new rocket squad with two three-man bazooka teams replaced the three unmanned bazookas of the F and G-Series companies. Because the new tables centralized food service in a battalion mess section, the company headquarters lost its own mess detail (including the supernumerary privates), plus its carpenter and barber, to the battalion service platoon. The company also lost its signal corporal, a field music and its jeep and drivers. The loss of the latter made the company even more dependent upon the battalion headquarters and service company for the replenishment of its food, water and ammunition. The company was also supposed to have a Doolittle-Board mandated personal affairs NCO to perform morale and welfare functions. A private clerk-typist handled the few administrative functions not covered by the battalion administrative section. The quantity of radio equipment in the company continued its inexorable increase and now stood at seven SCR-536's and one SCR-300. The SCR-300 was, of course, for the battalion command net. An SCR-536 distributed to each platoon leader, the mortar section, the company command post, and the company commander himself would constitute the company command net.[468]

One important change that the K-series tables did make was to restore the battalion weapons companies (see Appendix 7.17). These organizations had not seen since the E-Series of 1943. Formation of the new company was not difficult since it merely involved the transfer of the mortar and assault platoons from the battalion headquarters company (which the presence of these platoons had made too large and complex) to the weapons company and the creation of a machinegun platoon which need only be manned during wartime. The new machinegun platoon was organized exactly as the LMG platoons in the rifle companies but it would employ water-cooled M1917A1 HMG's rather than the much lighter LMG's. This would ensure the battalion could still take advantage of the long-range accuracy and high sustained rates of fire that the HMG's offered without the need to burden the rifle companies with two different sets of machineguns. Unfortunately, the new platoon would have no jeeps or handcarts for moving its weapons or ammunition even though its guns were heavier, had substantially larger ammunition requirements, and would need water as well. However the machinegun platoon could count on on a good deal of support from the two jeep and trailer combinations at weapons company headquarters. The Marine Corps expected that the HMGs would tend to operate further back from the forward line of troops than the rifle company LMGs and so would be easier to supply. Like their Army counterparts, Marine HMGs would operate by sections. Though the machinegun platoon commander could attach each of his three sections to a rifle company, keeping those three sections under his own (actually battalion) control was the preferred means of employing his unit. Although Marine infantry battalions was fortunate enough to have three HMG sections when its Army counterpart had only two, battalion sectors (especially earlier in the war) could be so large that even three sections could not cover them.[469]

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[466] Copies of the K-Series Tables held by the Marine Corps Historical Center, Washington DC are annotated with pen and ink corrections showing changes that included the withdrawal of mess duty supernumeraries and health and welfare officers and men.

[467] Ibid. For accounts of carbine use in Korea see SLA Marshall op cit pp. 3-4 and 67-71.

[468] USMC T/O & E K-1013 "Rifle Company, Infantry Battalion, Infantry Regiment, Marine Division, FMF" (HQMC Washington DC, 31 May 1949); a corresponding table of equipment for all K-Series T/Os was published separately and in mimeographic form - a copy is located in the central files division of Headquarters Marine Corps, Washington DC.

As had been the case during 1943-45, the Marines organized each section of the 81mm mortar platoon for independent action. It had its own observer team, communication personnel, and jeep weapons carrier. The battalion commander normally kept the 81mm mortar platoon under his own control, although he could attach mortar sections to the rifle companies if circumstances required it. This was not a preferred course of action since it would break up the battalion commander's principal firepower reserve. Worse, the mortars suffered from severe mobility restrictions. Due to their limited range, they had to move often and because there was only one jeep weapons carrier per section they had to move mainly by hand carry and hand cart. The men would be heavily loaded, could move only slowly and would not be able to carry much ammunition. In addition, although the movement of one section would still leave two sections able to fire, in a fast moving situation these rear sections would soon find themselves out of range. This would leave the battalion with only one firing section until the other two could catch up. A battalion of the 1st Marine Regiment during the Inchon landings implemented a solution to this problem. It restructured its mortar platoon as two sections of four squads each. A redistribution of the existing mortar squad and section personnel plus the "acquisition" of a couple of spare mortars created the two additional mortar squads that this scheme required. The modified platoon could always have one four-gun section firing while the other one moved. Over the succeeding months, other battalions adopted this arrangement and eventually it became the norm.[470]

The two squads in each section of the antitank/assault platoon were the same as the rifle company rocket squads but with the addition of a flame thrower operator and his assistant, together with their two M2-2 portable flame throwers (one for use while the other was reloaded). Platoon headquarters mainly provided armorers to maintain section weapons. Although most battalion commanders tried to avoid breaking up the machinegun and mortar platoons to distribute their sections among the rifle companies, few had a problem with doing this with the antitank/ assault platoon. In most battalions in combat each rifle company routinely had an antitank/assault section attached to it. While this this section, together with the rocket squads that the rifle companies already had generally answered the companies' antitank requirements, the breakup of the antitank/assault platoon would eliminate any battalion-level antitank reserve. Since the Communists so seldom employed permanent fortifications the Marines' heavy man-pack flame-throwers saw very little use. The antitank/assault platoon commander typically pulled the flame-thrower operators from his antitank/assault squads and kept them at platoon headquarters from where they would be available if they were needed.[471]

Seven jeeps with trailers comprised the only motor transport that the weapons company possessed. Their combined payload was even less than that of an Army rifle company's organic vehicles despite the weapons company's much larger ammunition requirement. Answering calls for ammunition severely taxed the energy and ingenuity of everyone connected with weapons company supply. During combat (especially during the "mobile" phase of the war) the seven jeeps had to operate round the clock. Experience showed that it was futile to draw more ammunition from the battalion ammunition point than was necessary to meet immediate requirements. During the advance on Seoul after Inchon, the Marines discovered that extra ammunition stashed in a company dump usually could not be moved forward as rapidly as the battalion could advance its own ammunition point. The routine attachment of the antitank/assault sections to the rifle companies brought some relief since the latter would usually look after the assault sections' supply. However, since HMGs were attached to rifle companies only intermittently their host rifle company often overlooked them and left the weapons company to continue supplying them from its own assets. The weapons company jeeps also had to make at least one run per day to bring up rations and water. During the winter, yet another trip would have to be made for sleeping bags and the extra clothing that the men could not readily carry with them but needed if they were to be warm at night. Just in case the weapons company jeeps did not have enough to carry, they also had four LMGs for local security. The infantry regiment's table of equipment included an M1919A4 LMG for every pair of jeep weapons carriers (but not for radio jeeps, which were overloaded already, or ambulance jeeps). The using unit would decide which jeep actually carried an LMG. Each LMG had its own pedestal mount for use on board a vehicle and a tripod for use on the ground. Despite their usefulness these "self defense" LMGs were still a significant drain on the limited transportation resources of Marine units. One gun, with its pedestal and tripod mounts, would weigh 135 pounds and even a modest supply of ammunition for it would weigh nearly as much again. Together this amounted to one third of a jeep's rated payload.

In general, the weapons company did not operate as a single tactical unit but as separate platoons and sections. The company commander usually acted as a fire support coordinator for the battalion, coordinating not only his

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469 USMC T/O & E K-1023 "Weapons Company, Infantry Battalion, Infantry Regiment, Marine Division, FMF" (HQMC Washington DC, 31 May 1949); and Capt James F. McInteer, Jr, "The New Weapons Company in Korea," Marine Corps *Gazette* Volume 35, No. 6 (Quantico Virginia, June 1951) pp. 12-17.

470 McInteer, op cit; and 2dLt Eugene J. Paradis, "Reorganized 81mm Mortar Platoon," Marine Corps *Gazette* Volume 35, No. 3 (Quantico Virginia, March 1951) pp. 14-16.

471 USMC T/O & E K-1023 "op cit; and McInteer op cit.

own weapons but also the fires of supporting field artillery, aviation, and the regimental antitank and heavy mortar companies. The executive officer supervised the weapons company's supply and transportation arrangements. This included march security, a problem earlier in the war when frequent displacements were required. If possible, the company would arrange for the 81mm mortar platoon to move along with the battalion's reserve rifle company. Frequently, however, this was not possible and so "Plan B" was for the company to improvise a security element from the HMG platoon, one or two sections of which would act under company control.

The 81mm mortar platoon had traditionally depended on wire communications to link its observation posts and fire direction center. In the fast moving operations that characterized the early months of the Korean War, the Marines soon discovered that laying wire at each firing position (unless there was opportunity to recover the wire afterward) would soon exhaust their supplies of wire. Much greater use of radios had to be made in order to economize on wire but the authorized radio equipment of the weapons company was insufficient. Like the rifle companies, the weapons company was issued one SCR-300 man-pack radio for battalion command net communication. For its internal use, it had four SCR-536s, which allowed for only one per platoon and one for the company command post. For the 81mm mortar observers, section headquarters and fire direction centers (FDC) there were no radios at all. In addition, since the weapons company operated throughout it's parent battalion's area of responsibility rather than the smaller zones within which rifle companies normally operated, its elements were much likely to find themselves outside of the operating range of their own SCR-536s. One way of resolving such problems, was to co-locate the weapons company headquarters with the mortar platoon FDC so that they could share the company headquarters' radio. That would free one mortar platoon SCR-536. The assault/antitank platoon headquarters might get along without a radio since its sections were so often detached from it. This would free a second SCR-536, enough for one mortar observer and the FDC. This arrangement was only practical as a "last resort" however. A much better way was to obtain three extra SCR-300s and issue one each to the mortar platoon FDC and two observers. All three would operate on the battalion's auxiliary tactical net and by doing so would remove the need to either share a radio with weapons company headquarters or steal one from the antitank/assault platoon. They also facilitated mortar displacements because they allowed the officer controlling the mortar platoon's movement, be it the weapons company executive officer or the mortar platoon commander (or assistant commander), to monitor the battalion command net and better keep up with the tactical situation. The mortar platoon's authorized SCR-536 could not be used for this purpose since it could not operate within the SCR-300's frequency range.[472]

The battalion headquarters and service company, apart from having lost its mortar and assault platoons to the newly created weapons company, differed very little from the old G-Series tables (see Appendix 7.18). However, the number of officers in battalion headquarters had doubled since 1942 and continued to increase even after 1945. Part of this was caused by the battalion headquarters' incorporation of the headquarters company headquarters personnel (including its full time headquarters company commander and the Doolittle Board mandated special services officer. The battalion S-2 (intelligence) became a captain and acquired a lieutenant as his assistant but he lost five of his nine trained scout/observers. The S-1 (adjutant) remained a lieutenant but his section grew from eight clerks and classification specialists to 20, plus a 35mm film projectionist and a warrant officer assistant. In addition, each rifle or weapons company regained a clerk-typist. Finally, a detail from the battalion's Navy medical platoon replaced the three-Marine sanitary squad that had exterminated rodents, insects, and other disease bearing pests during 1944-45.

The battalion communication platoon was nearly identical to its G-Series predecessor. It could still supply the battalion commander with a radio jeep and it had another jeep to assist in laying telephone wire. Though it still held the majority of the battalion's radios it no longer had to carry extra SCR-300s for the rifle companies. However it did need service platoon jeeps to move its own heavy long-ranged SCR-619 and GRC-9 radios. One "radio" that was not man-packed but did not require service platoon assistance in order to move was the AN/MRC-6B. This was among the first results of a Marine Corps decision at the end of World War II to give radio equipment permanently installed in vehicles whose only mission was to move that radio equipment around the designation "MRC" or "mobile radio communications." The MRC designation covered both the radio and the vehicle that carried it. In the infantry regiment MRC vehicles were invariably jeeps. The MRC-6 was a Navy-type TCS radio (weighing about 125 pounds by itself and without a power supply) installed in an M-38 jeep, leaving space for a passenger as well as the driver. The TCS radio saw wide use in amphibious vehicles and on Navy ship and boat circuits. Its rated voice transmission range was 15 miles and it could send CW transmissions to 30 miles and was therefore well suited as a battalion-level command radio and for ship to shore communication.[473]

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[472] Ibid.

[473] Marine Corps Education Center, Marine Corps Schools, MCS 2-103E, *Field Radio Equipment Reference Data* (Quantico Virginia 1954) pages 1-3 and 14-15.

Although the Shore Fire Control Party (SFCP) and Tactical Air Control Party (TACP) did not become an organic part of the battalion until late in the war, the division signal battalion routinely attached these sections to each infantry battalion throughout the war. The structure of both an SFCP and a TACP was similar. Each included a liaison team that relayed and coordinated fire support requests and a spotter team that actually directed fire on a target. In an SFCP the liaison officer was a Navy Lieutenant (j.g.) while the spotter was a Marine lieutenant. In a TACP Marine officers performed both the liaison and spotting roles. Earlier in the war there could be up to 10 Marine enlisted communicaters in a naval gunfire liaison or spot team while a TACP would have five men in each of these elements. The liaison teams had the radio jeeps though they would have needed additional motor transport support to move their long-range 485-pound AN/GRC-13 air-ground or ship-to-shore radios. Before the AN/MRC-19B radio jeeps became available the TACP used a jeep equipped with an AN/VRC-1 radio while the SFCP used an AN/MRC-6B. Other radio equipment included the MAY, which was a man-pack system (weighing in at a backbreaking 86 pounds) that could make line-of-sight transmissions to aircraft at altitudes up to 10,000 feet and up to 30 miles away. The MAR (which, when mounted in a jeep became the AN/MRC-13B) could, together with the earlier MAW, communicate with aircraft at greater distances. When set up for field operations it weighed up to 200 pounds but it could break down into much smaller loads for transportation. The SFCP and TACP teams also had telephone equipment but found it to be less useful than their radios. Eventually, as part of a series of late war manpower cuts the teams lost all their wire personnel and even some of their radio operators.[474]

The old G-Series battalion supply section became a service platoon when the interim J-Series tables appeared in 1947. The service platoon has remained a feature of the Marine infantry battalion ever since. The battalion quartermaster, who was a lieutenant supply specialist (replacing the G-Series warrant officer), commanded it. He also provided technical expertise to the battalion staff S-4 since the latter was usually an infantry officer. The platoon's service section had the carpenters and barbers that had previously been in the rifle companies but now served the whole battalion. The battalion's motor transport personnel and equipment were also part of this section. One of the battalion's jeeps was supposed to be earmarked for the support of each rifle company. The largest element of the service platoon was the mess section, which provided food service for all companies in the battalion. The J-Series tables had abolished company mess details. Until their abolition in 1952 the battalion's supernumerary privates served in this section as messmen until they were needed elsewhere.

The Battalion Medical Platoon remained essentially unchanged from its G-Series organization. Seven to eight aidmen would go to each rifle company. Others would go to the weapons company. The battalion aid station would split itself into forward and rear echelons, with a surgeon in each. About 24 men per battalion (mainly cooks and clerks) would serve as stretcher-bearers. Together with the battalion ambulance, they would collect the casualties.[475]

At the regimental level, the biggest change was the splitting of the old G-Series weapons company into a heavy mortar company and an antitank company. Both were Marine Corps adaptations of an Army regiment's heavy mortar and tank companies. The mortar company (see Appendix 7.19) had only two mortar platoons and very limited transportation. Within its range limits, and given sufficient ammunition, this company could deliver as much high explosive within one minute as all three 105mm howitzer battalions of a Marine division's artillery regiment! For transportation the mortar platoons had only handcarts and they would have mainly used these to move ammunition around since a 4.2-inch mortar, weighing some 333 pounds in action, would have made a rather heavy (though not impossible) load for a handcart. For most displacements company headquarters could supply enough vehicles to lift one platoon at a time. The mortar squads were not grouped into sections like 81mm mortar squads since Marine doctrine for the 4.2-inch mortars regarded the platoon as the smallest fire unit. Each platoon headquarters included a forward observer and company headquarters provided a fire direction center and a survey team. Since the company was not part of a battalion, it had its own barber, clerks, and mess detail.[476]

For communication, mortar company doctrine preferred wire. For this purpose the company had 10 EE-8 electrical phones and three CE-11 reels with sound powered phones. However, moves were frequent and the two mortar platoons often got too far apart to be connected by wire, leaving radio communication as the only alternative. One of the company's SCR-300s would go to each forward observer, one to the fire direction center (FDC), one to

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[474] This writer has been unable to find reliable information on the characteristics of the AN/MRC-19B, though it was clearly intended as an air-ground and ship to shore radio. It was probably the AN/MRC-35 that replaced it at the end of the Korean War. Other information comes from USMC T/O & E K-1037 "Headquarters and Service Company, Infantry Battalion, Infantry Regiment, Marine Division, FMF;" and Table K-1853 "Air and Naval Gunfire Liaison Company, Signal Battalion, Marine Division, FMF" (both HQMC Washington DC, 31 May 1949) with tables of equipment. The HQMC Central Files. Tables of organization found at the Marine Corps Historical Center, Washington DC, are annotated to show changes made during the course of the Korean War. See also MCS 2-103E, *Field Radio Equipment Reference Data* op cit (which says the MAY weighed only 44 pounds, an obvious error) and the 1962 issue of the same publication (MCS 2-103).

[475] Ibid.

[476] USMC T/O & E K-1083 "4.2-inch Mortar Company, Infantry Regiment, Marine Division, FMF;" (HQMC Washington DC, 31 May 1949) with tables of equipment. From HQMC Central Files; Maj James H. Naylor "The New Mortar Company" Marine Corps *Gazette* Volume 34 No 6 June 1950 pp. 44-49; and Capt Edward E. Kaufer "Four-Deuce is a Winner" Marine Corps *Gazette* Vol 36 No 12 December 1952 pp. 38-41.

each platoon position, and one to the company command post. A ground mounted TBX-8 could reach stations on the regimental tactical net and a long ranged SCR-619 covered the regimental auxiliary tactical net. It could easily switch to the supporting artillery battalion's fire control net. These two larger radios could also substitute for inoperable SCR-300s. Despite their inadequate range the three SCR-536's could often link the FDC and the gun positions or the two platoons (if they were close enough) or the forward observers and the front line units they supported.[477]

The mortar company was designed to be, among other things, light enough to get ashore in the early stages of a landing but able to put some real firepower on the beach. It could use amphibian tractors (LVT), amphibian trucks (DUKW) or boats to move ashore or to supplement its organic vehicles. In a land campaign its organic transportation required reinforcement. In contrast to the plentiful transportation found in an Army heavy mortar company, the Marine mortar company's six vehicles could barely move one platoon of four mortars with just under 44 rounds of ammunition per mortar (a little more than two minutes' rapid fire). Even this required the use of the company commander's command jeep. A full unit of fire was 270 rounds per mortar, or 2,160 rounds (weighing 37 short tons) for all eight mortars. However, the mortar companies discovered in Korea that they could manage fairly well if they could get two or three extra 2.5-ton trucks with trailers. These extra trucks would ensure an adequate ammunition supply but the company would still be able to displace only one of its platoons at one time.

Combat experience demonstrated that the mortar company executive officer could not adequately fill both his additional duties of reconnaissance officer and fire direction officer. It also showed that all communication personnel and forward observers should belong to the company headquarters. From there they could more easily be sent to where they were needed. Because of the wide frontages that they had to cover, mortar platoons often had to operate at extended distances from the company headquarters and each other (though every effort was made to keep them close enough together to permit their fires to be combined). Sometimes they even had to be attached to the battalions they supported. Movement in Korea was so frequent that there was seldom much chance to improve the accuracy of the mortars' fire by surveying their positions and targets. Therefore, the company's survey personnel usually formed a second FDC to act independently if the mortar platoons were separated or to relieve the primary FDC if they were not. Also, the company needed a third forward observer team. This was usually improvised from company headquarters personnel and enabled a team to be attached to each of the regiment's battalions. Ideally, each rifle company should get a team but the company command nets would not stand the extra load. Therefore, 81mm forward observers, artillery observers, and even aerial observers ended up doing a lot of spotting for the "four deuces." Finally, the mortar company found that it had to take special security precautions against Communist infiltrators. It had been anticipated that an infantry battalion would provide security for the mortars but the infantry battalions usually found themselves perched on the hills while the mortars were in the valleys with no one to protect them. However, by using their company headquarters personnel plus the two LMGs provided for their jeeps, the mortar companies were able to improvise their own security sections and these proved to be generally effective.[478]

With fighting elements consisting of a heavy tank platoon and a 75mm recoilless rifle platoon, the regimental antitank company (see Appendix 7.20) was a very unusual organization. Like the regimental mortar company, it was an independent regimental unit that the regiment treated as a miniature battalion for administrative and logistical purposes. It also suffered badly from insufficient transportation. As was the case with the Army's regimental tank company the Marine tanks were there to ensure the presence of at least some weapons that could destroy any known tank. However, the tanks' size, weight and fuel and maintenance requirements plus the limitations on available shipping, not to mention landing craft limited their numbers to only one platoon. The recoilless rifle platoon provided a much lighter and more easily transported but less capable alternative that could fill out the company without doing too much violence to shipping space limits.[479]

During combat the antitank company maintained its own separate command post (CP) with supply dump, motor pool, and communication nets. The company commander usually placed his CP as close to the regimental CP as possible since he was also the regimental antitank officer and had to stay informed about the regiment's overall tactical situation. One of his company's primary functions was to set up roadblocks as part of the regiment's antitank defense plan. This required the company commander to reconnoiter frequently and the company's radio jeep was there to assist him with this. The company's SCR-300s, carried in jeeps, plus the tank radios (not shown in the Appendix 7.20 but comprising a VRC-3, essentially a vehicle mounted SCR-300, and an SCR-508 or 528 per tank) constituted the company's tactical net. Wire communications was mainly for the recoilless rifles. The recoilless rifle platoon's two jeeps provided very inadequate transportation. One 75mm rifle with a tripod and 20 rounds of ammunition easily amounted to twice the load capacity of a jeep and trailer, especially when crewmen

[477] Ibid.

[478] Ibid

[479] USMC T/O & E K-1073 "Anti-Tank Company, Infantry Regiment, Marine Division, FMF;" (HQMC Washington DC, 31 May 1949) with tables of equipment. From HQMC Central Files.

had to be carried also. Not surprisingly, breakdowns of overloaded equipment were frequent. While the tank platoon usually stayed together and acted as a regimental reserve, the recoilless rifle platoon operated as separate sections that the regimental commander would grequently attach to his two forward battalions. They in turn would then sub-attach their recoilless rifles to their battalion weapons companies. In this capacity they would serve as battalion antitank reserves ready to engage enemy armored vehicles, pillboxes, and other targets of opportunity outside the range of the battalion's organic weapons. Here, the 75mm's great accuracy and adequate hitting power enabled it to gain considerable success. After 1950, the Communist forces kept most of their tanks in reserve and UN forces rarely encountered any. Hence the antitank companies took on more of a direct fire support role. The tanks themselves provided direct fire support for infantry operations in much the same way as the 75mm rifles did, though the mountainous terrain in eastern Korea often restricted their operations.

Notwithstanding their tactical effectiveness, the tanks presented a lot of problems. They were difficult and risky to move ashore, especially in the earlier and more critical stages of a landing. They were also a supply and maintenance nightmare. For maintenance, the tank platoon only had, besides the tank crews themselves, a tank mechanic and a radio mechanic. An artillery mechanic (for the tanks' weapons) was at company headquarters but he also had to maintain the 75mm rifles. Although these men could handle minor repairs and preventive maintenance, they had to depend heavily on outside assistance for more serious problems, especially anything requiring a tank recovery vehicle. Recovery vehicle support was supposed to come from the maintenance company of the division ordnance battalion. Unfortunately, this unit usually operated well to the rear of any infantry regiment, had only one tank recovery vehicle, and also had to support the division tank battalion. The latter included five recovery vehicles but it also had 91 tanks of its own to support. A heavy bulldozer borrowed from the engineers might substitute for a tank recovery vehicle and one tank was also supposed to be able to recover another. However, the M26 *Pershing* for all its size, weight, and imposing appearance, was actually a very delicate beast and any attempt to get it to tow or retrieve another *Pershing* might only produce a second breakdown.

Supply for the antitank company tank platoons was another serious problem. In order to meet the company's fuel requirements during active operations one of the company's two 2.5-ton trucks had to constantly shuttle back and forth from the division fuel point, carrying 13 drums of gasoline and two of lubricants per trip. That left only one truck for ammunition, food, and water and this was seldom enough. The infantry battalions would support the 75mm rifles whenever they were attached to them. This eased, but seldom solved the ammunition supply problem. Extra vehicles from the division motor transport battalion or even LVTs or DUKWs were frequently required.

An even bigger problem was the tank platoon's organizational isolation. It was not part of the division tank battalion except for peacetime training and for long distance moves (usually those involving sea or rail transport). Thus the tank battalion was seldom under any obligation to help out. Worse, tanks are not infantry weapons. Infantry officers were unfamiliar, and often unsympathetic, with the tanks' training and logistic problems and knew little of their tactical strengths or limitations. Since the senior tank officer in an infantry regiment was only a lieutenant or, possibly a captain (if the antitank company commander happened to also be a tank officer), he would wield very little influence on a regimental staff. His tanks would not only be logistically starved but also tactically misused. The only real solution to these problems was to replace these "infantry" tanks with an antitank weapon that was light and mobile enough to get ashore early but still had adequate firepower. The 75mm recoilless rifle could meet the first of these requirements but not the second. The Marines would have to wait for something new.[480]

The regimental headquarters and service company was mainly an enlarged version of the battalion H&S company but it was the conduit through which most regimental command and logistical functions were coordinated (see Appendix 7.21). It had a separate H&S company headquarters and the six LMGs shown with the company headquarters in Appendix 7.21 were for the company's 12 jeep and trailer combinations. Unlike in the battalion H&S company where most of the jeeps were kept in a central pool, those in the regimental H&S company they were permanently distributed among their users. Though it no longer performed company headquarters functions, the regimental headquarters had still expanded since 1945. However the short-lived Doolittle-mandated morale and welfare officers accounted for part of this. Other adjustments were minor although the intelligence officer was now a major instead of a captain. The regimental medical and dental sections remained largely as they had been under the G-Series. They supplied aidmen for the regimental mortar and antitank companies besides manning a small aid station but no longer included a medical service corps officer. An officer in the supporting collecting and clearing company from the division medical battalion would carry out his duties. Under the K-Series reorganization, the division medical battalion fielded three collecting and clearing companies. They functioned in a similar way to the collecting platoon of an Army regimental medical company but were larger (five Navy officers, 78 Navy enlisted, and 24 Marine enlisted in each). The company's Marines manned a service section that provided non-medical assistants such as a mess management chief and cooks for the mess detail, a first sergeant, a barber, an electrician,

[480] Ibid and 1stLt Earl R. Delong, "75s Up," Marine Corps *Gazette* Volume 36 Number 8 (quantico, Virginia, August 1952) pp. 54-61; and LtCol F. S. Aldridge "'H'-Hour - AT Guns, Not Tanks!" Marine Corps *Gazette* Volume 38 Number 6 (Quantico Virginia, June 1954).

and drivers and a mechanic for all the company's motor vehicles. The Navy manned the clearing platoon (three officers and 24 men) which operated the clearing station (a 60-bed evacuation hospital). The 48 Navy Hospital Corpsmen of the collecting platoon served as stretcherbearers and acted as ambulance orderlies for the company's eight ambulances (six jeeps and two 3/4-ton trucks with Marine drivers). These vehicles collected casualties from the regimental and battalion aid stations and carried them to the clearing station.[481]

A captain (regimental supply officer) commanded the service platoon. Like the battalion quartermasters he was a supply specialist and not the regimental S-4. The G-Series tables had added 13 infantrymen to his platoon headquarters so that he could carry out essential labor without having to ask for work details from the infantry battalions. The ammunition and ordnance section ran the regimental ammunition supply point (ASP) and supervised the movement of ammunition vehicles. The commissary section provided sundries for the troops. Every Marine regiment still had its own disbursing section despite the fact that the Marines now had their own infantry divisions, which could have handled disbursing in the same way as Army divisions did. However, tradition dies hard. The regimental maintenance section was very small but since the regiment's motor vehicles were mostly jeeps and there was relatively little else that would require much attention a larger section was not really needed.

The regimental supply section could operate warehouses and supply dumps but it could not provide any transportation. As in the Second World War, a regiment's transportation came mostly from attached or supporting units and the type of transportation provided changed along with the situation. During the initial phases of an amphibious landing, boats, amphibian tractors (LVT) and amphibious trucks (DUKW) carried most of the loads. Conventional trucks from the division motor transport battalion would relieve the amphibious vehicles as soon as possible since, in trafficable, they could operate far more efficiently. Of course the Korean War was mainly a land campaign the trucks served more or less exclusively. A K-Series Marine division had its own motor transport battalion with four truck companies. Each of these could more or handle the routine transportation requirements of one infantry regiment. The fourth company constituted a reserve. This was inadequate, however, since most of the division's non-infantry units also needed extra trucks, especially during displacements or when they had to operate at a higher than normal tempo. In heavy combat the infantry, tanks and artillery, would need additional deliveries of ammunition and that would employ still more trucks. To meet these requirements, a second motor transport battalion was usually attached to the division when extended land operations were contemplated. A full-strength motor transport company could field three platoons totaling up to six sections of five 2.5-ton trucks each. One truck would have to carry each company's field kitchen. Another truck per company would have to carry bedrolls and still more trucks would have to carry ammunition, fuel and water.

To enhance the effectiveness of the vehicles that they had the Marines made much more extensive use of cargo and other trailers than they had even during the Second World War. Typically a trailer could extend the payload capacity of a typical military truck by about 60 percent while increasing its requirement for fuel, maintenance and shipping space by a far smaller amount. Many units within a Marine division maintained a large number of trailers and and far fewer if any prime movers in the expectation of getting motor transport to move those trailers whenever the time came. For example, the service platoon of a Marine infantry regiment had 18 300-gallon water trailers (one for each of the regiment's companies) but none of the 2.5-ton trucks required to move them. The motor transport battalion itself actually had more trailers than trucks and although it was there to help other units displace it was not capable of even moving all of its own equipment in a single lift. However the proliferation of trailers made other efficiencies possible. It was much faster for a truck to make a supply delivery simply by dropping off a trailer (this was an especially good means of delivering water, hence the service platoon's extra water trailers) than by sitting around and waiting for a working party to unload it by hand. Heavy equipment items like generators, high-pressure cleaners and grease racks were often mated with trailers to make them easier to move around.[482]

The communication platoon experienced little change. A modest increase in its radio section balanced a loss of two radio repairmen from platoon headquarters. As in the infantry battalions, naval gunfire and tactical air liaison teams, as shown in the diagram, became organic to the regimental H&S company in 1952.[483]

It was one thing to devise the K-series organization and another to implement it. In the post-World War II reductions, the Marines ultimately suffered considerably larger cuts than even the Army had endured. Worse, they had only narrowly escaped an attempt by the Army and the Truman administration to reduce the Marine Corps to a couple of regiments of security and ceremonial troops who would mostly act as beach engineers during major amphibious landings. As it was, by mid-1950 the Marine Corps had tumbled from its peak World War II strength of

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481 USMC T/O & E K-1097 "Headquarters and Service Company, Infantry Regiment, Marine Division, FMF;" and Table K-1523 "Collecting and Clearing Company, Medical Battalion, Marine Division, FMF;" (both HQMC Washington DC, 31 May 1949) with tables of equipment. From HQMC Central Files and updating information.

482 Ibid; and USMC T/O & E K-1653 "Truck Company, Motor Transport Battalion, Marine Division, FMF;" (HQMC Washington DC, 31 May 1949) with tables of equipment. From HQMC Central Files.

483 USMC T/O & E K-1097 op cit.

nearly 523,000 officers and men to a mere 74,000. About 27,000 were in the FMF, which by now was down to only two divisions and even these two maintained less than a third of their active strength. Together they had only eight active infantry battalions of which two were supposed to deactivate in 1951. Active Marine battalions had only two of their three rifle companies and each rifle company had only two active rifle platoons and two active sections in its machinegun platoon. Battalion weapons companies likewise had only two sections per mortar or antitank/assault platoon and no HMG platoon. Active battalion and regimental H&S companies were also at two-thirds strength. Instead of regimental antitank and mortar companies each Marine division maintained a weapons battalion consisting of an eight-gun heavy mortar company (with four officers and 124 men) plus another eight-gun 75mm recoilless rifle company. The latter had two platoons of four rifles each and totaled four officers and 81 men. Upon mobilization the weapons battalion would provide a trained cadre around which new regimental mortar and antitank companies could be organized. A separate platoon of tanks attached to the division tank battalion trained crews for the regimental antitank companies' tank platoons. In the meantime, the Marines stored most of their equipment, conducted what training they could, and waited for better days.[484]

"Better days" came sooner than anyone expected. Shortly after the outbreak of the Korean War, General MacArthur requested a brigade-sized Marine expeditionary force. This unit would later become part of a division that would spearhead planned amphibious attacks along the Korean coast. The 1st Provisional Brigade consisted of most of the available men in the West Coast based 1st Marine Division and 1st Marine Aircraft Wing. In the Division only 3,500 "short timers" who could not be sent overseas because their enlistments were due to expire too soon, were left behind. Even so, the Brigade's principal ground combat unit, the 5th Marines could not reconstitute its missing rifle companies. In place of its own mortar and antitank companies it got the mortar and recoilless rifle companies of the now disbanded division weapons battalion. The Brigade was then rushed to Pusan to reinforce the UN defenses there. In action, the Marines performed much better than their Army counterparts. They had not let their recruiting and training standards slip nearly as much as the Army had and, among their officers and NCOs they had a higher percentage of World War II veterans, a considerable advantage. Meanwhile, the remainder of the 1st Marine Division was assembled. In order to free up enough men the Commandant (General Cates) ordered all Marine security forces cut in half. He also stripped most of the men from the 2nd Marine Division (replacing them later with reservists and new recruits) and called up the Marine Corps Reserve (also including many World War II veterans). He even raided the recruit depots, and made the "short timers" deployable by extending their enlistments by a year. All these measures yielded enough men for a complete division, but only if the brigade in Pusan was included. However, the 5th Marines did obtain its missing rifle companies. Everything more or less came together just in time for the Inchon landings, though the 7th Marines did not actually arrive until a few days after the landings occurred. The Division also acquired a *de facto* fourth infantry regiment when it took three of the four battalions of the ROK Marine Corps under its control. Thereafter, it held a sector of the UN front line and fought throughout the war of attrition that followed. Unlike the Army, the Marines were able to finish the war with their reputation and self-respect generally intact, while having made a substantial contribution to the UN effort.[485]

THE BRIEF RE-APPEARANCE OF THE ARMY RANGERS

In the early days of the war when it seemed as if nothing could stop the NKPA conquest of South Korea, General Douglas MacArthur's Far East Command (FECOM) headquarters was bombarded with all sorts of crackpot ideas about how to confound the Communists. Most of the saner proposals called for "commando" style raids against the NKPA's supply lines. Many of these primarily involved CIA sponsored guerrillas, South Korean irregulars, and British Royal Marine Commandos. However, a decision was also made to create a small force of US Army Rangers, organized and trained along the lines of the World War II era Alamo Scouts. The Alamo Scouts had been a reconnaissance and sabotage unit and not infantry as such but it was hoped that a similar unit might conduct raiding or reconnaissance operations in support of the defense of the UN perimeter around Pusan. This led FECOM to form the 8213th Army Unit, better known as the 8th Army Ranger Company. Only service personnel (cooks, clerks, mechanics, etc.) could volunteer. The Eighth Army would part with none of its scarce infantrymen.

For its table of organization, the new company adopted the August 1945 version of the Ranger infantry company T/O&E. This was merely an end of World War II update of the old February 1944 tables. The only significant change was the addition of a two-man BAR team and a two-man bazooka team to each rifle platoon

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484 USMC T/O & E Table K-1068 "Weapons Battalion, Marine Division, FMF;" (HQMC Washington DC, 17 June 1949); Organization Charts of the 1st and 2nd Marine Divisions under FY51 budget limitations, undated copies in the Marine Corps Historical Center, Washington DC; and Heinl op cit pp. 514-518, 521-532, and 610-611.

485 LtGen Oliver P. Smith, Aide-Memoire - Korea, 1950-51 (undated manuscript published by HQ Marine Corps, Washington DC) - consists of notes by 1st Marine Division commander O. P. Smith on the division's operations during the first nine months of the Korean War .

special weapons section. The rifle squads (or assault sections, as they were called) remained unchanged and used the heavy and awkward M1919A6 LMG in lieu of the much more mobile, though admittedly less powerful, BAR.

A diagram of the organization appears in Appendix 7.23. The company would probably have had one or two medical aidmen attached to it in addition to the personnel shown. Otherwise, its lack of any logistics personnel (cooks, drivers, etc.) or vehicles was a serious shortcoming. The company first went into action in October 1950 as an attachment to the 25th Infantry Division. By then, training injuries and dropouts had reduced its strength to just three officers and 62 men. To restore its original strength the company received a draft of 12 KATUSAs. These men became the first South Koreans to receive Ranger training. After spending some time hunting Communist guerrillas in South Korea, the Rangers (still under 25th Division control) took part in the disastrous Battle of the Ch'ongch'on River. Misemployed (as usual) as conventional infantry the Ranger Company was overrun and largely destroyed. Only the company commander, First Lieutenant Ralph Puckett, and 21 of his men (many of them wounded) escaped death or capture. Puckett's own injuries were severe enough to oblige him to hand over the remains of his company to Captain John Paul Vann, an officer who would later become known for his exploits in Vietnam.[486]

While the 8th Army Ranger Company was still in training, General J. Lawton Collins, the Army Chief of Staff, made one of his visits to FECOM. After some discussions, Collins ordered the formation of "marauder" companies to counter the NKPA's demonstrated ability to infiltrate small parties through UN lines to attack targets in the rear by employing similar tactics against the NKPA. The new units, of course, bore no resemblance to Merrill's Marauders so the Army soon began calling them "Rangers." The Army, at Collins' behest, also established a Ranger Training Center at Fort Benning, Georgia (where it still exists). Using Ranger Training Center graduates the Army raised a total of 15 Ranger companies, including the former 8213th Unit, officially reconstituted as the 8th Company. One company served as as the Ranger School's demonstration unit. Each of the other 14 went to one of the Army's active infantry or airborne divisions. Officers brought in to train the new Ranger companies included a number of colorful characters that would later become well known. Arthur "Bull" Simmons, formerly of the 6th Ranger Battalion, as already mentioned, would lead the Son Tay Prison raid in Vietnam. John Singlaub, an OSS veteran, would end his career by publicly criticizing the Carter administration's Korea policy. Charles Beckwith would later command the Army component of the ill-fated mission to rescue the American hostages in Teheran.[487]

Every Ranger had to be airborne qualified. This was mainly to ensure that the Rangers received the extra pay and status that jump wings entailed and not because any Ranger mission was likely to involve a parachute landing. Many of the early Ranger recruits came from the 11th and 82nd Airborne Divisions because they had their jump wings already. The Ranger course itself took up a grueling six weeks and this was later extended. The Ranger School published organization tables for its new Ranger companies in October. Reflective of the Rangers' enhanced status, only 13 men per Ranger company ranked as privates. The rest were corporals or higher. The company itself was an extremely simple and austere organization that did not even include a first sergeant (see Appendix 7.23). It later received a seven-man augmentation element to give it some logistical self-sufficiency. The company was deliberately authorized more weapons than it could actually use. This allowed it to "task arm" itself to the requirements of its current mission. The issue of one 60mm mortar per squad is curious, however. These mortars were lightweight M19 types with only small base plates and no bipods. Compared to the standard M2 mortar, a "stripped down" M19 had half the weight (20 pounds as against 42) and less than half the effective range (750 meters rather than 1,800). Very little ammunition could have been carried and this would have severely limited the mortar's usefulness. The 57mm recoilless rifle and M1919A6 LMG issued to each rifle platoon leader were normally held in reserve at company headquarters. All of this equipment considerably exceeded the load capacity of the company's organic vehicles. The lack of a mechanic to maintain what vehicles there were only made matters worse. Even with their augmentation personnel the Ranger companies often experienced great difficulty supporting themselves and had to resort to begging for or stealing whatever they needed. This did little to enhance their popularity with the rest of the Army.[488]

Eventually five Ranger companies were sent from Fort Benning to Korea to join the 8th Company already there. The first of these did not arrive until late December 1950. Other companies were sent to Europe since both the Truman administration and the Joint Chiefs of Staff feared that Korea was only a diversion intended to draw attention away from a pending Soviet invasion of Western Europe. In Korea the Ranger companies were not a success. Though the officers and men were well trained and highly motivated and fought with a courage and *elan* that the rest of the Army seldom displayed, they were consistently misused and misunderstood. They also provoked

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[486] Hogan, *Raiders or Elite Infantry?* op cit pp. 105-106; David Robert Gray, *Black and Gold Warriors: US Army Rangers During the Korean War*, (1992 unpublished doctoral dissertation for Ohio State University, UMI Order No 9227276) pp. 31-45 and 93-112; and Department of the Army T/O & E 7-87 "Ranger Company, Ranger Infantry Battalion" (Washington DC 7 August 1945).

[487] Hogan, *Rangers or Elite Infantry?* op cit pp. 108-109; and Gray op cit pp. 53-79.

[488] Hogan, *Raiders or Elite Infantry?* op cit pp. 119-120; Grap op cit pp. 62-63; and Department of the Army T/O & E 7-87 "Ranger Company (Airborne)" (Washington DC 17 October 1950).

a great deal of jealousy and sparked much confusion about their own doctrine. The Rangers had been established in great haste and a lot of important questions about what they were supposed to do had been left unanswered in the pious hope that "American ingenuity" would find a way. The Ranger School tried to clear up some of the misconceptions by publishing a training circular that the Army later rejected. Most senior officers agreed that they should regard the Rangers as specialists in raid operations but that meant different things to different people. Some saw it as supporting or training partisans or attacking targets in North Korea and pointed out that racially white (or black) Americans were unsuited to such tasks because they could not hide in an oriental population. However, the all-white Royal Marine 41st Commando was already conducting successful raids on North Korea. Other officers saw raiding as a subset of conventional combat and believed that the Rangers should serve as conventional infantry despite their lack of firepower and organizational depth, not to mention the waste of their special skills. Serious raiding operations, even short distance "trench raids," required a degree of planning and coordination, particularly when air, artillery, and naval support were involved, that were beyond the capability of any Ranger company commander. It was the job of the staff of the Ranger company's parent division to provide planning and coordination but few division level staff officers understood what their Rangers could and could not do for them and were too busy to care. Being only captains, Ranger company commanders were in no position to change these attitudes. The Ranger School tried to combine the Ranger companies into battalions that could look after themselves and plan their own operations but opposition from many parts of the Army but especially the commanders in Korea blocked this. Field grade officers from the Ranger school tried to educate division staffs about how to use their Rangers but the frequent rotation of staff officers insured that any officers so educated would not be in their jobs long enough to practice what they had learned. The Rangers were also victims of the traditional American suspicion of elitism. They were repeatedly accused of lowering the quality of the standard infantry by stealing its best men and then getting them killed off in hair-brained missions. Finally, the Rangers did not fit in with the Army's institutional prejudice in favor of large unit warfare and victory through overwhelming firepower. This left no place for the high-skill and high-risk tactics practiced by the Rangers. The Army deactivated its Ranger companies in September 1951. It would have done so earlier had it not feared a backlash from the press corps. Ranger exploits made great copy and the Rangers had thus earned the favor of the "Fourth Estate." The Army retained the Ranger school, however, as a means of instilling Ranger skills and qualities throughout its ranks but the school's impact was, of course, minimal. The Rangers themselves would not re-appear until 1968 when long-range reconnaissance companies of Ranger trained troops served in Vietnam. However, the Army would organize no new Ranger infantry units until 1974.[489]

[489] Hogan, *Raiders or Elite Infantry?* op cit pp. 110-113 and 117-133.

CHAPTER 8: MASSIVE RETALIATION - THE ARMY AND THE NUCLEAR BATTLEFIELD, 1952-62
ADAPTING TO A "NEW WORLD ORDER"

Although the US Army was anxious to write off much of its Korean War experience as an unfortunate detour on along its route to the high technology forces where, the Army's leaders were convinced, the real future of warfare lay it did allow a number of lessons from the war to influence its postwar organization and doctrine. Much of the credit for this belongs to the influence and writings of the Army's best known historian, Colonel S. L. A. "SLAM" Marshall. Marshall had already been very active in chronicling World War II campaigns, mainly on the European Theater. Apart from his absorbing (and, for the Army, highly flattering) battle histories, Marshall published two very widely read and influential commentaries. In *Men Against Fire*, Marshall asserted, among other things, that the great majority of American soldiers in battle never fired their weapons, even when their units were being overrun. Although few men actually ran away many were simply passive. Combat effectiveness rested heavily upon the relative handful of individuals who overcame their fears and took action. In *The Soldier's Load and the Mobility of a Nation*, Marshall pointed out that the American soldier was far too heavily burdened with weapons and equipment and that this was causing unnecessary casualties and lowering unit effectiveness. Marshall's style was readable, his interviews and combat reports intriguing, and his arguments persuasive. Although he had never led men into combat himself, his discourses upon the subject impressed even those who had. However, Marshall had published his books too late to affect Army thinking either during World War II or in the postwar Infantry Conference. In Korea, however, Marshall's ideas would become much more influential.[490]

In the early months of the Korean War, Marshall compiled his much less well known but still seminal *Infantry Operations and Weapons Usage In Korea, Winter of 1950-51*. Here, Marshall reiterated some of his earlier arguments from *The Soldier's Load*, and commented on the combat performance of both the troops and their weapons. He reported that individual participation in firefights had significantly increased (more men were actually firing their weapons) and that rifle squad performance seemed to be much better than in World War II. These observations were all the more remarkable in that they occurred at a time when authorities such as General Ridgway were complaining about sub-standard squad leaders. Marshall attributed the improvement to tendency of the rugged Korean terrain to compartmentalize combat actions (although in World War II there had been plenty of rugged terrain in Italy and elsewhere) and better supervision by officers and NCOs. Marshall appears to have deliberately avoided an obvious conclusion, which was that the new nine-man rifle squad organization was proving its worth. Marshall had his own ideas about the rifle squad. Although an Army man to the core, he was also a secret admirer of the Marines' 13-man rifle squad with its three subordinate fire teams and he wanted the Army to have something similar. Marshall conceded that manpower limitations might force the Army to use a smaller squad with only two fire teams, but this should still offer many of the benefits of the Marine organization, including an increase in the number of BAR's per squad of from one to two. The absence of a third fire team could at least be partly compensated for by enlarging the other teams to five men each. Marshall believed that a five-man team would be superior to the Marines' four-man team because it could suffer greater attrition. Since the five-man team was really a mini-squad, Marshall's fondness for it may have dated from his World War I service when a rifle platoon had numerous small squads grouped into "half platoons" or sections for better control. Marshall may also have seen the fire team organization as a means of improving a squad's rifle fire, through closer supervision of individual shooters by the fire team leaders.[491]

In addition to his discussions about the rifle squad, Marshall had a good deal to say about machineguns. He concluded that the then current standard of one LMG per rifle platoon was inadequate. This gave an Army rifle company only three LMG's. By comparison a Marine company had six LMG's and these were the older but sturdier and more reliable M1919A4s. Indeed, combat attrition and mechanical breakdown often left an Army rifle company with only one or two LMG's (and sometimes none at all) that it could actually use. Of course, a squad-level LMG, such as what the 1946 Infantry Conference had advocated would have solved this problem but Marshall never pressed for, or even mentioned this alternative. Instead he saw the loss of the platoon-level LMGs as leaving a company with only its BAR's and M-1 rifles to protect it from the "infantry heavy" CPV and NKPA.[492]

Marshall noted that while Army rifle companies were authorized over 200 officers and men apiece, in Korea they often had only 125 or less actually available for duty (this figure did not always include KATUSAs). In combat

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490 Col S.L.A. Marshall, *Men Against Fire* (reprinted Gloucester, Massachusetts, Peter Smith, 1978, originally published 1947); S.L.A. Marshall, *The Soldier's Load and The Mobility of a Nation* (reprinted Quantico, Virginia, Marine Corps Association 1980, originally published 1950 by the Association of the United States Army); and see Maj F.D.G. Williams, *SLAM, The Influence of S.L.A. Marshall on the United States Army* (Fort Monroe Virginia, US Army Training and Doctrine Command 1990).

491 S.L.A. Marshall, *Infantry Operations and Weapons Usage in Korea, Winter of 1950-51*, op cit pp. 4-5, 61, 42-55, & 74; and Paul Melody *Infantry Rifle Squad* op cit pp. 14-15.

492 Ibid pp. 77-78.

it was discovered that even a 125-man company could carry out most of its missions but if it took many additional casualties its effectiveness would fall dramatically. A rifle company could handle such "shrinkage" in a variety of ways. Frequently, an undermanned rifle platoon would dissolve its weapons squad in order to strengthen its rifle squads. One squad would get the LMG. Extra BARs (when available) would beef up the other two. The platoon's bazooka might often be discarded since the Communist armor threat had all but disappeared by late 1950. However the company weapons platoon might maintain one or two bazooka teams in lieu of its recoilless rifles. Typically riflemen carried 90-120 rounds for their own weapons. BAR gunners carried six to eight magazines and had additional magazines distributed among the riflemen. An LMG team might carry three or four 250-round ammunition boxes. The troops tended to throw their rifle grenade launchers away. There is less information on how the company weapons platoon handled attrition but it appears that it tended to discard its 57mm recoilless rifles first since there were usually fewer targets for these than there were for the mortars. The weapons platoon would usually carry 10 to 20 rounds would for any recoilless rifles that it did bring along. The principal difficulty with the 60mm mortar lay with its ammunition. Its illumination and white phosphorus shells often failed to function though the high explosive shells were effective. An even bigger problem, however, was how to maintain sufficient quantities of 60mm ammunition. Though a rifle company typically carried 50-100 rounds per mortar, this was seldom enough. Because the mortars had to operate so close to the front line bringing up more ammunition could be both difficult dangerous. This was especially so when jeep weapons carriers could not get close to the mortar positions or when Korean porters were unavailable. It seems that in a typical reduced strength rifle company, the weapons platoon would man one or two mortars and possibly one or two two-man bazooka teams (carry ing about 10 rounds per bazooka). Any surplus men would go to strengthen the rifle platoons. The majority of the soldiers whom Marshall interviewed concluded that about 180 men was the best "field" strength for a rifle company since this was small enough for effective control but large enough to withstand some casualties. The current authorized strength of 200 was about right since normal attrition would keep its effective strength down to 180 or less.[493]

Marshall's ideas about a fire-team based rifle squad soon attracted a number of influential supporters within the Army. One of these was Major General J. C. Fry. Fry had commanded the 2nd Division in Korea during the relatively static trench warfare that dragged on during 1952. As a result of his experience, Fry came up with his "battle drill" concept. Battle drills required a squad with two fire teams, one of which would act as a base of fire while the other maneuvered. Fry claimed that battle drills would make both the squad and platoon more effective by forcing the participation of those men who might otherwise be "pinned down" and remain inactive during a firefight. A similar idea had been examined in detail during the 1946 Infantry Conference but almost unanimously voted down because it encouraged stereotyped tactics. However, although the Infantry Conference had occurred only six years previously nearly everyone in the Army seems to have forgotten it (even Marshall, and he was the historian!) and Fry's battle drills were hailed as a bold and innovative new idea. They gained even more momentum when Fry published his book *Assault Battle Drill*, after the war.[494]

The Army reacted very favorably to both Marshall's and Fry's ideas though it included very few of their proposed rifle squad innovations in the new tables of organization that it published in 1952, while the Korean War was still in progress. The new tables mainly featured manpower economies such as the elimination of company buglers, limiting armorers to one per company, and cutting the number of cooks and orderlies. However, a few changes were more significant (see Appendices 8.1 and 8.2).

Although the Army did not change its existing rifle squad at this stage, the Office of the Chief of the Army Field Forces (OCAFF, a re-designation of General McNair's old Army Ground Forces command) convened a board under a general officer to investigate rifle squad reorganization. Tests conducted by the XVIII Airborne Corps seemed to confirm General Fry's ideas. They concluded that (1) it was possible for one leader to control 10 men (thus validating an 11-man squad); that (2) one leader could control two BAR; and that (3) a squad of two fire teams could simultaneously fire and maneuver. However the OCAFF Board only tested full-strength squads and never explored the effects of terrain and combat attrition. Also, the Infantry School representatives who observed the OCAFF tests disputed the conclusion that a squad leader could control 10 other men. They recommended that the nine-man squad be retained. However, the Army moved a step closer to the Fry-Marshall fire team idea when it increased the number of spare BARs issued to each rifle company commander from six to nine. This allowed him to issue a second BAR to every squad (as Marshall had recommended). More significantly, OCAFF replaced the bazooka in each rifle platoon weapon squad with a second LMG. However in order to maintain the rifle platoon's antitank capabilities it added a four-man bazooka team to the platoon headquarters. These moves gave the rifle platoon the two LMG's that Marshall had advocated and converted the weapons squad into what was effectively an LMG squad (though it continued to be called a weapons squad). Thus, on paper, an Army rifle company had as many LMG's as its Marine counterpart. However, a Marine LMG squad, although nearly the same size as an Army

493 Ibid pp. 9-10, 43-44, & 52-55.

494 Paul Melody *Infantry Rifle Squad* op cit pp. 14-15.

weapons squad, manned only one LMG and could carry more than twice as much ammunition per gun. The Army squad could count on more jeep weapons carriers to bring up more ammunition but the Marine squad was much more resistant to attrition and enjoyed an advantage in situations where jeeps could not easily approach the firing line. The Army's changes did, of course, result in a larger rifle platoon. In order to avoid any increase in the overall size of the rifle company, the OCAFF reduced the number of filler personnel per company from 20 to six. However it made no corresponding reduction in the filler personnel in other companies even though in combat they could expect to experience far less attrition than the rifle companies (see Appendix 8.1).[495]

The 1952 tables also introduced new items of communication equipment. The AN/PRC-6 radio would replace the old hand-held SCR-536 while the AN/PRC-10 series radios replaced the SCR-300 man-pack radios. The AN/PRC-10 weighed about the same (26 pounds) as the SCR-300 but had a better transmission range (three to five miles), a wider frequency range (170 channels), and better reliability. With these new radios the Army also phased out the old designator "SCR" (Signal Corps Radio) in favor of a universal "AN" (Army-Navy) standard. The first letter after "AN" gave the type of radio. "P" was for "portable" (battery powered). "V" was for "vehicular" (mounted in a motor vehicle and operating off the vehicle's power supply). "G" or "ground" meant a radio equipped for operation either from a vehicle or from a battery or hand generator. "RC" stood for "radio communication."

Under the 1952 tables there were no significant changes in the battalion weapons company, apart from the same reductions in the company headquarters that had been applied to the rifle company.[ⓓ] However, one of the Army's major concerns in Korea had been about the inadequacies of its recoilless rifles when used as antitank weapons. The M20 75mm recoilless rifles had proven more or less adequate against the NKPA T-34s but would not have been able to cope with anything heavier. The tanks in the regimental tank company, though effective, were a huge logistical burden, useless for airborne operations, and degraded by many types of terrain. At the end of the Korean War, in order to get something better into the hands of the troops, the Army issued limited quantities of a new and largely experimental 105mm recoilless rifle, using them to enhance the battalion weapons company recoilless rifle platoons of selected infantry regiments. Each of these enhanced platoons could field one 75mm recoilless rifle section (organized and equipped exactly as in 1950) and two 105mm sections. The 75mm sections were exactly as they were in 1950. The 105mm sections each deployed a 3/4-ton ammunition truck and two rifles mounted on jeeps.[ⓞ] The 105mm rifles would act as the primary antitank weapons while the 75mm rifles provided direct fire support against targets other than heavy tanks. The 105mm recoilless rifle was a big advance on the 75mm (though it weighed three times as much) but it was never fully adopted because the M40 106mm recoilless rifle, which appeared before the Army had acquired enough of the 105mm to make it too expensive to switch, proved to be even better. Infantry regiments equipped with the new 106mm need no longer depend on tanks for their antitank protection.[496]

The battalion headquarters company and the remaining elements of the regiment remained largely unchanged. Though the new tables included instructions for operating at reduced strength, these had become largely meaningless during the Korean War.[ⓘ] The Army only maintained its combat units in Europe or Korea and the 82nd Airborne Division in the United States at full strength. It's other units fell well below even their reduced strengths though they gradually got stronger. The Army also mobilized eight National Guard divisions of which it sent two to reinforce Germany and two more, the 40th and 45th Infantry Divisions, to relieve the 24th Infantry and 1st Cavalry Divisions in Korea in January 1952 and December 1951, respectively, so that they could return to Japan.[497]

[ⓓ] Changes to the weapons company included (1) elimination of the instrument corporal from the machinegun platoon headquarters; (2) addition of a "gunnery sergeant" (SFC) to the mortar platoon headquarters; (3) elimination of one of the company armorers, one of the filler personnel and all of the drivers in the machinegun and mortar platoon headquarters and in the command of the group of the company headquarters (messengers would double as drivers to replace them); see TO&E 7-18 "Infantry Heavy Weapons Company" (15 May 1952).

[ⓞ] A 105mm recoilless rifle section had a section leader, a driver, a 3/4-ton truck and trailer, an AN/PRC-10, and two five-man squads. Each of these had a 105mm rifle (and four rounds of ammunition) carried in a specially equipped jeep. The section's 3/4-ton truck and trailer carried 40 105mm rounds (20 per rifle). Sixteen additional rounds per rifle (64 in all) were in the battalion ammunition train (the ammunition trucks of the battalion section of the service platoon, regimental service company). The 75mm section carried 34 rounds per rifle on its 3/4-ton truck and trailer and eight rounds per rifle in the ammunition train. Platoon headquarters included two radio operators (with AN/PRC-10s, one for the company command net and one for the platoon net), and a jeep and trailer. The total strength of the platoon was an officer, 38 men, four 105mm and two 75mm recoilless rifles, a .50-caliber machinegun, three 3/4-ton trucks with trailers, five jeeps with one trailer, and five radios, and seven sound-powered telephones.

[ⓘ] A reduced strength infantry regiment would have no security platoon in its headquarters company. Each platoon in its heavy mortar company would lose a squad. Each battalion headquarters company would also lose a pioneer squad and an I&R squad. All filler personnel, and selected other individuals amounting to about five percent of the regiment's strength would be eliminated. These included orderlies, assistant platoon sergeants, an ammunition bearer per bazooka team, etc. The rifle squads stayed intact. An airborne regiment might be similarly reduced.

[495] Dept Army T/O & E 7-17 "Infantry Rifle Company" (Washington DC 15 May 1952); and letter dated 5 February 1953 from the Department of the Army, Office, Assistant Chief of Staff, G-3, Operations to holders of Report ORO-13 "Commentary on Infantry Operations and Weapons Usage in Korea;" and Paul Melody *Infantry Rifle Squad* op cit pp. 17-18.

[496] Capt Gordon J. Duquemin, "The Infantry's Personal Artillery" Infantry School *Quarterly* Volume 44 No. 3 (Fort Benning Georgia July 1954) pp. 70-80.

The light aviation section, which had previously been an optional attachment, became a permanent part of the new regiment and, for the first time, included a helicopter.

Although the US Army's first year in Korea very painful, its last two years were much less traumatic. Firmly anchored in a continuous line of defensive positions across the waist of the Korean peninsula the American-led UN forces no longer had to fear that the Communist forces would outflank them. Shorn of their maneuvering room, the Communist forces suffered heavily in their attempts to breech the UN line by direct assault. This helped to restore the faith of many an American general in American industrial style warfare. However, the war had fatally wounded the credibility of the Truman administration and in the 1952 presidential elections, the Republican Party took not only the presidency but also both houses of Congress. The incoming Eisenhower administration pledged to end the war quickly and did so. General (and now President) Eisenhower also made it clear that in his eyes Korea had demonstrated the futility of trying to contain Communism with conventional military forces. He was convinced that the "Cold War" upon which the nation was now embarking would be a protracted conflict waged economically and politically as well as militarily. Since both China and Russia were continental powers, only large land armies could militarily subdue them. Korea, however, demonstrated that Communist Bloc countries could raise large and surprisingly effective armies of their own on what were, by American standards, amazingly slender resources. Worse, they could force American armies to fight without the advantage of the extended mobilization and training periods that they had enjoyed during the two World Wars. For the first time, America would need a large and rapidly mobilizable conventional army but this would impose heavy peacetime socio-economic burdens. The power and control of the Federal Government would have to expand to where it might devour those very political and economic freedoms that the Cold War was being waged to protect. Eisenhower was convinced that the only way to avoid fielding a massive freedom-threatening peacetime military while still adequately deterring Communist aggression would be, if war broke out, to commit to the early and extensive use of nuclear weapons.[498]

Thus was born the doctrine of "Massive Retaliation," under which the United States pledged to pound its enemies into submission with nuclear firepower. The US Army's primary role in this would be to maintain civil order at home and then to occupy the enemy country once it had been subdued. Small expeditionary forces might also be employed but nuclear warfare (or the threat of it) had rendered large-scale conventional land combat operations obsolete. Eisenhower believed that nuclear weapons should be such an effective deterrent that it would make an actual nuclear war very unlikely. The role of the military would be far more to deter wars than to fight them. Massive retaliation would impose a stalemate that could indefinitely contain the expansion of Communism until the latter's eventual downfall came to pass. In the meantime, the services would organize themselves to implement massive retaliation under a policy known as the "New Look." The New Look would replace traditional concepts governing the use of force and would redefine service roles and missions. Eisenhower and his advisors believed that air power would now be central. The Air Force, and especially its Strategic Air Command, would be the leading service. The Navy also had a place, since nuclear strikes could be launched from its aircraft carriers and, later, from submarines, but the Army was a dinosaur that would never have more than a secondary role to play.[499]

Needless to say, the New Look was not at all to the Army's liking. In the short term, it would mean severe cuts in the Army's size and budget and in the long term it could threaten the Army's institutional survival. The Army also saw it as militarily unsound since under Massive Retaliation the "last resort," namely general nuclear war, was also the first response. It was easy to imagine how increases in the Soviet nuclear arsenal could insure the destruction of both it and the United States in the event of a nuclear exchange. In a future international crisis superior Soviet conventional forces could compel the United States to choose between paralysis and nuclear catastrophe. However, the arguments presented by General Matthew Ridgway, now the Army Chief of Staff, in favor of augmentning conventional ground forces left Eisenhower completely unmoved. Worse, the American public, already infatuated with the new technology being trumpeted by the Air Force increasingly saw the Army as an expensive anachronism, populated by such characters as the hapless "Beetle Bailey" and the goldbricking "Sgt. Bilko."[500]

The Army responded to the situation on two fronts. First, it had to shed its backward image and to do this it embarked on a massive public relations campaign that even extended to dressing its soldiers in new uniforms that

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497 Dept Army T/O & E 7-11 "Infantry Regiment, Infantry Division;" 7-12 "Headquarters and Headquarters Company, Infantry Regiment;" 7-13 "Service Company, Infantry Regiment;" 7-14 "Heavy Mortar Company, Infantry Regiment;" 7-15 "Infantry Battalion, Infantry Regiment;" 7-16 "Headquarters and Headquarters Company, Infantry Battalion, Infantry Regiment;" 7-18 "Heavy Weapons Company, Infantry Battalion;" 17-37 "Tank Company - 90mm Gun;" and 8-7 "Medical Company, Infantry Regiment;" (all Washington DC 15 May 1952).

498 A. J. Bacevich, *The Pentanomic Era; The US Army Between Korea and Vietnam*, (Washington DC, The National Defense University Press; undated copy but published about 1990) pp. 7-15; and Kevin Patrick Sheehan, *Preparing for an Imaginary War? Examining Peacetime Functions and Changes of Army Doctrine*, (Harvard University unpublished doctoral thesis UMI No. 8901645, 1988) pp. 94-95.

499 Ibid.

500 Bacevich op cit pp. 19-21 and 27-32.

looked like militarized business suits. Soldiers of the future would, after all, be technicians rather than fighting men and they should look the part. The Army also sought to grab some of that new technology that was lying about. In 1953 the Army successfully test fired a 280mm cannon able to drop an atomic projectile onto a target up to 17 miles away. However the gun lacked mobility and was already obsolete. More promising was a series of short and intermediate range ballistic missiles such as *Corporal* and *Redstone*. These helped create a spot for the Army on the nuclear delivery "gravy train" at the expense of the feared and hated Air Force. In another ploy to grab an Air Force mission the Army deployed the *Nike* series of surface to air missiles, which could intercept incoming Soviet bombers as they approached the Continental United States. However, the Army did not neglect the modernization of its ground forces within New Look concepts. For this purpose, at the end of 1953, General Ridgway ordered the OCAFF to produce a long-range study forecasting the organization of the Army during the 1960-1970 timeframe. He hoped that the study would be convincing enough to raise the Army's lowly status under the New Look and to justify new weapons procurements. Because Ridgway believed it urgent that the Army present its case as soon as possible, he ordered that the study be completed in only six months. Left unresolved was the question of the future availability and use of nuclear weapons. Should the Army plan a force that was "dual capable," that is able to operate on either nuclear or non-nuclear battlefields, or should it prepare for nuclear warfare only?[501]

Preliminary studies by the principal Army schools revealed a number of differences of opinion. The Command and General Staff College maintained that little change was necessary. Given experience from previous wars plus reasoned conclusions about the probable effects of nuclear weapons, it should be possible, without too much turmoil, to accommodate nuclear weapons and technologies in the Army's existing organizational and doctrinal framework. The Army War College, on the other hand, argued that atomic weapons made the traditional Army mission of "closing with and destroying the enemy" obsolete. Firepower would completely dominate maneuver. The future role of ground force maneuver units would be simply to acquire targets and provide security for friendly nuclear delivery systems, and to locate and destroy enemy nuclear delivery systems. The other schools disagreed. They refused to abandon the Army's traditional missions, despite the possible procurement advantages of supporting the New Look, and contended that large conventional ground units could force the enemy to concentrate his forces into worthwhile nuclear targets. The OCAFF and the schools also wanted the Army to be dual capable since nuclear weapons might not be available or appropriate in every future conflict. However, the War College arguments in favor of greater tactical mobility, flexibility, and dispersion were readily accepted. Also accepted was the overall importance of firepower into which tactical nuclear weapons could easily be fitted as artillery substitutes. This would still enable them to act as equalizers, compensating for the Army's expected numerical inferiority in future battles against Communist forces. They would also be in keeping with the American tradition of substituting technology for manpower, or more specifically, the use of manpower with industrial skills to accomplish military tasks.[502]

In March 1954, while the 1960 study was still under way, the Army suffered yet another cut in its end strength, though it still remained more than twice as large as it had been when the Korean War began. In reaction to this, General Ridgway ordered another study. This one would be for an Army reorganization to be implemented on 1 January 1956. This reorganization would make better use of the Army's manpower by increasing the percentage of men assigned to combat positions, help to offset pending reductions, and provide a logical transition to the Army of 1960. This interim study became known as the "Atomic Field Test Army" or AFTA-1 and it soon stole much of the emphasis from the Army of 1960 study. This was because OCAFF maintained that the character of the 1960 Army would depend largely on its budget since the budget would determine what weapons systems could be procured. In the opinion of the OCAFF, hardware should drive doctrine and organization and not the other way round. Since the 1956 army was only 20 months in the future, its budgetary situation was much more easily predicted.[503]

The AFTA-1 study's recommendations particularly affected the infantry. AFTA-1 planners recognized that armored vehicles offered their occupants a high degree of protection from nuclear blast and radiation plus the tactical mobility needed to exploit the effects of "friendly" atomic weapons and to avoid retaliation by those of the enemy. In 1943 General McNair had reorganized the combat elements of Army armored divisions as separate battalions of tanks, armored infantry, and armored artillery. A division commander could then assemble these into regimental-sized task forces called "combat commands." This basic structure became such a success that the Army has used it ever since. In 1954 a restructuring of all Army divisions (not just the armored ones) based on independent combat battalions seemed like the answer to the problems posed by the nuclear battlefield. Unlike the infantry regiment a separate battalion was large enough for independent action but still small enough to be expendable. It was also easily maneuvered and adaptable to the highly dispersed deployments that would be

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501 Bacevich op cit pp. 22-25 and 71-101; Sheehan op cit pp. 97-102.

502 Ibid and Bacevich op cit pp. 54-55.

503 Sheehan op cit pp. 103-105.

necessary in order to avoid presenting worthwhile nuclear targets. Therefore, the AFTA-1 planners began to experiment with an infantry division based on independent combat battalions. Instead of three infantry regiments the experimental division would have eight infantry and two tank battalions distributed among three combat command headquarters. Each of the infantry battalions would have four rifle companies, a weapons company, and a reinforced headquarters company.[504]

The four rifle companies (see the diagrams in Appendix 8.3) in each new battalion together had about the same number of men as the three rifle companies of a standard battalion. To save manpower OCAFF eliminated filler personnel and concentrated the cooks and clerks from the companies into battalion-level mess and personnel sections. Except for a first sergeant, a supply sergeant, and a driver, a rifle company headquarters had only communications men. In the company weapons platoon, an LMG section, formed by consolidating the three rifle platoon LMG or weapons squads, replaced the 60mm mortar section. Both rifle squads and weapon crews were of minimal size. A rifle platoon bazooka team, for example, had a gunner and an assistant gunner only. It was hoped that these smaller units would be not just economical but easier to command, supply, transport, and conceal. Four rifle companies would give each infantry battalion some redundancy. If one was destroyed, the battalion could fight on with the other three.

In the weapons company, minimally sized weapons crews with very few ammunition bearers to assist them, would have to rely much more heavily on their vehicles than ever before to ensure their tactical mobility and ammunition supply. When necessary the weapons company could attach a machinegun squad, a mortar section, and an antitank section to each rifle company. The M40 106mm recoilless rifle s of the antitank platoons could destroy practically any known tank. They were, however quite heavy and though they had tripods, their crews usually fired them directly from their jeep carrier, which could only carry four 106mm rounds apiece. They would need frequent replenishment from the platoon's 3/4-ton trucks.[505]

The battalion headquarters (see Appendix 8.3) was large and complex yet very Spartan in its essentials. Battalion headquarters departed from the standard four-section format and instead comprised an operations and intelligence section and an adjutant and logistics section. Forcing the intelligence and operations sections to actually work together was an especially important and positive innovation, which unfortunately did not last. Seperate personnel administration, mess, and maintenance sections served the entire battalion. The supply platoon provided the 2.5-ton trucks that had formerly come from the regimental service company and from the rifle and weapons company headquarters. The battalion intelligence and reconnaissance section, now operating entirely from machinegun jeeps, had doubled in size since Korea. The pioneer platoon had finally completed its transformation, which had started about 1940, from being mere ammunition bearers with a fancy name to genuine combat engineers. They even had their own flame-thrower squad. These engineers would be of no small importance to a new battalion made heavily dependent on motor vehicles, which in turn needed trafficable routes upon which to operate. With the tree blowdown and other wreckage to be expected on a nuclear battlefield, in addition to the usual terrain and manmade obstacles, route construction and maintenance would be no easy task.[506]

Despite the small size of its companies the complete battalion, including its medical detachment, mustered more than 1,000 officers and men. It was featured in the infantry portion of the AFTA tests, conducted by the 47th Infantry Division as Operation "Follow Me" during February 1955. A tight schedule plus the fact that the 47th Division was expected to be able to reassume its standard organization in the event of an actual military emergency caused everything to be done in a hurry. These factors were among those blamed for the failure of the tests.

A second round of testing was carried out in November 1955 in an operation known as "Sagebrush." For this fairly elaborate exercise involving several divisions, the AFTA infantry battalions were significantly strengthened. In the rifle companies, rifle squads reverted to their standard size of nine men and two BARs. The seven-man rifle squads used during "Follow Me" had not worked well. The assistant squad leader had to act as another rifleman in order to bolster the squad's deficient firepower and thus could not help the squad leader lead the squad. Naturally, with only seven men the squad could not withstand much attrition and remain effective. In the weapons platoon, the 57mm rifle squads likewise reverted to five men each but to partially balance this, the company headquarters got smaller. The size of the battalion weapons company also decreased slightly. Its mortar platoon would now consist of two 22-man sections, each with two 10-man squads manning two mortars. There was a much larger (two officers and 25 men) platoon headquarters that included four two-man forward observer teams who could be attached to rifle companies. However, there were slight reductions in the weapons company headquarters and the two antitank platoons. Only the machinegun platoon, undermanned as it was, remained completely untouched. As for the

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504 Sheehan op cit pp. 110-112; and Dept Army T/O & E 7-15 AFTA "Infantry Battalion" (Fort Monroe, Virginia, 30 September 1954).

505 Dept Army T/O & E 7-17 AFTA "Infantry Rifle Company, Infantry Battalion;" and T/O & E 7-18 AFTA "Infantry Weapons Company, Infantry Battalion" (both Fort Monroe, Virginia, 30 September 1954); the information on the 106mm recoilless rifle is primarily from the author's personal experience with the weapon.

506 Dept Army T/O & E 7-16 AFTA "Headquarters and Headquarters Company Infantry Battalion" (Fort Monroe, VA, 30 September 1954).

battalion headquarters, the consolidated operations-intelligence and adjutant-logistic sections were abandoned in favor of a return to the standard four sections. There was also a chaplain, a motor transport officer, and an assistant S3 for air. However, the enlisted members of the battalion headquarters section *were* divided into separate operations/intelligence (S-3/S-2) and adjutant/logistic (S-1/S-4) sections. Besides these changes in command arrangements and minor adjustments in the supply platoon and maintenance, mess, and personnel sections, the pioneer platoon sensibly replaced its flame thrower squad (two specialized to be organic to a battalion) with a fourth pioneer squad. The I&R unit, however, converted from a section of two seven-man squads to a platoon of four six-man squads, riding in two machinegun jeeps each. Platoon headquarters also acquired its own jeep. The revised battalion is shown in Appendix 8.4.[507]

For "Sagebrush" there would be a stronger emphasis on dispersion. The "firesack" theory would govern tactics. Maneuver units, principally infantry battalions, would occupy dominating terrain features, encouraging enemy forces to move into the unoccupied areas between them. Friendly forces would then counterattack, forcing the enemy to mass and thus present friendly forces with a nuclear target. Unfortunately, "Sagebrush" was another disappointment. Logistics and communications had improved over "Follow Me" but only because the test environment was kept unrealistically benign. The "firesack" idea flopped badly. Since the friendly forces were occupying all the prominent terrain, the enemy soon caught on to this and directed their own nuclear weapons on them instead. General Maxwell Taylor, who succeeded Ridgway as Army Chief of Staff, was so discouraged with the results of Sagebrush that he cancelled the whole AFTA-1 reorganization in April 1956.[508]

While the AFTA testing was still under way, the post-Korea Army infantry regiment continued to evolve, albeit slowly. The "R" or "reorganization" series tables appeared in February 1955 (see Appendix 8.5), followed by the nearly identical "C" tables in August 1956 (see Appendix 8.6). The basic 1952 structure remained but company headquarters experienced further strength reductions. Most of them lost another cook. All of them lost all their filler personnel, orderlies, and warrant officer administration chiefs. The regimental headquarters company also lost its antitank mine platoon. In the rifle companies, all 18 BARs were now issued directly to the rifle squads. Company headquarters would no longer hold half of them in reserve. Undoubtedly this change merely recognized a widespread practice. The battalion weapons companies were restructured as shown below. The 81mm mortar platoon and the antitank platoon each received a third section and the antitank platoon also received the new 106mm recoilless rifles.

The new tables for the airborne regiment, which appeared at about the same time as those for the infantry regiment, were nearly identical to those of the infantry. They even included full-strength tank and heavy mortar companies. Korea had further confirmed the lesson of the Second World War that an airborne regiment would engage in conventional combat like an ordinary infantry regiment most of the time. It should therefore have all the weapons and equipment than an infantry regiment should have. On the probably infrequent occasions when an airborne landing would be required, the regiment's tanks and other equipment too heavy for transport aircraft could become part of its ground element to be sent into the battle later on.[509]

In July 1956, OCAFF's successor, the Continental Army Command (CONARC) released another proposed set of tables, this time called the "D" series. These tables restructured the infantry regiment along similar lines to those that the AFTA-1 study had proposed. They eliminated the regimental tank company altogether and broke up the mortar, service and medical companies to distribute their elements among the battalions. This boosted the infantry battalions' logistical (and tactical) independence to a level similar to what the AFTA battalions were supposed to have attained. The regimental headquarters and headquarters company, which now had only to provide command and control, filled the same role as the combat command headquarters of the proposed AFTA division.

Diagrams of the regiment and its components appear in Appendix 8.7.

However, unlike their AFTA counterparts the D-series infantry battalions would have only three rifle companies apiece. They were organized similarly to "R" series rifle companies but featured 11-man rifle squads. These squads were the result of another Army study called ASIRS (A Study of the Infantry Rifle Squad). Published in 1956 by CONARC and conducted by Psychological Research Associates, the ASIRS study was billed as more "scientific" than its predecessors. It sought to determine how changes in the rifle squad's size, weapons, leadership,

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507 Dept Army T/O & E 7-15T AFTA "Infantry Battalion;" T/O & E 7-16T"Headquarters and Headquarters Company, Infantry Battalion;" T/O & E 7-17T "Infantry Rifle Company, Infantry Battalion;" and T/O & E 7-18T "Infantry Weapons Company, Infantry Battalion" (all Fort Monroe, Virginia, 30 June 1955); and Paul Melody *Infantry Rifle Squad* op cit pp. 18-19.

508 Sheehan op cit pp. 112-116.

509 Dept Army T/O & E 7-11R and C "Infantry Regiment ;" T/O & E 7-12R and C "Headquarters and Headquarters Company, Infantry Regiment;" T/O & E 7-13R and C "Service Company, Infantry Regiment;" T/O & E 7-14R and C "Infantry Heavy Mortar Company, Infantry Regiment;" T/O & E 7-15R and C "Infantry Battalion, Infantry Regiment;" T/O & E 7-16R and C "Headquarters and Headquarters Company, Infantry Battalion;" T/O & E 7-17R and C "Infantry Rifle Company, Infantry Battalion;" T/O & E 7-18R and C "Infantry Weapons Company, Infantry Battalion;" T/O & E 17-37R and C "Tank Company, 120mm gun or 90mm gun;" and T/O & E 8-7R and C "Medical Company, Infantry Regiment" (all Washington DC, 24 February 1955 (R-Series) or 23 August 1956 (C-Series)).

and structure would affect its performance and considered squads ranging in size from four men each to 11. For its firepower testing ASIRS confined itself to varying the number of BAR's per squad. Although the test rules permitted the 11-man squad to employ its two fire teams as separate entities, the smaller squads each had to function as single entities under a single leader. ASIRS concluded that a squad's effective firepower peaked when half its members carried BARs. However a squad so equipped could not carry out close combat missions (such as trench or house clearing) and was thus useless as a maneuver unit. Keeping all those BAR's supplied with ammunition posed a considerable challenge as well. From this, ASIRS concluded that the number of BARs in a squad could not exceed 30 percent of its actual strength. However, the inability of the BAR to provide sustained fire meant that a squad should use them in pairs so that one could fire while the other reloaded. The squad's ability to maneuver depended more on its armament than on its size. Four and six-man squads were no more maneuverable than eight-man squads unless the latter carried more than two BARs, in which case it became substantially less maneuverable. Determining the best leader-to-led ratio proved to be very difficult as this could vary considerably with the terrain, weather, and the squad's mission (control in the attack was more difficult than in the defense, for example). However, ASIRS eventually settled on a ratio of one to five while pointing that this could go to one to seven, especially in open terrain in daylight. ASIRS also concluded that squads of seven men or less did not withstand attrition well and for this reason held that smaller squads with higher leader-to-led ratios were not necessarily desirable in combat. ASIRS saw the 11-man squad as a section with two five-man squads. Agreeing with the 1946 Infantry Conference, it decided that a nine-man squad that included an assistant squad leader probably represented the best compromise. An 11-man squad was desirable only if simultaneous fire and movement within the squad (as in General Fry's battle drills) was considered essential. Since Fry/Marshall influence was still very strong, the Army opted for the 11-man squad.[510]

In addition to restructuring the rifle squad in its proposed D-Series tables CONARC added a third LMG to the rifle platoon weapons squad but in order to partly compensate for the extra manpower required it cut the platoon headquarters back to just the platoon commander, platoon sergeant, a messenger, and the two gunners for the platoon bazooka. Since the platoon messenger had to operate the platoon's AN/PRC-10 man-pack radio, any men needed to carry messages would have to be poached from the rifle squads, thus significantly weaken the rifle squads' fire teams.

Elsewhere in the proposed regiment CONARC, in its drive for manpower economy, eliminated most of the "fat" in the regiment's combat elements. This of course made them much more sensitive to attrition than they had ever been in the past. Weapon crews, for example, could no longer operate efficiently at less than their full strength. In the field this this usually meant taking men from the rifle squads to fill weapon squad vacancies. While, some weapons could have been left unmanned to free up more riflemen this was not the preferred option for the firepower oriented US Army. With fewer men available to hand carry ammunition the company's dependence on its organic vehicles (and the trafficable terrain in which they needed to operate) also increased. Despite all the economies, these changes produced a considerable increase in rifle company size, as can be seen in the Appendix 8.7.[511]

The battalion weapons company gave up its HMG platoon in exchange for a 4.2-inch mortar platoon. The antitank platoon expanded from three sections to four (allowing one section per rifle company and one for a battalion reserve). The 81mm mortar platoon reverted to only two sections but each squad manned two mortars. Consolidating the observers, fire direction, and communication personnel for both the 81mm and 4.2-inch mortars into the weapons company headquarters undoubtedly saved manpower but in battle they would have had to determine firing data for two very dissimilar weapon systems, thus creating plenty of opportunity for error and confusion[512]

The battalion headquarters company also expanded (Appendix 8.7) in similar fashion to its AFTA battalion counterpart. Though the communication platoon still furnished wiremen and a battalion message center, for radio communication it provided mainly technical support. Most of the radio equipment and operators actually belonged to the battalion headquarters section.

The battalion medical platoon ceased to be the mere attachment that it had been under AFTA and was now an organic part of the headquarters company. Its evacuation section now had four ambulance jeeps and four stretcher teams. The treatment section manned the battalion aid station and provided 14 medical aidmen to the rifle and weapons companies. Wounded men who reached the aid station could be further evacuated to a field hospital provided by the division medical battalion. The I&R platoon generally followed the enlarged AFTA structure except that its fourth squad was actually a squad from the old mortar-locating counterfire platoon.[513]

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510 Paul Melody *Infantry Rifle Squad* op cit pp. 19-24.

511 Dept Army T/O & E 7-11D "Infantry Regiment ;" T/O & E 7-12D "Headquarters and Headquarters Company, Infantry Regiment;" T/O & E 7-15D "Infantry Battalion, Infantry Regiment;" and " T/O & E 7-17D "Infantry Rifle Company, Infantry Battalion;" (all Washington DC, 25 July 1956).

512 Dept Army T/O & E 7-18D "Infantry Weapons Company, Infantry Battalion;" (Washington DC, 25 July 1956).

THE PENTOMIC ARMY

While the AFTA-1 program was still under way, the "Army of 1960" study group completed their report more or less within the June 1954 deadline. Its final version called for flexibility and dual capability. Organizational reforms that could achieve these ideals included elimination of the regiment or combat command as an operational echelon (smaller organizations would be more mobile) and the redistribution of most service support functions to give greater independence to individual combat units. Though the failure of AFTA-1 had cast a pall over the 1960 study group's proceedings OCAFF kept it alive so that it could focus on the problems of sustained combat on the Eurasian landmass for the 1965-1970 timeframe. In particular OCAFF wanted long-term solutions to the problems posed by the Army's expected numerical disadvantage on its future battlefields. It expected to find those solutions in reorganization and future technology. For the Army, technology had become the "silver bullet" solution for every problem. Most Army planners agreed that it was impossible to predict what technology would actually be available ten years hence but linking war plans and doctrine to "high tech" future weapons could certainly justify increased procurement budgets. It could also enable an intellectually lazy Army staff to evade its responsibility for finding solutions to the nation's military problems by delegating it to civilian engineers. With this in mind, the Combat Developments section of the study group embarked upon its "ANA" or Atomic-Non-Atomic study to show how a dual-capable Army might be configured by about 1960-65. The Army War College, under "Project Binnacle" would cover 1965-1970. Both studies would follow the concepts of the preliminary War College study of 1954 (but with dual capability worked in) and would then be combined and submitted to the Army Chief of Staff in June 1955. However the scope of the studies progressively widened to include existing Army war plans and its deadline was extended first to October 1955 and then to December. Among other things, the study would abandon the Army's "tripwire" strategy in Europe whereby American troops were there simply as a guarantee that the United States would use nuclear weapons against a Soviet invasion. Instead, the troops in Europe would actually try to stop the Soviets on their own. The final study became known as PENTANA. "PENT" referred to a proposed division based on five "battle groups," to be discussed below. "ANA" referred to the ANA portion of the study. [514]

The Continental Army Command (CONARC) completed the first draft of the PENTANA study in September 1955.[515] The study conceded that expected increases in the tactical nuclear stockpiles of the United States and the Soviet Union might well, in the event of war, lead to mutual destruction. PENTANA, however, maintained that it should still be possible to fight a land campaign even while atomic weapons were in use. Such a campaign would employ soldiers who would be fewer in number and more widely dispersed than in previous wars. Organizationally, PENTANA proposed a division, of about 8,500 officers and men built around five reinforced battalion-sized "battle groups," each large enough to fight on its own but small enough to be mobile and to not present too attractive a nuclear target. Battle groups would be motorized for rapid tactical movement but would use vehicles light enough to be air transportable. They would not operate as subordinate elements of regiments or combat commands. They would get very few engineers, and no heavy armor. Nuclear tipped rocket systems and guided missiles would be their supporting artillery. Doctrinally, a PENTANA division would fight on a deep and fluid battlefield using self contained and self sustaining units that operated on their own and seldom tied in with each other. It could go on fighting after one or more of its maneuver elements and even its own headquarters had ceased to exist. Offensive operations relied heavily on nuclear strikes to blow gaps in the enemy's front line. No conventional alternative was provided for this even though the Army knew that nuclear weapons would not always be available. Once a gap was blown, highly mobile friendly units would rush through it. They would move in column formation both for speed and because they expected the nuclear blast to eliminate most of the enemy's resistance at the breakthrough point. Once behind enemy lines, the friendly units would disperse and then race towards enemy supply dumps, headquarters and other vital targets, while sowing as much panic and confusion as possible along the way. Tactical maneuver (beyond a few stereotyped formations) surprise, and deception would be de-emphasized as unnecessary complications of a fundamentally simple procedure. In order to vindicate its new doctrine in the eyes of the press, the Army staged a series of impressive but highly unrealistic demonstrations (DESERT ROCK) to "prove" that troops could rapidly occupy areas recently subjected to an actual nuclear explosion. Though billed as something new, the doctrine differed little in its essentials from the First World War idea of blasting the enemy to pieces with massed artillery fire and then sending in the infantry to clean up whatever remained. It would probably not have been any more successful.[516]

To counter an enemy offensive PENTANA stressed area defense. Widely dispersed battle groups would occupy "key terrain" and separately organize themselves for all-round defense. However, unlike in the Sagebrush exercises,

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513 Dept Army T/O & E 7-16D "Headquarters and Headquarters Company Infantry Battalion;" (Washington DC, 25 July 1956).

514 Sheehan op cit pp. 105-108 and 116-120.

"key terrain" would no longer be hills or other prominent landmarks. Instead, it would be any locality from which one could interrupt the flow of the enemy's logistics. An enemy might pass through an area defended by a Pentomic division or battle group, but unless he reduced his opponents' "islands of resistance," he would soon find his fuel and ammunition cut off. As U.S. and enemy units maneuvered within the same space both sides would become intermingled, each seeking to destroy critical elements of the other. Since U.S. battle groups would operate about three to five miles from each other, the gaps between them would be considerable. It was hoped that the new ground surveillance radars currently being introduced would be able to cover these gaps well enough to allow enemy forces operating within them to be targeted for conventional or nuclear artillery fires. Under both offensive and defensive doctrines U.S. units would strangle their enemies by cutting off their lines of communication (LOC) but seem to have given little thought to how U.S. forces would protect their own LOCs. Instead, Army planners declared that U.S. units could be supplied by air. This of course required air supremacy, not a foregone conclusion if the Soviet Union was the enemy. It also assumed that the enemy would fight fair and not target the air bases from which U.S. transport aircraft would have to operate. The record of success for supplying ground combat units solely by air (even from secure bases) has not been an encouraging one. GALAHAD and the Chindits did well enough but they had been specially trained and configured for it. PENTANA units were not. Indeed, when forced by the Chinese in Korea to fight the free wheeling battle that the PENTANA planners envisaged, the US Eighth Army, which resembled PENTANA much more than GALAHAD, was routed and nearly destroyed. Ironically, far from freeing the Army from dependency on nuclear weapons, PENTANA made them the Army's only practical means of massing firepower. At the same time, PENTANA could offer no real defense against the use of nuclear weapons by an adversary.[517]

When the preliminary PENTANA study circulated among the various service schools, it was bitterly protested by those who saw their roles reduced under the new doctrine. The politically powerful Armor school trumpeted the importance of "major units built around the tank" (there were no Pentomic armored divisions). The Infantry School thought that there was not enough infantry in a PENTANA division (even though its combat elements were mainly infantry) and criticized its "lack of staying power." The Artillery and Guided Missile School protested the division's lack of conventional firepower. The Command and General Staff College criticized the preliminary study's many assumptions that were unsupported by theoretical or factual analysis.[518]

In December 1955 the final version of PENTANA went to the Department of the Army, which then adopted it for test purposes. After the final cancellation of AFTA-1 in April 1956, General Taylor ordered two new studies to further examine Pentomic infantry and armored divisions. The PENTANA study's infantry division had to undergo considerable change before its final acceptance by the Department of the Army. The changes were mostly to satisfy the parochial interests of the Artillery, Engineer, and Armor Branches. As a result ithe infantry division grew from 8,500 to 13,748 (as of December 1956) through the addition of tank and engineer battalions and a much larger artillery component. There would also be an airborne division with 11,486 troops. However the full motorization of the infantry division that the PENTANA study had called for could not be achieved. Many vehicles would have to be "pooled" at division level for use "as needed." This made the PENTANA study's assumption that U.S. units would enjoy a high degree of open terrain tactical mobility very dubious. Testing of the Pentomic divisions would occur under three projects, the ROCID (Reorganization Of the Combat Infantry Division), the ROTAD (Reorganization Of The Airborne Division), and ROCAD (Reorganization Of the Combat Armored Division). In August 1956 the 101st Airborne Division began its conversion to the pentomic structure and was the first division to do so. The last of the Army's combat divisions completed its conversion in June 1958.[519]

The Pentomic battle group for December 1956 (while it was still called a regiment) is shown in Appendix 8.8. A battery of six 105mm howitzers normally supported it. The original PENTANA study had recommended that a battle group have five rifle companies, but General Taylor's study group thought that four might be more manageable. The decision to give the battle group commander (a colonel with a lieutenant colonel as his deputy) four or five rifle companies to work with rather than the usual three was intended to give him more options for deploying his forces in depth or in multiple directions.[520]

The rifle company organization also appears in Appendix 8.8. The rifle platoons were the same as in the D-series regiment except that each weapons squad now had two three-man LMG teams and two two-man bazooka

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515 In an Army Department reorganization, OCAFF had been split into the Continental Army Command (CONARC) which commanded all stateside combat units, and the Combat Developments Command (CDC) which handled research, procurement, and doctrine, see Sheehan op cit p 120 Note 42;

516 Sheehan pp. 121-124; Bacevich pp. 108-115.

517 Bacevich op cit pp. 116-119.

518 Sheehan op cit pp. 121-125,.

519 Sheehan op cit pp. 127-129.

520 Bacevich op cit pp. 105-106; and Dept Army T/O & E 7-11T ROCID "Infantry Regiment" (Washington DC, 20 December 1956).

teams. The company weapons platoon headquarters included forward observers as well as fire control personnel for the platoon's three mortar squads (armed with the M29 81mm rather than M2 60mm mortar). This gave the rifle companies longer ranged and more powerful weapons with which to cover the gaps between their positions that the PENTANA doctrine visualized. Placing 81mm mortars in the rifle companies also left room at battle group level for 4.2-inch mortars. However, both the 4.2-inch and 81mm mortars had to use 3/4-ton trucks and trailers because the smaller, less conspicuous, and more survivable jeeps could not carry sufficient payloads. The rifle company weapons platoon was, at least, fully motorized. Its jeep and trailer served as a reconnaissance vehicle. One 3/4-ton truck carried the computer, forward observer, and communication personnel for the mortars. The three 3/4-ton trucks in the mortar squads not only moved their respective mortars around, but also shuttled back to the battle group trains for ammunition for not only the mortars but also the 106mm recoilless rifles (which could not carry any of their own ammunition except four rounds per jeep) and probably the rifle platoons as well. The rest of the company had no vehicles except the company commander's jeep. It would have to depend on trucks from higher headquarters to move its field kitchen, water, baggage, and supply items like chemical alarms and radiation test equipment. Another vehicle to carry ammunition for the rifle companies would probably have been desirable also.[521]

The mortar battery (also in Appendix 8.8) was, within its range limitations, expected to function as the organic artillery battery for the group. It could attach a forward observer team to each rifle company and a liaison team to regimental/group headquarters. It also had its own survey section. The battery commander also served as the battle group's fire support coordinator. The battery's organic vehicles could carry all its personnel and equipment, but like the rifle companies it had no vehicle to carry its field kitchen, rations, or water. The 2.5-ton truck at battery headquarters was the battery's only maintenance vehicle. Likewise, the battery had no vehicles for its reserve ammunition (70 rounds per gun). That also had to be carried by battle group motor transport. Even the battery's "ready" ammunition (74 rounds per gun) would have been a heavy load for the mortars' 3/4-ton weapons carriers, especially when they traveled cross-country.[522]

The regimental/battle group headquarters was a somewhat expanded version of that of the proposed D-series battalion. As in the D-series battalion the surgeon and the communication officer also commanded the medical and communication platoons, respectively. The assistant S2, assistant S3, and assistant S3 for air found in the battalion headquarters section would make it easier to operate the headquarters on a 24-hour basis as Army planners envisioned. This section also provided most of the drivers and voice radio operaters that worked directly with the headquarters staff. Of course they also worked closely with the communication platoon whose radio section provided repair personnel (four mechanics) and operators for Teletype and Morse code equipment.

A heavily armed and armored cavalry platoon replaced the old regimental I&R platoon. This new unit would conduct reconnaissance and screening missions only and would not be concerned with the production of intelligence. Its headquarters consisted of just the platoon commander and his driver. The platoon sergeant headed tank section, with its two M41 "Walker Bulldog" light tanks. The scout section had four machinegun jeeps. The rifle squad was a standard 11-man squad plus a driver riding an armored personnel carrier (either the M59 or M75 predecessors to today's M113 personnel carrier). The squad also carried a bazooka and an LMG as spare weapons. An 81mm mortar squad carried in another APC served as the platoon's support section. The scout section did the actual reconnoitering while the other sections provided the firepower needed to exploit an opportunity or to break a contact.[❷]

The assault gun platoon was an antitank unit equipped with the M56 90mm Self-Propelled Anti-Tank (SPAT) gun. It was an attempt to produce a lightweight but powerful self-propelled antitank gun for airborne use. It consisted of a small tracked chassis on top of which was mounted a 90mm cannon. The commander, gunner, and loader rode outside the hull of the vehicle and were protected only by the gun shield. Thirty rounds of ammunition could be carried and the vehicle weighed only about 7.75 tons combat loaded. However, it was too light to absorb the 90mm gun's recoil and thus became unstable during firing.[523]

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❷ This was a development of the World War II motorized cavalry platoon which had a command jeep, two machinegun jeeps, three jeeps with 60mm mortars and a section of three M8 armored cars. Changes based on wartime experience caused the number of machinegun jeeps to be doubled and for a single 81mm mortar to replace the 60mm. Light tanks replaced the armored cars. The addition of a rifle squad largely corrected a shortage of riflemen that had greatly restricted the platoon's ability to conduct dismounted combat. See The General Board, United States Forces, European Theater Study Number 49 "Mechanized Cavalry Units"; undated but published about 1946.

521 Dept Army T/O & E 7-17T ROCID "Rifle Company, Infantry Regiment" (Washington DC, 20 December 1956); CPTs Vernie G. Tosh & JamesB. Hobson "Mobility - Pentomic Infantry Division" Infantry *Magazine* Vol 47 No. 3 (Ft Benning Georgia July 1957) pp. 38-39; and LTC T. F. Horan "Logistical Support - Pentomic Infantry Division" Infantry *Magazine* Vol 48 No. 1 (Ft Benning Georgia January 1958) pp. 12-13. See also Dept Army FM 7-10 *Rifle Company, Infantry and Airborne Division Battle Groups* (Washington DC 29 Jan 1959) pp. 8-9 & 372-373.

522 Dept Army T/O & E 6-18T ROCID "Mortar Battery, Infantry Regiment" (Washington DC, 20 December 1956); Tosh & Hobson "Mobility - Pentomic Infantry Division" Infantry *Magazine* Vol 47 No. 3 op cit; and Horan "Logistical Support - Pentomic Infantry Division" Infantry *Magazine* Vol 48 No. 1 op cit.

Compared to its D-series predecessor, the supply and maintenance platoon expanded only modestly to meet the needs of a battle group rather than just a battalion. Its headquarters included a vehicle maintenance section plus a supply section, which only maintained records and filled out requisitions. The platoon was expected to operate in the battle group supply and service area (formerly the trains area), which was to be a 400 by 700 yard egg shaped region about four to seven miles from the Forward Edge of the Battle Area, or FEBA. Within this area separate kitchen (for all the company mess teams), maintenance, motor pool, and salvage points would be established. Placing a supply base four to seven miles behind the front line under a doctrine that says that there are no front lines must have seemed like a rather curious inconsistency. Since fully armed enemy units might be roaming about in the immediate vicinity, one wonders who was going to handle security for this trains area. To deal with motor transport requirements the supply and maintenance platoon included a truck section (five 2.5-ton trucks with 1.5-ton trailers carrying field kitchens, pack rolls and supply items for the rifle companies and mortar battery) and an ammunition section (four 5-ton and six 2.5-ton trucks with two 2-ton, two 1.5-ton cargo trailers). By shuttling its loads each truck was expected to be able to do the work of two. The ammunition section, for example, would haul the six water trailers needed by the mess teams, besides carrying the reserve ammunition for the rifle companies and mortar battery. To provide fuel, Division-level Quartermaster units would support the battle group with 1200-gallon tanker trucks. However, five-gallon fuel cans carried on standard cargo trucks could be used as well.

The ammunition section's five-ton trucks would carry the heaviest loads though their off-road mobility was poor. When their basic ammunition loads were expended or off-loaded the section's trucks would travel to an ammunition supply point operated by an army level headquarters in the "rear" (wherever *that* was and furthermore the trucks would be driving on the roads without escort straight through "Indian country" – these points does not seem to have been well thought out) to pick up a new load. They would then bring it forward to a battle group Ammunition Distribution Point (ADP) where rifle company and mortar battery weapons carriers could come and pick it up. Alternatively, if the situation required frequent movement and the weapons carriers had to stay close to the weapons that they supported, the 2.5-ton trucks could deliver ammunition to the individual companies or even, if practical, to individual weapon pits. Of course this was possible only at the cost of the additional time needed for each ammunition run and of the increased risk to the ammunition trucks from operating closer to the enemy.[524]

The medical platoon's treatment section included the aid station and 22 company aidmen. The aid station, usually after augmentation by the medical platoon headquarters, would split itself into two teams to allow for better dispersal (splitting the aid station into forward and rear echelons) and 24-hour operations. Team organization was not fixed but one team (Team "A") might typically consist of the medical platoon headquarters (including the group surgeon and platoon sergeant) plus a couple of assistants from the treatment section. The other team (Team "B") would have the rest of the treatment section, minus the 22 company aidmen. Five of these aidmen (medics) would go to each rifle company (providing one medic per rifle or weapons platoon). One would go to the mortar battery and another to the headquarters company. The evacuation section, with its four litter teams and four ambulance jeeps, would collect casualties from the companies and bring them to the aid station. All section personnel were also trained as medics not only so they could give emergency care to the men they were evacuating but also so that they could help in the aid station when the latter needed more people. The litter bearers could also serve as relief ambulance drivers when necessary. The evacuation section was supposed to task-organize itself as four squads, each supporting, but not necessarily attached to, a rifle company. Typically, a squad would have a litter team and an ambulance but this could vary to answer specific situations. Squads operating in difficult terrain, for example, would need more litters but ambulances would be preferred for roads or trails or in open country. Evacuation from the aid station would be a responsibility of the division medical battalion, though one man in each aid station team was supposed to be trained as a helicopter ground control man so as to facilitate medical evacuation by air. Non-medical vehicles, including 2.5-ton and 3/4-ton trucks, jeeps, and armored personnel carriers (from the division transportation battalion), could also be used for evacuations when necessary. Relative to the number of men it was serving, the medical platoon was only two-thirds as large as its Korea era counterparts, despite the probability of mass casualties if nuclear weapons were used. It also had no facilities for feeding patients and would have to arrange with the headquarters company mess team to have a cook on call. Disposal of the casualties' weapons and equipment was also a problem. These items had to be returned to their respective company supply rooms but no one

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523 Dept Army T/O & E 7-12T ROCID "Headquarters and Headquarters Company, Infantry Regiment" (Washington DC, 20 December 1956); and see E.J. Hoffschmidt and W. H. Tantum IV editors, *Tank Data 2* (Aberdeen Proving Grounds Series), (Old Greenwich Connecticut, WE Inc. 1969) pp. 68-69.

524 Dept Army T/O & E 7-12T ROCID "Headquarters and Headquarters Company, Infantry Regiment" (20 December 1956) op cit; Tosh & Hobson "Mobility - Pentomic Infantry Division" *Infantry Magazine* Vol 47 No. 3 op cit; and Horan "Logistical Support - Pentomic Infantry Division" *Infantry Magazine* Vol 48 No. 1 op cit. See Also Dept Army FM 7-21, *Headquarters and Headquarters Company, Infantry Division Battle Group* (Washington DC 26 Feb 1960) pp. 42-55.

was provided to carry out this duty. This meant that yet another necessary procedure would have to be improvised.[525]

The airborne battle group developed under the ROTAD program has been described as the one that followed the original intent of the PENTANA study the most closely. The first diagram in Appendix 8.9 show its 1958 version, which General Taylor's study group had modified to include a new and long awaited family of small arms and machineguns (for which the airborne had first priority). The new rifle was the M14. It replaced not only the M1 rifle but also all the carbines that were still in service. It fired the .30-08 Winchester cartridge, which had become the standard 7.62mm NATO round. It was lighter and gave less recoil than the old .30-06 cartridge but it still offered an adequate performance. The M-14 itself was a redesign of the M1 that substituted a more efficient 20-round magazine for the M1's eight-round clip. A heavy barreled version of the M14, designated the M15, was to have been the BAR replacement but the Army never adopted it. Instead, it equipped one standard M14 per fire team with a bipod and a selector switch that enabled it to deliver full automatic fire. The resulting M14 AR (Automatic Rifle) weighed only half as much as a BAR and was supposed to offer similar firepower. In practice it was ineffective as an automatic weapon due to its instability and tendency to overheat. However, a new grenade launcher, soon to be standardized as the M79, was much more successful. This single-shot weapon broke open for loading like a shotgun and could place its 40mm caliber grenades (weighing only a few ounces each) accurately enough to hit the firing aperture of a typical bunker at ranges of up to 150 meters, or with less accuracy out to 400 meters. Since infantry combat seldom occurs at greater distances, these ranges were only slightly limiting. Though the grenades for the M79 were much less powerful that the older hand or rifle grenades, their accuracy ensured the M79's popularity with the troops during the Vietnam War. Since the launcher was too large to be carried in addition to a rifle, an M79 grenadier carried a pistol for his own defense. His 6.5-pound launcher and (typically) two 16-round grenade bandoleers gave him a total load of about 25 pounds. The airborne infantry received the first launchers for test purposes. Except in the rifle squads, the tables of organization only carried them as spare weapons, pending their final approval.

A third significant addition to the infantry's armory was the M60 machinegun. This weapon followed the German World War II concept of a General Purpose Machinegun (GPMG) that could be used as a light machinegun firing from a bipod (for mobility) or as a medium machinegun firing from a tripod (for accuracy and stability). A quick-change barrel prevented overheating. The M60 was belt fed and used the 7.62mm NATO cartridge. It replaced the Browning .30 caliber LMGs and HMGs, and even, for a brief time, the .50-caliber guns. Unlike the German MG-42, however, the M60 was a relatively complex weapon that used expensive alloys to minimize its weight. It also had a "Rube Goldberg" barrel change system in which when the gunner removed the barrel, the bipod, front sight and gas assembly came along as well because they were permanently attached to the barrel. This made the use of the quick-change barrel a practical impossibility under combat conditions when the gun was firing in the LMG mode (from the bipod). Even in the HMG mode (from the tripod) mode it was awkward. It also made the spare barrels unnecessarily heavy and bulky to carry. Even with all these drawbacks, the M60 was still a revolutionary weapon for the American infantry. It weighed only two thirds as much as the Browning M1919A6 but was stronger and more reliable. Its ammunition was also lighter and a three-man M60 gun team could carry as much as a four-man Browning LMG team. In fact, the M60 could have qualified as the squad LMG recommended for the US Army by the 1946 Infantry Conference.[*] The wartime German and postwar British, French, Belgian, and many other armies were already using GPMG's in this way. However the US Army had by now committed itself to the fire team and the M60 was too heavy for such a small fighting unit. Like the old Browning guns it replaced it served as a platoon or company support weapon, or (when mounted on jeeps or larger trucks) for convoy defense.[526]

The introduction of these new infantry weapons led to yet another study to determine how they would affect rifle units. Conducted by the Army's Combat Development Experimentation Command (CDEC) and completed in 1961, the Optimum Composition of the Rifle Squad and Platoon (OCRSP) corroborated many of the results of the 1956 ASIRS testing. OCRSP looked at several different platoon configurations, including some with three or four rifle squads (of varying composition) and at some that included a weapons squad. OCRSP also examined rifle squads that were either fire team based or else single-team types led by just a squad leader and an assistant. Squads

[*] During the Second World War the Army did make an attempt to produce its own version of the German MG-42 GPMG. It abandoned this effort after the prototype guns failed their firing tests due to a draftsman's error in the drawings used to build them. After the war, there was no money or urgent requirement to pursue the project any further.

525 Ibid and CPT Roy L. Bates "Medical Support - Pentomic Infantry Division" *Infantry Magazine* Vol 47 No 10 (Fort Bening Georgia October 1957) pp. 40-45.

526 Bacevich op cit pp. 106-108; For information on the new small arms, see Infantry School Staff "Firepower, Pentomic Infantry Division" *Infantry Magazine* Volume 47 No. 3 (Fort Benning Georgia July 1957) pp. 29-33; Capt Robert Byrom and Lt Norman L. Carlton "The M79 Closes the Gap" Infantry *Journal* Vol 51 No 4 (Fort Benning, Georgia, Auly-August 1961) pp. 16-17; W. E. Smith *Small Arms of the World* op cit. For further descriptions of German machineguns see Daniel D. Musgrave and Smith Hempstone Oliver, *German Machineguns* (Washington DC, MOR Associates 1971) *passim*.

armed with rifles and grenade launchers only were compared to those that also carried one or two M60 machineguns in the LMG mode. Testers came to the unsurprising conclusion that one LMG substantially increased a squad's firepower while two increased it even more. Only the 11-man fire-team based squads were ever tested with two LMGs, however. Also unsurprisingly, larger squads withstood casualties better than smaller ones. However, the 11-man squad's fire team structure fell apart after only a few casualties. In fact, the testers concluded that less than 10 men in a squad effectively prevented it from conducting simultaneous fire and maneuver. Furthermore, if an 11-man squad had two LMGs, its overall effectiveness dropped rapidly as it lost riflemen. As the surviving riflemen were diverted to replace casualties among the machinegun crewmen, the squad's close combat capability disappeared. However, this rapid loss of combat capability did not occur in squads with only one LMG. OCRSP decided that the best non-fire-team squad was one with a leader, an assistant leader, an LMG gunner, and six or seven riflemen. Once again they had reached the same conclusion as the 1946 Infantry Conference. But, as with previous studies, OCRSP ignored its own findings and opted for fire teams anyway. It criticized the non-fire-team squad for having only one LMG and not enough leaders though it noted that this squad could be controlled and moved as easily as any fire team-based squad. OCRSP concluded that the Army should stay with its 11-man fire-team-based squad (with two LMG) but noted that casualties would soon collapse the fire team structure and cautioned against placing too much reliance on it. The 1946 Infantry Conference had emphasized that fire and maneuver at the squad level is a practical impossibility but once again the Fry/Marshall fire team advocates were able to get the Army to disregard this advice. The Army not only kept its 11-man squad but also would not give it an LMG because (it reasoned) both fire teams should be the same. If one fire team had an LMG the other should have one also but a second LMG would damage the squad's ability to maneuver and engage in close combat. Instead, the Army placed a pair of LMGs in each rifle platoon weapons squad along with a couple of antitank weapons. A post-OCRSP platoon headquarters would have just the platoon commander, the platoon sergeant and an RTO. To replace platoon messengers the Army decided to rely on short-range hand held radios to connect the platoon commander with his squad leaders.[527]

In the field of transportation, the Army adopted (in 1956) the M274 Light Infantry Weapons Carrier (LIWC) or "mechanical mule" as an air portable light truck for airborne troops. A most ingenious design it consisted of just a platform suspended on two two-wheel axles powered by a lawn mower-type engine. At the front was a seat, a steering wheel, and pedals for the driver. The 830-pound LIWC could carry a 1,000-pound payload or nearly the same as a jeep and trailer combination weighing nearly four times as much. It used no trailer itself but it could be towed as a trailer by a jeep. Top speed was 25 miles per hour and its cross-country mobility could exceed even that of some tracked vehicles. It served mainly as an ammunition and weapons carrier and could also lay telephone cable.[528]

In addition, airborne infantry units received an allowance of radio equipment than their standard infantry counterparts would not start to get until 1959. It enabled them to use hand-held one-mile ranged AN/PRC-6 radios to link their squad and platoon leaders). This was what OCRSP had prescribed to replace messengers and enable squads and platoons to operate at greater distances while still maintaining communications.

As shown in Appendix 8.9, the 1958 airborne battle group met the PENTANA ideal of five rifle companies. The rifle companies themselves were based on post-OCRSP 11-man two-fire-team rifle squads. Each fire team would have a team leader (M14), an automatic rifleman (M14 equipped as an AR), a grenadier (M79 launcher and pistol), and two riflemen (M14s). The weapons squad was the same as in the ROCID test regiment except for its GPMGs and what must have been the very welcome addition of an LIWC to carry their ammunition. The company weapons platoon reverted to separate sections for its mortar and antitank squads and did not attempt to control both directly from platoon headquarters. The mortar section headquarters took over the fire direction and forward observer personnel from the weapons platoon headquarters leaving the latter with the same personnel as a rifle platoon headquarters (platoon leader, platoon sergeant and messenger). However, the mortar section had substantially less transportation to move its 81mm mortars and ammunition (an LIWC each rather than a 3/4-ton plus trailer). On the other hand, the extra LIWC in the antitank section would have considerably improved the ammunition supply to the company's 106mm recoilless rifles. Although the airborne rifle company was just as dependent for motor transport as its infantry counterpart on battle group transportation to the battle group truck section had only 3/4-ton trucks available for such duties instead of the infantry battle group's already over-committed 2.5-ton trucks.[529]

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[527] Paul Melody *Infantry Rifle Squad* op cit pp. 24-30.

[528] Lt Bernard F. Agnelli, "The Mule Returns" Infantry School *Quarterly* Vol 46 No. 4 (Fort Benning GA, October 1956) pp. 38-42; and ed Christopher F. Foss and Terry J. Gander, *Jane's Military Logistics 1990-91* (Coulsdon, Surry UK, Jane's Information Group 1990) pp. 382-383.

[529] Dept Army T/O & E 7-31D "Airborne Division Battle Group;" and T/O & E 7-37D "Rifle Company, Airborne Battle Group" (both Washington DC, 31 July 1958).

The airborne battle group mortar battery (see Appendix 8.10) was similar to the battery in the ROCID regiment. The battery was intended to use a new lightweight 105mm mortar but this weapon was not adopted and the older but still popular 4.2-inch served instead. A small ammunition section plus an extra forward observer team for the battle group's fifth company were added but the fire direction center replaced the separate firing battery headquarters. Motor transport was even less than in an infantry battle group mortar battery, despite the latter's difficulty in moving its ammunition. However, extensive use of LIWCs certainly represented a huge saving in vehicle weight.[530]

The airborne battle group headquarters and headquarters company (see Appendix 8.11) generally followed the 1956 ROCID pattern. However, there was no engineer platoon, despite the presence of only a very weak (two-company) division engineer battalion. Since an armored cavalry-type reconnaissance platoon was unsuitable for an airborne unit, the reconnaissance platoon employed four squads of machinegun jeeps in lieu of the heavier weapons of the armored cavalry organization. The addition of a third section of M56 SPAT's to the assault gun platoon was undoubtedly intended to compensate for the lost of the armored cavalry's light tanks. A much more significant addition was the radar or electronic devices section. Though really a kind of reconnaissance unit, it was placed in the communication platoon because its electronic maintenance requirements could more easily be met there. The section's five short man-portable ranged AN/PPS-4 sets would cover gaps between the rifle companies. They were supposed to be able to detect moving personnel at up to 800 meters and large groups of personnel at up to 3,000. The two medium range AN/TPS-21 radars would give greater depth to the AN/PPS-4 coverage and to help watch gaps between battle groups. They could find vehicles at up to 18 kilometers or men at nine kilometers.[531]

The Pentomic Army experienced further change in 1958 when Congress approved a new system of enlisted rank and pay grades. As has already been noted, in the Army the old system of seven pay grades promoted a man much too rapidly during the early stages of his career and then after he became experienced and really valuable to the Army, he could hardly be promoted at all. The Marines, on the other hand, promoted much more slowly at first but gave greater responsibility relative to rank. The Army had tried to use warrant officer rank to reward its senior enlisted men but had rightly discarded it as inefficient. Instead, the new pay system increased the number of enlisted pay grades for all services to nine. For one of its two additional pay grades the Army chose to revive the rank of staff sergeant, inserting it between those of sergeant (E-5) and sergeant first class (SFC), which took over the pay grade of E-7 so that a staff sergeant would have the pay grade of E-6. This change allowed SFC's to become platoon sergeants while in the next higher grade (E-8) a man could be a first sergeant or, if he was a senior specialist, a master sergeant. For the first time "first sergeant" became both a rank and a job description. The Army's other new rank of sergeant major (E-9), topped the enlisted rank scale and, of course, filled the battalion and higher-level sergeant major positions. The Army also revived specialist rank for men whose skills qualified them for higher pay but not higher authority. Specialist rank started at E-4 and could run as high as E-9 though it was rare (especially in the infantry) for it to be awarded above E-5. Nearly all Army E-4's were specialists rather than corporals, since the Army's use of staff sergeants as squad leaders and sergeants as fire team leaders continued to relegate E-4s to the role of senior private. The Marines, by contrast, added one of their new ranks between PFC and corporal. This was called "lance corporal," a rank title borrowed from the Royal Marines. As an E-3, the lance corporal was only a senior private but his presence pushed Marine corporals, sergeants, and staff sergeants up a pay grade so that they could rank equally to Army non-commissioned officers with the same titles. For their other new pay grade the Marines introduced the rank of sergeant major at the grade of E-9 just like the Army sergeant major. The Marines also changed the rank title of technical sergeant to gunnery sergeant (E-7).[532]

The draft version of the infantry division tables as modified by the results of continued ROCID testing was published in August 1959. The final version appeared in 1960. The earlier infantry configuration of four rifle companies of four rifle platoons gave way to five companies with only three rifle platoons each. The mortar battery, being a rather large organization to bring just eight 4.2-inch mortars into action, was reduced to a platoon of six mortars and made part of a new combat support company (the term "weapons company" had gone of favor). The support company also took over the battle group reconnaissance platoon, assault weapons platoon (formerly the assault gun platoon), and radar section from the group headquarters company. This considerably simplified the latter. A diagram of the new battle group (with changes up to February 1960) appears in Appendix 8.12.

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530 Dept Army T/O & E 6-28D "Mortar Battery, Airborne Battle Group" (Washington DC, 31 July 1958).

531 Dept Army T/O & E 7-12D "Headquarters and Headquarters Company, Airborne Battle Group" (Washington DC, 31 July 1958); MG Marvin L. Worley Jr. USA, *A Digest of New Developments in Army Weapons, Tactics, Organization, and Equipment,* (Harrisburg Pennsylvania, The Stackpole Company 1959) pp. 118, 163, and 311-312; and ed Mgen J.I.H. Owen RM, *Brassey's Infantry Weapons of the World 1950-1975*, (New York, Bonanza Books 1975) p 303.

532 Marine Corps *Gazette* Staff, "Enlisted Rank Structure" Marine Corps *Gazette* Volume 42 No. 10 (Quantico, Virginia, Marine Corps Association October 1958).

Another item of interest shown by this and the following tables is the degree to which the Army increased the quantity of radio equipment in its tactical units at this time. Army radio usage had increased significantly after the Second World War, though when the Korean fighting broke out, the number and complexity of the radio nets still lay within intelligible limits. A 1950 rifle company, for example, had one SCR-300 man-pack and 12 SCR-536 hand held sets. A 1956 ROCID company increased this to seven AN/PRC-10 man-pack radios and nine AN/PRC-6s hand held radios plus a jeep-mounted 10-mile ranged AN/VRC-18 for the company commander. One AN/PRC-10 went to the mortar fire direction center and three more to the mortar forward observers. Two at company headquarters guarded the battle group command and administrative nets, respectively. The seventh was a spare for the use of an observation post or by the company commander when he was away from his radio jeep. The nine AN/PRC-6s were distributed to the four rifle platoon commanders, the weapons platoon commander, the two 106mm recoilless rifle squads, the company commander and the company command post. In the final (1960) ROCID rifle company the number of radios doubled to two jeep-mounted AN/VRQ-3, 16 AN/PRC-10, and 18 AN/PRC-6. As in the airborne battle group of 1958, each rifle platoon received its own AN/PRC-6 radio net, linking the platoon commander, platoon sergeant and the four rifle or weapons squad leaders. An AN/PRC-10 (operated by a rifleman pulled from one of the squads) provided communication with company headquarters and the other platoons. The weapons platoon had AN/PRC-10s for its headquarters, mortar FDC and three forward observers. At company headquarters both the company commander and the executive officer had their own radio jeeps. Three AN/PRC-10s in the company CP guarded the battle group command and administrative nets and the company command net. A fourth AN/PRC-10 was for a company observation post and a fifth was a spare that the company commander could use when he was away from his command post and without his jeep. The expense of all this radio (and telephone) gear must have been huge. The need for batteries and spare parts would have created a logistics problem all by itself. The electronic jamming, monitoring, and deception target that this presented, as the Viet Cong would later discover, was hard to miss. One can only speculate as to the reasons behind this "radio explosion." The greater dispersion mandated by PENTANA doctrine; fascination with technology; an increasing tendency towards centralized control; and the increasing emphasis on fire support would all have contributed towards this trend.[533]

The new battle group rifle company had also changed in other ways. Personnel cuts had subtracted a two-man bazooka team from each rifle platoon weapons squad, the messenger out of each rifle platoon headquarters and a cook, a cook's helper and a messenger from company headquarters. The weapons platoon moved its forward observer and fire direction personnel from its platoon headquarters into the mortar section. Since no M79 grenade launchers were available for non-airborne infantry all rifle squad members carried rifles. No mechanical mules were available either.

The Army intended this new rifle company not only to form part of an infantry battle group, but also to be the security element of an Air Portable Missile Command. This was a task force built around a battalion of 30-mile ranged "Honest John" unguided (but nuclear capable) rockets. It could operate independently to provide nuclear firepower for a division sized or larger ground force. As its name implied it was light enough to travel in Air Force transport aircraft. Medium and Heavy Missile Commands also existed but they were not air portable and mechanized infantry (equipped with armored personnel carriers) protected them. When assigned to a Missile Command, a rifle company would receive an augmentation for its company headquarters that consisted of a three-man communication team with a 3/4-ton truck. It would also get a 2.5-ton truck (without a driver) to carry its field kitchen etc. in lieu of a truck that would otherwise come from a battle group supply and maintenance platoon. In addition the company would replace its AN/PRC-10 man-pack radios with the AN/PRC-9. The AN/PRC-9 was the artillery version of the AN/PRC-10 and operated within a different frequency range.[534]

The new combat support company has already been described to some extent and is shown in Appendix 8.13. The reconnaissance platoon was exactly as it had been in the 1956 ROCID test organization (the radios carried in the M41 tanks are omitted for space reasons). The assault weapons platoon, which replaced the earlier assault gun platoon, introduced the SS-10 wire guided antitank missile. This was the first such weapon that the US Army ever employed. Developed by the French based on German designs taken over at the end of the Second World War, an SS-10 missile was just under three feet long, weighed about 33 pounds, and could reach its maximum range of 1,600 meters in about 20 seconds. The operator controlled its flight using a control box with a joystick that was connected to the missile by a fine wire. With this the operator flew it to its target like a model airplane. However, the operator needed several seconds (at least 450 meters' distance) of flight to get the missile under control after it

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533 Dept Army T/O & E 7-11D "Infantry Division Battle Group" (Washington DC, 1 August 1959 and 1 February 1960); and Maj Oliver M. Smith and Capt James B. Hobson, "Communications, Pentomic Infantry Division" *Infantry* Magazine Volume 47 No. 4 (Fort Benning, Georgia, October 1957) pp. 31-36.

534 Dept Army T/O & E 7-17D "Rifle Company, Infantry Battle Group" (Washington DC, 1 August 1959 and 1 February 1960); Worley op cit pp. 46-49; and Smith and Hobson "Communications" op cit pp. 32-33. Rifle company headquarters lost another cook but retained its armorer and its communication detail (a sergeant communication chief, two radio operators who were also drivers, and two wiremen).

was launched. This actually made targets at close range more difficult to hit than those that were farther away. However each assault weapons squad had a bazooka to deal with the close targets. Under the 1959 draft tables, each squad had a jeep that carried the missile control unit and three missiles ready to fire. The squad's 3/4-ton truck and trailer carried 14 additional missiles and could shuttle to the rear for more. Eight missiles per squad were also supposed to be carried with the battle group ammunition section. By 1960, however, the squad jeeps had been dropped and the 3/4-ton carried the control unit and all the missiles.[535]

Finally, the battle group radar section was the same as it had been in the airborne battle group except for the addition of a 3/4-ton truck and driver. The extra vehicle carried batteries, radios, and other equipment that the radar sets needed. It also served to carry the AN/PPS-4 radars and their generators and other accessories over long hauls.

The heavy mortar platoon was a scaled down version of the original battery. Sections replaced the original mortar platoons, the fire direction section absorbed the survey section and a counter-fire section was present as well. Platoon headquarters included the liaison section but there were only three forward observer teams, not enough for all the rifle companies, though counterfire observers could have been used in this role to some extent.[536]

The Battle Group headquarters expanded further so that it now included not only a colonel in command but also two lieutenant colonels serving as deputy commander and executive officer, respectively. The primary job of the deputy commander was to wait around for something to happen to the group commander so that he could succeed him. While he was waiting he could take charge of any detachment of two or more companies that the group commander might organize. The executive officer, on the other hand, served as chief of staff. As such he ensured that the commander remained in awful isolation from his other staff officers, company commanders, and (as a cynic might conclude) the actual situation. If instituting a deputy commander in addition to an executive officer seems like using two officers to do the work of (at the most) only one, the reader should remember that the battle group structure left no command positions for officers between the ranks of colonel and captain. Majors were by now mostly staff officers who seldom commanded anything but the lack of any battalions to command left a lot of lieutenant colonels unemployed as well. Making some of them deputy battle group commanders at least gave them a job title. The other officers in the headquarters and in the group headquarters section were largely as they had been in the ROCID organization. However, the communication officer and the group surgeon now had assistants to command the communication and medical platoons for them.[537]

As for the remainder of the group headquarters company, the headquarters section, personnel section, company headquarters, and communication platoon remained generally the same. The engineer platoon did not move to the combat support company. The headquarters company would have needed it to ensure that its larger and heavier trucks had sufficient trafficable roads and trails to operate on. In the supply and maintenance platoon the ammunition squad obtained additional trucks though it still held the platoon's water trailers.

Lastly, the medical platoon showed some surprising changes. In the treatment section, the ROCID designers reduced the 22 company aidmen of 1956 to only 11. Four of these were for the aid station itself (which now had 11 men in all, plus the medical platoon headquarters). This left only one medic for each company in the battle group. The evacuation section also lost its stretcher-bearers. In their place, it would have a total of 14 jeep-ambulances with two medics in each. The extra jeeps in lieu of stretcher-bearers saved manpower and were a satisfactory evacuation means so long as the terrain remained passable and the jeeps did not have to risk a lot of enemy fire. Unfortunately, since battle casualties tend to occur in the presence of the enemy (as well as in difficult terrain), this more mechanized means of casualty evacuation would seem to contain some obvious flaws. Nevertheless, the Army considered the need to conserve personnel as paramount. Combined with the great distances expected to exist between Pentomic combat units in battle, it expected that medical support would have to be extremely austere. The enlarged aid station with its two 3/4-ton trucks could easily deploy itself in two elements, one led by the platoon leader/assistant surgeon, and the other by the assistant platoon leader/medical service corps officer. In combat, the group surgeon would spend most of his time with the latter element, thus ensuring that each had its own doctor. The burden of getting the casualties to where the ambulance jeeps could take them to an aid station would fall on the wounded men themselves and their buddies. All would be given first aid kits and appropriate training. Of course, the effect that just a few casualties would have on the company's fighting strength, given that each seriously wounded man would probably need several others to assist him, can readily be imagined. The one medical aidman with each company performed all routine medical tasks ("sick call," sanitation, etc.). In battle he manned an aid post at company headquarters where he could treat "walking wounded" and others being evacuated to company headquarters on company transport. He would also coordinate and direct ambulance/evacuation teams operating in the company area. Though the teams were centrally controlled, several could be assigned to a company as needed.

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535 Dept Army T/O & E 7-18D "Combat Support Company, Infantry Battle Group" (Washington DC, 1 August 1959 and 1 February 1960); and LTC Walter F. Nechey, "Death to Tank!" Infantry *Magazine* Vol. 49 No. 3 (Ft Benning Georgia Oct-Nov 1959) pp. 42-45.

536 T/O & E 7-18D "Combat Support Company, Infantry Battle Group" (1 August 1959 and 1 February 1960) op cit.

537 Dept Army FM 7-40, *Infantry and Airborne Division Battle Groups* (Washington DC 20 Aug 1959) pp. 12-19.

The division medical battalion would still be responsible for evacuating casualties from the battle group aid station.[538]

Since a battle group would normally operate as part of an infantry division, it could also routinely expect reinforcement from division level combat support and combat service support units. The former would include a company each from the divisional tank and combat engineer battalions. Division artillery would supply a direct support battalion consisting of a battery each of 105mm and 155-mm howitzers. In two of the five battle groups per division, these weapons would be self-propelled. The division aviation company would furnish a flight of spotter aircraft. The division cavalry squadron, however, would stay together under the division commander's control and would not spread itself among the battle groups. For service support, the division transportation battalion could provide a truck company and two armored personnel carrier companies but these had to be shared among all five battle groups. All three companies together could move only one battle group in one lift. It was assumed that in combat additional truck or APC companies from higher headquarters would reinforce the transportation battalion. The medical battalion included a collecting company that evacuated wounded from the battle group aid stations to the division field hospital. However, as in the original PENTANA divisions, airborne divisions would have no medium (155mm) howitzers, tanks, or armored personnel carriers, and very few engineers.[539]

The year 1960 was the beginning of the end for the Pentomic Army because it was the last year of General Eisenhower's presidency and the last year before the retirement of the Pentomic Army's chief supporter, Army Chief of Staff Maxwell Taylor. The Army's contention that strategic nuclear weapons were not usable because they would provoke retaliation of unacceptable severity was finally winning over not only the military but the government and the general public as well. Also, the view that future military threats to American security would take place well below the threshold of general war was also becoming the consensus. The Army's hope that the ability of American technology to produce low yield but accurate nuclear weapons that could supplement conventional land combat without triggering general nuclear war finally were dashed by the late 1950s. The Soviets had at last introduced their own tactical nuclear devices and upset the American monopoly in these weapons. Even General Taylor was turning away from the tactical nuclear idea as well. His new book, *The Uncertain Trumpet*, advocated a "Flexible Response" to future contingencies where nuclear weapons were unlikely to be used.[540]

Meanwhile, the Pentomic concept itself came under an increasing barrage of criticism, which became especially vehement as the Pentomic advocates retired. Much of this criticism was on purely practical grounds. Many officers questioned the whole idea that conventional infantry could ever accomplish anything useful under the conditions likely to prevail on a genuinely nuclear battlefield. Even if the Pentomic organization could somehow have been shown to have made this possible, it's "dual capability" was highly questionable. The large number of subordinate units that a commander had to deal with at the division and battle group level did nothing to create the flexibility that the PENTANA study considered essential. It instead produced units that turned out to be slow moving, unwieldy, and hard to task organize. The high "foxhole" strengths that Pentomic infantry battle groups were supposed to offer also failed to materialize. Too many cuts had been made in order to economize on the Army's limited manpower. The filler personnel and other "fat" that that units had relied on in the past to take care of routine attrition and unforeseen contingencies were gone. Ammunition carrying parties, stretcher teams (still needed, despite all the "new technology"), mess attendants, and even foot messengers were not provided for. Tasks that could be assumed away in planning were not so easily disposed of in the field. Extra manpower had to be found and usually, a commander's only source for it was his rifle squads. In the minds of many planners, these were among the most expendable elements of the battle group since they added relatively little firepower and did not provide any essential support functions. As a result, they were so heavily "milked" that they quickly evaporated even in training exercises. These failures of the Pentomic organization caused the whole concept of dual capability to be attacked as illusory.

On a more philosophical level, critics also attacked the Pentomic concept for its assumption that an enemy would be foolish enough to cooperate in his own destruction by massing his forces into nuclear-sized targets. The facile belief that the flexibility and high tactical mobility needed to avoid or exploit nuclear strikes were achievable merely by repeating them often enough in field manuals was another obvious shortcoming. A realization of the effects of such things as rubble, debris, tree blowdown, and radioactive fallout on friendly operations and on heavily populated West Germany had also begun to sink in. However, Colonel William DePuy, later a general and one of the principal architects of the post-Vietnam Army, defended dual capability as the only practical course of action at the time and one that had failed only through a lack of resources. To him it was simply unrealistic to suppose that in

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538 Dept Army T/O & E 7-12D "Headquarters and Headquarters Company, Infantry Battle Group" (Washington DC, 1 August 1959 and 1 February 1960); and LTC George T. Britton MC "Modernized Medical Support," Infantry *Magazine* Vol 49 No. 5 (Ft Benning, Georgia, Oct-Nov 1959) pp. 16-20.

539 Workey op cit pp. 87-97 and 159-166.

540 Bacevich op cit pp. 129-130 and 140.

a war against the Soviets we would be in a position to choose nuclear or non-nuclear combat, we would have to prepare for both. American technology was important but not a cure-all. Manpower was essential as well.[541]

Perhaps the final word on the Pentomic Army should come from historian SLA Marshall. Though the Pentomic Army had adopted some of his own ideas, he viewed its progress with alarm and despair. Traditionalists like Marshall saw man as still being the most important weapon in the Army's arsenal. They questioned the Army's attempts to meet the challenges arising from new technology by calls for yet more technology. The post-1945 de-professionalization of the armed forces was still based on the assumption that technology had converted battle into a problem better solved by scientists and engineers than by soldiers. Its Korean experience notwithstanding, the Army increasingly saw soldierly courage, comradeship, honor, and tradition as worthy of no more than lip service. Even worse, Marshall noted, since 1945 most of our potential enemies had declined to be so obliging as to mass themselves out in the open where American firepower could butcher them. Instead, they preferred to become "elusive targets," often mingling with the civil population and operating without fixed lines of communications. To go after such opponents with atomic weapons, observed Marshall, "would be like hunting fleas with an elephant gun."[542]

THE MARINES IN THE PENTOMIC ERA

At the end of the Korean War the Marine Corps found itself in a very favorable position relative to the Army. Its long-standing military and social conservatism, though sometimes a serious impediment to constructive change, had largely protected it from many of the ill effects of the Doolittle Board and of the "creeping civilianization" that was undermining the Army. Not only did the Marines' battle record in Korea leave them with little to apologize for, but in the all-important battles on Capitol Hill they were carrying all before them. In 1951, Congress had passed legislation (to take effect in 1952) that permanently established the active Marine Corps at three divisions and three aircraft wings and gave the Marine Corps Commandant a seat on the Joint Chiefs of Staff when matters affecting the Marine Corps were discussed. Thus, for once, the Marine Corps could enjoy some institutional security while the Army struggled for the long-term survival of its basic land warfare mission. No doubt there were more than a few Marines who derived some quiet amusement from this rare reversal of fortune.

Nevertheless, the Marines had more important business to attend to than laughing at the Army's bumbling attempts to remain relevant. High on the "to do" list was the same requirement that the Army faced, which was how to incorporate their Korean War experience into their organization and doctrine and how to operate conventional land forces on a nuclear battlefield. Though they never produced anything like the Pentomic Army the Marines did publish Landing Force Bulletin (LFB) Number 2, *Interim Doctrine for the Conduct of Tactical Atomic Warfare*. Though a first of its kind, LFB-2 contained little that could be considered revolutionary. A reinforced Marine Battalion later tested some of its principles by participating in the live atomic bomb tests in Exercise DESERT ROCK IV. The Marine Corps also convened a series of Boards to make recommendations on a wide variety of issues arising from the appearance of new technology and the Korean War experience. The board headed by Major General Thomas Wornham convened to reexamine the organization of FMF ground forces, paying special attention to the infantry regiment. The result was the L-Series of organization tables, first issued in 1953. Though it considered a number of alternatives, including the use of a four-battalion infantry regiment with four rifle companies per battalion, the Board limited itself to a conservative update of the Korean War era K-Series tables.[543]

The Wornham Board rifle company is shown in Appendix 8.15. It was nearly identical to the final K-series company except that its rocket squad became a section of two squads. Unlike the Army, the Marines seem to have liked their M7 rifle grenade launchers and they increased the issue of them from 13 to 43 per rifle company. Though the exact distribution of these weapons would have been left to the company commander one launcher would undoubtedly have gone to each fire team and at least one to each LMG squad.

During 1955, the Marine Corps stopped centralizing personnel administration in the battalion S-1 section and reverted to making the rifle and weapons companies responsible for their own administration. That meant that each rifle or weapons company headquarters acquired a staff sergeant administration chief and a corporal clerk typist while the size of the parent battalion S-1 section was greatly reduced.

As to its organic transportation, all companies lost their handcarts but received no vehicles with which to replace them. The available reports on the handcarts do not agree on how effective they were. It seems likely that in the prolonged trench warfare that followed the mobile combat of the first year of the war, the carts were not much needed, especially as covered routes for light vehicles and Korean bearers extended close to the front lines.

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541 Ibid pp. 134-140; and Sheehan op cit pp. 139-140.

542 Quoted in Bacevich p 131.

543 LtCol John A. Crown "On Triangles and Squares," Marine Corps *Gazette* Volume 37 No 3 (Quantico Virginia August 1953).

The rifle company's 60mm mortars saw relatively little use during the latter part of the war. One reason for this may have been the increased availability of "external" fire support (especially the battalion 81mm and regimental 4.2-inch mortars, whose ammunition supply problems eased considerably as the war slowed down). Another may have been the attitude and training of the officers and men who arrived after the first year of the war. Many of the former simply ignored the mortars while few of the latter acquired the requisite indirect fire skills. In many companies the mortar section served as a casual unit holding veterans whose tours were due to expire or new replacements awaiting vacancies in the rifle or LMG platoons. As a result, the mortars often went unused during combat and when they were used, their ill-trained gunners could be more of a threat to their own side than to the enemy. A good mortar officer who trained his section well and got his company commander's attention could make a great difference but such officers were rarely assigned to the 60mm mortars.[544]

The Wornham Board restructured the battalion weapons company's mortar and antitank/assault platoons and significantly increased its organic transportation. The seven jeeps with trailers of the K-Series companies became five jeeps and trailers and four 3/4-ton trucks with trailers. One of the two jeeps that had previously been in company headquarters moved to the HMG platoon headquarters (where the platoon's ammunition sergeant became its driver) to serve as platoon weapons carrier. The anti-tank and assault platoon shrank in size. Each of the platoon's six antitank and assault squads would field only one flame-thrower team and one bazooka team but it would have a second bazooka that the flame-thrower team could use when its flame-throwers were not needed.

The 81mm mortar platoon used the eight-gun organization originally introduced as a "field expedient" by the 1st Marines at Inchon. Over the succeeding months, it had gradually spread throughout the 1st Marine Division but it was only in 1954 that the Wornham Board made its adoption official for the entire Marine Corps. The simultaneous reduction in the strength of the antitank and assault platoon allowed this larger mortar platoon to be adopted without increasing the overall size of the weapons company. The new platoon also had three separate forward observer teams (enough for each rifle company in the battalion) instead of having observers in each section headquarters. A section headquarters did furnish ammunition personnel who drove its 3/4-ton trucks. In terms of total payload per mortar, the extra trucks represented a three-fold increase in payload over the one jeep and trailer per two-gun section that the K-Series allowed but it was still only about half of what a comparable Army mortar unit would have. Minimizing the platoon's shipping space "footprint" was still very much a priority. Nevertheless, this was a great improvement in the platoon's ability to supply itself with ammunition once ashore.

It should also be noted that the L-Series tables abandoned the use of .30 caliber LMGs as defense weapons for jeeps. Evidently, the jeeps could ill afford to divert space and payload away from their primary loads to accommodate these guns and their ammunition, however useful they might occasionally have been for local defense and security. However, .50-caliber guns still served as defense weapons. The Wornham Board allowed one for every two 3/4-ton or 2.5-ton trucks (fractions rounded up) that a company might have. As before, the question of which trucks would actually carry these guns and who would man them was left to the company commander.[545]

In the battalion headquarters and service (H&S) company, the Wornham Board formally divided the battalion headquarters into separate sections for the battalion commander and the S-1, S-2, S-3 and S-4. Under the K-Series table separate sections existed only for the S-3 and S-2 (see Appendix 8.16). The H&S company headquarters also became separate from battalion headquarters as it had been prior to the K-Series. The S-2 section had 15 sniper rifles that it could issue to any rifle companies that needed them. During 1955-56, the battalion sergeant major moved from the S-1 section to the battalion headquarters section so that he would serve directly under the battalion commander. The S-1 section was at first quite large but after the Marine Corps decentralized personnel administration back to the companies in 1955 it retained only a handful of clerks. It also transferred its ambulance and driver to the motor transport (formerly the service) section of the service platoon. The communication platoon formally absorbed the Shore Fire Control Party (SFCP) and Tactical Air Control Party that had been moved into the battalion from the disbanded division ANGLICO company. Since the service platoon had lost the 37 supernumerary privates in its mess section, the cooks would require details from the other companies to help them serve and clean up after hot meals. The service section became the motor transport section during 1955-56 when it lost its three carpenters (moved to service platoon headquarters) and picked up a third automotive mechanic plus the ambulance and driver from the S-1 section. One service section jeep and trailer was still supposed to support each rifle company. The other jeeps in the H&S company lost their trailers in 1956 as part of a renewed effort to conserve shipping space.[546]

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[544] USMC T/O & E L-1013 "Rifle Company, Infantry Battalion, Infantry Regiment, Marine Division, FMF" (HQMC Washington DC, 18 November 1953 and 9 May 1956); the table of equipment used is dated 28 July 1954 and 1 August 1957; also see Clifford, *Progress and Purpose* op cit pp. 84-86; and 1stLt John E. Nolan Jr, "The 60mm Mortars in Korea," Marine Corps *Gazette* Vol 36 No. 7 (Quantico VA, July 1952) pp. 34-36.

[545] USMC T/O & E L-1023 "Weapons Company, Infantry Battalion, Infantry Regiment, Marine Division, FMF" (HQMC Washington DC, 18 November 1953 and 9 May 1956) and Tables of equipment dated 28 June 1954 and 1 August 1957.

The regimental 4.2-inch mortar company had performed very successfully in Korea (Appendix 8.17). The Wornham Board enlarged it 12 guns but otherwise remained remarkably unchanged. It retained the original two-platoon structure that allowed one platoon to displace while the other was firing. The increase in the company's motor transport barely kept pace with the increase in the number of mortars and remained inadequate to maintain the company's ammunition and move one mortar platoon at a time under combat conditions. The Wornham Board closely followed Korean War experience and concentrated most of the men that were not in the mortar squads into the company headquarters rather than the mortar platoon headquarters. This included a special section for the company's communication personnel, another for fire direction personnel, and yet another for the cooks.[547]

The antitank platoon initially remained relatively unchanged from its K-Series organization except for a substantial reduction in the size of the recoilless rifle platoon headquarters (see Appendix 8.18). However, the 75mm recoilless rifles themselves received 3/4-ton trucks, which were far more useful to them than jeeps. Two more 3/4-ton trucks also beefed up company headquarters transportation and this must have greatly eased the platoon's ammunition and fuel supply problems. Since no antitank weapon more powerful than the 75mm recoilless rifle existed in 1953-54, the antitank company had to retain its medium tank platoon. However, in late 1955 the introduction of a new weapon finally made it possible to drop the tanks.[548]

The new weapon was, of course, the 106mm recoilless rifle. However, unlike the Army the Marines were not content to mount this weapon on a jeep. Instead they chose to mount them on a special light armored vehicle called the M50 *Ontos*. The *Ontos* (whose name came from the Greek word for "thing") was a very small tracked and lightly armored vehicle manned by a crew of three and mounting no less than six 106mm recoilless rifles plus a .30 caliber LMG. The recoilless rifles were all mounted externally and sighted to hit the same point of aim. The gunner could fire all, or any combination of the rifles he might choose but reloading the rifles was slow and risky. Only someone standing on the ground outside the vehicle could do it and there were only eight spare rounds. Nevertheless, the *Ontos* could generate tremendous firepower, if only briefly. It was also small enough to fit into most shipboard vehicle spaces, light enough for most landing craft, and surprisingly fast and agile. As shown in Appendix 8.18, 12 of them were in each antitank company. Each platoon headquarters was supposed to include a jeep but the jeeps did double duty by hauling the steam cleaner and lubricating trailer for the maintenance section (it was impractical to use radio jeeps for this purpose). Because of the large size and weight of 106mm rounds (recoilless weapons need huge amounts of propellant), heavier trucks had to serve as ammunition vehicles.[549]

The Wornham Board made changes to the regimental headquarters and service company that were similar to those in the battalion H&S companies. Like battalion headquarters, the Board split the regimental headquarters into separate command S-1, S-2, S-3, S-4, chaplain, medical, and dental sections. The Board even added a legal section for the first time and moved the disbursing section moved to the regimental headquarters from the service platoon. The S-2 section included 11 scouts under a staff sergeant. During 1955 the regimental sergeant major moved from the S-1 section to the headquarters section. The five ambulances lost their trailers and, with their drivers, moved from the S-1 section to the transport section of the service platoon. As was the case in previous regiments, the regimental medical section was too small to do more than furnish emergency medical services for the H&S, mortar and antitank companies and to provide a medical officer for the regimental staff. A collecting and clearing company from the division medical battalion would establish a regimental aid station to evacuate casualties from the battalion (and regimental) aid stations and forward them to hospitals in the rear. Like their Army counterparts, Marine regiments had dropped their dental sections by 1956 and would rely on a supporting medical battalion for their dental support.

In 1955 the regimental headquarters and service company experienced changes similar to those occurring in the battalions (see Appendix 8.19). It should be noted that the motor transport section of the service platoon held 14 400gallon water trailers to supply the other companies in the regiment with drinking water. A truck company operating in support of the regiment from the division motor transport battalion would provide most of the prime movers that these trailers required. The H&S company lost most of its jeep trailers by 1956.[550]

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546 USMC T/O & E L-1037 "Headquarters and Service Company, Infantry Battalion, Infantry Regiment, Marine Division, FMF" (HQMC Washington DC, 18 Nov 1953 and 9 May 1956) and Tables of equipment dated 28 June 1954 and 1 Aug 1957.

547 USMC T/O & E L-1083 "4.2" Mortar Company, Infantry Regiment, Marine Division, FMF" (HQMC Washington DC, 18 November 1953 and 9 May 1956) and Tables of equipment dated 28 June 1954 and 1 August 1957.

548 USMC T/O & E L-1073 "Antitank Company, Infantry Battalion, Infantry Regiment, Marine Division, FMF" (HQMC Washington DC, 18 November 1953) and Table of equipment dated 28 June 1954.

549 USMC T/O & E L-1073 "Antitank Company, Infantry Battalion, Infantry Regiment, Marine Division, FMF" (HQMC Washington DC, 9May 1956) and Table of equipment dated 1 August 1957; and see LtCol Martin J. Sexton "Why the Ontos?" Marine Corps *Gazette* Volume 42 No. 5 (Quantico Virginia May 1958); and Capt Charles G. Cooper, "Employ the Ontos" Marine Corps *Gazette* Volume 43 No. 10 (Quantico Virginia September 1959).

Having accomplished these modest structural changes, and thereby taken care of the present, the Marine Corps began to look further into the future. They found the problems of tactical nuclear warfare to be as difficult and baffling as the Army had but they did not respond to them with radical Pentomic-style reform. Instead, they began to explore the use of helicopters as a purely technical solution. Helicopters had been in service since the Second World War although the World War II models offered little practical value. By the time of the Korean War, helicopters had matured enough to to evacuate casualties and to spare a great many wounded soldiers and Marines an agonizing (and possibly fatal) trip by jeep or stretcher down the rugged Korean hills. In addition, the Marines used their helicopters for some minor troop lifts, though mostly in areas safe from enemy interference.[551]

The Marines recognized that the large concentrations of troops and shipping which constituted amphibious landing forces of the type that had captured Inchon, would present an unacceptably tempting target to a nuclear-armed foe. However if helicopters carried the initial assault waves they could land their Marines *behind* the enemy's beach defenses and take them in the rear, while the ships that the helicopters came from remained safely dispersed. Although the bulk of the landing force would still have to land by boat or amphibian tractor the fact that the beach no longer had to be stormed would allow the main landing to occur with many fewer ships and in much less time. Future improvements in helicopter range, reliability, and payload would permit further reductions in the duration and target profile the main beach landing. Eventually, this landing might not have to occur at all. Obtaining ships that could carry and launch helicopters would not be a problem. The Navy still had plenty of aircraft carriers left over from the Second World War. Too small for the new jet aircraft with which the Fleet was now equipped, they were easily modified to accommodate troops and helicopters. In addition, the Navy, which was and is responsible for buying all Marine Corps aircraft and whose budget priority under the New Look was only second to that of the Air Force, was in a much better position to procure the necessary helicopters than was the cash strapped Army.[552]

Buoyed by this reasoning, General Randolph McCall Pate, who was Commandant of the Marine Corps in June 1956, convened yet another study board, this time under Major General Robert Hogaboom. Pate directed Hogaboom to "conduct a thorough and comprehensive study of the Fleet Marine Force and make recommendations ... for the optimum organization, composition, and equipping of the Fleet Marine Force." The Board naturally made an extensive study of the potentialities of the helicopter. Although it agreed with the basic concept of the "vertical envelopment," as the helicopter landing behind the beach was called, it did not agree that large-scale ship to shore movement conducted solely by helicopter would be possible at any time within the foreseeable future. Nevertheless, the Board concluded that the proper use of existing helicopters could have a substantial impact. The successful British helicopter landing at Suez in November 1956 helped to vindicate this conclusion.[553]

To make Marine infantry compatible with both helicopters and the nuclear battlefield it, and the rest of the Marine division, would require considerable restructuring and re-equipment. The Board resolved that any new division would have to be fully capable of executing an amphibious landing under a "vertical envelopment" doctrine while meeting the demands of tactical nuclear warfare. It would have to be able to do so against even the most modern defenses. Maintenance and service functions within combat units would be reduced as much as possible in order to achieve a mobile and tactically homogeneous structure. The organization of the division and its subordinate elements would have to facilitate the rapid formation of temporary task groups. Finally, the division would have to be "light" enough in terms of its transportation requirements to be able to make rapid strategic movements even when only limited land, sea, or air transportation assets were available. Using these criteria, the Board recommended that all heavy equipment such as tanks, amphibian tractors, artillery pieces larger than 105mm and five-ton and larger trucks or tractors be removed from the division and assigned to "Force Troops." Here it would still be available for attachment to the division whenever it was required. The division itself would retain nothing heavier than 2.5-ton trucks and *Ontos* antitank weapons. All its equipment would be air transportable. The infantry and direct support artillery (at first, the light artillery was called "close support" but the term "direct support" was restored by 1961) would also be helicopter transportable. The Marine Aircraft Wing that would habitually operate with each division could supply enough helicopters to lift one reinforced infantry battalion. Rather than create Pentomic-style battle groups, the Board decided to retain Marine infantry regiments and battalions but in greatly simplified form. An Infantry regimental headquarters would serve as an intermediate tactical control node between division headquarters and the battalions but for supply and administrative purposes

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550 USMC T/O & E L-1097 "Headquarters and Service Company, Infantry Regiment, Marine Division, FMF;" and L-1099 "Infantry Regiment, Marine Division, FMF" (both HQMC Washington DC, 18 November 1953 and 9 May 1956) and Tables of equipment dated 28 June 1954 and 1 August 1957.

551 Clifford op cit pp. 82-84; and LTG John J. Tolson USA, *Airmobility 1961-1971*, (Washington DC, Dept of the Army 1971) pp. 4-5.

552 Clifford op cit pp. 86-87; and Heinl op cit p. 601.

553 Ibid; and see Michael Hickey, *Out of the Sky, A History of Airborne Warfare* (New York, Scribners 1979) pp. 202-205 for a good thumbnail sketch of the helicopter landing at Suez.

division would deal with the battalions direct. Administrative and supply personnel not needed to support the regimental headquarters and headquarters company itself (it was no longer to even be called a headquarters and service company) would go to the division command post (CP). It was already normal practice for a Marine Division in combat to set up an "administrative village" in the rear where battalions could send their administrative personnel and records. The Board proposed that this arrangement be not only formalized but also extended to cover supply functions as well. It would resemble the Army's AFTA organization except that a Marine regimental headquarters would have permanently assigned battalions, unlike the AFTA combat commands, which only controlled the battalions that might be temporarily assigned to them. Permanent battalions, the Board reasoned, would clearly fix a regimental commander's responsibilities for battalion training and readiness that he might too easily avoid if his battalions were only temporary. Also, permanent battalions could train together more frequently and thus cooperate better in combat. In order to enhance the regiments' simplicity and mobility even further, the Board assembled their *Ontos*-equipped antitank companies to a division-level antitank battalion and sent their 4.2-inch mortars to the division artillery. Twenty-four heavy mortars would replace the 18 105mm howitzers equipping each "K" or "L" series direct support artillery battalion. Longer ranged 105mm and 120mm mortars light enough for LIWCs or jeeps to handle would replace the older "four point deuces" later on. At the cost of a reduced maximum range, these new artillery battalions would have practically the same air and helicopter mobility as the infantry. The general support (at first renamed "intermediate support") artillery battalion would get 24 105mm howitzers in lieu of its 155mm. Since the 105mm was light enough for towing by 2.5-ton trucks, the battalion would still be air transportable even if it was too heavy for helicopters.[554]

The Board also restructured the infantry battalions not only to increase their mobility and fire power but also their reconnaissance and security capabilities. It anticipated that the infantry would require a high degree of tactical independence on a highly dispersed atomic battlefield. In order to achieve this, the Board decided to give each infantry battalion a fourth rifle company. This company would not only increase the number of its parent battalion's maneuver elements but it could also receive special training in reconnaissance or security missions. Alternatively, it could act as the nucleus of a seperate task force that would still leave its parent battalion with a tactically capable main body of three rifle companies. The fourth company could even improve its parent battalion's mobility during helicopter operations by giving it a security element that could protect units and equipment that were either not helicopter transportable or were awaiting a subsequent lift. A fourth company could also allow a battalion commander to use a two-company force for his initial attack while keeping two companies in reserve. Such a "two up and two back" formation could not only support an adequate assault force, but also provide much better flank or rear protection (very important when battalions have to be far apart). Many more combinations would also be possible with four companies that would not be possible with three. Thus, overall tactical flexibility would increase. Two-up and two-back would also be valuable in periods of prolonged combat since the battalion could fight as two pairs of companies that could relieve one another. Companies could also spend more time out of the line where they would be free to rest and absorb replacements. These same advantages had been hoped for in the old 1918 four-company AEF battalions, though in the AEF experience, the reserve companies found relatively little time for rest. Although the new battalions might experience similar problems, reverting to a three-rifle-company configuration would hardly have been likely to solve them.[555]

Excellent as the idea of having a fourth company was, the infantry battalions would need radical restructuring in order to implement it without exceeding their manpower limits. The new rifle companies would have to be about 15 percent smaller than existing companies. Even so, each company would have to field nine 13-man rifle squads and three LMG sections, just as previous rifle companies did. The company that the Board designed (see Appendix 8.21) not only met these objectives but even added a third seven-man rocket squad to its rocket section (so that a rocket squad was available for each rifle platoon). Together with the LMG sections, the rocket section formed a new company weapons platoon. However Board had to reduce the LMG squads were reduced from eight men each to five. The loss of three ammunition bearers per squad would have halved the amount of ammunition that the squad could carry but the Board undoubtedly hoped that the faster ammunition resupply that helicopters could make possible would compensate for this. Besides cutting men out of the LMG squads the Board also eliminated the company 60mm mortar section. Officially, the Board justified this by pointing out the limited range and payload of 60mm mortar ammunition and the logistical undesirability of maintaining two different indirect fire weapon systems (81mm and 60mm) in the battalion when one should suffice. It also argued that the 106mm recoilless rifles

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554 Report of the FMF Organization and Composition Board (the Hogaboom Board), Part I "The Division" printed in the Marine Corps *Gazette* Volume 41 No 4 (Quantico Virginia, April 1957) pp. 26-28; for a dissenting view advocating a Pentomic-like structure for the Marine Corps see LtCol J. B. Sweeney, "Battalion or Regiment ... One Has to Go" Marine Corps *Gazette* Volume 43 No. 10 (Quantico Virginia, September 1959). Note also that the new division antitank battalion had 45 *Ontos* (three companies of 15 each).

555 Ibid pp. 28-29; and see LtCol William A. Wood USMC, "The Capabilities of the New Marine Infantry Battalion" Marine Corps Gazette Volume 42 No. 5 (Quantico Virginia, Marine Corps Association May 1958) pp. 22-28

which would equip the battalion antitank platoon could fire effective high explosive shells to nearly the same range that the 60mm mortars. It is also likely that the Board's decision to eliminate the 60mm mortars was also influenced by the disappointing performance of the rifle company 60mm mortar sections during the latter half of the Korean War.

The rifle platoons remained unchanged except that the platoon sergeant was made a technical sergeant and he had a staff sergeant (platoon guide) to assist him. (Under the new rank structure, the platoon sergeant would be a staff sergeant and his assistant would be a sergeant). Three riflemen served as platoon messengers and voice radio operators but one rifleman was dropped in February 1958. Company headquarters was also sharply trimmed.[556]

The former battalion weapons company disappeared along with the HMG platoon. The 81mm mortar platoon became part of the battalion H&S company (see Appendix 8.22). The assault and antitank platoon's bazooka men went to the rifle companies and its flame-thrower men became a flame-thrower section attached to the H&S company headquarters. This followed the ad hoc arrangement used in Korea whereby the battalion bazooka men joined the rifle companies while its flame-throwers remained under battalion control. The H&S company commander also had a stock of 11 spare machineguns and eight spare bazookas that he could issue to members of his company for local security. The machineguns could be mounted on jeeps (as convoy defense weapons) or on the ground on tripods.

As part of the H&S company, the battalion 81mm mortar platoon now consisted of four sections of two guns each rather than two four-gun sections. This enabled the platoon to attach a section to each rifle company so that the latter could form separate task groups. The antitank platoon (described below) and the flame thrower section could do this as well. Each mortar section included its own two-man forward observer (FO) team, which it normally attached to a rifle company. A mortar section could improvise its own fire direction center (FDC) but when two or more sections worked together (which was the norm) they operated a single combined FDC. The new battalion antitank platoon, derived from the old regimental antitank company, operated eight 106mm recoilless rifles.

The new battalion headquarters generally resembled its L-Series predecessor. It acquired a Navy chaplain and his assistant. The S-1 section picked up another administrative man and mail clerk in February 1958. Thanks to the availability of the fourth rifle company the S-2 section could be reduced but it still included four scouts who manned two AN/TPS-21 radars. It also held five sniper rifles (four with night vision scopes) for each rifle company. The S-3 section now included the battalion's air liaison officer (ALO) and two forward air controllers (FAC). These were the TACP officers who had been (and whose enlisted assistants still were) part of the communication platoon. There was also an assistant S-3 for air. He was usually a naval aviator also but functioned more as a planner. The S-4 had only himself and a clerk. He acquired a logistics chief in February 1958.

In addition to having most of the battalion's trained operators, the battalion communication platoon also held most of its communication equipment, including all its radios. These were for issue, with or without operators, to the rifle companies and to other H&S company elements on an "as needed" basis. The principal radio sets were 28 (later 36) man-pack AN/PRC-10s and 36 hand held AN/PRC-6s. There were also the radio jeeps listed in Appendix 8.22. The five AN/GRC-9Z long-range sets were mainly for battalion level and higher communication although one might be issued to a rifle company that was operating at an unusually great distance from battalion headquarters. The three MAY-1 sets were mainly for air-ground communication. The message center used two teletypewriters Normally, a rifle company would get at six PRC-6 hand-held sent for its internal net and at least one AN/PRC-10 for the battalion command net. The antitank and mortar platoons would also get some radios but most of what remained would be for the battalion headquarters and tactical air control party (TACP) use.[557]

The communication platoon in the proposed battalion saw its fire support coordination responsibilities considerably modified. First, the Hogaboom Board removed the old Shore Fire Control Parties (SFCP) from the infantry battalions and pooled them with the artillery. Each direct support artillery battalion in the proposed Marine division included two SFCPs and the Board thought it very unlikely that more than that would ever be needed. Given the wide ranging nature of helicopter operations, the improbability of an opposed beach landing, and the need for amphibious ships to disperse in order to avoid atomic attack, the Board expected that infantry battalions would frequently operate outside the range of naval gunfire support and should not need naval gunfire teams permanently assigned to them. On the other hand, the importance of air support, including both close air support from fighter and attack aircraft and air transportation support from helicopters would greatly increase. Therefore, the battalions retained their TACPs. Although the Board actually cut the number of radio operators per TACP (due not just to manpower economy but also better equipment) those that remained would form two forward air control (FAC) or

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[556] Ibid pp. 29-30; and USMC Organization Table of Organization T/O Prov-1013 "Rifle Company, Infantry Battalion, Infantry Regiment, Marine Division, FMF" (HQMC Washington DC, 18 Jan 1957 and 14 Feb 1958) and Table of equipment dated 14 Feb 1958. Also, see news item, Marine Corps *Gazette* Vol. 49 No. 8 (August 1965) p. 5.

[557] USMC Organization Table of Organization T/O Prov-1037 "Headquarters and Service Company, Infantry Battalion, Infantry Regiment, Marine Division, FMF" (HQMC Washington DC, 18 Jan 1957 and 14 Feb 1958) and Table of equipt dated 14 Feb 1958.

spot teams (in addition to the liaison team) in each battalion rather than just one. Each air liaison or FAC team would have a field radio operator and three radiotelegraph operators (RTO). The liaison team would operate out of the battalion Fire Support Coordination Center (FSCC). The FSCC was an informal grouping of representatives from the mortar, field artillery, and aviation units (plus Naval gunfire, if there was any) supporting the battalion. Its job was to ensure that all (or at least the most important) targets were attacked with the most appropriate weapons available. The FSCC also prevented unnecessary duplications of fire support effort and accidental firings on friendly troops. The battalion commander would attach the two spotter or FAC teams to selected rifle companies to actually direct any air strikes or air delivered supply, medical evacuation, or transportation missions that those companies needed. With two FAC teams available a battalion should be able to utilize its available air support more quickly and effectively than in the past. Because the liaison officer (ALO) could do anything that a FAC could do, the ALO in addition to his other duties served as the battalion commander's personal FAC.[558]

A service platoon that was somewhat larger than its L-Series predecessor handled most of the battalion's logistical requirements. The platoon leader was a career supply officer who worked under the S-4 (who was a logistics officer). The old K and L Series battalion service and motor transport section had become separate supply and motor transport sections. The former consisted of supply clerks and stockmen who operated the battalion supply warehouse in garrison or its supply dumps in the field. The motor transport section was mainly a maintenance unit led by a lieutenant who was also the battalion motor transport officer. Just as the communication platoon owned all the battalion's radios and issued them (with or without operators) to those that needed them, so too did the motor transport section "own" all of the battalion's vehicles and issue them as directed by the battalion commander. The section had only 13 drivers for its 51 vehicles. All other drivers would have to come from the using units.

Appendix 8.22 lists the battalion's vehicles. They were all of the lightest types. This was not only a response to the usual need to conserve amphibious shipping space, but to the even more stringent space and weight requirements for air and helicopter transportation that had to be met as well. The 20 Korean War era M38 jeeps and trailers (one more than an L-Series battalion had) mainly served as command vehicles. The battalion commander, executive officer, S-1, S-3, and S-4 usually took one jeep each. The S-2 normally got two jeeps so he would have one to carry his radars. The communication platoon's four radio jeeps were considered signal equipment and not part of the battalion motor transport section (this gave the battalion a total of 55 vehicles). However, the motor transport section would issue two or three ordinary jeeps to the communication platoon to carry messengers or equipment or lay telephone wire or carry the communication platoon commander around. The H&S company commander also rated a jeep as did the antitank and mortar platoon commanders, and the four rifle companies. The battalion surgeon (and possibly his assistant) was supposed to get a jeep (with driver) in addition to his ambulance (and driver). Of course, neither the service platoon commander nor the motor transport officer neglected themselves. The motor transport officer's jeep would likely be the one to tow the battalion's lube service trailer. The others, of course, had the usual quarter-ton cargo trailers. Beginning in 1960, the M38 jeeps began to be supplanted by the M422 "Mighty Mite." This was a specially lightened all-aluminum jeep that weighed only about two thirds as much as an M38 but could carry the same payload. The "Mighty Mite" would see extensive Vietnam service but it never completely replaced the M38. Starting in 1968, both types would be phased out in favor of the Army's M151 series jeeps.[559]

The other 30 vehicles belonging to the service platoon were M274 "mechanical mules" or Light Infantry Weapons Carriers (LIWC). Unlike the jeeps these vehicles were the battalion's primary cargo and weapons carriers and they became much more popular with the Marines than they ever were with the Army. A "mule" had a top speed of only 25 miles per hour, could not tow a trailer, had a center of gravity that was a little too high, and could not be waterproofed adequately for "wetfoot" landings. However, the 30 "mules" in each proposed Marine battalion together could carry 80 percent of the total payload of the seven 3/4-ton trucks with trailers, two 2.5-ton trucks and two water trailers of an L-Series battalion but weighed only about 27 percent as much. This reliance on large number of small vehicles permitted the simultaneous distribution of supplies to the rifle companies, whereas in an L-series battalion a few large vehicles would have to visit each company sequentially, a much more lengthy process. Because the mules were so small they were harder to see and easy to conceal. In a combat zone they could approach the front line much more closely without attracting enemy attention. Finally, field-testing also revealed that when the mules were not needed for cargo runs, they were useful for carrying motorized reconnaissance patrols. The normal distribution of the LIWCs was one per 106mm recoilless rifle squad, two per 81mm mortar section, probably two or four for the flame thrower section, two per rifle company, and at least two more for the motor transport section. An LIWC could also lay telephone wire and, with a litter kit, could serve as an ambulance.[560]

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[558] Ibid and Report of the FMF Organization and Composition Board (the Hogaboom Board), Part III "Fire Support" printed in the Marine Corps *Gazette* Volume 41 No 6 (Quantico Virginia, June 1957) pp. 8-11.

[559] Ibid plus L-Series tables of equipment dated 28 Jyly 1954 and 1 August 1957; see also Thomas Berndt, *Standard Catalog of U.S. Military Vehicles* 1940-1965 (Iola Wisconsin, Krause Publications revised version 1995) pp. 22-37.

Despite these improvements in its motor vehicles, the proposed battalion would still be very dependent on external transportation for its mobility and supply. However, amphibian tractors and other landing craft were still available and the potential for helicopter transportation was such that the Hogaboom Board thought it safe to reduce the division motor transport battalion from four truck companies to three. However the Board also reorganized the division's other logistical elements. It shrank the old division service regiment and its landing support battalion into a single division service battalion. This unit furnished three light support companies, each configured to support a reinforced infantry regiment for a limited time. Sustained operations would require additional back up. Some of this would come from the service battalion's medium support company while the two landing support companies insured the smooth flow of supplies and reinforcements through the landing beaches and helicopter landing zones. Further backup could only come from outside the division from the Force Service Regiment (FSR). Each light support company fielded a maintenance platoon and a supply platoon. The latter included a section of ten 2.5-ton trucks and this was the only element of the company that was not helicopter transportable. Oddly enough, the truck sections in these companies, added together, could lift about the same payload as the truck company that the motor transport battalion had lost. A key function of these truck sections was to maintain the infantry's basic load of ammunition. The basic load was the largest amount of ammunition that an infantry battalion's vehicles and personnel could carry without seriously impairing their mobility. A unit that had more than its basic load and was suddenly required to displace usually ended up abandoning its excess ammunition. In order to avoid this, ammunition above the basic load was only issued for a few widely dispersed or independent operations or in anticipation of immediate use. For example, a unit fires off its excess ammunition in preparatory fires for an attack and then moves forward with only its basic load. Of course, since an infantry battalion could fire off its basic load pretty quickly in heavy combat, it needed a system that would rapidly replenish its ammunition as it was used up. The 10 2.5-ton trucks from the light support company would serve as "floating" ammunition "dumps" to help with this. Helicopters or other vehicles could, on short notice, bring in extra ammunition as well. When a crew served weapon had its own carrier, the carrier would, if possible, offload its ammunition at the firing position, so that it could fetch additional ammunition, water, rations or fuel. However, in fast moving "mobile" situations, the ammunition had to be left on the carrier. In any event, the Board wanted each weapon squad to be drilled in rapidly reloading its vehicle and moving out whenever the word was given. Each rifle company and the battalion maintained its own Ammunition Distributing Point (ADP), located in cover but as close to the troops as possible. Ammunition kept there would remain loaded on vehicles at all times until it was picked up by carrying parties or else sent on its vehicle to the unit requesting it. It was never to be placed on the ground because whenever the ADP made one of its frequent moves, any grounded ammunition would likely be lost. As ammunition was expended what remained would be consolidated aboard fully loaded vehicles, leaving the rest empty and free to return to supply points operated either by the Army or the ammunition company of the FSR. Neither an infantry regiment nor a light support company would maintain an ADP. Light support company trucks would get ammunition from the FSR, just like those from the infantry battalions.[561]

The internal organization of the battalion medical platoon was never prescribed in any detail. Each rifle company would get a section that provided two hospital corpsmen (aidmen) per rifle platoon, one for company headquarters and one for the weapons platoon. Two Navy Medical Corps lieutenants operated a battalion aid station that could split into forward and rear echelons. Though there were twice as many company aidmen as the Army would have provided, there were no stretcher-bearers and only one ambulance. Stretcher parties could be improvised but the Vietnam War would soon demonstrate that this was likely to be done at the expense of fighting strength. Additional ambulances and stretcher teams could only come from the collecting platoon of the collecting and clearing company that supported the regiment but their primary comcern was to collect wounded from the battalion aid stations and move them to their company's clearing station for further treatment and evacuation. Collecting wounded from where they fell and getting them to an aid station was a problem that an infantry battalion would have to solve on its own. The new division medical battalion would provide collecting and clearing services only. The Hogaboom Board reasoned that helicopters now made it possible to evacuate wounded directly from clearing stations directly to hospital ships at sea or to permanent hospitals ashore. Thus the medical battalion's hospital companies were no longer needed.[562]

The headquarters and service company of the provisional infantry regiment was fully helicopter transportable. It supported a tactical headquarters that was itself only a somewhat modified version of its battalion-level

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560 Berndt op cit pp. 47-50; and Wood, "The Capabilities of the New Marine Infantry Battalion" op cit pp. 22-28.

561 Report of the FMF Organization and Composition Board (the Hogaboom Board), Part IV "Service Elements" printed in the Marine Corps *Gazette* Volume 41 No 7 (Quantico Virginia, July 1957) pp. 20-24; and G-4 Staff HQMC, "Combat Sypply Class V: Ammunition," Marine Corps *Gazette* Volume 45 No 7 (Quantico Virginia, July 1961).

562 USMC T/O & E Prov-1037 op cit; Clifford op cit pp. 87-88; and FMF Organization and Composition Board, Part IV op cit.; and FMFRP 12-9 *Combat and Field Medical Practice* op cit p 21.

counterpart. There were no FACs or liaison officers. The S-2 had no scouts and there was no regimental medical officer or chaplain. The former was not added until 1961 and the latter, not until several years later.

In keeping with its relative importance the regimental communication platoon was commanded by a major (the battalion platoons were led by captains) with a warrant officer as his assistant. The message center was mostly Teletype operators and code clerks. The radio section mainly supplied operators to the various staff sections. The TACP had only a single four-man radio team for ALO use. An entirely new element in the communication platoon was the radio relay section. This unit provided radio relay teams to enable companies and battalions to communicate well beyond the ranges of their organic radios. The Hogaboom Board believed that the use of helicopters would make such long-ranged operations a frequent occurrance. Each relay team manned an AN/TRC-27 radio relay system that could link up to eight telephone circuits by means of a two-way microwave link over a 10-mile line of sight path. The equipment weighed some 250 pounds and could be split into five 50-pound loads but of course four men without a vehicle could hardly be expected to move it very far. Teams could be readily positioned by helicopter, however. By 1961 the section reorganized from six four-man teams to nine three-man teams. The new teams operated a total of 10 AN/TRC-27s (presumably, one was a spare).[563]

In the regimental H&S company headquarters the motor transport section maintained the company's 12 jeeps and five radio jeeps, which were its only organic vehicles. There was also a command post security "platoon." This was a special unit that was really a local defense cadre led by a technical (later gunnery) sergeant. It trained and maintained full-time gunners and assistant gunners for the headquarters company's few crew-served weapons and it provided a cadre around which other Marines from the headquarters company could coalesce in the event on an enemy threat. The platoon would rely on these other Marines to act as ammunition bearers and additional riflemen when and if the time came to defend the regimental command post (CP). The platoon itself had two four-man fire teams (of the same type as found in the rifle squads), two three-man LMG teams (called "squads"), and two two-man bazooka teams (also called "squads"). Though the platoon consumed relatively few men, it ensured that full time attention would be paid to local security. In the past, a regimental headquarters would operate at a relatively long distance from the enemy and it could count on the assistance of nearby combat units if a threat should appear. The Hogaboom Board reasoned that with the extreme dispersal that the threat of nuclear weapons would mandate, a regimental headquarters would be much more likely to have to look out for its own security and could not always count on having friendly troops between itself and the enemy.[564]

At its base in Camp Pendleton California the 1st Marine Division converted to the provisional tables in the spring of 1957 and underwent exhaustive field-testing. Company, battalion, regimental, and division sized exercises using the largest possible variety of terrain, weather, climate, and tactical situations were run. By early 1958, prevailing opinion among the exercise participants seems to have come down strongly in favor of the new organization. However, official adoption was three years away. It is likely that the Marines wanted to see how the Pentomic Army would fare before definitely committing themselves. By January 1961 it was clear that the Pentomic Army had failed and would soon be replaced. Therefore, the newly installed Commandant General David Shoup ordered the new tables to be implemented as the M-Series. They would become effective in July.[565]

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563 USMC T/O & E Prov-1096 "Headquarters and Service Company, Infantry Regiment, Marine Division, FMF" (HQMC Washington DC, 18 January 1957) and Table of equipment dated 14 February 1958; and Capt H. A. Green and 1stLt J. A, Fullinwider "More About Radio Relay" Marine Corps *Gazette* Volume 42 No 3 (Quantico Virginia, March 1958) pp. 52-53.

564 T/O Prov-1096 "Headquarters and Service Company, Infantry Regiment, Marine Division, FMF" 14 February 1958 op cit.

565 See the cover letters accompanying the issue of USMC T/O & E M-1096 "Headquarters Company, Infantry Regiment< Marine Division, FMF;" M-1037"Headquarters and Service Company, Infantry Battalion, Infantry Regiment, Marine Division, FMF;" and M-1013 "Rifle Company, Infantry Battalion, Infantry Regiment, Marine Division, FMF" (all dated 16 January 1961); and see Wood, "The Capabilities of the New Marine Infantry Battalion" op cit pp. 22-28.

CHAPTER 9 - THE "FLEXIBLE" RESPONSE, VIETNAM 1962-72
ROBERT S. MCNAMARA AND THE "ROAD" REORGANIZATION

For the Armed Forces of the United States the "Vietnam Era" may well be said to have begun in 1961 with the inauguration of John F. Kennedy as President of the United States and the appointment of Robert S. McNamara as Secretary of Defense. McNamara is probably the best known and certainly one of the most influential secretaries of defense (or even secretaries of war, for that matter) ever to have served. He certainly had one of the longest terms in office (1961-1968) on record. The consummate bureaucrat, complete with steel rimmed glasses, McNamara brought to his job a fair degree of intellect and organizational skill but little imagination. To McNamara, the future was all-important and only numbers mattered. What could not be graphed, quantified, or otherwise explained in terms of physical quantity or cost was either unimportant or non-existent. While many saw the Pentomic-era Army as overly infatuated with futuristic technology, McNamara saw it as not nearly infatuated enough. In McNamara's view the Army was still run by a lot of old war horses whose ideas were hopelessly out of date. Even so, McNamara agreed with his generals that the Eisenhower administration's Massive Retaliation doctrine was inappropriate and that conventional forces had value even in a nuclear-armed world. McNamara did not reject the use of nuclear weapons but he saw them as an unattractive option whose use was to be avoided if at all possible. Therefore an early McNamara priority was to build up the Army's conventional forces. In 1961 the Regular Army mustered only 875,000 men and 11 combat divisions. The Soviet Army, on the other hand, was assessed to have 150 divisions and there were also the Chinese, North Korean, and the Warsaw Pact armies to worry about. The odds of winning a conventional land war against such opponents seemed hopeless. Nevertheless, McNamara got the Army's authorized strength increased to a million men. With these extra troops, plus additional manpower freed up by the "streamlining" of headquarters and support elements, he increased the number of Active Army divisions to 16. McNamara also reorganized the National Guard and the Reserves, trimming their numbers to what his studies showed him could actually be recruited and, in 1963, he consolidated their functions by putting most of the combat units in the National Guard while giving the service-support and training units to the Reserves. Under McNamara's system National Guard and Reserve units could increase the Army's strategic reserve by 60 percent within eight weeks, with the highest priority units deployable in four weeks. According to McNamara's calculations, this would enable the United States either to fight two fairly large limited wars simultaneously or to heavily reinforce NATO ground forces in Europe. By 1963, McNamara had procured sufficient equipment to be able to stockpile two divisions' worth in Europe and two more in the Far East. In the event of war the personnel for those divisions could be airlifted into the theater and fall in on their equipment, ready to fight. What McNamara could not understand was how the Soviet Army with a peacetime strength of 2.2 million men could have 150 divisions while the US Army with one million men had only 16. However, analysis of the problem showed that most Soviet divisions in peacetime were mere cadres requiring the infusion of large numbers of reservists before they could fight. Furthermore, with their many commitments elsewhere in the world, the Soviets in wartime were unlikely to be able to concentrate more than 60 divisions against Western Europe and these divisions would be significantly smaller and less powerful than their NATO counterparts. Considering that the United States Army in Europe, in the event of a Soviet invasion, could now expect to be backed by the newly reborn German Army, plus the French, British, and several smaller European armies, the odds were not nearly so long as they had initially seemed to be. In fact, NATO forces in peacetime actually outnumbered those of the Warsaw Pact, though the latter could mobilize a much larger number of reservists. Still, a successful non-nuclear defense of Europe was now known to be at least a realistic possibility.[566]

McNamara also agreed with his generals that the Army's Pentomic infantry and airborne divisions (the armored divisions had not changed much since 1948 and were only nominally Pentomic) were ill suited to conventional war. A new organizational concept was needed and the Army lost no time in producing one. In fact, the draft version was released in early 1961 even before McNamara had assumed his office, though the actual reorganization could not be implemented until late 1963. The new concept was called Reorganization Objectives Army Divisions (ROAD). It was not a terribly inspired title but it represented an idea whose time had come. However, the requirements it had to meet were stiff. It would have to succeed where the Pentomic Army failed. President Truman's policy of containing Communism, which both the Eisenhower and Kennedy administrations were continuing, was militarily very demanding. Communism had become a world wide political movement. Although Communist North Korea had failed to conquer South Korea, Communist-led insurgents had taken over Cuba, pushed the French out of Indochina, and been only narrowly defeated in Greece and Malaya. The Soviets themselves continued to threaten Western Europe with invasion, had instigated the Berlin crisis of 1948, crushed Hungary's bid for independence in 1956, and built the Berlin Wall in 1961. To meet this wide variety of threats US divisions would have to be prepared to fight

[566] Weigley op cit pp. 532-533 and 538-540; and Stanley I. Kutler ed, *Encyclopedia of the Vietnam War* (New York, Simon & Schuster 1996) pp. 297-300.

anywhere in the world and against every kind of opponent. However, the Army emphasized mid- to high intensity conflict in the belief that if it could handle the "worst case" scenario (general war with the Soviet Union and/or Communist China) the more likely scenarios (limited war and/or counter-insurgency) should be easy to deal with.[567]

The ROAD division was thus designed for flexibility from the start although this flexibility did not really extend beyond situations likely to be encountered in a war in Europe. Strictly speaking, the ROAD division was not a true division at all but only a "division base" which became a real division only after the addition of "maneuver" (that is, tank and/or infantry) battalions. By varying the number and type mix of these battalions, the ROAD division could be "tailored" to suit its mission. Initially, there were three standard types of division base. One was for armored or mechanized divisions, another for infantry divisions, and the third for airborne divisions. A division in combat could have as few as six or as many as 15 maneuver battalions. However, for planning and budgeting purposes, a ROAD armored or mechanized division would get 10 or 11 tank and mechanized infantry battalions (the exact mix varied). An infantry division would get two tank and eight infantry battalions, and an airborne division would get one light tank and nine airborne infantry battalions. Just like the Marine infantry battalions that the Hogaboom Board had devised, ROAD combat battalions would be supplied and administered directly by their parent division but for tactical purposes, they would operate under three brigade headquarters (commanded by colonels rather than brigadier generals). Like the Hogaboom Board Marine regiments, these ROAD brigades acted as intermediate tactical control nodes but their combat battalions were not permanently assigned and could be changed at any time. Of course, in practice, as had previously been the case with AFTA and other "flexible" structures, maneuver battalions, once assigned to a brigade or combat command, were rarely transferred. Since each division had three brigades and since a brigade typically had three battalions, the ROAD division was really a return to a less rigid version of the old triangular division. Thus ROAD in many ways served as a mask for the Army's rejection of the radical change represented by the Pentomic division in favor of a quiet return to orthodoxy.[568]

Under its draft organization, a ROAD brigade headquarters had 13 officers plus the sergeant major. Its supporting headquarters company contributed another 17 officers (soon reduced to 16), a warrant officer, and 112 (soon raised to 122) enlisted men. Both headquarters and headquarters company were structured for 24 hour operations. The latter included a company headquarters, a staff section for the brigade headquarters, a communication platoon, plus command vehicle, liaison, and scout sections. There was also an aviation platoon (later called a section) with six observation helicopters. In the final version, the Army replaced replaced five of the seven officer pilots in the aviation section with warrant officers and got rid of the command vehicle and scout sections. This brought the total strength of the brigade headquarters and headquarters company to 23 officers, six warrant officers, and 94 men. Optional additions to the headquarters company included a rifle platoon (for security), a cook (for an officers' mess) and/or an air control team (of the same type used by infantry battalions).[569]

The ROAD divisional brigades marked the final demise of the infantry regiment as a tactical unit in the US Army. However the Army did make a perfunctory attempt to mimic the British Army and preserve regimental designations and traditions by instituting the Combat Arms Regimental System or CARS. In the Pentomic Army, each infantry regiment had existed as two separate battle groups. Under CARS, an infantry regiment would form a variable number of independent battalions or companies. Each of these could trace its "lineage" to one of the 12 "lettered" companies of the traditional or pre-Pentomic regiment. Typically an infantry regiment might form three separate battalions, each traceable to one of its first three lettered companies ("A" through "C"). It might also form a separate company (Company "D") for some special purpose. The other companies disappeared. To take one example of how this worked the 27th Infantry (the former "Wolfhounds" of the 25th Infantry Division) spawned three separate battalions, the 1/27, 2/27, and 3/27, "descended" from the regiment's original Companies "A," "B," and "C" respectively. Each of the new battalions had its own "A," "B," and "C" companies. This was in contrast to a real regiment in which the first battalion would have Companies "A," "B," and "C" while the second had "D," "E," and "F," and so forth. Despite their common numerical designations, the three battalions led existences entirely separate from one another. As of 1965, the 1/27 was serving in Germany. The 2/27 was still with the 25th Infantry Division on Hawaii and the 3/27 was part of the California National Guard. There was no common commander, headquarters, depot, recruiting area, or anything else that might serve as a locus for regimental tradition or identification. CARS copied the form but not the substance of the British system under which a regiment might spawn many battalions without destroying common traditions or identity. Of course, American regimental tradition was never anywhere near so strong as the British, especially after the homogenizing process that the Uptonians

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567 Weigley op cit pp. 539-540.

568 US Army Infantry School Staff "Reorganization of the Infantry" Infantry *Magazine* Vol 51 No 4 (Fort Benning Georgia, July-July 1961) p 54; US Army Infantry School Staff "Reorganization of the Infantry-II" Infantry *Magazine* Vol 51 No 5 (Fort Benning Georgia, September-October 1961) pp. 34-45; and Weigley op cit pp. 540-541.

569 Staff US Army Infantry School, "The Final ROAD" Infantry *Magazine* Vol 53 No 6 (Fort Benning GA Nov-Dec 1963) pp. 44-45.

imposed on the old State militia regiments in 1917. Although regimental tradition might help morale, its effect could not be quantified and therefore it was of no interest to Secretary McNamara. CARS quickly extinguished it.[570]

The Army organized its first ROAD system infantry battalions under the series "E" tables. An E-series battalion was essentially a heavily pruned Pentomic battle group. It had no mortar or combat support company, and only three rifle companies (see Appendix 9.1). An oversized headquarters and headquarters company (HHC) included the battalion's combat support elements. Among other things the Army intended to use its ROAD battalions to facilitate the formation of task forces through the exchange of companies between battalions. Thus, for example, a tank battalion might become a "tank heavy task force" by giving up one of its tank companies to an infantry battalion and receiving a rifle company in return. The infantry battalion would become an "infantry heavy task force" through its receipt of a tank company while the tank battalion, now incorporating a rifle company, became an "armor heavy" task force. Though such exchanges with tank battalions mainly involved mechanized infantry (who used armored personnel carriers) ordinary, or non-mechanized infantry might participate as the occasion demanded. This continued a precedent established in the Pentomic Army under which tank companies could reinforce infantry battle groups or tank and infantry battle groups might exchange companies to achieve a desired task organization.[571]

Naturally, the standard maneuver element in the ROAD infantry battalion was still the rifle company (shown in Appendix 9.1). It differed only in detail from a Pentomic rifle company. Company headquarters consisted primarily of communication personnel. There was no mess detail. All company cooks now belonged to a battalion mess section. However, thanks to Pentomic experience the company got back its 2.5-ton truck with trailer to carry the company's baggage, ammunition, spare parts, and communication gear. In the original (January 1961) version of the E-Series tables, each company had a five-man ground surveillance section with two AN/PPS-4 radars but later revisions sensibly concentrated all radars under the battalion surveillance section. The rifle platoons also regained their messenger/radio operators. They also acquired three M2A1 portable flame-throwers in 1961 but by 1963 the Army cut this back to one flame-thrower per platoon. Company headquarters kept all flame-throwers under its own control for issue as needed, though such weapons had seen little use since the Pacific War. The rifle squads each lost one rifleman. On paper at least that gave one fire-team per squad five men and the other only four. In practice, each squad could expect to be at least one man short. The addition of a second two-man antitank team strengthened the platoon weapon squad to 11 men. However, instead of bazookas, the antitank teams carried M67 90mm recoilless rifles. A belated replacement for the old M18 57mm rifle, the M67 was much more powerful. It had four times the range of a 3.5-inch bazooka and could fire a variety of ammunition types although only an antitank round was actually available. Unfortunately for the men who had to carry it, it weighed nearly 35 pounds (the M20A1 bazooka had been just over 13 pounds) and its ammunition (unpacked) weighed 9.2 pounds per round (bazooka rockets were eight pounds each). Two 90mm rounds packed in a wooden box weighed 47 pounds.

The company weapons platoon remained relatively unchanged except that the two 106mm recoilless rifle squads became a section again. The 81mm mortar section headquarters now had an FDC and three two-man FO teams.[572]

The battalion HHC combined the battalion's command, combat support, and logistical (or combat service support) elements. As the diagram in Appendix 9.2 indicates it was a huge and complex organization. HHC commanders soon began complaining about their workload. Most of the HHC's platoons carried out unique functions within the battalion and their commanders also functioned as special staff officers. The antitank platoon commander, for example, was also the battalion antitank officer. Battalion staff officers treated each platoon as a separate company and directed and trained those platoons whose functions fell within their areas of concern. These staff officers also served as the conduits through which the platoon leaders obtained access to the battalion commander and/or executive officer. Thus, the S-4 directed the combat service support units (the support, medical and maintenance platoons) while the S-2 and S-3 between them controlled the combat support elements. This usually meant that the S-2 directed the reconnaissance platoon and the ground surveillance section while the S-3 controlled the communication, antitank, and mortar platoons plus any liaison officers and forward observers attached to the battalion from the artillery. However, if the armored cavalry platoon conducted a non-reconnaissance mission such as that of screening or economy of force, the S-3 directed it instead of the S-2.[573]

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[570] Ibid pp. 540-541; J.B.M. Frederick "Will ROAD Improve CARS?" *Infantry Magazine* Vul 52 No 2 (Fort Benning Georgia, March-April 1962) pp. 51-53; and MAJ Roger D. Maldonado, Inf, "Why Not Regiments?" *Infantry Magazine* Vul 55 No 2 (Fort Benning Georgia, March-April 1965) pp. 16-18.

[571] Dept Army, FM 7-20, *Infantry, Airborne Infantry, and Mechanized Infantry Battalions* (Washington DC 28 May 1965) pp. 96-98; and FM 7-40 (Aug 1959) op cit. pp. 227-232.

[572][548] Dept Army T/O & E 7-17E "Rifle Company, Infantry Battalion, Infantry Division" (Washington DC, 12 January 1961 and 15 July 1963); US Army Infantry School Staff "90-MM Recoilless Rifle," Infantry *Magazine* Vol 52 No 3 p 39 and Vol 52 No 5 p 49 (Fort Benning, Georgia May-Jun and Sep-Oct 1962).

[573] CPT Bruce T. Caine, "Combat Support Company Commander" Infantry *Journal* Vol. 65 No. 1 (Ft. Benning GA, Jan-Feb 1975) pp. 28-30.

The ROAD battalion executive officer reunited the functions of deputy commander and chief of staff that the Pentomic system had previously seperated. In addition to acting as personnel officer, under ROAD the S-1 also assumed the functions of certain special staff officers not normally present at the battalion level. These included the adjutant general, inspector general, staff judge advocate, provost marshal, and special services officer. As under the Pentomic system the communication officer (and platoon leader), the motor officer, the battalion surgeon and the sergeant major were also battalion staff members but in 1963 the battalion surgeon left his full time battalion staff position to serve as medical platoon leader only.[574]

The battalion headquarters section contained the other officers and men who supported the S-1, S-2, and S-3. For the S-3 there was an assistant S-3 for air (S-3A, an infantry captain) and two liaison officers (lieutenants). The S-3A coordinated ground operations with those of the air units operating in the vicinity by working through the Air Force air liaison officers that might be attached to the battalion. He would also coordinate any necessary air reconnaissance with the S-2. Otherwise, the S-3A was the deputy S-3 and would take over the S-3 section in the S-3's absence. He would also shoulder some of the S-3's workload by taking over such tasks as assembling data and preparing reports. Though he helped to arrange and coordinate close air support for the battalion the S-3A was not the battalion fire support coordinator (FSCOORD). That job usually went to the liaison officer attached to the battalion from its supporting artillery battery. If there was no artillery support then the commander of the battalion mortar platoon acted as FSCOORD. As in the Marine Corps, the Army FSCOORD ran the Fire Support Coordination Center (FSCC). Operating under the S-3, the FSCC consisted of representatives of each fire support element supporting the battalion (air, artillery, mortars, etc.). It insured that targets were engaged by the most appropriate means and it prevented fires from being unnecessarily duplicated or from hitting friendly troops. It could also relay fire missions from observers not directly connected with the appropriate fire support elements.

The two liaison officers worked directly for the executive officer. Primarily, they would effect liaison with brigade headquarters and one adjacent battalion, serving as conduits for information from all staff sections. The S-3 briefed and debriefed them on the specifics of these duties. If their liaison services were not needed, they could work directly for the battalion commander as special assistants to specific staff sections.[575]

The enlisted members of the battalion headquarters section included staff NCO assistants for the S-1, S-2, and S-3 plus a large communication element that largely replaced the old radio section of the battalion communication platoon. The main purpose of all these communicators was to operate the battalion command post (CP) and also, when necessary, to support an alternate CP and the battalion mobile command group. An attached air control (air-ground communication) team could augment them, if required. The CP operated on a 24-hour basis. It included the S2-S3 operations center and served as the battalion's tactical operations center and primary planning and command-control station. It also included the FSCC and representatives from the S-1 and S-4. The battalion commander would either command his unit from the CP itself or establish a mobile command group operating forward of the CP and in close communication with it. The mobile command group would include the S-3 and any other officers that the commander might require. The commander might also establish an alternate CP in case the main CP was put out of action. The S-3 usually determined the location of the CP in consultation with the communication officer. The CP's internal arrangements were the province of the S-1. In an offensive operation the CP would be close to the front line so that it would not have to displace too soon in order to keep up with the battalion's advance. In the defense, it would be further back so that it would be in less danger from enemy penetrations of the battalion's front line. Ideally, the CP should be near a reserve company for better security and out of reach of enemy direct fire weapons.[576]

The members of the battalion headquarters section who were associated with the S-1 did not include a personnel section as they had in the old Pentomic battle group. Under ROAD, a division administration company maintained all personnel and pay records. Division also published all orders for its battalions except combat and court martial orders. Until 1963, a ROAD battalion that was not serving under a division headquarters could get its administrative support from an attached personnel section and a chaplain. However, even when it was part of a division, a battalion still had to process its own personnel assignments, transfers, appointments, reductions, etc. A PSNCO, or Personnel Staff NCO, an E-7 working directly under the S-1 performed these actions. The PSNCO replaced the old personnel section leader and served as advisor, coordinator, and supervisor in personnel matters. He maintained a close liaison with the company personnel clerks, who initiated most of the personnel actions in the battalion, and the division personnel section where the records were maintained. He also compiled personnel statistics for the battalion commander and S-1 and served as battalion personnel advisor and planner.[577]

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574 Dept Army T/O & E 7-16E "Headquarters and Headquarters Company, Infantry Battalion, Infantry Division" (Washington DC, 12 January 1961 and 15 July 1963); and FM 7-20 (May 1965) op cit. pp. 12-15.

575 FM 7-20 (28 May 1965) op cit. pp. 18, 19, and 24.

576 Ibid. pp. 26-31. See also T/O & E 7-16E (12 Jan 1961 & 15 Jul 1963) op cit.

A new family of tactical radios would considerably enhance communications within a ROAD battalion. The AN/PRC-25 replaced the AN/PRC-8, -9, and –10 series as the new man-pack radio. It was significantly lighter than the earlier machines and could operate over a much wider frequency range. It was thus no longer necessary to build different versions of the same radio to work in different frequency bands since one radio could now operate within all the required frequencies. However, the AN/PRC-25's transmission range was still the same three to eight kilometers (two to five miles) that the AN/PRC-10's (and SCR-300's) had been. Variants of the AN/PRC-25 included the vehicle-mounted AN/VRC-53 (replacing the AN/VRC-10) and the AN/GRC-125 (capable of either portable or vehicle operation). The AN/VRC-12 was the lead member of a new group of long-ranged vehicle-only FM tactical radios. They featured a powerful receiver-transmitter plus a second receiver. This latter device enabled them to monitor two radio nets simultaneously. Though the AN/VRC-12 types weighed only half as much as their AN/GRC-3 through –8 (and AN/VRQ-3 and AN/VRC-18) predecessors, their transmission range of 32 kilometers (20 miles) was twice as great. Variants of the AN/VRC-12 included the AN/VRC-43 (no second receiver) and the AN/VRC-45 (two receiver-transmitters). All three of these could switch back and forth among preset frequencies using push buttons. The AN/VRC-46 (no second receiver), -47 (one receiver-transmitter and one auxiliary receiver), and -49 (two receiver-transmitters) lacked push buttons and could only switch frequencies manually. At first the Army decided that company commanders and executive officers should each have an AN/VRC-46 to monitor the battalion command and administrative nets, respectively. In practice, however, the infantry battalions received mostly AN/VRC-46s and -47s for long range communication plus AN/PRC-25s and variants for shorter ranges. Outside of the AN/VRC-12 family, the AN/GRC-19 and the AN/VRC-24 supplied air-ground communication. For very short ranges, a "lightweight" radio, weighing less than a pound would replace the hand held AN/PRC-6. The new radio would consist of a receiver (designated AN/PRR-9) worn on the helmet and a transmitter (AN/PRT-4) carried in the user's pocket. Transmission range was 1,600 meters, or one mile, or about the same as that of the SCR-536 and AN/PRC-6. Fire team leaders, squad leaders, platoon sergeants, and platoon leaders would all use the new radio. Each platoon would set its radios to a different frequency so they did not interfere with other platoons.

Though the AN/VRC-12 series radios could share frequencies with the AN/PRC-25 series, neither offered a portable medium to long-ranged transmission capability. All radio communication in dismounted operations had to rely on the short-ranged AN/PRC-25 series because the AN/VRC-12 types were too heavy for anything but vehicular use. Though the AN/PRC-25 would enable dismounted company commanders to communicate with their platoon commanders fairly easily, a dismounted battalion commander relying on the same equipment would soon find himself out of touch with most of his company commanders and probably his brigade commander as well. Thus, together with manpower limitations and ammunition requirements the new radios threatened to tie the ROAD infantry battalions even more closely to their vehicles and the road networks than ever before.[578]

The HHC commander with his small headquarters maintained administrative but not tactical control over the HHC. In combat he served as headquarters commandant and as such he was in charge of security for the battalion CP. For this purpose his headquarters maintained spare .50-caliber machineguns and bazookas for the local security of the battalion CP and other HHC elements. Gunners would come from any available personnel. A few other HHC units also had M60 machineguns (without assigned gunners) for self-protection.[579]

The ROAD battalion's combat service support elements, operating under the S-4, were the support, medical, and maintenance platoons. Their organization and functioning differed somewhat from that of their Pentomic predecessors. The new maintenance platoon (supervised by the motor officer but actually led by a warrant officer) replaced most of the headquarters section of the old Pentomic supply and maintenance platoon. Able to repair all except the battalion's signal or medical equipment, it contained mostly vehicle mechanics plus a parts clerk and a supply specialist. The heart of the battalion's logistical system, however, was the new support platoon. This unit replaced the remainder of the old supply and maintenance platoon, but it also included the battalion mess section. The platoon commander also acted as the battalion assistant S-4. His headquarters consisted only of himself and his driver/radio operator. The vehicles in his transport section carried mainly Class III (fuel) and Class V (ammunition) supplies, though they could carry anything except Class I (food). Mess section trucks carried all Class I supplies but transport section towed the water trailers that the mess section also needed. The supply section performed most supply-related administrative work. It prepared requisitions for all supply classes and it distributed Class II (items authorized in the battalion's table of equipment) and Class IV (special items such as barbed wire or assault boats) material. In combat, the section operated a salvage collection point and its warrant officer section leader kept the battalion property book. The transportation and mess section vehicles constituted most of the battalion trains. As

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577 T/O & E 7-16E (12 Jan 1961 & 15 Jul 1963) op cit; and USAIS News Item in Infantry Magazine Vol 53 No 5 (Fort Benning, Georgia, Sep-Oct 1963) pp. 48-49.

578 Ibid p. 47; and Capt James R. Ruhlin Jr. Infantry "New Radios for the Commander" *Infantry* Magazine Vol 52 No 2 (Fort Benning Georgia, Mar-Apr 1962) pp. 20-22.

579 T/O & E 7-16E Jan 1961 and Jul 1963 op cit; FM 7-20 (May 1965) op cit. pp. 27-31.

before, Army doctrine maintained a distinction between combat and field trains even though the same vehicles could be part of either one depending on what their current mission was. As defined in 1965 all vehicles carrying supplies that the battalion would need in combat (mainly fuel and ammunition) were in the combat train. All other vehicles were in the field train. In addition, the rifle companies and HHC maintained their own trains so they could have their own source of limited but highly responsive logistical support. A company would locate its train, consisting of a few vehicles loaded with sufficient ammunition and other supplies to answer immediate needs, at a point protected from enemy fire or observation from where it could reach the platoons from a trafficable road or trail. A company could stash its non-essential gear (such as those useless flame-throwers) in the battalion field train.

The S-4 would position the battalion combat train far enough to the rear so as not to interfere with the battalion's maneuver elements but close enough to be readily accessible. The combat trains area should offer concealment from enemy observation and direct fire weapons but have enough space for adequate vehicle dispersal. One or more trafficable routes should connect the combat trains area with the company trains and the field train. However, the location of the combat train area might change frequently as the battalion moved and for this reason the combat train would keep its supplies on board its vehicles so that it could move at short notice. It would deliver supplies to the companies either by supply point distribution or unit distribution. Under supply point distribution the companies would send vehicles to the combat train and pick up what they needed. Under unit distribution combat train vehicles would deliver supplies directly to the companies. Most often a combination of these methods would be used though Army doctrine preferred thesupply point distribution method. The combat train would have its own CP, controlled by the S-4. In an infantry battalion, the motor officer would be the senior officer present and in charge. The combat train CP might also expand so that it could serve as an alternate CP for the battalion.[580]

The support platoon commander commanded the battalion field train and would normally position it within the brigade trains area, under the supervision of the brigade S-4. Usually, the field trains would include most of the mess section, the maintenance platoon, and the supply section, including the latter's equipment salvage point. In addition to the field trains of its subordinate battalions, the brigade trains area would also host a substantial detachment from the logistical support command of the parent division. This would include a forward support company from the division maintenance battalion, a company from the division medical battalion, and a forward supply section from the division supply and motor transport battalion. In contrast to World War II and Korean War practice, the division headquarters would ferry most supplies to the brigade trains areas. The battalions had only to pick up what they needed from there. An important exception was ammunition. For this commodity, battalion combat train vehicles would have to go to an ammunition supply point (ASP) established by an army-level headquarters. This might be located some distance to the rear of the field trains/brigade trains area. Typically, an infantry battalion ammunition chief would send a convoy of at least three trucks from the transport section. En route the convoy would notify the Division Ammunition Office. From the army ASP the trucks would return via the field train area or go directly to the combat train, or to a battalion ASP. Supply point or unit distribution methods would then serve to complete the delivery of ammunition to the using units. The field train area itself would be considerably further to the rear than the combat train area but it would still require sufficient space for the dispersal and concealment of vehicles. It would also need trafficable routes to the combat train area. A ready source of water (such as a stream) was desirable also. However, the field train would be far enough to the rear to enable the troops stationed there to carry out lengthy logistics tasks such as vehicle repair and food preparation without undue concern about enemy interference.[581]

The battalion mess section operated a consolidated mess facility in the field train area. Normally, it drew rations from a ration distribution point that the parent division support command had established in the brigade trains area. The mess section then prepared meals and distributed them to the companies. If necessary, it could split into four company mess teams and operate in the train areas of the companies they supported though this method was much less efficient than a single consolidated mess. Normally the section would prepare and distribute two "A" or "B" Rations per day. If possible, the mess trucks would drive from the field train area to their respective companies and feed the men (by turns if necessary) at a single company mess area. Units unable to send their people back to the mess area would have food sent out to them in insulated food cans. One meal per day would be C-Rations. Though the mess section had enough cooks to prepare all the food, as in World War II they still needed a lot of unskilled labor from the rifle companies and the HHC to help serve the food and to clean up afterwards.[582]

As we have already noted the battalion maintenance platoon was mainly concerned with the repair of motor vehicles. Most of the platoon would work in the field trains area but it would keep a team at the combat trains to

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580 CPT George F. Marko Inf. "ROAD Support Platoon," *Infantry* Magazine Vol 53 No 1 (Fort Benning Georgia, Jan-Feb 1963) pp. 60-61; and see FM 7-20 (May 1965) op cit. pp. 303-305. See also Dept Army FM 7-11, *Rifle Company, Infantry, Airborne, and Mechanized* (Washington DC 20 April 1965) pp. 241-243.

581 Marko, "ROAD Support Platoon" op cit. FM 7-20 (May 1965) op cit. pp. 304-311; and see T/O & E 7-16E Jan 1961 and Jul 1963 op cit.

582 FM 7-20 (May 1965) op cit. pp. 320-322; and Marko, "ROAD Support Platoon" op cit.

recover damaged vehicles and either repair them on the spot or forward them to the field trains. The platoon could send repair jobs that were beyond its capabilities to the division's direct support maintenance company.[583]

Though still very austere, the new battalion medical platoon was relatively larger than its Pentomic predecessor. It could afford to abandon some of the more radical (and, frankly, rather desperate) casualty collection and evacuation methods that the Pentomic units were forced to use. There were now enough company aidmen for each rifle or company weapons platoon in the battalion (but none for the combat support platoons in the HHC). There were only six ambulance jeeps rather than 14 but at least they were only serving three rifle companies rather than five. Until 1963 the ambulance section leader was also one of the ambulance attendants. Typically, the evacuation section would assign one ambulance to each rifle company while keeping the other three under medical platoon control. The two-man ambulance crew could carry a stretcher case over a short distance and administer any emergency treatment required during the trip to the aid station. The medical platoon leader was a medical corps captain who was also battalion surgeon and aid station surgeon. A medical service corps lieutenant and a platoon sergeant assisted him. Prior to 1963 there was also an assistant platoon sergeant and a clerk. Only two medical assistants and four aidmen manned the battalion aid station. With only one doctor, it could not split into forward and rear echelons. Since it had no mess team and could not erect shelters, the aid station could not hold patients for more than a very short time. It would treat the minor cases and return them to their units but would send the more serious cases to the division medical company in the brigade trains area. Evacuation could be by air as well as by ambulance. Ambulances returning from the brigade trains area could bring back additional medical supplies or carry messages.[584]

The combat support elements of the headquarters company were the ground surveillance section and the reconnaissance, antitank, and mortar platoons. The ground surveillance section (which functioned as it had in the Pentomic era) originally had only two three-man AN/TPS-33 radar teams. In 1963 the section picked up four more two-man AN/PPS-4 radars to replace PPS-4's removed from the rifle companies.[585]

The ROAD infantry battalion reconnaissance platoon ceased to be "armored cavalry" after it got rid of its Pentomic-era light tanks and armored personnel carriers (to avoid the heavy maintenance and supply burden that they imposed). Two jeep mounted 106mm recoilless rifles replaced the tanks. There was at first no rifle squad but a 3/4-ton truck carried the support section's mortar. In 1963 the rifle squad returned (with its own 3/4-ton truck with driver and M60 machinegun) and replaced the support section. At the same time, the Army cut back the scout platoon, from its original three squads (two machinegun jeeps in each) to two. Platoon headquarters also lost most of its people. Despite all these changes, the platoon's Pentomic era reconnaissance and security mission did not change.[586]

The antitank platoon featured a new high tech "wonder weapon" the ENTAC Anti-Tank Guided Missile (ATGM). A successor to the SS-11, ENTAC was another French design whose name stood for *Engin Teleguide Anti Char* (antitank guided missile). Although the ENTAC was an improvement on the SS-11, the Army realized that the technology behind it was still not mature. The ENTAC performed poorly in demonstrations and troop confidence in it was low. Nevertheless, the Army adopted it because it saw long ranged anti-tank weapons like the ENTAC as the best antidote to the relative tank shortage in ROAD infantry and airborne divisions. Of course, the 106mm recoilless rifle was also available. Its maximum range of 1,100 meters reflected the distance at which, under "simulated" battlefield conditions (whatever those are) it had a 50% chance of putting its first round through a stationary 7.5-foot square. It could hit a tank at a greater distance but with reduced accuracy. Although, historically, tank battles have tended to occur at ranges of less than 1,000 meters (even in the desert), the Army considered the 106mm's range as inadequate and wanted an infantry antitank weapon with at least a 2,000 or 3,000-meter range.

One really has to question the wisdom this requirement. There are relatively few places in the world from which land targets (even those as large as tanks) may consistently be seen and engaged at much beyond 1,500 meters. This is especially true when one factors in the additional problems presented by smoke and fog, and the need to discriminate between friend and foe. Also, terrain so open as to permit direct fire engagements of a mile or more is just the sort that infantry should avoid when engaging armor. Infantry is most effective against tanks in "close" terrain (such as towns or forests) where the tanks' restricted field of vision becomes a real handicap and where lighter and shorter ranged antitank weapons become really deadly. However, the Soviet Army had equipped itself with tanks in such numbers that the U.S. Army wanted to have antitank weapons everywhere. Still, one must wonder what business a general-purpose combat unit like an infantry battalion had with a highly specialized weapon like an ATGM. General McNair would have insisted that such weapons be concentrated in specialized anti-tank battalions so that they would have been available for use "en masse" where the threat was greatest.

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583 FM 7-20 (May 1965) op cit. pp. 323-325.

584 T/O & E 7-16E Jan 1961 and Jul 1963 op cit; and FM 7-20 (May 1965) op cit. pp. 326-332.

585 FM 7-20 (May 1965) op cit. pp. 417-420; and T/O & E 7-16E Jan 1961 and Jul 1963 op cit.

586 T/O & E 7-16E Jan 1961 and Jul 1963 op cit. and FM 7-20 op cit. pp. 378-390.

The training of ATGM gunners posed some significant problems. Like his SS-11 predecessor, an ENTAC gunner had to use a manual joystick to fly his missile to its target. This was not merely difficult to do. It imposed the same minimum range limitations on the ENTAC that the SS-11 had suffered from. Training a gunner required many hours of practice. However, an infantry battalion had only a platoon of ENTACs and its leader was too junior in rank to prevent his trained gunners from being diverted to other duties (as they often were) while he had to make do with the untrained men who replaced them. (An antitank battalion commander could not have been so easily pushed around.) The ENTAC missile did have advantages, however. Although it weighed only 70 pounds in its launch container or 26 pounds in flight its range had increased to 2,000 meters and its warhead could defeat even any known tank. Each four-man ENTAC squad used a standard set up consisting of a guidance control unit (GCU) connected to up to 10 missiles ready for firing. The gunner could position himself and his GCU as much as 110 meters from the launch position of the missile he was currently firing, thus making himself much more difficult for an enemy to target. However the missiles could not attack targets that were more than 35 degrees to the left or right of the direction in which they were facing. Tactical mobility also left something to be desired. The GCU could not operate from the ENTAC squad's 3/4-ton truck. The crew had to first set up the GCU and its missiles on the ground. For a full suite of ten missiles this could be a time consuming chore. However, a "light launch" set-up with a GCU and only three missiles could be readied for firing in about three minutes. It could even be hand carried by the squad over short distances. The missile's time of flight from launch to maximum range was 25 seconds. This effectively restricted the number of launches per squad to a maximum of two per minute.[587]

In 1961, the battalion mortar platoon was known as the "mortar and Davy Crockett platoon" because, in addition to its 4.2-inch mortars, it included the "Davy Crockett" weapon system. The Army had selected the Davy Crockett (DC) system for the Pentomic Army at a time when enthusiasm for the nuclear battlefield was at its height. The Davy Crockett gave a battle group commander his own nuclear delivery system. A DC launcher consisted of a steel smooth bore launch tube that could fire from a tripod or a jeep or some other light truck. The loading process consisted of inserting the spigot or tail boom of a 150-pound tactical nuclear bomb (with a nuclear payload of less than a kiloton) into the muzzle of the launch tube. For firing the system a variable propelling charge and the exhaust gasses were vented through the open breech of the launch tube. Nuclear projectiles were the only "live" ammunition available. The launcher came in two versions. The lighter one was of 120mm caliber and had a maximum range of 2,000 meters. Its crew could hand carry it over short distances. The heavier 155mm version could reach 4,000 meters. Both versions used a 20mm spotter rifle for ranging prior to firing the nuclear projectile and both could employ either direct or indirect firing techniques. One 120mm and two 155mm launchers (all carried in modified jeeps) armed each battalion DC section. As of 1961 the Army only gave the DC section a "caretaker" crew of three team leaders and (in the infantry battalions) three driver/radio operators for the launchers' jeep carriers. The Army would furnish full crews if the DC launchers were actually to be used. In an emergency, the mortar and DC platoon might improvise crews from other sections but by 1963, the Army had abandoned this awkward arrangement. The infantry battalions lost their DC sections but could get them back again if they were stationed in a theater (such as Europe) where nuclear combat was a possibility.[◔] The Davy Crockett was the sort of weapon that only a "Dr. Strangelove" could love. One wonders what the Western Europeans thought of the prospect of these "sub-kiloton" nuclear warheads going off literally in their backyards![588]

The rest of the mortar platoon (it became just "the mortar platoon" after the Davy Crocketts left it) was conventionally organized as shown in the diagram of the HHC below. Initially, there were complaints about its communications but these were soon put right. Mortar platoon headquarters bristled with six AN/VRC-47s, an AN/VRC-46, and three AN/PRC-25s (the latter for the rifle company forward observers). This equipment could support up to two fire direction centers (so the platoon could fire from two different locations) and three forward observers attached to the rifle companies. It could also maintain communication with the supporting artillery, battalion headquarters, and on the battalion logistics nets. As in the rifle company mortar sections, the 4.2-inch mortar squad vehicles would also serve as ammunition supply vehicles, shuttling back to the combat trains to obtain ammunition through supply point distribution. To maintain the platoon's mobility only the ammunition required to shoot current fire missions would be unloaded at any given time.[589]

[◔] In wartime a 1961 DC section would get (besides its team leaders and drivers) a fire direction center with three fire direction computer men (all E-5 with rifles), three gunners (E-4 with pistols), three assistant gunners (E-3 with M-79 launchers), and an extra jeep and trailer (driven by one of the gunners. After 1963 a full strength section would have a leader (E-7 with pistol), a driver/radio operator (E-3) riding in a command jeep, and two squads. Each squad would have a leader (E-6), a fire direction computer (E-5), a gunner (E-4 with pistol), an assistant gunner/driver (E-3), a loader/driver (E-3), a 155mm launcher carried in a 3/4-ton truck, and a 120mm launcher carried in a jeep. Each squad was clearly expected to use one launcher or the other (depending on whether they needed range or mobility) but not both simultaneously.

587 Capt Robert L. Ament, Inf. "Why the ENTAC?" *Infantry* Magazine Vol 55 No 4 (Fort Benning Georgia, Jul-Aug 1965) pp. 8-12.

588 Capt Arnold S. Stallman, Inf, "The Modern Davy Crockett," *Infantry* Magazine Vol 52 No 1 (Fort Benning GA, Jan-Feb 1962) pp. 26-27. See also T/O & E 7-16E Jan 1961 and Jul 1963 op cit.

In addition to its new infantry battalions, the Army fielded similar but more lightly equipped airborne battalions.

E-series airborne rifle companies were very similar to those in the infantry battalion but in the weapons platoon ENTAC antitank guided missiles replaced 106mm recoilless rifles in the antitank section and LIWCs replaced 3/4-ton trucks in the mortar section (see Appendix 9.3). The Army had undoubtedly reasoned that the ENTAC's long range and light weight would be valuable to a lightly armed airborne unit which, right after a combat jump, might easily find itself a long way from any friendly tank support. Unfortunately, both ENTAC squads had to share one 3/4-ton truck and trailer instead of having one truck and trailer for each squad. This would have limited the number of missiles that could be carried. By 1963, the two ENTAC squads had each lost an ammunition handler.[590]

The E-series airborne battalions only lasted until 1965 when they reorganized as F-series units. (Standard infantry battalions never used F-series tables.) F-series rifle companies reintroduced messengers (adding one per platoon headquarters and the company headquarters), discarded the marginally useful flame-throwers and replaced the ENTAC's with 106mm recoilless rifles mounted on LIWCs (see Appendix 9.4). The mortar section headquarters lost its three radio operators, leaving its forward observers and fire control computers to operate their own radios.[591]

The airborne battalion headquarters and headquarters was very similar to its infantry battalion counterpart. Thus, only an abbreviated diagram of the E series version appears in Appendix 9.3 (but a full depiction of the F-series version appears in Appendix 9.5). The support platoon's transportation section had lighter vehicles (six 2.5-ton and two 3/4-ton trucks) and no relief drivers. In keeping with the battalion's lighter equipment, the maintenance platoon was also smaller. The medical platoon actually began as a section in 1961. Its headquarters had an extra clerk but its ambulance jeeps had drivers only and there were only three rather than four medics three per rifle company. However, the aid station section had five extra aidmen. The Army abolished this awkward arrangement in 1963 by removing the five extra aidmen, giving each ambulance a second crewman and adding extra company aidmen. The reconnaissance platoon went through the same changes as its infantry battalion counterpart except that when it reorganized in 1963 (losing a scout squad, its support squad, and most of its platoon headquarters) it did not receive a rifle squad. Like its infantry battalion counterpart the mortar platoon lost its DC section in 1963.[592]

The F-series headquarters and headquarters company (Appendix 9.5) was smaller and somewhat simpler than its infantry battalion counterpart. The battalion headquarters section saw its radio operators reduced to just its seven jeep drivers. The rest moved to the communication platoon. The battalion support platoon had to make do with 3/4-ton trucks instead of 2.5-tonners. The maintenance platoon was cut slightly but the medical platoon remained as it was in 1963. An air control team was added for air-ground communication. The reconnaissance platoon lost its "tank" section but picked up the battalion ground surveillance section in its place. The latter, however, had been reduced to only two AN/PPS-4 teams apparently in the belief that passive surveillance would be of less importance in airborne operations. The antitank platoon replaced its ENTACs with 106mm recoilless rifles. In the interest of making themselves more portable by air, both the antitank and mortar platoons had to substitute LIWC "mules" for many of their jeeps and 3/4-ton trucks.[593]

AIR MOBILITY

Although much was hoped for from the then ongoing ROAD reorganization, there was still a great deal of concern within the Army and the Office of the Secretary of Defense (OSD) about the Army's ability to defeat numerically superior Soviet-Warsaw Pact forces. If no more could be done to increase the quantity of ground combat forces available, then more should be done to increase their quality. A solution to this problem that relied on improvements in tactics or doctrine was never seriously considered. The effects of such changes were hard to quantify and few senior Army officers really them (other than as "cookbook" receipes). As far as Secretary McNamara was concerned, tactics and doctrine were unimportant because new technology could solve any military problem. In his view the Pentomic Army had failed because, among other things, it lacked the tactical mobility

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589 Ibid; USAIS News Item in Infantry Magazine Vol 53 No 5 (Fort Benning, GA, Sep-Oct 1963) pp. 47-48 ; Bacevich op cit pp. 94-95; and T/O & E 7-16E Jan 1961 and Jul 1963 op cit. See also FM 7-20 (May 1965) op cit. pp. 360-377.

590 Dept Army T/O & E 7-37E "Rifle Company, Infantry Battalion, Airborne Division" (Washington DC, 31 October 1961 and 15 August 1963). In 1963 the airborne rifle company acquired a radio repair man for its headquarters but lost its ground surveillance section.

591 Dept Army T/O & E 7-37F "Rifle Company, Infantry Battalion, Airborne Division" (Washington DC, 25 June 1965). Under the F-Series the airborne rifle company headquarters exchanged its radio repairman for a driver/messenger (for the LIWC) and a supply clerk.

592 Dept Army T/O & E 7-36E "Headquarters and Headquarters Company, Infantry Battlalion, Airborne Division" (Washington DC, 12 October 1961 and 15 August 1963).

593 Dept Army T/O & E 7-35F "Infantry Battalion, Airborne Division;" and 7-36F "Headquarters and Headquarters Company, Infantry Battalion, Airborne Division" (Washington DC, 25 June 1965).

needed to escape the effects of enemy nuclear strikes and to exploit those of friendly ones. The ROAD Army, despite its improvements, suffered from similar weaknesses. For McNamara, a mobility problem was an equipment problem and he saw the ground vehicles used by both Pentomic and ROAD armies as unlikely to improve significantly in the foreseeable future. Air vehicles, however, if they were practical, could easily exceed ground vehicle speeds by a factor of ten and they would be relatively independent of terrain obstacles. The most promising type of tactical transport aircraft was the helicopter because it did not require an airfield on which to land or take off. Unfortunately, helicopters were expensive to procure and difficult to maintain. They used huge amounts of fuel, were relatively slow and short ranged, and carried only small payloads. In Korea the use of helicopters had been limited but their utility in mitigating some of the mobility restrictions of the rugged Korean terrain was duly noted. Army aviation began the Korean War with 668 light fixed wing airplanes (mainly observation and liaison platforms) and 57 light helicopters. The Army then considerably accelerated its aircraft procurement so that by mid-1959 it possessed a total of 5,500 aircraft (the majority of them helicopters) out of a total requirement for 6,400. Many were worn out or obsolete but that did not prevent discussion about using them in more than just unarmed transport roles. In 1954, Major General James Gavin (of World War II airborne fame) who was then serving as G-3 for the Department of the Army, wrote an article for *Harpers* Magazine in which he advocated the use of combat helicopters as a substitute for cavalry.[ժ] Gavin also managed to get the Airborne Department at the Army Infantry School at Fort Benning to study helicopter tactics and even attached a helicopter company to the school so that it conduct experiments. In June 1956, an experimental detachment of armed helicopters (standard transport types fitted with a variety of often-exotic weaponry) was organized at the Army's Aviation School at Fort Rucker, Alabama. At the same time, the Russians added fuel to the fire with a Soviet Air Force Day demonstration landing by helicopter-borne troops in front of the press and foreign military observers gathered for the occasion at Tushino. The foreign observers included Air Force Chief of Staff General Nathan Twining, who was duly impressed by the spectacle, though not so impressed as to be willing to have Army aviation behave in any manner that might encroach upon Air Force prerogatives. Of course, the British helicopter landing at Suez in that same year had also captured the attention of American observers.[594]

Nevertheless, beyond the activities of a few enthusiasts, the Army did little to develop its air corps into a tactical arm. The lean years of the Eisenhower administration had accustomed the Army to accepting its status as a poor relation of the Navy and the Air Force. It asked for little and expected less. Nevertheless, the Army did convene an Aircraft Requirements Review Board under Lieutenant General Gordon B. Rogers. The Rogers Board recommended that the Army come up with standard airframes for the observation, surveillance, and transportation missions. For observation, a new light helicopter should replace all existing helicopter and fixed wing designs. Determining the best aircraft type for the surveillance mission would require further study but a medium helicopter supplemented by fixed wing aircraft like the C-7 *Caribou* should handle most air transport missions. The Board also recommended the replacement of aircraft designs every ten years and that an in-depth study be performed to test the practicality of air-fighting units. The Army should also modernize its air fleet by replacing its older piston engine helicopters with a new "family" of turbine engine types. The first and among the most important of these was the Bell XH-40. Originally designed as a medical evacuation aircraft the XH-40 clearly had excellent potential for a variety of other roles. As it was soon to enter production as the UH-1 *Iroquois*, the Rogers Board strongly advocated it's use for observation and light transport missions. For the medium transport role, the Vertol HC-1B medium helicopter (later to become the CH-47 *Chinook*) would replace the Sikorsky H-37.[595]

Not yet understanding the Kennedy administration's commitment to building up American conventional forces, the Army asked for much less money than it really needed in order to implement its aircraft modernization program. By mid-October 1961, Secretary McNamara strongly suspected that the Army was doing a lot less to develop its aviation arm than it ought to. After conferring with President Kennedy on the matter, he asked the Army to report on the state of the mobility of its field units. Shortly afterwards, he requested a second study to estimate the equipment needed to reach the level of mobility that the Army deemed necessary. The Army submitted both studies in November 1961. The first outlined serious shortfalls in helicopters and other aircraft as well as in motor vehicles but the second, still showing the effects on the Army of life under the Eisenhower administration, offered only modest estimates of what was necessary to correct the problems. OSD rejected both studies as contradictory and ambivalent and in April 1962 ordered the Army to set up a board to specifically examine the Army's requirements for aircraft and what organizational changes would be needed to employ them efficiently. McNamara himself nominated most of the board's members, packing it with as many aviation enthusiasts as he could. He asked that

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[ժ] It is also likely that the Kennedy Administration's subsequent strong support for the expansion of Army aviation may also have been motivated by the resulting procurement contracts, which could be used to funnel Federal dollars into key Congressional districts.

[594] LTG John J. Tolson USA, *Airmobility, 1961-1971* (Washington DC, Department of the Army "Vietnam Studies" series 1973) pp. 4-7; and GEN John R. Galvin USA (Ret), *Air Assault: The Development of Airborne Warfare* (New York, Hawthorn Books, 1969) pp. 274-75.

[595] Tolson op cit pp. 8-11.

Lieutenant General Hamilton H. Howze, commanding the XVIII Airborne Corps, be made the chairman. He also let it be known that he wanted to see some bold new initiatives and no more of the same conservative recommendations that he had received in the past. The Howze Board began work in early May. To permit it to field test its own concepts, the Board had the use of Army aviation units totaling about 150 fixed and rotary winged aircraft plus elements of the 82nd Airborne Division. One Pentomic-type Airborne battlegroup (the transition to ROAD had only begun), plus artillery and engineers would be available on a full time basis. Two other battle groups would be available part time. Air Force transport aircraft (principally C-130s) also participated. They served as an air line of communication, delivering the division's supplies to forward airfields from which helicopters could lift it to the troops. Field-testing primarily compared the performance of one conventional ground force equipped with helicopters to another without. The 40 or so tests that the Board conducted ranged from simple live fire and equipment testing to several weeklong field exercises. The three largest tests pitted an air-mobile force against both conventional and guerrilla forces. On 20 August the Board submitted its report. It fully endorsed air mobility as a concept and recommended the organization of an air assault division and an air cavalry combat brigade. The latter was a helicopter-only formation intended to screen, reconnoiter, and conduct delaying actions. The former would be a ROAD-type infantry division specially configured for helicopter operations. It would have 459 tactical aircraft (as compared to the 100 or so in a ROAD infantry division or the 50 in a Pentomic division). However, the air assault division had only about 1,100 motor vehicles compared to the 3,452 in a ROAD infantry division. The Howze Board reasoned that the air assault division's 330 or so organic transport aircraft could more than replace its missing trucks. Fire support would come from three battalions of 105mm howitzers and a battery of Little John rockets (all of them light enough for the division's CH-47 helicopters to carry). Instead of the usual 155mm howitzers (too heavy for helicopter lift), the division would use rocket firing UH-1 *Iroquois* (soon to be nicknamed "Hueys"). These enabled the division artillery to effectively mass its fires even when operating beyond the ranges of conventional artillery. Most of the division's transport aircraft would be in an aviation group consisting of two assault helicopter battalions, equipped with UH-1s and primarily concerned with troop lift, and one medium helicopter battalion equipped with CH-47 *Chinooks*. Attack and scout helicopters would equip the division's air cavalry squadron. Nine air-mobile infantry battalions controlled by three brigade headquarters would constitute the division's ground combat maneuver element. The division's transport helicopters could lift a brigade's worth of these troops (three battalions) at one time. Three battalions (or a second brigade) would be parachute qualified.

Howze's report also proposed an air assault infantry battalion (see Appendix 9.6) that placed its heavy weapons in a combat support company (Company "D") rather than the oversized headquarters company used by the standard ROAD battalions. This left the air assault battalion headquarters company with command and logistics elements only and it proved to be a much more efficient arrangement.[596]

An air-mobile rifle company appears in Appendix 9.6. The company had three rifle platoons that were the same as standard ROAD infantry platoons but no weapons platoon. It was essential that the rifle companies be able to maneuver once they were on the ground and in contact with the enemy but impossible to ensure the helicopter delivery of the motor vehicles that the weapons platoons had become so dependent upon for their own mobility. Rocket and missile firing helicopters should be able to compensate for the missing firepower. In addition, the battalion mortar platoon would maintain seperate 81mm mortar sections for attachment (when practical) to each rifle company. However, a rifle company headquarters would have no vehicle to move its long-range AN/PRC-47 radio.

In order to provide long-range communication, the Howze board proposed a "portable" version of the AN/VRC-47 that would be called the AN/PRC-47, mostly because it could run off a battery pack rather than a vehicle power supply. Like its vehicular counterpart it could monitor two battalion radio nets. However, weighing at 82 pounds (in operating mode) it was far too heavy to be "portable" (especially since it did not break down into small loads) unless one had a very large radio operator! Ordinary mortals could not move it over more than a very short distance. One could wrestle it in and out of a helicopter, however, and the Board seems to have found that sufficient. Of course, the company also had enough genuinely portable AN/PRC-25s to guard each radio net that it was required to monitor. However, the normal transmission range of these radios would not be adequate in many situations. A long-range antenna could extend this range considerably but it would also immobilize the radio. What the Army really needed was an radio with a 16 to 20 kilometer (10 to 12 mile) transmission range that was still light enough to carry.

Initially, the company headquarters included a two-man AN/PPS-4 radar team and a bazooka for local antitank defense. By January 1963, the radar team was transferred to the battalion ground surveillance platoon.[597]

In the combat support company (Appendix 9.6) an outsized mortar platoon that combined a section of 4.2-inch mortars for the battalion and a section of 81mm mortars for each of the rifle companies consumed thirds of the

[596] Dept Army T/O & E 7-55T "Air Assault Infantry Battalion" (no date or place of publication but probably Fort Bragg North Carolina in August 1962) and T/O & E 7-55T "Infantry Battalion, Air Assault Division" (Washington DC June 1963).

manpower of an air assault battalion's combat support company. The Board evidently hoped that this mortar platoon would facilitate training, transportation, and the concentration of fires while still making 81mm mortars available to the rifle companies. Each 81mm section had a small fire direction center (FDC), three two-man forward observer (FO) teams (for attachment to a rifle company's two forward platoons), and three mortar squads. One mortar squad, already burdened with a radio (later dropped) and an M79 grenade launcher (weighing about 25 pounds with a reasonable supply of ammunition), would need to move about 80 81mm rounds (weighing over 1,000 pounds with their packing material) to do any serious shooting it had no motor vehicles for this purpose or even hand carts. While the squad members might have been able to carry everything over a short distance by making many trips, the squad's near total dependency on helicopter transportation for any real mobility should be obvious. By 1963, the section's three forward observers had lost their radio operators and would have to pack their own radios. Two of those radio operators went to the section FDC to operate one radio in contact with the forward observers and another in contact with mortar platoon headquarters or the headquarters of the supported rifle company. They also freed the two FDC computers of the need to man a radio while they computed firing data for the section.[598]

The rest of the mortar platoon consisted of the battalion mortars and their control elements. One of the two officers at platoon headquarters served as commander while the other served as fire direction officer. The mortar platoon leader may also have served as support company executive officer. The rest of the mortar platoon headquarters maintained a small (later enlarged) fire direction center and three forward observer teams. The four 4.2-inch mortar squads constituted a battalion mortar section of which the senior squad leader (an E-6) was also section leader. The other squad leaders were E-5 and the squads themselves were the same as the 81mm squads except for an extra ammunition bearer in each. Since the 4.2-inch squads' load (mortar plus ammunition) was much heavier than even that of the 81mm squads, their dependence on helicopters for their mobility was even greater.

In 1963, a fourth E-5 squad leader replaced the 4.2-inch mortar section leader and the four 4.2-inch mortar squads came directly under mortar platoon headquarters (which was really where they had been all along). The platoon headquarters also acquired three new radio operators to man two additional AN/PRC-25s and an AN/PRC-47 that would operate on the battalion command net (and degrade the platoon's already near nonexistent ground mobility even further). Both the 4.2-inch and 81mm mortar squads lost their radios. They were unnecessary since those in the mortar section and platoon headquarters already provided adequate communication. In addition the 4.2-inch mortar squads lost their grenade launchers, which lightened their loads somewhat. Extra weapons for local defense now included an M60 machinegun as well as the platoon headquarters' bazooka.[599]

Unlike their counterparts in more conventional battalions, the air-mobile battalion reconnaissance or scout platoon would have to rely on helicopter or foot mobility to execute its missions. Platoon headquarters had an M60 machinegun that it could issue to one of the squads. By 1963, the Army had sensibly reduced the number of radios per scout squad to one. The ground surveillance platoon contributed one medium range and three short-range radar squads. In 1963, the platoon dropped its medium range squad but strengthened its short-range squads (balancing the withdrawal of the AN/PPS-4 radars from the rifle companies) to two AN/PPS-4 radars each.[600]

To adapt it to specific missions, but especially for combat against the Soviets in Europe, an air-mobile combat support company could receive an augmentation consisting of an antitank platoon, an air defense (Redeye) platoon, and/or (from 1963 on) a medium range radar section. The antitank platoon employed ENTAC missiles, though such weapons might have been better used from missile-firing helicopters. Each of the platoon's three five-man squads operated two ENTAC guidance systems. However, it is unlikely that any squad could use more than one guidance system at a time unless both could be set up well in advance. The squad probably could not handle more than three to four missiles per launcher. For transportation, a squad had two jeep trailers but no jeeps. Since an empty trailer weighed 550 pounds (or slightly more than its rated payload), it would not have been easy to move it by hand. Therefore, in 1963 each squad obtained a jeep (with an AN/GRC-125 radio). Given that minimizing the air assault units' helicopter lift requirements received such a high priority it is very surprising that LIWCs (weighing only a third as much as a jeep and trailer) were not used instead. The air defense platoon employed the Redeye shoulder fired heat-seeking missile, a considerable technical advance on the .50-caliber machineguns, which the infantry had previously used for low altitude air defense. The Redeye platoon seems almost like a logical contradiction to an air

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597 Dept Army T/O & E 7-57T "Air Assault Rifle Company" (no date or place of publication but probably Fort Bragg North Carolina in August 1962) and T/O & E 7-57T "Rifle Company, Infantry Battalion, Air Assault Division" (Washington DC June 1963). For data on the AN/PRC-47 see Marine Corps Technical Manual TM-2000-15A Volume II "Principal Characteristics of US Marine Corps Communication-Electronic Equipment (Headquarters US Marine Corps Washington DC 12 November 1975) page 1-29.

598 Dept Army T/O & E 7-58T "Air Assault Combat Support Company" (no date/place of publication but probably Fort Bragg North Carolina in August 1962) and T/O & E 7-58T "Combat Support Company, Infantry Battalion, Air Assault Division" (Washington DC June 1963).

599 Dept Army T/O & E 7-58T (1962?) and T/O & E 7-58T op cit" (Washington DC June 1963).

600 Ibid.

assault unit's mission since any enemy with enough air power to make Redeye platoons necessary could also render air assault operations unacceptably expensive and dangerous.[601]

The availability of a combat support company allowed the air assault battalion to have a much smaller headquarters and headquarters company (see Appendix 9.6).

Battalion headquarters was the same as that of an infantry or airborne battalion except that it had no motor officer. The headquarters company headquarters was also a lighter version of its infantry battalion counterpart but without an executive officer. The original 1962 battalion headquarters section included four Teletype operators and an eight-man medium range radar section (in addition to the medium radar operators in the ground surveillance platoon). A radar repairman to maintain these radars resided in the battalion communication section. By 1963 the eight RTO's (who would operate the radios in the battalion CP) had replaced the radar operators and the radar repairman. The battalion communication unit was designated a section rather than a platoon though it was not much smaller than the "platoons" in the infantry and airborne battalions. Like its infantry and airborne counterparts it had transferred its radio communication functions (except maintenance) to the battalion headquarters section. For its longer-ranged and normally vehicle-mounted radios this unit received two helicopter-portable and generator-equipped shelters called "helihuts" in 1962. The helihuts did not last long. Two jeeps replaced them in 1964.

In lieu of a service platoon the air-mobile battalion would have only a supply and transportation section. There would be no battalion mess section. A brigade-level mess platoon would prepare meals and fly them to the troops. The supply and transport section's six LIWC were the battalion's only motor transport, apart from the headquarters section jeeps (or any antitank platoon vehicles that might be in the combat support company).[602]

The medical platoon was very Spartan. The platoon leader was a medical corps captain who became battalion surgeon when subsequent T/O changes dropped the surgeon from battalion headquarters. A medical service corps lieutenant assisted him. The combination aid station and evacuation section could man an aid station and direct helicopters evacuating casualties from it. Non-walking wounded could only reach the aid station by stretcher and since a stretcher usually required a four-man team, the section would need help if it was to operate more than one or two stretcher teams at a time. The aidman section could supply up to four "medics" per rifle company.[603]

As should be obvious from the above description, once on the ground, an air assault infantry battalion was much less mobile than even an airborne battalion. However, the Howze Board believed that having swarms of helicopters in close proximity should more than compensate for this. Though an air assault division's helicopters could only move a third of its infantry at a time, the Board reasoned that the helicopters could shift quickly enough from one unit to the next to provide transportation for every unit more or less when and where it needed it. In any case, to provide a substantially larger number of helicopters could create insurmountable maintenance and supply problems. Another concern was over the vulnerability of helicopters to enemy ground fire. Heavy losses among the "whirleybirds" could threaten the division's mobility and combat effectiveness and even its survival. Still, on a future nuclear battlefield any large troop concentration would only invite nuclear strikes. Both sides would have to depend on small and highly mobile combat units using dispersion and fluid tactics to survive. This should give air-mobile units a distinct advantage. The results of further testing also suggested that appropriate tactics could keep helicopter losses well within acceptable limits. Armor and self-sealing fuel tanks should cut losses even further. Nevertheless, the Howze Board's findings were controversial and came under attack from several quarters. The Air Force, sensing a challenge to their own air transport and close air support missions, declared that a standard ROAD infantry division, augmented by Air Force fighter-bombers and C-130 transports, could easily outperform an air assault division. Many Army officers believed that an air assault division would fail against heavy armored forces. There was also concern about the high cost and maintenance requirements of the air assault division's equipment.[604]

General Howze himself was quick to point out that much more testing and evaluation was still needed. OSD, which had strongly approved of all that the Howze Board had done, ordered in January 1963 that an experimental air-mobile (or air assault) division be organized at Fort Bragg, North Carolina, and tested. It would assume the colors of the 11th Airborne Division (which had disbanded after the Korean War) and would be called the 11th Air Assault Division. Brigadier General Harry Kinnard would command it. Kinnard was a paratrooper who had served with the 101st Airborne Division in World War II. He had subsequently attended the Air Command and Staff College. He became a helicopter pilot late in his career and displayed considerable interest in the possibilities of using aircraft for the tactical movement of infantry units. In his new command, Kinnard was expected to organize his new division (which had no troops or equipment at the time of his appointment), develop its doctrine, tactics and

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601 Ibid.

602 Dept Army T/O & E 7-56T "Air Assault Battalion Headquarters and Headquarters Company" (no date or place of publication but probably Fort Bragg North Carolina in August 1962) and T/O & E 7-56T "Headquarters and Headquarters Company, Infantry Battalion, Air Assault Division" (Washington DC June 1963.

603 Dept Army T/O & E 7-56T (1962?) and T/O & E 7 (Washington DC June 1963) op cit.

604 Tolson op cit p 24; and Galvin op cit pp. 276-279.

logistical procedures, and finally to command it during a series of field exercises that would test its effectiveness. He was promised all the support that the Army could offer including the cooperation, if not active participation, of its entire aviation branch. Immediate assistance, however, would come from the 2nd Infantry Division, stationed at Fort Benning, Georgia, whose commanding general had served on the Howze Board. The Army would also organize the 10th Air Transport Brigade which would operate an air line of communication for the Air Assault Division, using C-7 *Caribou* and CH-47 *Chinooks*. In September 1963, when they held their first series of tests, known as AIR ASSAULT I (or SKY SOLDIER I), the Air Assault Division and Air Transport Brigade still had only about 4,000 men between them. The nucleus of this force was the 3rd Battalion of the 187th Infantry (or 3/187) and aviation units totaling about 175 aircraft. Kinnard had also created a small division staff around officers handpicked from among those he knew personally or by reputation. For the exercises they operated as a brigade staff controlling the division's one "real" infantry battalion, plus two more that they "simulated."[605]

In the course of preparing for the exercises, Kinnard worked out a logistics system that would make his line of communications as mobile as his assault units. The division support command (in effect, a logistics brigade) would receive long-haul supplies brought to it by road or Air Force airlift and would then forward it to the brigade base areas. "Forward support elements" ran these base areas and sent supplies forward by helicopter to "refuel-rearm" points in the actual battle area. These were simply dumps of ammunition and (mainly aviation) fuel each tended by a handful of supply men. Combat units could draw from them what they needed, usually by sending helicopters to pick it up. If an emergency delivery was needed, the system could be "short circuited" by dispatching helicopters directly from a refuel-rearm point to the requesting unit. Like the division itself, the logistics system would be spread out over a considerable geographic area. This minimized its vulnerability to both nuclear and conventional attack. Even if a refuel-rearm point was only a few minutes flying time from a user unit, it could still be a safe distance from the nearest enemy ground unit. Even if it were not, its small size would ensure that its loss would be affordable. Also, there would seldom be a need to maintain it for long and it could disappear as its supplies were consumed. Meanwhile, helicopters would be dumping supplies elsewhere to create new refuel-rearm points that would continue to follow the ebb and flow of the battle.[606]

The Army considered the AIR ASSAULT I tests as successful but not conclusive. It soon cancelled a brigade level exercise scheduled for June 1964 in favor of a division level exercise in October. Covering 4.5 million acres in the Carolinas, AIR ASSAULT II would involve over 35,000 troops and pit the 11th Air Assault Division, by now built up to six infantry battalions if only through the transfer of an entire brigade from the 2nd Infantry Division, against the 82nd Airborne Division. For this operation, and based on their experience thus far, General Kinnard and his staff modified their Howze Board air assault infantry battalions. They dumped the ground surveillance platoons. Their strictly passive mission was apparently incompatible with Kinnard's ideas. They slightly augmented the battalion headquarters sections. The communication sections got extra radio operators but no significant increase in radio equipment. The extra men would later enable the section to take over battalion CP communications.[607]

AIR ASSAULT II lasted through early November and covered a variety of tactical scenarios that tested the air assault division in both offensive and defensive situations. Nuclear and non-nuclear situations were practiced as were several aerial envelopments that involved landing troops behind an enemy position or on opposite sides of it. There was also an attack involving the successful lift of one brigade over distance of 100 nautical miles by 120 helicopters. The troops were placed precisely on their objectives even though the operation was conducted amidst severe weather caused by Hurricane Isabelle, which had grounded all the civil airlines on the East Coast. Despite this success, the exercise umpires and unit commanders generally agreed that an air assault division was vulnerable to armored attack, suffered from bad weather, and had poor ground mobility. Its air mobility would deteriorate rapidly during prolonged operations since helicopter maintenance could not keep pace with usage. On the other hand, the division could (at least over a limited time) sustain a remarkably high tempo of operations, react to orders very quickly, and operate in several directions at once. It had performed surprisingly well maneuvering over a large area without ground supply routes. General Kinnard believed that he could operate without a reserve by shifting his least committed forces to meet emergencies. The combination of airlifted 105mm howitzers with rocket firing helicopters also proved satisfactory. The division could seek out an enemy over a wide area, find him and then mass the right combination of troops and fire support to destroy him. Testing emphasized intense ground combat on both nuclear and non-nuclear battlefields. Despite the presence of helicopter pilots who had, since December 1961, been flying against Communist guerrillas in South Vietnam, testing had included very few counter guerrilla exercises.

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605 Tolson op cit pp. 52-54; Galvin op cit pp. 281-283; and Maj Ben R. Nichols, "The Sky's No Limit - Air Assault Division Test Report," *Infantry* Magazine Vol 53 No 6 (Fort Benning Georgia, Nov-Dec 1963) pp. 3-7 and 64-66.

606 Ibid

607 Tolson op cit pp. 54-55; Galvin op cit pp. 285-286; and Department of the Army T/O & E 7-56T "Headquarters and Headquarters Company, Infantry Battalion, Air Assault Division - Tenative for Test Only;" and T/O & E 7-58T "Combat Support Company, Infantry Battalion, Air Assault Division - Wargame Only" (all Washington DC 22 June 1964).

AIR ASSAULT II did include some counter-insurgency operations. Here it became apparant that the air assault unit commanders were placing excessive confidence in the ability of their firepower to destroy any enemy. General Kinnard himself noted that if the guerrillas chose to lie low and avoid contact with the air assault troops, there would be little that the latter could do about it. The decision about whether or not to fight would be entirely in the guerrillas' hands. Furthermore, out of eight tests conducted subsequent to AIR ASSAULT II to further refine the air assault concept, only one dealt with a counterinsurgency scenario. This one demonstrated that the division's widely scattered base and maintenance areas, landing zones, and refuel-rearm points were vulnerable to guerrilla attack. All would need protection and meeting this requirement would consume about a third of the strength of each air assault brigade. Also, as in AIR ASSAULT II, General Kinnard saw his fears about air assault forces being unable to find guerrilla forces confirmed. Lavish use of American style firepower produced an umpire assessment of 1,133 guerrilla casualties but only at the cost of considerable damage to the civil population whose loyalty and support the counter-insurgency forces were supposed to be trying to win. Nevertheless, the Army believed that an air assault division would be an effective counter-insurgency force because of its wide-ranging helicopter mobility.[608]

Meanwhile, conditions in South Vietnam were going from bad to worse. Vietnam had been a French colony until a Communist-led insurgency forced the French out. The former insurgents took over the northern half of the country and established their capitol at Hanoi. The peace settlement installed a rather shaky but at least nominally pro-Western government, with its capitol at Saigon, in the south. A renewed Communist insurgency in South Vietnam began to threaten the Saigon government. Continuing the Truman policy of containing Communism, the Kennedy administration propped up Saigon with military assistance. However, the advisor, logistical and aviation support that the United States provided was not enabling Saigon's Army of the Republic of Vietnam (or ARVN) to defeat their Communist foes. Instead, Saigon's situation only deteriorated as the Americans strong-armed the ARVN into configuring itself to oppose a conventional military invasion from the North rather than confront the immediate threat posed by the insurgents in its home territory. Although widespread corruption, incompetence, and disunity within the Southern regime certainly contributed to this developing disaster it does not seem to have occurred to anyone that bad American military advice was also a factor. After Lyndon Johnson became President of the United States in the wake of John Kennedy's assassination, he decided against half measures to save South Vietnam. He and Secretary McNamara called for a massive intervention by American ground forces in the South coupled with an accelerated air campaign against the North. In any ground war in the South, an air-mobile division might well prove superior to a conventional infantry division but the 11th Air Assault Division was unavailable for combat duty. Most of its troops actually belonged to the 2nd Infantry Division. Neither the 2nd Division nor the 11th could deploy unless one of them disbanded. President Johnson himself actually visited the two divisions early in 1965 to discuss which one to use and which to discard. In June OSD announced that the 2nd Division would absorb the 11th Division's assets, convert itself to an air assault division, and exchange its colors and title with the 1st Cavalry Division, then an infantry division stationed in Korea since 1957. The 2nd Division would become the 1st Cavalry Division (air-mobile) while the old 1st Cavalry Division in Korea became the 2nd Infantry Division (a good example of just how seriously the Army took unit identity and traditions). The exchange of assets and identities took place in July.[609]

Part of the Vietnam preparations included a reorganization of the air assault infantry battalions (see Appendices 9.7 and 9.8). Officially, the tables were still only for test purposes but they benefited from experience gained in AIR ASSAULT II and the later war games. The basic structure of headquarters company, three rifle companies, and combat support company remained but the new tables considerably strengthened the battalions' ground transportation, which the exercises had shown to be too weak. Even after this strengthening, an air assault battalion's transportation was still less than half of what even an airborne battalion would have.

As shown in Appendix 9.7 the 81mm sections from the battalion mortar platoon became mortar platoons and organic to the rifle companies they had previously supported. Conversion of a section to a platoon involved little more than a name change and the addition of a lieutenant platoon leader and an LIWC "mechanical mule." The "mule" could shuttle ammunition to the platoon from a helicopter landing zone or it could carry the basic equipment and ammunition load of one squad. Each rifle company headquarters acquired a much-needed "mule" (driven by the company armorer) to carry ammunition for the rifle platoons' machinegus and recoilless rifles. Oddly enough, now that the rifle company at last had the means to transport it, it lost its the heavy AN/PRC-47 radio.[610]

The changes experienced by the battalion combat support company (see Appendix 9.8 were more apparent than real.[ⓘ] The scout squads in the reconnaissance platoon were increased from six to 10 men each by doubling the

ⓘ Numerous but mostly minor changes were made to the basic air assault battalion T/O & Es during 1965-68. It is often difficult to determine exactly what was in force at any given time. The air assault battalion tables remained "test" tables at least until well into 1969. The diagrams in the Appendices 9.7 and 9.8 should be reasonably accurate, however.

608 Tolson op cit pp. 3, 15-16, 25-50, and 54; Galvin op cit pp. 286-287; and Andrew F. Krepinevich Jr, *The Army and Vietnam* (Baltimore, The Johns Hopkins University 1986) pp. 115-127.

number of their scout-observers. The platoon lost its machinegun. The mortar platoon, now reduced to just its four former 4.2-inch mortar squads, lost its fire direction officer and its mortar squads switched over to 81mm weapons, the 4.2-inch having proved too heavy. Despite their lighter mortars the squads actually increased in size with the addition of an LIWC and driver. They could handle much more ammunition than the mortars in the rifle companies.

The formerly optional antitank platoon became a permanent part of the air-mobile battalion despite the fact that no Communist armor of any sort was known to be operating in South Vietnam. The Army did, however, make the sensible decision to exchange the platoon's six ENTAC missile posts for eight 106mm recoilless rifles. The latter could at least engage infantry and bunkers as well as tanks. However, the Army chose to mount these weapons on jeeps rather than LIWC's even though the latter were smaller, lighter, and able to carry more ammunition. The eight rifles were grouped into four squads fielding two three-man gun teams apiece.[611]

The major changes to the air assault battalion headquarters and headquarters company (see Appendix 9.8) were the transfer of the battalion headquarters section's radio and Teletype communication functions back to the now strengthened communication platoon (former communication section) and the incorporation of the old supply and transport section into a new service platoon. Since the communication platoon would be handling the battalion CP's radios the battalion headquarters section could be much smaller. [612]

The battalion medical platoon stayed largely the same. Platoon headquarters lost its clerk (one of the platoon RTOs could do his job). The assistant platoon sergeant became the aid station/evacuation section chief.

The new service platoon now had a maintenance section to accommodate the battalion's increased number of motor vehicles. It also received a mess section since the plan to feed the troops from brigade level had not been successful. Led by an E-7, the mess section could break into teams for attachment to the companies but normally it prepared food in the battalion field trains area for delivery by helicopter. They could use their LIWCs to deliver their heavy food containers directly to individual aircraft. The supply and transport section itself still had its six LIWCs. It lost a clerk but gained additional ammunition specialists and a fuel specialist.[613]

In return for four additional officers, 43 additional men, and a helicopter transport "footprint" enlarged by the addition of 15 motor vehicles, the revised air assault battalion (Appendix 9.7) offered considerably improved (though still weak) ground mobility and logistical independence. There were no more optional attachments. The antitank platoon was now a permanent part of the battalion. The medium range ground radar section and the Redeye missile section had been dropped as not essential to the air assault battalion's mission.

A workable air assault doctrine and organization was now in place and it would soon be tested in battle.

EARLY SEARCH AND DESTROY OPERATIONS

In March 1965, the two Marine infantry battalions that occupied the air base at Da Nang became the first American ground combat troops to enter Vietnam. The bulk of the 3rd Marine Division had arrived by July. Meanwhile, the Army's first major ground combat unit, the independent 173rd Airborne Brigade, specially trained for Southeast Asia, reached Bien Hoa in May. Initially, it had only two infantry battalions (it would later get two more) so a newly arrived battalion of Australians was attached to strengthen it. The 1st Brigade, 101st Airborne Division and the 2nd Brigade, 1st Infantry Division reached South Vietnam in late July. The newly organized 1st Cavalry Division (Air Assault) would arrive in September. The remainder of the 1st Infantry Division would follow in early October. The South Korean Capital Infantry Division and 2nd Marine Brigade were scheduled for November, and the 3rd Brigade, 25th (US) Infantry Division at the end of December. The 25th Division's 2nd Brigade would arrive in the following January and the remainder of the 25th Division would reach Vietnam during March and April. At the same time, the headquarters and one regiment of the 1st Marine Division were also expected.[614]

At first, the Americans would help shore up the Saigon government by securing its key seaports and airfields. This would free more South Vietnamese troops to fight the guerrillas. However, the commander of the Military Assistance Command Vietnam (MACV), General William Westmoreland, wanted American troops to carry the war to the enemy. In expressing this desire, Westmoreland had Army doctrine on his side. All editions of the Army's doctrinal bible, FM 100-5, *Field Service Regulations - Operations*, stressed the importance of taking the offensive.

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609 Galvin op cit

610 Dept Army T/O & E 7-57T "Rifle Company, Infantry Battalion, Air Assault Division" (Washington DC approx 22 June 1965).

611 Dept Army T/O & E 7-58T "Combat Support Company, Infantry Battalion, Air Assault Division" (Washington DC approx 22 June 1965).

612 Dept Army T/O & E 7-56T "Headquarters and Headquarters Company, Infantry Battalion, Air Assault Division" (Washington DC approx 22 June 1965).

613 Dept Army T/O & E 7-56T (approx 22 June 1965) op cit.

614 J. Robert Moskin, *The U.S. Marine Corps Story*, 3rd Ed, (New York, Little, Brown and Co. 1992) pp. 627-630; Stanley I. Kutler ed. *Encyclopedia of the Vietnam War* (New York, Simon & Schuster Macmillan, 1996) pp. 271 and 406-411; and Shelby L. Stanton, *Vietnam Order of Battle*, (New York, Galahad Books 1986) pp. 71-89.

This advice, however, was based mainly on experience in conventional operations. FM 100-5 had ignored guerrilla warfare until the 1962 edition but even this treated guerrillas as mere irregulars who would likely be operating as adjuncts to conventional forces and would depend on them for much of their logistical support and command cadre. This was how most pro-Allied (mainly non-Communist) guerrilla forces had operated during World War II and Korea. FM 100-5 warned against taking purely defensive measures against such enemies since that would only give them time to grow stronger. Instead, it advocated energetic measures to "find, fix, and destroy" them, while making full use of conventional firepower and of air and ground mobility systems. It was known that the Communists forces in Vietnam operated numerous small units of often part-time guerrillas scattered among the villages that dotted the countryside. Recently (from about 1963-64) "main force" units in the form of conventionally organized and equipped infantry in battalion or regimental strength had begun to appear. Some of these main force units were elements of the North Vietnamese People's Army of Viet Nam (PAVN). All the guerrillas and most of the few main force units in the south before 1965 belonged to the People's Liberation Armed Forces (PLAF). PLAF members were mainly southerners, though they were absorbing a steadily increasing influx of northerners. North Vietnam, or the Democratic Republic of Vietnam (DRV), was also sending supplies southwards, but only in limited quantities. A 1966 Pentagon estimate concluded that the entire PLAF needed only 12 tons of supply per day from outside South Vietnam. The rest of what the PLAF needed it could obtain locally. Most of what came from North Vietnam made its way into the South down what would soon become widely known as the "Ho Chi Minh Trail."[615]

Westmoreland's strategy, which the Joint Chiefs of Staff (JCS) endorsed, was to attack the larger enemy troop concentrations (located mostly in the sparsely populated Central Highlands in northern South Vietnam) to wear them down and force them to accelerate their consumption of manpower and supplies. This would at least stall, if not reverse, the buildup of the enemy's conventional forces, which Westmoreland saw as the principal menace to South Vietnam and the threat that American forces were best able to defeat. It would also forestall a Korea-style conventional North Vietnamese invasion of the South. The US air campaign against the Ho Chi Minh Trail and North Vietnam, though the latter's pre-industrial agrarian economy was not exactly the ideal bombing target, would expand. Few seem to have doubted that this strategy would eventually force the Communists to the peace table. The then operations chief of the Military Assistance Command Vietnam (MACV), Brigadier General William DePuy summed up this thinking best when he called for "...more bombs, more shells, more napalm ... until the other side cracks and gives up..." Like many American officers, he had absolute faith in the ability of American firepower to solve any military problem. As he himself put it, he knew "...no other way." In the minds of most American military men, the methodical application of industrial strength firepower had won America her victories in both world wars and in Korea and it would certainly win here in Southeast Asia. Of course, a more critical view of the historical record might have been less reassuring. In both the world wars, the burden of the fighting on land had been borne by America's allies. The US Army and Marine Corps had never faced more than a fraction of their enemies' strength and had rarely done so under less than favorable conditions. It was only in Korea that American forces had borne the brunt of the land fighting. Here, they had failed to win a decisive success and had only narrowly escaped a disaster, despite their opponents' glaring weaknesses. Nevertheless, the Americans had secured the independence of South Korea and had made its adversaries suffer for their inferior firepower and logistical support. Therefore, the US Army felt justified in declaring victory and sparing itself the unpleasant but vital task of critical self-examination. Thus when it came time for another land war in Asia few officers doubted that America would again prevail.

Meanwhile, the American offensive against the PAVN and main force PLAF units would free the South Vietnamese (Republic of Vietnam or RVN) Armed Forces (RVNAF) to take charge of the populated areas along the coast and in the Mekong Delta without fear of interference by large enemy units. However, by 1965 the RVNAF had already demonstrated its inability to prevent the growing insurgent presence in these populated areas from seriously threatening the Saigon government. Washington's decision to shove the RVNAF into the background while US troops took over the "real" war did not help. The RVNAF's new and exclusively counter-guerilla role only increased the inappropriateness of the conventional warfare oriented reorganization forced on it by its American advisors.[616]

It was not long before the Johnson administration authorized Westmoreland to go ahead with his proposed offensives. The first of the soon to be well known "search-and-destroy" operations began in late June. The 173rd

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615 USA Infantry School Staff, "Considerations in Fighting Irregular Forces, *Infantry* Magazine Vol 52 No 4 (Fort Benning, Georgia Jul-Aug 1962) pp. 8-9 and 39-41; Michael Lee Lanning and Dan Cragg, *Inside the VC and the NVA - The Real Story of North Vietnam's Armed Forces*, (New York, Fawcett Columbine Books 1992) pp. 26-29 and 45-46; Krepinevich op cit pp. 89 and 164-168; and Stanley I. Kutler, ed, *Encyclopedia of the Vietnam War* (New York, Macmillan 1996) pp. 393-402.

616 John M. Carland, *Stemming the Tide, The United States Army in Vietnam Combat Operations May 1965 to October 1966* (Washington DC, Center for Military History, US Army 2000) pp. 9 & 16-19; and Kutler op cit pp. 51 to 61 and 157. For the disastrous results of the American neglect of pacification and the guerrillas (until it was too late) is Krepinevich's thesis in *The Army and Vietnam* op cit.

Airborne Brigade, together with a brigade's worth of ARVN troops, moved against hitherto enemy held territory in War Zone "D," only a few miles north of Saigon. Over 144 Army aircraft, of which 77 were transport helicopters, participated in the operation. Aircraft were clearly the fastest means of traversing the hills, rivers, and jungles of Vietnam's largely roadless interior. Their use as tactical transport for infantry and artillery units would soon become universal. US Army planners assumed that aviation would give their forces an overwhelming mobility advantage that would compliment their equally overwhelming firepower advantage over the Communists. Nevertheless this operation, like so many of those that would follow, did not accomplish much and saw very little of the enemy.[617]

The first really serious fighting involving the newly arrived American forces did not occur until mid-October when the 1st Cavalry Division deployed to the Central Highlands to contest control of that area with the PAVN regulars. Here, it fought a series of actions collectively known as the Battle of the Ia Drang (after a river that flowed through the battle area). It all began when two PAVN regiments laid siege to the Plei Me Special Forces Camp. The camp's defenders were local militiamen under US Army Special Forces command. One PAVN regiment, the 33rd, actually besieged the camp while the other, the 32nd, set an ambush along the probable route of the expected ARVN relief force. In truth, the purpose of the operation was not so much to capture the camp as it was to ambush the ARVN. The local ARVN commander, however, was no fool. Suspecting a trap he refused to commit himself until he got the Americans to ensure the defense of his provincial capitol at Pleiku. He then dispatched a brigade-sized relief force which, with the help of 1st Cavalry Division helicopter gunships and air-mobile artillery batteries leapfrogging along the ARVN's route, broke through the ambush and rescued the camp. Their ambush attempt having failed, the two PAVN regiments began an orderly withdrawal towards the Cambodian border.[618]

On 24 October, General Kinnard got permission to send his 1st Brigade and division cavalry squadron off in pursuit of the retreating PAVN. However, within 72 hours Kinnard was running out of fuel. Frantic calls to MACV eventually set the Air Force to work flying an average of 186 tons of supplies per day (58% of which was fuel) into Pleiku. Even after that the 1st Cavalry Division was receiving only about 75% of its fuel requirements, though it was never operating more than one infantry brigade at a time. However, its pursuit of the two PAVN regiments could continue. Since it was the dry season, the foliage was sparse and this made it harder for the PAVN to hide their movements. The Americans rapidly exploited enemy sightings by "piling on" with air-mobile infantry and artillery and helicopter gunships. For two weeks the enemy suffered not only from battle losses but also from privation caused by bring driven away from their pre-cached supplies. In early November, in order to keep up the pressure, the Cavalry Division's 3rd Brigade relieved the 1st. Interpreting this as a withdrawal, the PAVNs, now reinforced by the newly arrived 66th Infantry Regiment, began to move back towards Plei Me.[619]

On November 13, elements of the 3rd Brigade began landing on the 66th Regiment's base camp at the foot of the Chu Pong Mountains. However, at this point the 1st Cavalry Division's high operating tempo (and spare parts shortages) had so disrupted aircraft maintenance that only 16 operational UH-1D helicopters (out of the hundreds in the Division) were available for this move. Worse, the thin mountain air that overlay the landing zone limited the carrying capacity of each helicopter to five fully equipped infantrymen rather than the usual eight. The helicopters would have to make multiple trips in order to build up a large force. The troops already landed would have to spend most of their efforts protecting the landing zone so that troops and supplies could continue to arrive. Thus, they could do little to exploit the surprise they had achieved. Nevertheless, the helicopters were able to bring in all of the 1st Battalion 7th Cavalry and a company of the 2nd Battalion 7th Cavalry before heavy attacks by the bulk of the 66th Regiment halted further reinforcements. However, aided by helicopter gunships, Air Force fighter-bombers, and more than 10,000 rounds fired by air-mobile artillery batteries, the reinforced 1/7 Cavalry successfully withstood its PAVN opponents. Two days later, the remainder of the Brigade (the 2/5 Cavalry and the rest of 2/7) had arrived and, after some more fighting the PAVN withdrew. Their repeated attacks had been poorly coordinated and costly. Once the Americans had dug themselves into all-round defensive positions, even platoon-sized units could hold out. The PAVN troops do not seem to have made very effective use of their mortars or hand grenades and would thus have had great difficulty dealing with dug-in targets that were below ground level. Even so, the Americans suffered 79 killed and 121 wounded but claimed 634 of their enemies by body count and estimated that they had killed another 1,215. However the combined total of these rather inflated claims (1,849) probably far exceeded the total number of PAVN's who actually participated in the battle. Even so, actual PAVN losses had undoubtedly been significant.[620]

Next day, helicopters evacuated the battered 1/7. After this, the 3rd Brigade's two remaining battalions began moving on foot to new landing zones (LZ) from which they would be withdrawn as well. Foolishly, they took few

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617 Tolson op cit pp. 64-65; Carland, *op cit* pp. 28-29.

618 Galvin op cit pp. 290-297; Carland, op cit pp. 99-104. Robert H. Scales, Jr, *Firepower In Limited War* (Washington DC, National Defense University Press 1990) pp. 66-74; and Tolson pp. 73-83.

619 Ibid. See also Carland, op cit pp. 104-111.

620 Ibid. See also Carland, op cit pp. 104-134.

precautions and the 2/7 Cavalry, as it arrived at LZ Albany, was surprised and attacked by the remaining undamaged battalion of the 66th Regiment (plus a few troops from the 33rd).[☞] In a close quarter battle in which the close proximity of friendly troops hampered (but did not negate) the Americans' fire support, the 2/7 Cavalry lost 156 men killed and at least 121 wounded, or nearly 70 percent of its current strength. Much of the battalion appears to have been overrun. General Kinnard claimed afterwards that his men had killed some 403 of the enemy but this figure does not appear to have been based on a "body count" or any other objective measurement.[✎] As before, actual enemy losses were probably much less. To the PAVN this battle showed that the Americans were not so formidable once they were separated from their artillery and air cover. After this, 1st Cavalry Division withdrew its 3rd Brigade. Its 2nd Brigade, plus an ARVN airborne brigade then began to harass the PAVN's withdrawal to Cambodia, subsequently claiming to have decimated another PAVN battalion, this one from the 32nd Regiment. Overall General Kinnard claimed that his division killed 1,519 of the enemy by body count and estimated another 2,042 "probables," or 3,561 in all. Later estimates (probably still too high) scaled this total back to around 1,200 to 1,400. Kinnard's own losses had been 305 Americans killed and 524 wounded. There had also been an unrecorded number of ARVN casualties.[621]

The Battle (or Battles) of the Ia Drang, set the pattern for much of the fighting throughout the remainder of the Vietnam War. The Americans emerged as the apparent victors, fully convinced of the soundness of their tactics and doctrine and that in the helicopter they had at last found the technological "silver bullet" that would carry them to victory. Thus, dependence on helicopters quickly became the norm, even for non-air-assault infantry, and despite the helicopters' considerable supply and maintenance requirements. Almost any infantry unit could assume an air assault role simply by leaving behind all of its weapons and equipment that were too heavy for a helicopter lift. However, the tactical successes that the helicopters made possible seldom had much strategic significance. They rarely accomplished anything towards winning the loyalty and support of the rural population or securing them from the guerrillas (though they did help to ruin their crops, burn their villages, and herd thousands of them into refugee camps). Furthermore, the PAVN/PLAF soon learned a great deal about American tactical methods and how to minimize their effects. The Americans, for their part, seem to have learned far less about the PAVN/PLAF. Instead, they spent the early months of 1966 attempting to repeat the 1st Cavalry Division's success with a new series of "search-and-destroy" operations in the hope that the enemy would again come out and fight.[622]

As a result, the Army soon found itself expending large quantities of its own resources to inflict relatively trifling losses on its enemies. In Operation CRIMP, in January 1966, the 173rd Airborne Brigade reported that it had fired over 7,400 artillery rounds, received 142 Air Force fighter-bomber sorties besides B-52 strikes, and lost 23 men killed in action (including eight Australians) and 102 (30 Australian) wounded. In exchange it claimed to have killed 128 Viet Cong (as the Communist enemy was now known) by "body count" and estimated that it had killed 190 "possibles." It also detained about 1,950 persons of whom it listed 93 as confirmed Viet Cong, 509 as Viet Cong suspects, one as a Viet Cong "rallier" (someone who had elected to switch sides), and the rest as refugees requiring resettlement. It reported the capture of seven crew-served and 84 invividual weapons (but all the crew-served and more than half the individual weapons did not come from enemy dead or prisoners but instead came from caches), 100,000 pages of documents, and 57 tons of rice. At the same time, the 3rd Brigade of the 1st Infantry Division reported expending 2,555 artillery rounds and 226 air strikes (including some by B-52s) and losing six men killed and 45 wounded. In return it claimed 22 Viet Cong killed (plus 35 "possibles") but found no weapons on any of the dead. It also took one wounded Viet Cong prisoner and detained 104 Viet Cong suspects. It recorded destroying caches containing, among other items (such as bicycles, chopsticks, etc.), one rifle, four carbines, and 70 tons of rice. CRIMP was touted as a great success.[623]

In early February this same brigade plus the recently arrived 3rd Brigade of the 25th Infantry Division executed Operation BUCKSKIN. Although this 20-day operation received, among other things, at least 228 Air Force close air support sorties, it only yielded a claim of 93 Viet Cong killed (by "body count") plus one "rallier," a dozen prisoners, and only 11 small arms and 50 hand grenades (taken mostly from caches). The Americans also seized or destroyed other material that included 172 tons of rice. They sustained 25 killed and 209 wounded, mainly from mines, booby traps, sniper fire, and occasional contact with enemy units that seldom exceeded platoon size.[624]

[☞] Readers should note that a PAVN battalion in South Vietnam rarely mustered a fighting strength of more than 500-600 troops. Frequently, it was much less than that. Thus the total number of PAVN's engaged in the Ia Drang battles probably did not exceed 5,000.

[✎] He appears to have pulled that number "out of thin air." However, the PAVN battalion commander was among those killed at LZ Albany.

621 Ibid. See also Carland, op cit pp. 134-147.

622 Tolson op cit pp. 82-85; Krepinevich op cit pp. 165-172.

623 173rd Airborne Brigade (Separate), Combat After Action Report (CAAR) on Operation CRIMP (dated 23 Feb 1966); 3rd Brigade, 1st Infantry Division CAAR on Operation CRIMP (dated 15 Feb 1966); and 173rd Airborne Brigade (Separate) Commander's Combat Note No. 91 dated 22 January 1966 and covering Operation CRIMP. Copies of these documents and of the other CAAR's referrred to below were in the US National Archives, Washington DC under Record Group 338 but they have since been moved to RG 472. Dr. John Carland very kindly provided the Author with copies from the Historians' files at the US Army Center for Military History (CMH) at Fort McNair, Washington DC.

In late February the 1st Infantry Division tried again. This time it would use two of its brigades and all its artillery to trap and destroy a Viet Cong force operating in the vicinity of the Michelin Rubber plantation on the Saigon River. The resulting Operation MASTIFF saw the usual profligate expenditure of resources including over 1,150 helicopter, 82 C-123, and 197 Air Force close support sorties. Some 120,000 rounds of 20mm and 439,150 pounds of other ordnance were used. The Division reported 17 of its men killed in action and 94 wounded. Other losses included an armored personnel carrier (APC) destroyed and another damaged. Two rifles were also lost. The Division claimed 61 Viet Cong killed (40 in air strikes), six suspects detained, and a quantity of supplies captured or destroyed. It took only 10 small arms (all or mostly from caches) and no crew-served weapons.[625]

However, in early March, the Americans did win a genuine success as part of Operation COCOA BEACH. Here, a local Viet Cong unit was soundly beaten after foolishly attacking the 2/28 Infantry Battalion (3rd Brigade, 1st Infantry Division) after the element of surprise had been lost. For 13 friendly fatalities (including six who died when a UH-1D went down and three others killed the day before the attack) and 29 wounded the Americans claimed a Viet Cong "body count" of 199 and estimated at least another 260 "probables." They credited 2,334 rounds of supporting artillery fire with killing 75 of the Viet Cong and 73 close air support sorties (during which an F-100 "Super Saber" was shot down) with killing 150.[ℊ] They also reported the capture or destruction of three 60mm and two 81mm mortars, a 57mm recoilless rifle, eight .50-caliber machineguns, 24 small arms, 30 hand grenades, and other gear.[626]

Things soon got back to normal, however, with Operation ABILENE, conducted by the bulk of the 1st Infantry Division between 30 March and 15 April 1966. Here, the Americans expended 25,000 artillery rounds, 390 naval gunfire rounds, 605 fighter-bomber sorties, and several "ARC LIGHT" B-52 missions in order to claim a "body count" of 92 Viet Cong plus 20 more captured. These were said to be mainly from the D800 Battalion, elements of which had engaged Company "C" of the 2/16 Infantry. In addition the enemy lost 36 small arms, two mortars, three tractors and a quantity of supplies.[ℊℊ] The Americans for their part suffered 48 killed in action and 138 wounded and had lost 30 rifles, 10 M79 launchers, 10 pistols, two M60 machineguns, and a helicopter. Four more helicopters, two M48 tanks, and a 105mm howitzer were damaged. To destroy 1,241 tons of rice, the Americans had distributed 80,000 individual rations. To destroy 5,000 gallons of kerosene they had used nearly 262,000 gallons of fuel.[627]

The Army was increasingly seeing warfare in general and the Vietnam War in particular as a process whose real purpose was to showcase American strengths (firepower, logistical abundance) and successes against an enemy whose role was mainly that of a necessary but unwelcome distraction. Nevertheless, the Army did commission a study of its operations for the first quarter of 1966 to determine how its organization and doctrine could best be adapted to the circumstances of Vietnam. On 23 April 1966, General Westmoreland submitted the resulting nine-volume ARCOV (Army Combat Vietnam) study to Army Chief of Staff Harold Johnson. As might be expected, no surprising or innovative conclusions were reached, (beyond the usual "boilerplate," such as the statement that lessons learned in Vietnam be incorporated in Army doctrine and training programs and that the firepower and mobility of the maneuver battalions be improved). ARCOV was extensively reviewed and reported on by both the Department of the Army (DA) and the U.S. Army Combat Development Command (USACDC). Particular attention was paid to the ARCOV proposal for how the Army's infantry battalions should temporarily reorganize for Vietnam combat.[628]

However, pending ARCOV's recommendations, the infantry battalions then serving in Vietnam made their own adjustments to local conditions and to the sudden demands of air-mobile warfare. This generally meant two things. First, a battalion would substantially lighten its equipment. Second, it would establish a base camp in order to facilitate the battalion's administrative and logistical support in the field. The bulk of the troops in a typical battalion base camp formed a rear detachment of about 100 men. Of these 70 would come from the headquarters

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[ℊ] It should be noted that many of the reported Viet Cong bodies in these operations (not just COCOA BEACH) were probably those of local civilians either killed by accident or because the Viet Cong had conscripted them to act as porters (which could explain their lack of weapons).

[ℊℊ] Readers should note that the weapons captured in all of these operations (CRIMP, MASTIFF, BUCKSKIN, etc.) included very few modern Soviet types from China or North Vietnam. Most were older weapons left over from the French Indo-China War, captured from the ARVN, or bought on the "black market." A few had probably been made in local shops. Thus, even in weapons the insurgents during this period seem to have been largely self-sufficient.

624 3rd Brigade, 1st Infantry Division CAAR on Operation BUCKSKIN, 3 March 1966. From the Historians' files at CMH as per Note 621.

625 1st Infantry Division CAAR on Operation MASTIFF, undated. From the Historians' files at CMH as per Note 621.

626 3rd Brigade, 1st Infantry Division CAAR on Operation COCOA BEACH, 3 April 1966. From the Historians' files at CMH as per Note 621. Also, see MAJ William L. Ponder Jr. 17th Military History Detachment, 1st Infantry Division, "Narrative of the Battle of Lo Ke 5 Mar 66." Copy from the Historians' files at CMH as per Note 621.

627 1st Infantry Division CAAR on Operation ABILENE, undated; and 3rd Brigade, 1st Infantry Division CAAR on Operation ABILENE, 27 April 1966. Both are from the Historians' files at CMH as per Note 621.

628 US Army Combat Development Command, *Review and Analysis of the Evaluation of Army Combat in Vietnam* (Short Title ARCOV) (Fort Belvoir Virginia 1966); and Letter of 26 October 1966 from the Department of the Army to Distribution List, on "Approval of Evaluation of U.S. Army Combat Operations in Vietnam (ARCOV)."

company and 10 from each of the rifle companies. They normally included those members of the battalion S-1, S-4, and maintenance sections, and company administrative and supply personnel who could best perform their duties in a base camp environment. Cooks and "medics" would be present to support them. Most of the battalion's vehicles and heavy weapons (especially the 106mm recoilless rifles and 4.2-inch mortars) would be kept here or, better still, turned in or placed in administrative storage. The rear detachment functioned in much the same way as the "ground" element of a parachute battalion. It contained what could not participate in an air assault but would be needed to support sustained operations later on. In addition to the rear detachment the base camp also accommodated a number of unattached personnel. These included men on light duty (recovering from sickness or injury), men going to or returning from "R&R" (rest and recreation, typically in Saigon), and men at the beginning or end of their "tours" awaiting in or out processing from the battalion. Finally the base camp would also have a security force of about 40 men to guard its perimeter and conduct day and nighttime patrols. The battalion heavy mortar platoon (minus its mortars) was often used for this purpose. Ideally, a rear base should contain about 140 to 160 men, though if the battalion commander was not careful the number might creep up to around 200 or more.[629]

Subtracting the rear base detachment would leave the battalion headquarters company with a normal field strength of about 110-120. Each rifle company would muster about 130-140 (including attached mess teams, medical aidmen, and artillery observers).[◴] This brought the total field strength of an infantry battalion to about 530-540.[630]

In the field the headquarters company operated as a command group, a reconnaissance platoon, and a trains detachment. The command group was a "stripped down" combat headquarters built around the battalion commander, executive officer, S-2, S-3, headquarters company commander and S-3 for air. The sergeant major, operations sergeant, intelligence sergeant, an S-4 representative, an interpreter and an attached three-man artillery liaison team would be present also. Five radio operators and five or six wiremen and switchboard operators from the communication platoon would handle communications. A few drivers (without vehicles) would provide local security. The battalion surgeon might also be present but would normally be with the battalion aid station. It was considered very desirable to attach a helicopter to the command group to serve as an aerial command post.[631]

The battalion reconnaissance platoon would strengthen itself by absorbing the otherwise useless battalion ground surveillance section (without its radars or vehicles) and the almost equally useless antitank platoon (without its vehicles, recoilless rifles, or platoon commander). This normally brought the recon platoon to about 50 effective men. Though it could conduct reconnaissance missions, it was more likely to act as a command post security force, and/or as the battalion commander's reserve. Command of it usually went to the best junior leader in the battalion.[632]

The battalion trains detachment would typically establish itself in a "safe" locality close to the battalion's intended operating area. The S-4 would usually be in charge and his subordinates would include a 15-man supply detachment (including a supply representative from each rifle company), a 10-man battalion aid station, most of the communication platoon (about 15 men providing radio relay and repair services), and the company mess teams. The latter would prepare meals in the trains area to be flown out to the companies.[633]

Each rifle company would establish a very abbreviated headquarters that included little more than the company commander, executive officer (if not detached elsewhere), first sergeant, two radio operators, the communication sergeant, and an attached three-man artillery forward observer team. A rifle platoon would muster 30-35 men organized as three rifle squads of seven to eight men each, a machinegun squad of seven. The rifle squads were expected to operate as two fire teams whenever they could though it is difficult to say to what extent this was

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[◴] Airborne battalion battalions would have organized themselves in nearly the same way as infantry battalions but air assault battalions behaved somewhat differently. They had very little heavy equipment to leave behind and battalions that were not currently involved in air assault operations could guard the rear elements of those that were. This should have enabled air assault battalions to field more men. However, just prior to its insertion into Landing Zone "X-Ray" during the Ia Drang battles, LTC Harold Moore's 1st Battalion 7th Cavalry mustered only 431 of the 633 officers and men that it had on its rolls. The other battalions in the 3rd Brigade, 1st Cavalry Division seem to have been in similar shape (though their rifle companies tended to muster about 110-120 men each). Many men were down with malaria (effective measures to control this disease had not yet been instituted) or were unavailable because their enlistments were about to expire. The rear detachment may also have been a bit larger than was really necessary. However, the mortar platoon did not guard the base camp but instead flew into X-Ray where its men fought there as riflemen. The reconnaissance platoon served as the battalion reserve. However, since Company "D" (the combat support company) fought as a separate entity during the battle it would appear that the antitank platoon (minus its recoilless rifles) formed a second rifle platoon in Company "D" and had not been absorbed by the reconnaissance platoon.

629 Dept. Army Operations Report – Lesson's Learned 4-67 – "Observations of a Battalion Commander" dated 7 June 1967, pp. 13 and 35. This report was written by LTC William S. Hathaway from his experiences commanding 2nd Battalion 16th Infantry, 1st Infantry Division, in Vietnam. Copies are available at the US Army War College at Carlisle Pennsylvania and in the Historians Files at CMH, Washington DC.

630 Ibid, pp. 13-14. See also Carland op cit pp. 113-114.

631 Ibid; and see Dept. Army, 1st Infantry Division Pammphlet 350-1, "Fundamentals of Infantry Tactics" dated 1 February 1968 pp. 16-17. Copies are available at the US Army War College at Carlisle Pennsylvania and in the Historians Files at CMH, Washington DC.

632 "Observations of a Battalion Commander" op cit pp. 6 and 13-15; and "Fundamentals of Infantry Combat" op cit p. 16.

633 "Observations of a Battalion Commander" op cit pp. 15 and 40-41.

actually achieved. Though the M79 40mm grenade launcher was a highly regarded weapon, each rifle squad tended to carry only one of them (together with 24-35 grenades) rather than the two that their organization tables allowed. This reduced the squad's total load and maximized its rifle strength. By moving its two recoilless rifles teams to the company antitank section (weapons platoon) the old platoon weapons squad became a machinegun squad. The recommended means of employing this squad was as two three-man machinegun teams. A team of less than three men could not easily carry the minimum of 800-1,000 rounds ammunition that its gun needed. Most platoons managed to acquire a third machinegun. Sometimes this gun equipped a third team in the machinegun squad. This was considered acceptable if the squad could assign three men to each gun. Otherwise it was considered better to man only two guns with three men each than three guns with only two. However, a third gun permitted the attachment of one machinegun to each rifle squad. The Army (whose doctrine was still written for the old Browning M1919A4 or A6 LMG that was too heavy and cumbersome for squad use) frowned upon this practice. It believed that a platoon leader should keep all his LMG's under his personal control. However, squad-level machineguns were valuable for cutting through heavy vegetation, and for backing up the squad's often-unreliable M16 rifles. They had also been strongly recommended by the old 1946 Infantry Conference. The lack of any mention of using machineguns as squad-level bases of fire also suggests that that the Army rarely conducted fire and maneuver below platoon level. In general it seems that distribution of the machineguns among the squads was preferred when in close terrain but when the terrain opened out then a platoon leader was more likely to concentrate his guns into a squad again.[634]

At this stage of the war, the rifle company weapons platoon typically operated as two 15-man sections, one of which was supposed to be for mortars and the other for antitank weapons. In practice they often just functioned as additional rifle squads but battalion commanders generally seem to have tried to get them to carry at least a few heavy weapons. The antitank section, if it acted as such, would typically carry a pair of 90mm recoilless rifles (dropped from the rifle platoons), especially if canister ammunition could be obtained. The 1st Infantry Division (and probably other units) maintained a pair of 60mm mortars for each company mortar section as lighter alternatives to its three 81mm weapons. However the 60mm weapons much shorter ranged than the 81mm and only high explosive ammunition, much of it unreliable (it had been kept in storage for too long), was available for them. Alternatively, the mortar section might carry just one or two 81mm mortars and at least 15 rounds of ammunition for each, though many more rounds would be needed for really effective shooting.[635]

For company and platoon level communication the hand-held AN/PRC-6 radios proved useless (especially in high humidity) and the troops quickly discarded them. To compensate for this a rifle company would redistribute its 15 AN/PRC-25 radios (including those belonging to its forward observers). Three each would go to the weapons platoon, each rifle platoon, and the company headquarters. One company headquarters radio was tuned to the battalion command net, another to the company command net, and the third to the battalion fire support net. Even 15 radios per company did not allow for any radios for the battalion air-ground or medical evacuation net. Radios would have to be diverted from their primary functions if transmissions on these nets were required. In the rifle platoons the platoon commander kept one radio with him, co-located himself with one of his rifle squads and issued his other two radios to his other two squads. These radios were especially important when the platoon was spread out or operating in dense vegetation and visual or voice commands could not readily be given.[636]

Even in the relatively early stages of the Army's large-scale involvement in Vietnam tactics focused mainly on massed firepower to destroy the enemy, just as the French had done in both world wars and tried to do in Indochina and as the Russians would later attempt to do in Afghanistan. The purpose of infantry, armor, and other combat maneuver units was merely to find the enemy, preferably with the smallest-sized unit possible so as to minimize casualties and the number of men who might be pinned down. Operations were not conducted outside of friendly artillery range. They were massive, noisy, slow moving, and relatively easy to avoid, especially since the Americans were very risk-averse and more than willing to sacrifice surprise, and even tactical success, for security.[637]

THE ARCOV STUDY

634 Ibid, pp. 11-15; and Dept. Army Operations Report – Lesson's Learned 1-67 – "Observations of a Platoon Leader" dated 30 January 1967 pp. 29-31. This report by 1LT Patrick H. Graves Jr. is from his experiences commanding a rifle platoon in the 1st Briggade of the 101st Airborne Division, in Vietnam. Copies are available at the US Army War College at Carlisle Pennsylvania and in the Historians Files at CMH, Washington DC.

635 "Observations of a Battalion Commander" op cit pp. 6 and 11-15; and "Fundamentals of Infantry Combat" op cit pp. 16 and 73-76.

636 "Observations of a Battalion Commander" op cit pp. 33-34.

637 Ibid, pp. 15-18, 20, 22, and 32; and "Fundamentals of Infantry Combat" op cit pp. 14-20. For an excellent series of operations by the Russsians in Afghanistan and their similarities to Vietnam see National Defense University, "The Bear Went Over the Mountain, Soviet Combat Tactics in Afghanistan" (Washington DC, National Defense University 1996). This is actually a series of tactical studies from the Afghan written by and for students at the Frunze War Academy in Moscow. LTC Lester Grau, USA, translated these studies into English and also provides his own commentary. This work is available from the Defense Technical Information Center, Washington DC. For accounts of the French war in Indochina one should always begin with Bernard B. Fall, *Street Without Joy* (New York, Schocken Books 1964).

When the ARCOV study did appear, it recommended that infantry battalions in Vietnam reorganize themselves to field four rifle companies. Battalion commanders in Vietnam were reporting that they considered a fourth company to be sufficiently valuable that they would frequently improvise one by further augmentation of the battalion reconnaissance platoon. Fourth companies had also performed well in the more conventional combat scenarios that field tested the ROAD organization and had only been rejected to save manpower. The USACDC noted that the Marines had already been using four-company battalions in Vietnam and were getting excellent results with them. It also noted that four-company battalions were also standard in the British, Canadian, and Australian armies. The Australians had been successful with their four-company battalions in places as diverse as New Guinea and North Africa. They had also experimented with a five-company battalion during the Pentomic era but found it unsuitable. USACDC also pointed out that a three-company battalion did not provide an optimum cross-reinforcing capability. A four-company battalion, on the other hand, could operate on two or more axes and offered improved cross-reinforcement because it provided many more options (for example, a four-company battalion could deploy two companies on line and two, rather than only one in reserve). The increased span of control that a four-company battalion required of its commander was acceptable and might well produce a desirable reduction in the number of headquarters. Though the manpower requirement of a four-company battalion was 25 percent greater than that of a three-company battalion, USACDC believed that it could generate at least one third more combat power.[638]

In order to keep the overall size of the four-company battalion within supportable limits (and to preserve its suitability for air assault operations), all elements would have to be carefully trimmed of non-essential men and weapons. All combat elements and equipment of the rifle company would have to be foot mobile and the assault and control elements (communication) of the infantry battalion would have to be light enough to be carried by utility helicopter (UH-1). Assault elements of a brigade would have to be mobile by medium helicopter (CH-47). The rifle companies themselves should experience the fewest changes. In the rifle platoons, a rifle squad would have to be light enough to ride in a single UH-1 utility helicopter. Under Vietnam conditions this was often impossible and a squad would have to split itself between two helicopters, a very unsatisfactory arrangement. However, rather than suggest a smaller squad, ARCOV recommended the procurement of a version of the "Huey" with more powerful engines as a squad carrier. Until it was available, expedients such as reducing the UH-1's fuel load for short flights or leaving behind a door gunner could increase troop capacity. Of course, the fact that so many rifle squads were chronically under-strength helped to solve the problem as well. ARCOV also recommended that the weapons squad in each rifle platoon replace their two two-man 90mm recoilless rifle teams with a third three-man M60 machinegun team (as was already happening unofficially). Machineguns had proven to be particularly effective as a means for the frequently ambushed Americans to gain fire superiority over their attackers. A larger official machinegun allowance would also support the current practice of attaching guns to individual rifle squads.

ARCOV recommended that the existing rifle company weapons platoon drop its antitank section and become a mortar platoon. The old mortar section headquarters would become a platoon headquarters by receiving a platoon commander, platoon sergeant, and radio operator in lieu of its section chief. The two fire control operators would remain but since the three radio operators would be eliminated, the three forward observers would have to carry their own radios. Each mortar squad would receive an additional ammunition bearer to enable it to carry its mortar and accessories and eight rounds of ammunition (rather than five). This was, of course, inadequate but if the platoon carried only one or two mortars then the ammunition load could be significantly increased.[639]

Finally, ARCOV recommended that each company headquarters receive an eight-man mess team.[640]

For airborne rifle companies, ARCOV proposed the same organization as standard rifle companies but with a somewhat different vehicle mix (LIWCs in place of 3/4-ton trucks in the mortar platoon but an extra 2.5-ton truck for company headquarters). The airborne company headquarters would also get a radio mechanic instead of a messenger. Rifle platoon headquarters would lose their messengers (but retain their radio operators). In air assault companies the platoon weapon squads would reorganize in to three machinegun teams each, as in the infantry and airborne companies. An armorer and a supply clerk but no mess detail would be added to company headquarters.[641]

ARCOV also recommended that the little-used platoon flame-throwers be withdrawn from the rifle companies and that 12 (one per rifle platoon) be kept by the battalion supply section for issue "as needed." Likewise, the new lightweight and disposable 66mm M72 LAAW would replace the nearly obsolete M20 3.5-inch bazooka.[642]

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638 USACDC, *Review and Analysis of the Evaluation of Army Combat in Vietnam*, op cit pp. 1-III-23 to 1-III-26 and 2-II-49 to 2-II-52

639 Ibid; pp. 1-III-4 to 1-III-5, 2-II-5 to 2-II-6, 2-II-12 to 2-II-13, and 2-II-37 to 2-II-42.

640 ARCOV Study 25 April 1966, Annex H, MTOE 7-17E.

641 Ibid; Annex H, MTOE 7-17E, 7-37E, and 7-57E.

642 Ibid; pp. 2-II-37 to 2-II-39.

For the battalion headquarters, ARCOV prescribed the addition of a captain S-5 or civil affairs officer. This would be a captain who would supposedly have some proficiency in the Vietnamese language. He would handle issues involving refugees, village relocation, etc. A staff sergeant (E-6) administrative supervisor in the battalion headquarters section (who was also supposed to know some Vietnamese) would assist him. The battalion headquarters section itself would lose its radio personnel (two team chiefs and four operators) and a light truck driver/radio operator (leaving a total of eight). The number of clerk typists in the section (all were armed with M79s) increased to three. As in the air assault battalions, many of the radio communication functions formally carried out by the battalion headquarters section would now return to the communication platoon. ARCOV added a radio section to this unit, which included a chief operator (E-5) and seven other operators (four for Teletype machines). However, the platoon lost its two wire team chiefs, one wireman (out of four), and its one remaining light truck driver/radio operator. A three-man air control communication team would also be a permanent part of each ARCOV battalion.

ARCOV also strengthened the battalion headquarters company headquarters with a seven-man mess detail and a supply clerk to supervise the rigging and loading of supplies to be sent out to the battalion's rifle companies.[643]

The combat service support functions of the ARCOV infantry battalion headquarters company would continue to be carried out by the relatively unchanged Support, Maintenance, and Medical platoons. Each ARCOV infantry or airborne battalion support platoon lost its mess section since the companies it supported would all have had their own mess teams. The transportation section lost only its two five-ton trucks together with their two drivers and one assistant driver. Instead it acquired a 2.5-ton fuel truck operated by an additional light truck driver. ARCOV actually augmented the supply section by four general supply specialists. One of these would perform ration breakdown and another would serve as a specialist in aerial delivery techniques. In the battalion maintenance platoon, ARCOV merely replaced one wheeled vehicle mechanic with an equipment report clerk (with M-79). In the medical platoon, ARCOV added four men to the aidman section for the fourth rifle company but reduced the evacuation section to a leader, four jeeps, four drivers, and four aidmen. With helicopter evacuation available, this was seen as sufficient.[644]

The headquarters company's combat support functions would be limited to just its 4.2-inch mortar platoon and a specially organized combat support platoon. This new platoon would consist of a headquarters, the battalion ground surveillance section, and a section of four 106mm recoilless rifles (plus a section leader and a radio operator/driver). This antitank section would replace the battalion antitank platoon. The ground surveillance section would have a leader (E-6), two team leaders (E-5), eight operators, and four AN/PPS-4 radars. The AN/TPS-33 had proved to be prohibitively heavy and unreliable and its 18,000-meter range was seldom needed. Doctrine called for a surveillance range of about 6,000 meters. The much lighter AN/PPS-5 with its 10,000-meter range promised to deliver this capability but ARCOV was reluctant to recommend it because of its high cost and the fact that it had not been completely tested. The battalion mortar platoon stayed largely intact under ARCOV. Its headquarters had dropped one of its light truck drivers/radio operators in an earlier change but it received a fourth forward observer and radio operator for the battalion's fourth rifle company. ARCOV also eliminated the old mortar section leader (the four squads would operate directly under platoon headquarters) but made no other personnel changes.[645]

ARCOV airborne battalion headquarters companies were the same as those of the infantry battalions but with lighter vehicles (LIWC in lieu of 3/4-ton trucks, etc.). With regard to the air-mobile or air assault battalion, ARCOV eliminated the combat support company and moved its mortar platoon and an antitank section with 106mm recoilless rifles into the battalion headquarters company. Each squad in the battalion mortar platoon received two additional ammunition bearers.

ARCOV also added an S-5 to battalion headquarters and an administrative supervisor (to work with the S-5), and another assistant operations sergeant to work with the air controllers, to the battalion headquarters section. The section's three clerk typists were armed with M79s. The communication platoon replaced its three-man radio-teletype three radiotelephone operators. The medical platoon added four aidmen for the fourth rifle company to its aidman section. The support platoon added a radio operator/driver to its headquarters, two clerks and a supply specialist to its supply/transport section, and another cook to its mess section. Company transportation did not materially increase.[①]

What ARCOV had to say about battalion reconnaissance platoons was more controversial. Though ARCOV acknowledged the usefulness of these platoons, it observed that in Vietnam whole companies or even the full

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[①] Although at least some battalions in the 1st Infantry Division found that an attached engineer squad had been very useful for relieving the rifle units of the need to perform minor engineering work, ARCOV did not recommend any revival of the old infantry pioneer squads for battalions in Vietnam. See "Observations of a Battalion Commander" p. 15.

643 Ibid; pp. 1-III-30 to 1-III-31 and 2-II-70; and Annex H, MTOE 7-16E.

644 Ibid; Annex H, MTOE 7-16E.

645 Ibid; and pp. 2-II-1 to 2-II-2, 2-II-37 to 2-II-39, and 2-II-42 to 2-II-43 and see "Observations of a Battalion Commander" op cit p. 15.

battalion might frequently mount reconnaissance operations in lieu of a platoon. Indeed, the essence of "search and destroy" operations was armed reconnaissance. Battalion level ground reconnaissance missions in Vietnam were usually beyond the capabilities of a single platoon. The reconnaissance platoon itself often ended up being relegated to command post or base camp security roles. Based on these facts ARCOV recommended that the reconnaissance platoon be eliminated to free more manpower for the fourth rifle company.[646]

Finally, ARCOV made a number of general recommendations regarding infantry battalion organization in Vietnam. It advised that all personnel except machinegunners, M79 grenadiers, company commanders, and field grade officers (majors and above) be armed with the new M-16 rifle in lieu of the heavier M-14 and the .45-caliber pistol. The M-16 was a controversial weapon designed by Eugene Stoner and first used by the Air Force. It was a very light-weight weapon that made the maximum use of plastics and fired a non-standard 5.56mm cartridge that achieved stopping power through a very high muzzle velocity. It was also capable of fully automatic fire. A soldier could carry more of the smaller 5.56mm cartridges within the same weight limits and these cartridges also produced less recoil. This in turn made the weapon easier to control when automatic fire was being used. Unfortunately, the rifle suffered from mechanical reliability problems until its ammunition was improved. Since every soldier in an M16-equipped unit would now have an automatic weapon there would be only a nominal distinction between an automatic rifleman and any other rifleman. However, the practice, which the M16s encouraged, of blindly spraying bullets down range seldom translated into any increase in effective firepower. A genuine squad automatic weapon was still needed. The M60 machinegun might still have served in this role as the MG-34 and MG-42 had had done for the Germans in World War II and as the postwar MG-42 and the Belgian FN MAG were doing for several NATO armies by the mid-1960s. However, the US Army was unwilling to see the M60 as a squad-level weapon.[647]

These ARCOV recommendations produced the infantry battalions that appear in Appendices 9.9 through 9.11.

Additionally, ARCOV was enthusiastic about the use of the AN/GRC-125 as the battalion's principal vehicle mounted radio. It could be dismounted and man-packed when the terrain became too difficult for vehicular operations. With an AM-4306 amplifier attached, an AN/GRC-125 or AN/PRC-25 still weighed only 38.5-pounds but its transmission range more than doubled. It could thus provide at least minimal battalion level radio communication in portable form. ARCOV also recommended a voice scrambler for the AN/PRC-25 although this doubled the radio's weight and tripled its power usage and led ARCOV to conclude that a better man-pack communication system was needed. In addition, ARCOV wanted to replace the unreliable AN/PRC-6 squad radio with a new system with the same three-to five-kilometer range as an unamplified AN/PRC-25. To this end the Army tested the AN/PRT-4 radio and AN/PRR-9 receiver even though they could not meet the range requirement. Finally, ARCOV strongly advocated the increased tactical use of helicopters for infantry, airborne, and air assault battalions. ARCOV wanted them used as airborne command posts for battalion level headquarters and higher.[648]

While the ARCOV study received a great deal of attention, USADC and USDA did not accept its recommendations without a great many changes (mainly added by the USADC). At the rifle squad level, USACDC approved ARCOV's recommendations to replace all remaining M14 rifles with the M16 and to develop an M16 variant that would combine this rifle with an M79-type grenade launcher. This would allow the grenadiers to also serve as riflemen. The XM-148 prototype, followed by the standard M16/M203 rifle/grenade launcher combination duly appeared, but not until late in the war. Moving to the platoon level, USACDC was reluctant to officially drop the 90mm recoilless rifle from the weapons squads. It believed that the high explosive shell being developed for the 90mm rifle would make it a much more attractive support weapon and revive its use. Eventually, the Army decided to retain one 90mm recoilless rifle and crew in the rifle platoon weapons squad in lieu of the ARCOV study's third machinegun. This seems to have been an unfortunate decision. The promised 90mm high explosive shells never appeared and the recoilless rifles continued to see little or no use at the platoon level. The two-man crew allowed per rifle could not have carried enough ammunition in any case. At the rifle company level, the ARCOV mortar platoon was adopted with few changes except that the mortar squads and platoon headquarters received jeep-and-trailer combinations in lieu of 3/4-ton trucks. Jeeps were lighter and easier to move by helicopter, though in the airborne and air assault companies, they replaced "mules" (LIWC) that were lighter still. The ARCOV study had pointed out that the terrain in was too rugged for "mules" in many areas, though jeeps would not have been any better (except on roads). Finally, the ARCOV-recommended company mess details were never formed. A consolidated battalion mess section would have to do instead. Given that the troops tended to eat in consolidated mess facilities when in garrison and usually ate C-Rations in the field, having only a battalion-level mess section made a good deal of sense.[649]

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[646] Ibid, pp. 1-III-27 to 1-III-28 and 1-IV-7 to 1-IV-8.

[647] Ibid, pp. 2-II-28 to 2-II-30; James R. Ebert, A Life in a Year, *The American Infantryman in Vietnam, 1965-1972* (Novato California, Presidio Press 1993) p. 117; and Smith, *Small Arms of the World* op cit p. 650.

[648] USACDC, *Review and Analysis of the Evaluation of Army Combat in Vietnam*, op cit pp. 1-IV-16 to 1-IV-19, 2-II-12 to 2-II-15, 2-II-20 to 2-II-21, and 2-II-52 to 2-II-58.

However the biggest changes made by the USACDC to the ARCOV organization were at battalion level. USACDC disagreed with ARCOV's decision to concentrate all battalion level assets into the headquarters company and use it both as a combat support and combat service support unit. Instead, USADC decided to split off the headquarters company's combat support elements into a separate combat support company. The new combat support company would include the battalion mortar platoon. However, if 90mm recoilless rifles were going to be placed in the rifle platoons then the 106mm recoilless rifles in the battalion antitank section would not be needed. The loss of the antitank section effectively eliminated the combat support platoon, although USACDC retained the ground surveillance section in order to take advantage of the new AN/PPS-5 radars. To replace the combat support platoon, USACDC recommended a battalion reconnaissance platoon. USACDC firmly believed that this unit was still needed even though it had seldom been used for purely reconnaissance missions. ARCOV had not actually opposed a reconnaissance platoon for its four-company battalion and it noted that the command post and base security missions that the old reconnaissance platoons had previously performed were still required. Also, the reconnaissance platoon had proven useful as a battalion reserve or reaction force and it could even act as an extra rifle platoon. These functions were found to be important enough in combat that if no reconnaissance platoon were available to execute them then all or part of a rifle company would have to be used instead, thus defeating the purpose of having a four-company battalion in the first place. Further, USACDC pointed out that ARCOV data indicated that the great majority of ground combat in Vietnam was being initiated by the enemy and nearly half of this was by ambush. Clearly, Army maneuver battalions needed tactical reconnaissance and security. A reconnaissance platoon, especially one that included a mixture of U.S. and indigenous troops, ought to fill much of this requirement.

The USACDC proposed a reconnaissance platoon with a platoon leader, platoon sergeant, an observer, a driver, and four eight-man squads. Each squad would function as two four-man teams, the squad being led by the senior team leader. The platoon would operate a total of nine jeeps (one for the platoon headquarters and one per scout team). One jeep per squad, plus the platoon headquarters jeep, would carry an AN/GRC-125 radio. Every jeep, except the platoon headquarters jeep, would also carry a pedestal-mounted M60 machinegun. One man per jeep would carry a grenade launcher, preferably a combination weapon such as the XM-148. The platoon might operate tactically as separate squads or teams rather than as a platoon and it would train for both mounted and dismounted operations as well as with mechanical or electronic devices (such as ground sensors) and the latest scouting techniques. However, the new reconnaissance platoons would have to be organized from scratch since the battalions in Vietnam had already used their existing rreconnaissance platoons as cadre for their ad hoc (pre-ARCOV) fourth rifle companies. Nevertheless, the USACDC believed that the importance of the reconnaissance platoons would justify their manpower cost.[650]

Despite all the objections and changes, the Army adopted most of ARCOV's essential recommendations albeit only for Vietnam. The conversion process moved slowly though it was largely complete by 1968. The diagrams of these provisional tables should only be regarded as typical and not definitive as there were many variations. There were no significant organizational distinctions between infantry, airborne and air assault battalions, though air assault units were supposed to have fewer vehicles. A rifle company appears in Appendix 9.12:[651]

A typical combat support company, also shown in Appendix 9.12, included a reconnaissance platoon quite different from what the USACDC had proposed. It had a platoon leader, platoon sergeant, radio operator, and six six-man squads (with a grenadier in each). This unit was not motorized though jeeps could have been added to it easily enough. The intent was undoubtedly that it should rely mostly on helicopter or foot mobility. To that end each reconnaissance squad was small enough to easily fit into a UH-1 helicopter, even when the latter operated with a reduced payload. In the mortar platoon, it is uncertain whether the increase from six to seven men per squad was actually mandated but since so many units were operating below strength this would have had very little practical effect. The ready availability of large amounts of "external" artillery and air support plus their own mobility limitations meant that the 4.2-inch mortars, and even the 81mm mortars in many cases, would remain in base camps when their parent battalions went to the field. The mortar men themselves served mainly as additional riflemen.[652]

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649 Ibid; pp. 2-II-12 to 2-II-13, 2-II-31 to 2-II-32, and 2-II-37 to 2-II-40; and US Army MTOE 7-177, Rifle Company Infantry Battalion (Test) dated about 1966 and quoted in Shelby L. Stanton, *Vietnam Order of Battle* (New York, Galahad Books 1986) p. 53.

650 Ibid, pp. 1-III-23 to 1-III-27, 1-IV-7 to 1-IV-8, and 2-II-51 to 2-II-52; see also MAJ Charles R. Baker "The Rifle Squad's Artillery" *Infantry* Magazine Vol. 59 No. 5 (Ft Benning Georgia, USAIC Sep-Oct 1969) pp. 39-41.

651 US Army MTOE 7-177, Rifle Company (Test) dated ca 1966 and quoted in Shelby L. Stanton, *Vietnam Order of Battle* op cit p.53. According to B.G. Burkett and Glenna Whitley, *Stolen Valor, How the Vietnam Generation Was Robbed of its Heroes and its History* (Dallas, Texas, Verity Press 1998) pp. 435-443, Stanton has fabricated his own Vietnam war record (he was never there). Stanton's home reportedly contains huge amounts of official and original Government records that he probably does not legitimately own. He has used this material for his books and the MTOEs quoted here probably come from it. While this writer believes that the material quoted is probably accurate (its conformity to ARCOV is in its favor) the reader should be warned that some of Stanton's material may not be reliable.

Available data on the USACDC-modified infantry battalion headquarters company is rather less reliable but the diagram of it in Appendix 9.12 should be at least generally correct.

The battalion headquarters kept its S-5 but, due to the greatly reduced number of vehicles in the battalion, lost its motor transport officer. Although fewer vehicles made the battalions easier to move by air, ARCOV had recommended that the authorized number of vehicles (for E or F series battalions) be retained as they provided essential tactical mobility while the unit was on the ground. Likewise, ARCOV had recommended an increase in the number of vehicles per air assault battalion to ensure adequate ground mobility and re-supply. Indeed, despite the large number of helicopters available, the bulk of the Army's supplies continued to move by surface means. However, it appears that additional transportation units were created to make up for the reduced number of trucks within the battalions themselves. USACDC also recommended that transportation units equipped with armored personnel carriers (APC) be used to temporarily mechanize infantry battalions for road clearing and security operations. This would have been similar to the Marine Corps' practice of using their armored amphibian vehicles as infantry carriers. However, the Army vetoed this suggestion, stating that if APCs were needed in Vietnam it was best to add them in the form of mechanized infantry battalions that could use them appropriately.[653]

The new ARCOV/USACDC battalion organizations served throughout the remaining period of the Army's involvement in Vietnam. There were some exceptions. The 9th Infantry Division, for example, although it had been in Vietnam since December 1966 could not convert to four-company battalions until shortly after the Tet Offensive in 1968. This was initially due to personnel ceilings that the division was placed under, coupled with substantial numbers of casualties and a shortage of replacements. Once the conversion was finally made, the 9th Division, like other units before it, reported a significant increase in its effectiveness. However, the rifle companies were often reporting only 60-70 men fit for duty and vigorous efforts were needed to increase their strengths.[654]

Unfortunately, while the new organization appears to have made the Army more effective tactically, it could do nothing to alter or mitigate the errors in strategy that would ultimately lead to military defeat.

MARINE INFANTRY IN VIETNAM

In 1961, the Fleet Marine Force had adopted, more or less in their entirety and without significant change, the Hogaboom Board's provisional February 1958 organization. However, proposals to modify the new tables, designated the M-series, began to surface almost immediately. Many of the proposals involved substantial increases in ground transportation and firepower at the expense of its air-mobility and shipping space economy. The Marine Division's artillery would get its 155mm howitzers back. The pioneers would become division engineers again and recover much of their heavy equipment. The number of tanks would substantially increase.

Insofar as the infantry was concerned, the new M-Series battalions would initially replace their M1 rifles and BARs with M14 rifles. M60 machineguns would replace the old M1919A4 Brownings. There was some disagreement on how best to integrate these new weapons. The M60 machinegun was light enough to be a squad-level, as well as a company-level support weapon and there was a serious proposal to give one fire team per rifle squad with an M60 machinegun (without tripod) together with an additional man to help carry the gun's ammunition. The company weapons platoon would retain its machineguns (with their tripods) and these would continue to deliver long-range and/or sustained fires. However, the lighter-weight of the M60s and their ammunition would enable a four-man machinegun team to carry as much as much ammunition (1,400-1,500 rounsa) as a five-man squad. Adoption of a four-man gun team would enable the weapons platoon's three machinegun sections to reorganize as a one section with a leader and three squads. Each squad would have a leader and two teams. This change would save more than one fifth of the machinegunners in the weapons platoon without sacrificing its firepower.

The Marines were far more conservative than the Army when it came to embracing the M-79 grenade launcher. Instead of distributing it throughout the battalion the Marines decided to issue it only to the rifle platoons and squads. One alternative called for two launchers per rifle squad (presumably to the two fire teams that did not have M60 machineguns) with one more launcher kept at platoon headquarters. A second alternative called for only one M79 per squad and none for platoon headquarters. The squad leader might carry and operate the grenade launcher himself or, a man from the M60-equipped fire team could become the squad's dedicated grenadier.[655]

Another proposal called for additional vehicles in order to improve the company's ground mobility and its ability to keep its heavy weapons supplied with ammunition. Under this scheme, instead of having two mechanical

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652 US Army MTOE 7-178, Combat Support Company, Infantry Battalion ca 1966 – quoted in Shelby Stanton op cit.; see also LTG Julian J. Ewell USA (Ret) and MG Ira A. Hunt Jr. USA (Ret), *Sharpening the Combat Edge: The Use of Analysis to Reinforce Military Judgement* (Washington DC, US Dept of the Army 1974) p. 92.

653 USACDC, *Review and Analysis of the Evaluation of Army Combat in Vietnam*, op cit pp. 2-II-17 to 2-II-20, 2-II-65 to 2-II-67, 2-II-72 to 2-II-73, and page 2 of Enclosure 2.

654 Ewell and Hunt, *Sharpening the Combat Edge*, op cit pp. 18 to 20.

mules (LIWC) plus a jeep and trailer normally attached to it from the battalion motor transport section, a rifle company would have its own motor transport element with a jeep and trailer and seven "mules." One mule would go to each rifle platoon. Two more would be for the weapons platoon and the last two, plus the jeep and trailer, would stay with company headquarters. In order to provide drivers and mechanics for all these vehicles, the rifle company headquarters would get eight additional enlisted men (a total of 15). To avoid an increase in the overall size of the company, the assault section in the weapons platoon would lose one of its seven-man squads. The weapons platoon headquarters would also lose its ammunition corporal and one messenger.[656]

Several other proposals also affected the battalion headquarters and service company. The S-2 (intelligence) section in battalion headquarters would lose its draftsman (E-3) to the S-3 section but would acquire four more scout/radar operators. This would give the S-2 his own nine-man scout/radar section (including two drivers) under a staff sergeant (chief scout). The number of radar sets would remain the same. Two radar repairmen (E-5) would also transfer to the S-2 section from the communication platoon. Besides obtaining the S-2's draftsman, the S-3 section would also acquire a messenger while the S-4 section obtained a sergeant embarkation assistant.

The battalion communication platoon would pick up a second radio repairman but would lose its two radar repairmen and its TACP section. The platoon would only hold the communication equipment required by the battalion headquarters and service company. The four rifle companies would their own radios and these would amount (per company) to a single AN/PRC-10 man-pack radio for the battalion command net, and six AN/PRC-6 hand-held radios for communication within the company (one per platoon plus two for company headquarters). As soon as they were available, each company would also get eighteen hand-held radios of an unspecified type for squad and platoon level communications.

Yet another proposal was that the TACP section became an seperate TACP/AA section, no longer part of the communication platoon. As such it would include not only the full range of air-ground communication equipment and personnel but also air defense weapons in the form of Redeye hand-held surface to air missiles. Since they would have the TACP's air-ground communications the Redeye gunners could easily be warned of the approach of enemy aircraft or of the proximity of friendly aircraft. The new TACP/AA section would consist of a liaison team and four Forward Air Controller (FAC) teams (for attachment to the rifle companies). Each FAC team would have an officer, four radio operators, and two Redeye gunners. The battalion air liaison officer (who would no longer be part of the S-3 section) would lead the TACP/AA section and its liaison team. The two officer forward air controllers from the battalion S-3 section, plus two additional FAC's would lead the four FAC teams.

The battalion service platoon would get a third armorer but its motor transport section would lose five drivers. There would be 34 mechanical mules for the headquarters and service company alone (besides 28 in the rifle companies). However, there would be only a dozen jeeps and trailers (including four in the rifle companies). The number of jeep-ambulances would increase from two. The number of radio jeeps would stay at four.[657]

After lengthy consideration of all these proposed changes, Headquarters Marine Corps (probably wisely) rejected nearly all of them. It concluded that the proposed firepower and mobility enhancements would not yield the benefits hoped for. In the revised tables of organization issued in November of 1962 the rifle squads received no machineguns. The machineguns in the weapons platoon would have to do. Each rifle squad did get an M-79 launcher but a new fourteenth squad member to carry it so as to prevent any reduction in the squad's rifle strength. Unlike the Army, the Marines were not willing to give up riflemen to make room for M79s.

Headquarters Marine Corps also rejected any additions to rifle company or battalion motor transport. This was particularly significant. Given the fact that a mechanical mule weighed only a third as much as a jeep and trailer while carrying nearly the same payload, the net increase in the total weight of the battalion's motor vehicles created by the proposed changes was less than four tons. (This would have been even less if "mighty mite" jeeps replaced the heavier M38s.) However, the combined payload of a battalion's vehicles would increase by some 50 percent, or about 12 tons. This would have a substantial effect on the battalion's ability to sustain itself in battle and on the frequency with which it would require resupply. On the other hand, the increase in fuel consumption and maintenance man-hours would have been in roughly the same proportion as the increase in total payload. The increase in cargo space required by all the new vehicles would also have been substantial. Therefore, Headquarters Marine Corps decided it would be better to accept the need for more frequent resupply. As has already been noted,

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655 AMSgt T. W. Elliott, "Reorganization for the New Concept" Marine Corps *Gazette* Vol. 43 Vol. 3 (Quantico Virginia March 1959) pp. 8-13; Marine Corps *Gazette* Staff "FMF 1965" Marine Corps *Gazette* Vol. 45 No. 8 (Quantico Virginia August 1961) pp. 54-57; and US Marine Corps Organization Table of Organization T/O M-1013 "Rifle Company, Infantry Battalion, Infantry Regiment, Marine Division, FMF" (HQMC Washington DC, 16 January 1961).

656 Marine Corps *Gazette* Staff "FMF 1965" Marine Corps *Gazette* Vol. 45 No. 8 op cit pp. 54-57; and USMC T/O M-1013 "Rifle Company, Infantry Battalion op cit.

657 Marine Corps *Gazette* Staff "FMF 1965" Marine Corps *Gazette* Vol. 45 No. 8 op cit pp. 54-57; and US Marine Corps Table of Organization M-1037 "Headquarters and Service Company, Infantry Battalion, Infantry Regiment, Marine Division, FMF," including Revision 1 (HQMC Washington DC, 16 January 1961 and 1 November 1962).

the combined payload of the 1961 M-Series battalion's vehicles was at least 80% of those of the L-Series but much greater than those of the K-Series under which the Marines had engaged in prolonged conventional combat in Korea. Furthermore, Headquarters believed that the availability of large numbers of transport helicopters and more attached motor transport support should solve the infantry's supply problems without increasing its organic vehicles. It is also likely that many conservative Marine officers were reluctant to give up their jeeps, and the Hogaboom tables provided for many more, despite their relative inefficiency in load bearing. Nevertheless, the Marines had kept themselves reasonably "light." The rifle companies could move all their combat essential equipment, with enough ammunition for perhaps an hour's combat, entirely on foot. This was much better that what the Army infantry and airborne rifle companies could do. Even the Marine battalion's headquarters and service company could move everything on foot except its 106mm recoilless rifles, heavy radio sets, and perhaps half its 81mm mortars. The flame-throwers and the fuel they needed, though very heavy, were probably unnecessary for most combat missions.

The rejection of the proposed motor vehicle increases also meant that rifle company headquarters would remain as they were. In the weapons platoon, the assault section kept its three squads but the weapons platoon headquarters lost its ammunition corporal and a messenger. The lighter weight M60 machinegun permitted the consolidation of the weapons platoon's three 11-man machinegun sections into one 28-man section (this actually occurred in January 1961). The motor transport section of the battalion service platoon lost no drivers and retained control of all the battalion's vehicles except the radio jeeps (see Appendix 9.14). The battalion headquarters incorporated most the (generally minor) changes proposed for it, including the extra enlisted men for its S-2, S-3, and S-4 sections, though the S2 section also lost its photo interpreter (aerial photo interpretation would cease to be a battalion level intelligence function). The headquarters and service company headquarters lost its demolition sergeant but the service platoon picked up a third armorer. The communication platoon headquarters lost its two radar repairmen and gained a radio repairman. The message center lost its corporal supervisor and the Teletype and telephone repairman moved from the message center to the platoon headquarters. Headquarters Marine Corps also killed the proposed TACP/AA section. It would certainly have been a waste of resources (as well as potentially hazardous to friendly aircraft) to make air defense weapons organic to an infantry battalion that would probably conduct the great majority of its combat operations under conditions of friendly air supremacy. In the event that an enemy could mount a significant air threat it would be easy enough to attach a Redeye section to the battalion from the supporting Air Wing.[658]

Two years later, Headquarters Marine Corps made machinegun section leaders staff sergeants (E-6) rather than sergeants (E-5). Machinegun squad leaders went from corporal to sergeant, team leaders from lance corporal to corporal and the gunners from private to lance corporal. At the same time the weapons platoon sergeant became a gunnery sergeant (E-7). This general increase in rank reflected a Marine Corps policy to emphasize machineguns and machinegun gunnery. The Marines specially selected and trained their machinegunners (just as they emphasized rifle marksmanship). The Army offered no special selection or training process for its machinegunners and during the Vietnam fighting generally selected them only after they had arrived "in country" and joined their units. For the Army physical size was a prime requirement for a machinegunner. He had to be big enough to carry his 23-pound weapon plus ammunition and still keep pace with a much more lightly burdened rifleman.[659]

It was soon after the implementation of these changes that Marine infantry battalions began to arrive in Vietnam in 1965. They proved to be much better suited to the realities of the fighting there than were their Army counterparts. The Marine battalion's fourth rifle company proved to be a great advantage and was probably the main reason why the Marines needed no major ARCOV-like reorganization. The fact that Marine rifle companies remained relatively unburdened by heavy weapons and radios that could only travel by motor vehicle also helped, especially during movements by helicopter (and it made them more mobile after landing). The Marines also emphasized marksmanship training, as they had done since the First World War. They also gave their machinegunners extra training whereas the Army often selected their machinegunners only after the candidates had arrived "in country" and even then selection was based less on aptitude than on the individual's physical size. He had to be big enough to carry the 23-pound weapon plus ammunition and still keep up with the much more lightly burdened riflemen.[660]

Nevertheless, Marine organization was not perfect and changes (mostly minor ones) in response to combat experience occurred more or less continuously, though the most significant were in place by March 1966. For the rifle companies the principal, and until the introduction of the M16 rifle, the only real change was the reintroduction of the 60mm mortar. Only a month or two after the Marines entered combat they came to the realization that the

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658 USMC T/O & E M-1037 and M-1013 (1 November 1962) op cit.

659 USMC T/O & E M-1013 "Rifle Company, Infantry Battalion, Infantry Regiment, Marine Division, FMF" HQMC Washington DC 2 November 1962, Change 159-64 dated 16 March 1964. See also Ebert, *A Life in a Year*, op cit pp. 68 and 114.

660 Ibid.

decision to drop the 60mm mortar in 1957-60 had been a bad one. They sorely needed a light mortar to counter the "hugging" tactics that the PAVN and PLAF used to minimize the effects of American artillery and close air support. If the Communists decided to oppose a "search and destroy" operation (other than by harassing it with snipers and booby traps) they would typically ambush an element of the American force either in or near its helicopter landing zone. The Communists would be well entrenched and the Americans would find it difficult to call in artillery and air strikes without endangering their own troops. In the firefight itself the element of surprise would initially give the Communists the upper hand and they frequently forced the Americans to abandon their original mission in order to rescue their ambushed comrades. To respond to this situation, the ambushed Americans needed their own high angle "artillery" with which to engage an enemy who was often below ground level. Rifles, machineguns, the old 3.5-inch bazooka (which the Marines had kept in service because its rockets were so destructive), and the newly introduced M72 LAAW (Light Antitank Assault Weapon) were all flat trajectory weapons and could not easily attack a fighting hole. The M79 grenade launcher could but its grenades were insufficiently powerful and the 81mm mortars were too heavy. The German, British, French, and American armies had faced similar problems against dug in enemies during both world wars but even in Vietnam the solution was the same and that was a mortar light enough to be mobile without motor vehicles but still adequately destructive. To meet this need, the Chinese Communists had, through capture and unlicensed production, obtained large numbers of the American M2 version of the French 60mm mortar. After 1949, they had exported many of them to Vietnam. The Marines were sufficiently impressed by these mortars that they brought a slightly improved version of the old M2 back into service as the M19.[661]

The Army officially rejected the idea of issuing a 60mm mortar to its own troops (although, as we have seen, the Army 1st Infantry Division, and probably other units, issued 60mm mortars anyway as alternatives to the 81mm weapons). The Army argued that only high explosive shells with point detonating (PD) fuzes that could not penetrate thick foliage (detonate instead on the first substantial piece of vegetation hit) were available for 60mm mortars. These shells would tend to bury themselves in the mud of a rice paddy and explode harmlessly or not at all. The heavier 81mm shells would have the necessary proximity, PD, and delay fuses to handle all situations. Of course new fuses could have been procured for the 60mm mortar (and eventually they were) but the instructors at the US Army Infantry School instead devised a hand held method of firing the 81mm mortar. This method required only the mortar tube itself (28 pounds) and either the inner ring of the M23A1 baseplate (24 pounds) or an M3 (Canadian-designed) baseplate (28 pounds). Leaving behind the bipod and the outer ring of the M23A1 baseplate saved about 55 pounds (or the equivalent of perhaps six rounds of 81mm ammunition) and enabled just two men to carry and operate the mortar. An improvised carrying-handle allowed the gunner to carry the mortar tube easily and to hold it steady during firing without burning his hands. The lack of a full baseplate restricted the mortar's range to from 50 meters (minimum) out to 1,150 meters (maximum, at Charge 2). This was substantially less than the 60mm mortar's 1,800-meter range but with a little practice most gunners could achieve surprisingly good accuracy. Nevertheless, since one man could only carry three rounds or so of 81mm, ammunition supply was still a severe handicap. In consequence, this hand held 81mm mortar improvisation appears to have seen only limited combat use.[662]

As for the Marines, they assigned their M19 mortars to a newly created section in the their rifle company weapons platoon. At first these mortar sections were purely improvisations using men temporarily grabbed from other elements within the company. Early proposals were for permanent mortar sections with two squads in each but by March 1966, Headquarters Marine Corps had authorized the necessary manpower for three four-man mortar squads per section plus a sergeant section leader. Unlike the machinegun and assault sections, who during combat routinely attached their squads to the rifle platoons, the mortar section usually kept its squads together and operated directly under the weapons platoon commander. The reduction in the size of the mortar squads from the six men used in World War II and Korea down to four parallelled similar reductions in the machinegun squads (from eight men to five in 1961 and then to four in 1962). The new squads could carry only about 12 60mm rounds apiece, or only about half as many as the old six-man squads. The Marines were clearly counting on their helicopters for rapid ammunition resupply. They also expected other rifle company members to carry extra mortar rounds. However, in the middle of a firefight getting the ammunition from the men carrying it to the mortars could pose some significant problems. On the other hand, since the mortars usually operated close to the company command post company headquarters personnel could carry ammunition that they could pass to the mortars fairly easily. Also, in cases where the battlefield could be prepared in advance, mortar ammunition could be pre-positioned.[663]

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[661] Paddy Griffith, *Forward Into Battle* (Novato California, Presidio Press, 1991) pp. 146-148; other references to the Communists' "hugging" tactics are too numerous to list here.

[662] LTC John F. Hathaway, "The Hand-Held 81mm Mortar" Infantry *Journal* Vol. 57 No. 5 (US Army Infantry School, Fort Benning Georgia, Sep-Oct 1967) pp. 40-42.

As with the Army, Marine rifle companies usually fought at well below their authorized strengths. A Marine company with 100 to 120 effective men (or about the same effective strength as an Army company) was fairly typical. To enable itself to operate at this reduced level, a company typically dissolved its weapons platoon. The mortar section went to company headquarters (which was where it would operate anyway). The rifle squads absorbed all the men from the assault and machinegun sections. The loss of the assault section was affordable. A few LAAW rockets distributed among the riflemen provided all the antitank or anti-material firepower necessary. As in the Army, Marine rifle companies usually obtained enough extra machineguns so that each rifle squad could have its own machinegun team. This team normally had only two men but they had riflemen carry their extra ammunition and they often left their tripods behind. Though heavily loaded, these reduced companies were relatively simple to command and appear to have performed well. However, like similarly sized Army rifle companies in Korea, they could not absorb many casualties without a substantial reduction in their effectiveness.[664]

Changes to the battalion headquarters and service company were mainly limited to its communication and service platoons. Ongoing efforts throughout the Marine Corps to reduce the number of administrative personnel (to free more men for combat duties) also caused some trimming of battalion headquarters personnel. The S-1 and S-3 sections each lost a clerk in April 1963. The S-2 section's intelligence assistant (a sergeant) disappeared in December since his duties were mainly clerical. However, in February 1965 he returned to the section in place of one of the two radar repairmen. In March 1966 Headquarters Marine Corps placed two radar repairmen in the communication platoon headquarters and removed the repairman from the S-2 section. (That a battalion needed two repairmen for only two radars may say something about those radars' maintainability) By 1968 the typical battalion S-2 section actually consisted of the intelligence chief and (if he was lucky) one or two assistants. Intelligence officers were seldom seen below the regimental level. Few intelligence offers were available because the Marine Corps had no system in place for selecting and training them. Most were either promoted from enlisted intelligence specialists or they were officers sidetracked from some other MOS (Military Occupation Specialty), usually infantry or artillery. While officers in the former group at least had practical experience, those in the latter were seldom of much value. They had little formal training and they frequently lacked both an interest in, and an appropriate temperament for intelligence work. This weakness was especially serious in a war like Vietnam in which only the intelligence section could really answer the burning question "Where is the enemy?"[665]

In 1963 the rank of the battalion communication chief climbed from gunnery sergeant (E-7) to master sergeant (E-8). This reflected the heightened importance accorded to tactical communications. The introduction of KW-7 Teletype equipment led to the addition of two KW-7 technicians to the communication platoon headquarters in December 1964. To balance this increase, he platoon's message center section lost its two drivers. Finally, in February 1965, the platoon headquarters losts its electronics stockman.[666]

However, aside from these minor changes the Marine Corps also replaced most of its tactical radio equipment during the early years of its Vietnam involvement. As occurred in the Army the new AN/PRC-25 replaced the AN/PRC-8, -9, and –10 series of tactical manpack radios. The Marines also adopted the same AN/PRC-47 that the Army had issued to its air assault troops. It replaced the older AN/GRC-9 portable long-range radio. The TACP section exchanged its back-breaking MAY man-packed air-to-ground radio with the much lighter (but still a good eight to ten pounds heavier than the AN/PRC-25) AN/PRC-41. The Marines officially retained their AN/PRC-6 hand held radios, mostly for the lack of a viable replacement. They proved useless in the heat and humidity of Vietnam and therefore the infantry battalions over there replaced them with 22 additional AN/PRC-25 radios. Instead of receiving one PRC-10 (or PRC-25) and six PRC-6 from the battalion communication platoon each rifle platoon would instead receive six PRC-25 and allocate one to each of its four rifle or weapons platoons. Together with a fifth radio at company headquarters these would constitute the company's tactical radio net. The sixth radio would be on the battalion command net. Each battalion also took on seven additional PRC-25 radios in their

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663 USMC T/O & E M-1013 "Rifle Company, Infantry Battalion, Infantry Regiment, Marine Division, FMF" HQMC Washington DC 2 November 1962, Personnel Allocation Change No. 328-66 dated 28 March 1966; see also Kutler, *Encyclopedia of the Vietnam War* op cit p. 624. News Item "Battle Tested 60mm Mortar is Back," Marine Corps *Gazette* Vol. 49 No. 8, (Quantico Virginia August 1965) p. 5; and see Jack Shulimson et al *US Marines in Vietnam*, Volumes for 1967 and 1968 (Washington DC, History and Museums Division Headquarters US Marine Corps 1995 and 1997); the author's own contacts within the Marine Corps, especially while the author was a junior officer and had the opportunity to talk to many still on active duty who had served in Vietnam, always spoke highly of the 60mm mortar,.

664 GySgt Martin L. Steitz USMC (Ret) "A Marine's Solution" Marine Corps Gazette Vol. 67 No. 9 (Quantico VA Sept 1983) p. 25. See also S.L.A. Marshall, *Infantry Operations and Weapons Usage In Korea* op cit p. 52.

665 This description of the problems encountered by Marine intelligence in Vietnam was largely derived from the author's interviews with Major Anthony Milavic USMC (Ret) op cit. who served as a mainly brigade-level intelligence officer in Vietnam during successive tours in 1965, 1966, and 1967. The author discovered that many of these problems were still evident after he entered the Marine Corps in 1972.

666 USMC T/O& E M-1037 "Headquarters and Service Company, Infantry Battalion, Infantry Regiment, Marine Division, FMF" HQMC Washington DC 2 November 1962, Personnel Allocation Changes Nos. 46-63 dated 22 January 1963; 249-63 dated 8 April 1963; 759-63 dated 10 December 1963; 373-64 dated approximately June 1964; 751-64 dated 3 December 1964; 5-65 dated 3 February 1965; 48-65 dated 5 February 1965; 539-65 dated 30 September 1965; and 187-66 dated 1 March 1966.

vehicle-mounted AN/GRC-125 form. Non-radio jeeps belonging to senior officers or battalion staff members would be the most likely to carry this equipment. Finally, the Marines introduced several new radio jeeps. Two AN/MRC-109 jeeps replaced the battalion's one AN/MRC-38. The MRC-109 mounted only one transmitter-receiver (rather than the two in the MRC-38) but it was much more powerful (able to reach 15-20 miles rather than 10-15 on Set 1 or only one mile on Set 2) and there was a separate receiver. Each battalion would also get a pair of AN/MRC-134 jeeps. These carried the same radio as the MRC-109 but they also had an AN/VCC-1 telegraph and telephone terminal set, which could provide one order wire, four telegraph and four telephone channels that could then utilize the radio set. The regimental communication platoon acquired enhanced versions of these vehicles. These included a pair of AN/MRC-110, which differed from the MRC-109 in having two receiver transmitters rather than one plus one receiver, another pair of AN/MRC-134 and eight AN/MRC-135. The latter differed from the MRC-134 in that it carried an AN/VCC-2 terminal set, which could could handle twice as many telephone and telegraph channels. Thus, in the Marines as well as in the Army radio communication was rapidly becoming more extensive and pervasive.[667]

The policy of cutting clerks in order to have more fighters bean to affect to the infantry battalion service platoon in March 1965. The number of clerks and warehousemen in the supply section fell from 12 to eight but a third clerk joined the service platoon headquarters. In the following September, the service platoon's motor transport section dropped its truckmaster (E-6) in exchange for another auto mechanic (to make a total of five). Evidently, the section chief was found to be also capable of performing the truckmaster's duties.[668]

In 1966 the regimental headquarters and service company obtained a scout-sniper platoon. Like the requirement for 60mm mortars, the Marines decided almost as soon as they entered combat that they had to have trained sharpshooters who could engage individuals at long range. Within a few months, the 3rd Marine Division set up its own sniper school and began to feed its graduates to ad hoc sniper detachments established in each infantry regiment and the division reconnaissance battalion. Within a few more months there were enough trained snipers for the provisional regimental sniper detachments to expand into scout-sniper platoons. Headquarters Marine Corps officially authorized these for all regiments by March 1966. Marine scout-snipers in Vietnam operated as two-man teams. The senior member (a corporal or E-4) carried a bolt action Model 70 Winchester (a modified commercial hunting rifle) with an 8-Unertl scope. Using match grade ammunition he could get first round hits at up to 800 meters. The junior member of the team (supposed to be an E-3 or lance corporal) carried an M14 or M16 rifle and acted as bodyguard, spotter, and understudy for the team leader. The Marines found this organization to be superior to that of single sharpshooters operating individually. A scout-sniper platoon had a lieutenant, a gunnery sergeant (E-7), an armorer (E-4), and three 11-man squads commanded by sergeants (E-5). Each squad supplied five scout-sniper teams for attachment, as needed to the regiment's battalions or for employment directly under the regimental commander. Despite glowing reports about their prowess the effectiveness of these units may well be questioned. In combat they suffered from several serious shortcomings. First, the sniper platoons were seldom fully manned. Few regimental commanders would divert men to their sniper platoons while their rifle squads were going short. Second, while scout/snipers could scout or snipe they could rarely do both simultaneously. Scouting was more important but a scout/sniper was much less likely to get a medal for bringing back information (however valuable) than for killing an enemy. Worse, the snipers were not always very careful about who they shot. To many of them, the enemy was anybody wearing black pajamas and a pointy straw hat. They probably killed a lot of civilians and that would have done nothing to improve relations with the locals. Another problem was overspecialization. A sniper armed only with his slow-firing Model 70 Winchester was vulnerable at close quarters. Finally, sniper missions were often more trouble than they were worth. A two-man sniper team entering "Indian country" needed to coordinate with friendly forces just as if they were a full sized patrol. If they got into trouble someone would have to rescue them.[ꝺ] If they disappeared there would be two more MIAs to make for bad press back home.[669]

[ꝺ] The Army 1st Infantry Division experimented with snipers by forming an eight-to-ten-man ad hoc sniper squad in a number of infantry battalions. These units operated under battalion control in conjunction with the battalion reconnaissance platoons. The 1st Division abandoned these experiments after a short time because too few opportunities presented themselves to employ the sniper squads in their designated role; see "Observations of a Battalion Commander" p. 15.

667 Marine Corps Technical Manual TM-2000-15A Volume II *Principal Characteristics of US Marine Corps Communication-Electronic Equipment* (Headquarters US Marine Corps Washington DC 12 November 1975) pp. 1-15, 1-16, 1-19 and 1-20. See also Marine Corps Education Center, Marine Corps Schools MCS-103 *Communication Equipment Reference Data* (Quantico Virginia 3 May 1962) pp. 14-15. Also see the equipment listing in Education Center, MarineCorps Development and Education Command ECP 1-4 Fleet Marine Force Organization 1974 (Quantico Virginia 24 September 1974). This is a very poorly proof-read pamphlet issued for instructional purposes only. However since this writer has not been able to locate any tables of equipment covering the mid-to late 1960s and the 1970s it appears to be the best available and its data regarding the infantry regiment is consistent with what has appeared in later and more reliable publications.

668 USMC T/O& E M-1037 "Headquarters and Service Company, Infantry Battalion, Infantry Regiment, Marine Division, FMF" HQMC Washington DC 2 November 1962, Personnel Allocation Changes Nos. 751-64 dated 3 December 1964; 48-65 dated 5 February 1965; and 207-65 dated 15 March 1965.

The Marines made no other significant changes to their infantry organization until after their withdrawal from Vietnam in 1971.

THE TEST OF BATTLE

The true effectiveness of the Army and Marine Corps infantry battalions in Vietnam is difficult to evaluate. Certainly, the United States and its Vietnamese allies ultimately lost the war and this suggests that the new battalions had failed. On the other hand, the Army and Marine Corps claimed an unbroken string of battlefield successes and to have inflicted many times their own losses on their enemies. This, of course, suggests that in matters of infantry organization and doctrine the Army and Marine Corps had succeeded.[669] Unfortunately, the claim of tactical superiority rests in large measure upon the highly questionable evidence presented by the infamous "body count" statistics that characterized so much of the official reporting on the Vietnam War.

The body count idea arose directly from the United States' decision to win in Vietnam through attrition. The Americans would take advantage of their vastly superior wealth and industry to grind down their enemies with methodical firepower. American planners saw this as a simple, low cost (in the sense that lavish expenditure of material was less costly than American lives), and (seemingly) low-risk strategy. The whole attrition concept had a certain inevitability about it that greatly appealed to the business and engineering mindsets that increasingly dominated American military thinking. An attrition strategy had last been applied in Korea after the winter of 1950-51 but with mixed results. It increased Communist losses sufficiently that Communist China became very reluctant to involve itself in direct combat in Vietnam, despite American fears that it might do so. On the other hand, the attrition strategy in Korea produced no decisive battlefield successes, failed to exact any price from the enemy that they could not afford to pay, and could not halt a long and expensive war that the American public became progressively less willing to support. This war ultimately brought about the downfall of the Truman administration and led to an unsatisfactory armed truce that left Korea a divided nation. Nevertheless, because attrition warfare, or "the Concept" (as Andrew Krepinevich aptly calls it), produced no obvious disasters and because America's military leaders were unwilling to consider alternatives, it remained the cornerstone of American military doctrine.[670]

In Vietnam, the Concept soon narrowed itself to a matter of minimizing American casualties while killing enemy soldiers faster than they could be replaced. Hence the body count became the principal measurement of the progress being made towards victory. It also became an important means of justifying the war's costs to the American public and of proving the soundness of the Concept. Unfortunately, even if one has the best of intentions, an accurate estimation of an enemy's casualties (unless one has extremely good sources, preferably from the enemy's side) is very difficult to achieve.[671] Guessing an enemy's losses typically leads to exaggeration because people tend to see what they want to see as opposed to what is actually in front of them. Exaggeration was especially pronounced in Vietnam not only because there were very few experienced observers (who would be less easily deceived than inexperienced ones) but also because of the pressure placed on combat unit leaders to achieve high "kill" numbers. While the actual importance accorded to body counts as a measure of success might vary widely from one commander to the next, the fact that the Secretary of Defense was calling for them meant that no commander could really ignore them. Officers were often rated against each other based on the size of their reported body counts and this created a powerful incentive to inflate the numbers. Indeed, an officer who truthfully reported a smaller body count than that of his possibly less-than-truthful contemporary risked damage to his career. High body counts could also cover or excuse friendly losses (especially when incurred through error or incompetence).

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[669] Readers should also note that PAVN, and especially PLAF units were very lightly armed and until 1968 (and then mainly in the Northern "I Corps" area) they had very little fire support beyond 81/82mm mortars (typically two per battalion) and, occasionally, rockets. Many PLAF weapons were French, American, Chinese, or Japanese castoffs and very outdated. This is especially evident in lists of captured weapons that appear in the CAAR's already referred to above. Relatively modern Soviet infantry weapons replaced these only gradually. Thus, the effectivness of American battalions should also be judged in light of the weaknesses of their opponents.

[671] Author's comment: Evaluating a battle solely by eyewitness accounts can be very tricky. Much depends upon who you are and where you are standing yet too many of us are willing to take what we hear at face value. The problem is best expressed in the old joke about a group of blind men feeling an elephant and describing what they think it is. Naturally, the description of the men feeling the trunk or tail is very different from those on the legs and torso!

669 USMC T/O& E M-1096 "Headquarters and Service Company, Infantry Regiment, Marine Division, FMF" HQMC Washington DC 2 November 1962 and 6 June 1967, plus Personnel Allocation Changes Nos. 438-64 dated 15 July 1964; 207-65 dated 15 March 1965; and 187-66 dated 1 March 1966. See also News Item, "Shoot to Kill" Marine Corps *Gazette* Vol. 49 No. 12 (Quantico, Virginia December 1965) p. 1. The observations about Marine snipers are also based on the author's interviews with Major Anthony Milavic USMC (Ret) op cit.

670 The BDM Corporation, *A Study of Strategic Lessons Learned in Vietnam* (referred to hereinafter as "BDM Study") Vol. VI "Conduct of the War" (Submitted to DAMO-SSP under US Contract No. DAAG 39-78-C-0120, May 1980) pp. 3-8 to 3-12 and 3-25 to 3-27; General Ewell and Col Hunt in *Sharpening the Combat Edge* op cit pp. 212-214 discuss how "Exchange Ratios" (our dead vs. theirs) was used to determine unit proficiency in the US 9th Infantry Division when it was under Ewell's command; Andrew Krepinevich discusses "The Concept" throughout *The Army in Vietnam*, op cit.

Although the available evidence indicates that Americans rarely killed civilians deliberately, their reckless use of firepower, and their willingness to engage targets that they could not actually see or verify, must inevitably have produced large numbers of civilian casualties. Undoubtedly, a great many of these civilian deaths would have found their way into the body counts.[✍] Furthermore, the enemy's habit of routinely conscripting civilians (sometimes whole villages, willing or not) as porters, laborers, stretcher-bearers, and even to plant booby traps, would have further increased civilian casualties.[671]

The American forces were not always forthright even about their own losses. One concrete example is the casualty reporting for the siege of Khe Sanh in 1968. "Friendly" losses are still being officially given out as 205 killed, 1,668 wounded (of which only 816 needed evacuation), and one missing. However these totals actually cover only the US Marine casualties sustained in the combat base and the hilltops, and even for that they are incomplete. No US Army or RVNAF losses are included. Researcher Ray Stubbe (who was also a Navy chaplain at Khe Sanh and did many of the memorial services for those who died there), by combining memorial service bulletins with 3rd Marine Division casualty records was able to identify 353 Marines by name as killed in action (KIA) in or around Khe Sanh between 20 January and 31 March 1968 (the day before Operation PEGASUS, conducted to relieve Khe Sanh, began). Stubbe identified another 69 Marines KIA between then and the end of PEGASUS (15 April) and 54 more KIA who died on April 16 and 17. The official number of wounded may also have been understated. The field hospital near Khe Sanh alone recorded that it had treated 903 men between 21 January and 24 February. This figure does not include large numbers treated at battalion and regimental aid stations. Neither Stubbe's nor the official figures include Allied casualties incurred in Khe Sanh village (about 25 killed and 40 wounded) or at the fall of the nearby Special Forces Camp at Lang Vei (219 killed, 77 wounded, and one missing). Neither do they include Army losses in Operation PEGASUS (at least 125 killed, 853 wounded, and five missing) or 52 Army and Marine personnel killed in plane crashes and other incidents not included in official accounts. The deaths of between five and 20 Air Force aircrew belonging to aircraft shot down over the battle area are likewise omitted. Added together, these figures total 730 dead, 2,642 wounded, and seven missing although the number of wounded given is probably still too low. If the mobile operations conducted after Khe Sanh's relief and which lasted almost as long as the siege itself are included then the totals rise sharply again. The Marines admitted losing 326 KIA, 1,888 wounded, and three missing in the post-siege operations but perhaps one should view even these numbers with caution. Unfortunately few historians bother to question "official" figures and thus the true cost of Khe Sanh has been considerably understated. For the Communist side US forces claimed to have killed some 10,000 to 15,000 PAVN soldiers at Khe Sanh. Naturally, the known abuses of the body count system should cast doubt upon such statements. However since there is still reliable evidence that PAVN losses were indeed substantial it might not be unreasonable to read the official KIA figures as an estimate of the <u>total</u> number of Communist casualties (killed, wounded, and missing). If so, the ratio of these casualty figures for besiegers and besieged is not very different from what was reported for the earlier siege of Dien Bien Phu which had brought French rule in Vietnam to an end. However, the Marines received at least ten times as many close air support sorties as the French and received more supplies on an average day than the considerably larger French garrison did during their entire siege.[672]

Despite the body count system's built-in inflation of the number of Communist dead it is not an exaggeration to say that total Communist losses were very heavy. Even in their own propaganda (or at least in those parts of it intended for Western consumption) the North Vietnamese used high figures in order to dramatize the degree to which they were prepared to sacrifice for victory. In early 1969 General Vo Nguyen Giap, the PAVN commander and victor at Dien Bien Phu put Communist dead at 500,000 men since 1964. This figure is consistent with a postwar estimate of 670,000 Communist dead from 1965 to the end of the war. Estimates of Communist dead for the whole war run to 800,000 or more. By comparison, there were at least 250,000 RVNAF dead (from 1965 on) and 58,000 American fatalities plus another 5,300 or so dead from US allies, principally South Korea. However, the majority of the Communist dead probably did not die in battle. Communist soldiers in South Vietnam had to live in jungles where diseases and other natural hazards were rampant and medical treatment was primitive at best. Many wounded died who might have been saved had faster evacuation or better treatment been available. Many unwounded men died from disease and there were a lot of fatal accidents (including attacks by poisonous snakes and even rogue tigers). Indeed, the Communist casualty figures were probably comparable to those of pre-Twentieth Century armies, which typically suffered 60% or more of their fatalities from non-battle causes. Actual Communist *battle* casualties may not, in fact, have been much higher than those of their opponents.[✍] By contrast,

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[✍] One by no means foolproof method of testing the validity of a given "body count" is to compare it to the number of weapons taken from the enemy dead. The "rule of thumb" for this is that the number of weapons taken should equal about a third of the number of enemy dead.

[✍] The figure for RVNAF fatalities does not include those incurred during the final Communist offensives in 1975. One captured NVA medical orderly recalled that in his hospital, about 80 percent of the patients were sick and only 20 percent had combat related injuries. It should be noted that although some 58,000 Americans died in Vietnam, the medical services were able to save the lives of 74,000 men who survived as multiple

the effectiveness of American medical support was greatly enhanced by the availability of helicopters to rapidly move casualties to fully equipped base hospitals. Many wounded who would have died in previous wars were saved. On the other hand, numerous helicopter crashes due to "non-battle" causes, plus deaths listed as due to "fragging" did push American non-combat deaths in Vietnam to 18% of their total fatalities. Not much is known about South Vietnamese non-battle deaths, but the number relative to battle deaths would have been far below what the Communists suffered.[673]

Even if they were not killing as many of their enemies as they thought, were the American infantry battalions themselves still effective in their conduct of the ground war? Certainly, as they were modified under ARCOV and the Marine Corps organizational changes, American field commanders seem to have found them satisfactory. Nevertheless, they suffered from a number of shortcomings. We have already seen how the Army battalions could not use most of their mortars and recoilless rifles effectively because the Army was unwilling to assign enough men to them for them adequate ground mobility. Marine battalions did better in that they issued their heavy weapons on a more conservative scale. A more serious shortcoming and one that ultimately proved fatal to their attrition strategy was the US forces' relative inability to find their enemies. Although the thick jungle canopy helped to cover the guerrillas' activities, a much more important factor was the reluctance of the population to give information. Those who did were likely to face reprisals that neither the Americans nor the South Vietnamese could or would do much to prevent. Instead, the Allies preferred herding rural villagers into refugee camps, after first destroying their crops and homes. This left the enemy with superior intelligence and, given his lightly burdened units' ability to negotiate almost any sort of terrain, superior mobility. The ARCOV study chronicled the results. It found that from late 1965 to early 1966 the enemy initiated about 88% of the battles that it surveyed and 46% began as enemy ambushes. This situation did not change significantly until after the 1968 Tet Offensive and the United States' decision to phase its ground forces out of the war. If the enemy could initiate most of the fights then he could regulate his own losses. If he could regulate his own losses then no attrition campaign directed against him could possibly succeed.[674]

Yet another important reason why the Americans "fought blind" in Vietnam lay in the manner in which they used their helicopters. Helicopters are potentially invaluable in a guerrilla war. Small and remote garrisons can survive because helicopters can rush supplies and reinforcements to them within hours rather than days after they call for help. Helicopters can evacuate the sick, wounded, and prisoners without the ground units they belong to having to place them in vulnerable base camps and divert men to guard and care for them. Especially after the Ia Drang, the Americans had high hopes for their helicopters as counter-guerrilla weapons. The French had depended on their motor vehicles for mobility but the terrain tended to restrict them to the roads and they were constantly being ambushed. The destruction by ambush (or rather, by a series of ambushes) of the French *Groupe Mobile* (GM) 100, composed largely of Korean War veterans and among the best fighting units in Vietnam, made a big impression on American observers. They were certain that the helicopter (and the fact that US forces were far stronger than the French and were only attempting to control about one third as much territory) would in future make similar Communist successes impossible. The Americans could generally prevent whole battalions from being wiped out but even helicopters could not solve the mobility problems of a Western style army in jungle terrain. Helicopters did not need roads but they did have to have landing zones. Cutting or blasting such zones proved to be much more difficult than anticipated and the Americans often found themselves tied as closely to the existing landing zones and other open areas as the French had been to their roads. Their movements thus became predictable, just as those of the French had been before them. Nevertheless, American officers thought of mobility only in terms of equipment. They saw trucks as more "mobile" than foot travel because trucks are faster than men on foot when terrain and weather conditions favor the use of trucks. The idea that trucks might not be so "mobile" under less favorable conditions does not seem to have been considered. Using this same logic they also saw helicopters as more mobile than trucks. However, it is probably more realistic to say that good mobility comes from properly matching the equipment used to the terrain to be crossed. Though all but forgotten by the time the Marines first splashed ashore in Vietnam, GALAHAD Force in Burma despite the fact that it contained no trucks at all, astonished the Japanese with its mobility through some of the worst terrain in the world. The Japanese themselves,

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amputees. In previous wars many of them would have died of their wounds.

[671] Much ink has already been spilled over the body count issue and this writer has little to add. For further discussions, see Krepinevich, *The Army and Vietnam* op cit pp. 198-203 and 254-256; see also BDM Study Vol. VII "The Soldier" pp. 3-16 to 3-17; and also Kutler, *Encyclopedia of the Vietnam War* op cit p. 86.

[672] John Prados and Ray W. Stubbe, *The Valley of Decision, The Siege of Khe Sanh* (New York, Dell Publishing 1991) pp. 515-516; and BDM Study Vol. VI op cit pp. 3-99 to 3-100.

[673] Kutler, *Encyclopedia of the Vietnam War* op cit pp. 103-105 and 327; Lanning and Cragg *Inside the VC and the NVA* op cit pp. 114-115 and 165-167; see also James F. Dunnigan and Albert A. Nofi, *Dirty Little Secrets of the Vietnam War* (New York, St Martin's Press 1999) pp. 98-102 and 246.

[674] Ewell and Hunt, *Sharpening the Combat Edge*, op cit pp. 18-20 and 92; BDM Study Vol. VI Book I pp. 3-34 to 3-36; Krepinevich, *The Army in Vietnam* op cit pp. 196-205. For a brief discussion of regional prejudices among the Vietnamese see Lanning and Cragg, *Inside the VC and the NVA* op cit pp. 26-29.

though never more than partially motorized, had literally run rings around fully motorized British units in Burma and Malaya. In South Vietnam, the Communists had scarcely any trucks, let alone helicopters, yet it was they who had true mobility. They held the initiative. They struck when and where they pleased. They dictated the tempo of the war.[675]

American over-dependence on helicopters had not only created unanticipated mobility problems, it had created intelligence and security problems as well. As early as the 11th Air Assault Division exercises in Georgia and the Carolinas, the US Army discovered that it was usually easy for troops on the ground to hide from helicopters. Being in the air over the battlefield is by no means the same thing as being on it. Troops in the air were (and are) dangerously isolated not only physically but also psychologically from what is happening below them. This proved to be a key factor in the Communists' ability to decide not only when to give battle but also when to end it. Breaking contact with the Americans was relatively easy because their infantry was nearly blind in the air and relatively immobile on the ground. Also, the Americans never had nearly enough infantry. Their firepower-attrition strategy demanded that most of their troops in Vietnam be in supporting roles, servicing the artillery pieces and aircraft and maintaining the high standard of creature comfort which American forces set for themselves.[676]

Indeed, whenever battle was joined American infantry battalions proved to be surprisingly brittle. Because they routinely fought at well below their established strengths their effectiveness rapidly deteriorated as additional losses occurred. When a man became casualty not only did his unit lose his own services but, temporarily at least, it also lost those of many of his buddies. If he were seriously wounded, getting him to a helicopter landing zone from which he could lifted out, would require four men (probably from an already under-strength rifle squad) to carry him in a stretcher (dedicated stretcher teams no longer existed). A medical aidman usually had to be in attendance even though (at best) there was only one aidman per rifle platoon. Additional men would probably be needed to protect the stretcher party from the enemy. Even the dead were rapidly removed from the battle by similar means and often at great personal risk to the living. Terrain (and helicopter lift) restrictions seldom permitted the use of motor vehicles to make medical evacuation or ammunition supply less manpower-intensive. The evacuation of half a dozen wounded men might easily tie up 30 to 50 healthy ones, thus rendering a typical rifle company ineffective.[677]

When the American infantry finally did come to grips with their enemies, the latter were not always impressed by what they saw. PAVN General Nguyen Van Vinh once stated that after his troops had gotten some experience engaging the Americans in battle "… they began to see that the Americans were not supermen. In fact, they fell into ambushes more readily than the Saigon troops; they couldn't move without noise and when they did move, it was at a snail's pace, despite their much-vaunted mobility. They also fell when bullets hit them. The Americans also made the great mistake of forcing the pace in the mountain areas, a graveyard for French forces in the past and for the Saigon forces since the Americans arrived." Though US forces won (or at least retained possession of the field) in the battalion-sized and larger battles, they often did poorly in the smaller ones. Inexperience and command pressure for quick results produced numerous minor actions in which the Communists bested US squads, platoons, and even companies.[678] The slow but continuous stream of American casualties from these minor actions plus those inflicted by mines, booby-traps, snipers, and rocket and mortar attacks constituted the Communists' own campaign of attrition. Though it killed fewer people than American-style attrition, it ultimately proved to be more effective.[679]

Historian Andrew Krepinevich and the British observer and counterinsurgency expert Sir Robert Thompson both believed that the bulk of the infantry battalions in Vietnam should not have been fighting as battalions. They should instead have been broken down into smaller elements so that, together with the RVNAF, they could protect the population from the guerrillas and prevent it from giving them any support. This strategy was rejected by MACV on the grounds that not only would it require the deployment of large numbers of small and isolated American units that were vulnerable to defeat in detail, but also that there could never be enough troops to protect all the villages. Experience gained in the limited use made of this population protection strategy (known as "clear and hold" as opposed to the attrition strategy of "search and destroy") tended to refute this view. One of the best known "clear and hold" examples was that of the Marine combined action units. When the Marines first began their own "search and destroy" operations in 1965 they were dismayed to discover how little they were accomplishing. They would clear an area of Viet Cong only to have the Communists return to it as soon as the Marines departed.

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675 Griffith, *Forward into Battle* op cit pp. 145 and 148-155; Krepinevich, *The Army in Vietnam* op cit pp. 120-122; Robert H. Scales Jr. *Firepower in Limited War* (Washington DC, National Defense University Press 1990) pp. 38-39; and BG Frenz Uhle-Wettler, *The Danger of Over-reliance on Technology by the Armed Forces*, (English translation of unpublished manuscript, Bonn FRG about 1980) pp. 23-26. For an account of the destruction of GM 100 see Bernard B. Fall, *Street Without Joy* (New York, Schocken Books 1961) pp. 185-250.

676 Griffith, *Forward into Battle* op cit pp. 158-162; and Uhle-Wettler, *The Danger of Over-reliance on Technology* op cit pp. 8-23.

677 Ibid and BDM Study Vol. VI Book 1 p. 3-35.

678 For an example of a US Marine rifle company being wiped out in Vietnam combat see the account of Operation "Buffalo" in H. John Poole, *Phantom Soldier* (Emerald Isle NC, Posterity Press, 2001) pp. 128-138.

679 BDM Study Vol. VI Book 1 pp. 3-33 to 3-36.

The Marines had expected that the ARVN would take charge of recently cleared areas but this was not happening. Instead, a Marine offensive would hardly disturb the Viet Cong's control over the population. It also did nothing to enable the Marines to secure even their own base areas against Viet Cong raids and other harassment. However, local Vietnamese Popular Force (PF) troops were available and proved to be very effective as guides and trackers. Marine Lieutenant and rifle platoon commander Paul Ek decided to take advantage of this by reviving an expedient that the Marines had used against the Sandinista insurgents in Nicaragua. He attached each of his three rifle squads to a platoon of PF troops. He then used these three reinforced platoons to garrison three separate hamlets north of Phu Bai airfield. This experiment was a success. The platoons allowed a personal "one on one" approach to the locals and provided 24-hour protection against Viet Cong reprisal. This resulted in a much greater degree of local cooperation and support for the Marines. Lieutenant General Lewis Walt, commanding the Marines in South Vietnam soon adopted the ideas of Ek and others and started organizing Combined Action Companies (CAC) around Marine rifle platoons. By the spring of 1966 and using only his own resources, Walt had created 40 CAC but by January 1967 this number had only risen to 49. No support for the CAC program was forthcoming from either MACV or Saigon. MACV believed that village defense properly belonged to the RVNAF and that CAC resources could be better utilized elsewhere. It also felt that the CACs were surviving only because the search and destroy campaign protected them from the larger Communist units. This was in spite of the fact that CACs were successfully holding their assigned villages against Communist units several times their size. MACV also believed that CACs would result in heavier friendly casualties because they were doing without much of the fire and logistic support which units on search and destroy missions enjoyed. Insofar as such things can be reliably measured, however, it appears that casualty rates among the CACs were substantially lower than they were in conventional operations. Despite MACV's non-concurrence the Marines persisted and in February 1967 reorganized their CACs into separate Combined Action Platoons (CAP). Each CAP would have a full Marine rifle squad (14 men), a Marine radio operator, a Navy Hospital Corpsman, and a 35-man PF platoon. Tactically, a CAP was formed around three 10-man PF squads; each augmented by a Marine fire team. The CAP platoon leader was the Vietnamese PF platoon leader (usually a sergeant). The Marine squad leader served as his advisor. The CAPs effectively prevented the Communists from obtaining either food or recruits in their respective villages. As they began to win the confidence of the villagers they were also able to gain valuable intelligence. On the other hand, the CAPs suffered from a serious language barrier between their Vietnamese and American members. Senior Marine commanders also failed to arrange CAP-defended villages in any sort of network that could insure genuine regional control. The CAPs' biggest weakness, however (apart from the fact that there was never anywhere near enough of them) was that they needed time to achieve success and MACV, ever impatient for quick results, was very unwilling to grant them any.[680]

There was a good deal of logic in MACV's position. The more expensive a war is, the less time will elapse before the home population of the nation waging it begins to tire of it. Of course, if the population perceives the nation's war aims as being sufficiently vital, they are likely to support a very considerable effort for a very long time. Even here, there are limits as may be seen from the experience of Germany in 1918 when popular support for the war finally collapsed despite the clear importance of gaining a victory. In Vietnam, where no American vital interests were seen to be at stake the patience of the American public was naturally much thinner. The American style attrition policy of substituting treasure for blood was also not working out so well as its backers hoped since the consumption of treasure alone was getting big enough to have a negative effect. The consumption of blood was not being held below a painful level either, especially when one considers that many of those whose lives had been saved would still be crippled for life. In some respects, American largesse was actually increasing American casualties. For example, the dud rate for American artillery shells was about two percent and for aerial bombs it was about five percent. The Americans were firing an average of 10,000 artillery shells per day and were dropping bombs at a comparable rate. In 1966 alone this meant about 27,000 tons of dud shells and bombs littered the countryside. Communist ordnance technicians were able to retrieve much of this material and convert it to mines and booby traps. Coupled with the American tendency to be tactically predictable, these improvised weapons were sufficient to kill over 1,000 Americans and wound more than 10,000 during 1966 alone. The enemy was able to maintain this form of attrition through 1967 and beyond. In the first six months of 1967, for example, mines and booby traps caused 17 percent of US casualties, or 539 killed and 5,532 wounded. One rifle company of the 199th Infantry Brigade incurred more than 60 casualties during a three-month period in 1966. Mines and booby traps, mostly fabricated from unexploded US ordnance, accounted for 40 of these. "Friendly" fire claimed so many of the others that, apart from laying the mines, the local Viet Cong hardly had to do anything. Worse, according to S.L.A. Marshall, most of the American artillery and aerial firepower was not being used in direct support of the troops. Due to Communist "hugging" tactics much of even the direct support fire was of questionable value. Instead,

[680] BDM Study Vol. VI Book 1 p. 3-33; BDM Study Vol. VI Book 2 pp. 14-10 to 14-15; and Krepinevich, *The Army in Vietnam* op cit pp. 172-177. Both Krepinevich's book criticizes the US policy of relying on attrition at the expense of population security.

American firepower was being dumped on targets that were often invisible or merely suspected. Had this firepower never been used the US war effort could have been cut back considerably (and thereby made much more sustainable) with few if any ill effects. It seems, however, that the American military leadership could only think in terms of numbers. If enough of America's material wealth were applied to any problem it must be solved. America had won the Second World War by serving as the "Arsenal of Democracy." Why should that not apply to Vietnam as well?[681]

It seems to be generally agreed that the Communists' Tet Offensive in early 1968 was the turning point of the Vietnam War. Why the Communists really launched this series of attacks on most of the cities and provincial capitals in South Vietnam may never be known. It could have been desperation over the slow pace and high cost of a war that may have been trying the patience of even the North Vietnamese population. It might even have been a clever ploy by the Northerners to decapitate the Southern-based National Liberation Front (NLF) so that it would not be able to oppose a takeover of the south by Hanoi once the Saigon government had fallen. It is also possible that the Communists believed too much of their own propaganda and actually thought that the city dwellers in the South would support them. Could they have had some insight into the political impact it would have in the United States? We do know that the Viet Cong or PLAF launched most of the attacks except those conducted by the PAVN around the old Capitol City of Hue. The Communists did help to compensate for their relative lack of artillery and heavy weapons by achieving at least partial surprise in most areas. However, it was all for naught. Once the US and RVN forces had overcome their surprise, they counterattacked vigorously. At last the enemy had come out into the open and the vast US/RVN superiority in firepower could now be brought to bear in the sort of conventional combat that American military leaders believed was the only proper way to fight.[◈] The Communists were soon smashed and their limited territorial gains completely extinguished. The PLAF-NLF never really recovered from their losses but PAVN was happy to take over the leadership of the Communist war effort from then on.[682]

If Tet was a military defeat for the Communists, politically it was their masterstroke. For a short time, even American military leaders believed they faced disaster. For the American public, the shock was much greater. Pre-Tet military statements to the press about how much progress was being made, how close the enemy was to defeat, seeing a "…light at the end of the tunnel" etc. lost all credibility. The anti-war movement, already fueled by the unpopularity of the draft, gained tremendous momentum. President Johnson's decision not to seek reelection and the Nixon administration's subsequent abandonment of Johnson's quest for victory (in favor of "peace with honor") had a disastrous effect on the morale and discipline of the US forces. The army that we had originally sent to Vietnam in 1965-66 was composed mainly of well-trained and disciplined career soldiers. Morale and leadership were good and even if "de-professionalization" was affecting the senior leadership S.L.A. Marshal is probably right in saying that this army was probably the best that America has ever sent out. Things soon started to go wrong, however. The policy of keeping the troops in Vietnam for one-year tours of which officers had to serve in combat for only six months began to sap unit cohesion through constant turnover of personnel and to damage enlisted morale by favoring the officers. Career soldiers soon began to be replaced not by trained Army Reservists and National Guardsmen but by ever more disgruntled draftees. Junior officers were replaced by the badly prepared products of a few weeks of Officer Candidate School (OCS) plus a few more weeks of branch training. The emergencies of the two world wars and Korea had so accustomed the Army to training its officers badly that it had forgotten how to train them well. Pervasive corruption in the officer corps was another drain on efficiency and

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[◈] However, the fighting in and around Hue may not have been nearly so one-sided as US accounts of it suggest. According to researcher John Poole, who was also a Marine company commander in Vietnam during the Tet Offensive, three PAVN infantry regiments and at least one sapper battalion totaling about 5,000 troops were able to infiltrate into the city and seize the citadel and grounds of the former royal palace. They held it for nearly a month against strong counterattacks by major elements of the 1st (US) Marine Division and 1st Cavalry Division; all (or most) of the ARVN 1st Infantry Division, 7th Armored Cavalry Regiment, at least two ARVN Ranger battalions and a Marine task force, and successfully withdrew with the majority of their own troops still intact. According to a document captured by the South Vietnamese, 1,042 PAVN were killed during the Hue fighting and an unspecified number wounded. Given the PAVN's usual difficulties with evacuating and treating their wounded the number of wounded was probably about the same as the number of dead. This suggests a total of somewhat more than 2,000 PAVN casualties. According to US advisors ARVN losses amounted to 333 KIA, 1,773 WIA, and 30 MIA and the Vietnamese Marines lost another 88 KIA, 350 WIA and one MIA. US authorities have admitted that the 1st Marine Division lost 142 KIA and nearly 1,100 WIA. The 1st Cavalry Division acknowledged 68 KIA and 453 WIA. Losses (if any) from other units (or from the US Navy and Air Force) are unknown. However, the small number of Marine dead (especially in relation to their large number of wounded) leads one to suspect that some "Khe Sanh style" accounting tricks may have been employed to keep "official" casualty figures (especially KIA) low. Even without this, total Allied losses still exceeded 4,000 or were double the total PAVN losses, though admittedly with a much lower proportion of dead. Still, these figures should demonstrate that while PAVN may have taken a good deal of punishment the fighting in Hue was far from being a "one-sided" affair. Poole accounts for the relative success of the heavily outnumbered and even more heavily outgunned PAVN by pointing to their use of surprise and innovative tactics. See H. John Poole, *Phantom Soldier* (Emerald Isle NC, Posterity Press 2001) pp. 149-198.

681 Krepinevich, *The Army in Vietnam* op cit pp. 200-202; Col David H. Hackworth USA Ret and Julie Sherman, *About Face* (New York, Simon and Schuster 1989) p. 560; and see Lanning and Cragg, *Inside the VC and the NVA* op cit pp. 127-128; BDM Study Vol. VI Book 1 op cit pp. 6-78 to 6-80.

682 BDM Study Vol. VI Book 1 op cit pp. 3-83 to 3-95.

morale. Principally, this took the form of junior officers isolating their seniors from bad news, and of seniors who wanted to be isolated (and made their subordinates understand this by punishing those who "commited truth"). Falsification of the "body counts" was a prime example. Not only did senior officers (and many junior ones) successfully block out the bad news, they also did a good job protecting themselves from the dangers and discomforts of the war. Battalion and higher commanders increasingly declined to accompany their troops while the latter engaged the enemy on the ground. Instead, they flew overhead in helicopters barking orders over the radio not just to their company commanders but even to squad leaders! Supposedly, they could see the situation better from their lofty perch and quickly travel to where they were needed, but it seldom worked out that way. Their constant interference with the tactical chain of command of their subordinate units only caused havoc and confusion. In a helicopter, a battalion commander was as isolated from his men as his men (while they were airborne) had been from the enemy. More often than not, the jungle canopy insured that the battalion commander could see little more of the situation from the air than he could have from the ground. Of course, in the helicopter, he had a lot more radios to play with, was not thigh deep in mud, being bitten by insects, menaced by land mines, or in much danger of getting shot.[683]

Despite all these problems, morale and discipline remained at acceptable levels until after Tet. However, with the fall of the Johnson administration and the announced policy of no longer seeking victory, military morale took a nosedive. No one wants to be the last one killed in a war, especially a war that will not be won. Pre-Tet problems were greatly aggravated. Mutinies, drug use, and even murders of unpopular and/or incompetent officers and NCO's became widespread. Though neither the Army nor the Marine Corps had incurred severe damage in any material sense, they became defeated in spirit. They would need years to recover their morale and self-respect.[684]

Tactics also changed to reflect the new post-Tet conditions. The minimization of casualties and risk, rather than mission accomplishment, became paramount (and has remained so ever since). There was little attempt to close with the enemy. Artillery and airpower would do all the "fighting." Lieutenant General "Ace" Collins, commanding the I Field Force in 1971 recorded his subordinates' disturbing tendency to call for artillery and air support against any enemy contact, however minor. The immediate result was the loss of all tactical momentum as the troops waited around for the air or artillery to do their work. When the advance finally resumed the enemy was usually gone. Small unit tactics were becoming a lost art and Collins urged their revival. Some infantry commanders even began to doubt that so much firepower was actually a good thing but in 1969 the 25th Infantry Division countered this with a "force feed" fire support system. As soon as any unit (typically an infantry battalion) reported contact, the division automatically dispatched a stream of firepower assets to the area, whether or not the reporting unit had requested them. Airborne Forward Air Controllers (FAC) soon arrived to take charge and coordinate it all. The control of the battle was thus taken out of the infantry battalion commander's hands before it had even properly begun.[685]

The Tet Offensive plus the pending American withdrawal finally shocked the Saigon government into getting serious about prosecuting the war, improving its military, and re-assuming the burden of the ground fighting from the Americans. At the same time, as PAVN took over the uncontested military leadership of the Communist side, the Communist forces became increasingly conventional in their character. At the capture of the Special Forces Camp at Lang Vei, in January 1968 the PAVN introduced tanks into combat in South Vietnam for the first time. Heavy artillery, including 130mm guns, began to appear as well. Ironically, these new heavy weapons actually made the Communists much more vulnerable to American firepower-based tactics even as the American role in the war declined. With the help of American air support the RVNAF was able to repulse two major PAVN offensives in 1973-74. There was even some hope that South Vietnam might survive the withdrawal of American ground forces and be able to get along with only American logistical (and some air) support. However, the Watergate scandal in Washington brought about the downfall of the Nixon administration and the election of a new and much more liberal Congress. The new Congress voted to cut off nearly all assistance to Saigon, including all its American air support and even most of its ammunition. The PAVN's final victory was thus assured.[686]

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683 Stuart H. Loory, *Defeated, Inside America's Military Machine*, (New York, Random House, 1973) pp. 34-35; Richard A. Gabriel and Paul L. Savage, *Crisis in Command, Mismanagement in the Army* (New York, Hill and Wang, 1978) pp. 9-17 and 63-67; and Hackworth, *About Face*, op cit pp. 563 and 660-675.

684 For a detailed study of the collapse of the Army's morale in Vietnam, see BDM Study Vol. VII *The Soldier*. See also Gabriel and Savage, *Crisis in Command* for drug use, see Kutler, *Encyclopedia of the Vietnam War* op cit pp. 178-182; see also Gabriel and Savage op cit pp. 8-9 and 38-50. These works (especially Gabriel and Savage) also document numerous abuses of officers using rank and of enlisted men volunteering for additional Vietnam duty in order to get assigned to safe and comfortable base camps.

685 Scales, *Firepower in Limited War*, op cit pp. 143-144.

686 Kutler, *Encyclopedia of the Vietnam War* op cit pp. 29-47, 56-61, 145-148, 309-326, and 429-436.

CHAPTER 10 - "AIN'T GONNA STUDY WAR NO MORE!" - THE POST-VIETNAM ARMY 1973-84

The Army responded to the final realization of its defeat in Vietnam with an attitude of denial. By its own lights it had "won all the battles" though in fact in the larger battles, clear-cut success or failure had been rare and results generally inconclusive. However, although more of its smaller actions turned out badly than the Army has ever cared to admit, it had managed to avoid any major debacles like Dien Bien Phu. From that the Army concluded that its strategy and doctrine must have been fundamentally sound and that the disaster was solely the result of political interference by ignorant (or disloyal) civilians. However, there were other informed opinions that differed from those of the Army brass. In 1970, after General William Westmoreland became Army Chief of Staff he ordered the Army War College to survey its current class on its views regarding the current state of professionalism and leadership in the Army officer corps. The replies received from the Army's "best and brightest" were so disquietingly critical of the Army and its senior leadership that Westmoreland restricted their circulation to general officers. In addition, the Army's public image had suffered severely from the scandals of the My Lai massacre, the Rheault Affair, and similar fiascos. The anti-war movement blamed the Army for the war and the draft. The Army, in its turn, blamed the anti-war movement, the press, the White House, and the public but it never blamed itself. It therefore made little effort to learn from its mistakes or to change either its policies or doctrine in response to its experience.[687]

The general resistance of the post-Vietnam military to any change or genuine introspection derived not only from a natural desire to avoid blame but also from the military's corporate culture. Its Vietnam years had hardened its attitudes against any public admission of fault or error. This was perhaps best exemplified in the system whereby the military services evaluated the individual performance of their commissioned officers. Officer promotions were in the hands of centralized promotion boards whose members, in most cases, knew nothing about the people they were evaluating beyond what was in their official records. Promotion decisions were (and still are) based largely on efficiency reports written by an officer's immediate superior. Since competition for the available promotions was often intense, insufficiently fulsome praise on one or more efficiency reports might easily mean that an officer would not be promoted. Also, during the Second World War, Generals Marshall and Eisenhower had become so dismayed with the poor quality of so many of the officers entering the Army that they instituted the "up or out" policy. Under "up or out" any officer who was not promoted to the next higher grade within a specified time period would be forced out of the service. This, they hoped, would get rid of a lot of incompetents. In fact it did so to some extent but it also made officers so vulnerable to potentially promotion-denying remarks by their seniors that many became very reluctant either to disagree with a superior or to risk error. Thus, a "zero defects" mentality was born.

Despite its "zero defects" culture the Army never abandoned the hasty methods it had adopted for the World Wars to select and train its "citizen officers." Such "shake and bake" methods might produce enough second lieutenants to get the Army past a trouble spot but they were never meant to produce the professional cadre needed to lead the Army and shape its future. However, the Atomic bomb changed everything. The old methods and virtues were seen as obsolete. The future belonged to new technology and few traditional military tasks would remain. The Doolittle Board had marked the beginning of an extended process of military de-professionalization that affected all of the military services. Of course, traditional forms of professional education were never explicitly abandoned. The schools charged with providing them, usually one for captains, another for majors, and yet another for lieutenant colonels, continued largely as before. Regular Army officers still had to attend them in order to get promoted but the "best and brightest" no longer ran them and, with very few exceptions, the schools' curricula became (and still are) a joke. Though an officer's attendance at a school was important, his performance level was not. School was a time to relax, to be with the family, and not to bother about learning too much. By 1965, de-professionalization had been in force for 20 years and had produced a generation of military illiterates whose influence reached into the Army's highest ranks. Having spent their entire careers learning only enough to get by, American officers failed utterly when it came to understanding and dealing with unfamiliar politico-military problems such as those they encountered in Vietnam. Ignorance that viable alternatives (such as those used by other armies) even existed and the "zero defects" mentality, with its resulting obsession with risk avoidance, discouraged even the suggestion of trying anything new. Of course, this is not to say that American officers are or were uneducated. Secretary McNamara

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[687] Writer Kevin Patrick Sheehan strongly disputes this idea in his 1988 Harvard University thesis "Preparing for an Imaginary War? op cit. Sheehan argues that during the Vietnam War, the Army made great efforts to learn lessons and to incorporate them into its training and doctrine. However, a close reading of his argument reveals that all the Army was really doing was refining its Concept. In other words, it was only looking for better ways to implement the same strategy. It was much like the repeated British attempts to break the deadlock on the Western Front in World War I portrayed in C. S. Forester's novel, *The General*. The soundness of the basic plan was never questioned. It was only a matter of applying it with sufficient strength and determination. The idea that it might be fundamentally flawed was never entertained. So too with the US Army in Vietnam. For another example of the Army's refusal to learn from its mistakes in Vietnam, we note that even the old and supposedly discredited "search and destroy" doctrine survived in Army's manuals for many years under the name "search and attack;" see See FM 7-72, *Light Infantry Battalion* (1987) Section 3-24.

encouraged officers to earn graduate degrees at civilian universities and many did so. The officer corps soon became full of M.A.'s and even Ph.D's in the sciences, engineering, the arts, business administration, management, computers, and every other imaginable field except for anything connected with warfare. Thus, the officer corps not just of the Army but all the U.S. military services had become at once one of the best and one of the worst educated in the world.[688]

Judging from their public utterances, it does not appear that the Army's senior leaders ever gave serious thought to what had happened in Vietnam. They only knew that, whatever it was, they did not want it to happen again. They wished to have nothing more to do with counter-insurgency operations especially when limited by "political" constraints. Of course, Carl Von Clauswitz, among others, has reminded us, that (if this writer may paraphrase) wars *are* "the continuation of politics by other means." When American officers complain about politics in war they are usually thinking of the nation's "glory years" in World War II. That conflict took on the character of a crusade in which explicitly political issues assumed an abnormally low profile. In this respect World War II was highly unusual. The restraints forcibly imposed by the present day proliferation of nuclear weapons will, for the foreseeable future, make a similar absence of political constraints most unlikely. For the military nowadays to complain about "political constraints" is not unlike skiers complaining about snow. Nevertheless, as the Vietnam War ended during 1973-75, the Nixon administration shared most of the military's views and was at least equally anxious to avoid any future Vietnam-like entanglements. The "Nixon Doctrine," which modified the old Truman "containment" doctrine, held that in future nations menaced by overt or covert Communist aggression could count on American assistance (money, arms, etc.) but not on American troops. The only exceptions were Western Europe (NATO) and South Korea, where US forces were already stationed. Another potential exception was the Middle East, where American access to cheap oil was regarded as a vital national interest. Military planners were directed to revise their traditional contingency preparations for "two and one half" wars (in other words, enough forces to fight two major regional conflicts plus enough of a reserve to handle a limited contingency) to "one and one half" wars. The seemingly unlimited manpower pool provided by the draft had dried up. Of all the theaters where American troops might be used, Europe was the most important. The Army, together with its NATO allies, faced an even greater numerical disparity between itself and the Soviet Union and its Warsaw Pact allies than it had prior to its entry into the Vietnam War in 1965. The Soviets had taken advantage of American preoccupation with Vietnam to strengthen their European forces. They had added five new armored divisions to their forces in East Germany and had strengthened their existing divisions (and those of the Warsaw Pact) with newer and more plentiful equipment.[689]

FROM THE ACTIVE DEFENSE TO AIR-LAND BATTLE, 1974-1984

As might be expected, the post-Vietnam Army experienced dramatic strength reductions although, apart from the fact that it no longer had to fight in Vietnam, its Cold War responsibilities remained the same. The number of active Army divisions fell to a low of 13, but General Creighton Abrams, during his brief tenure as Army Chief of Staff, was able to boost the number to 16. Although the pre-Vietnam Army had nearly twice the manpower of the post Vietnam Army, it had only 16 and two-thirds division equivalents. To field 16 divisions Abrams and his immediate successors observed a policy of strict manpower conservation. They moved most combat support and combat service support functions into the Army Reserves and National Guard and left several divisions with only two combat brigades apiece. In wartime each of these would get a National Guard "round-out" brigade to complete its force structure. Finally, Abrams began work on an Army reorganization, known as "Army 86" that would further conserve manpower while increasing firepower. Most of the emphasis in Army 86, however, was on armored and mechanized divisions intended to fight the Russians in Western Europe. For this reason, any detailed treatment of Army 86 belongs more to a history of the Army's armored forces than to its infantry.[690]

Along with its organization the Army also sought a post-Vietnam reorientation of its doctrine. It would shift its emphasis away from air mobility and small unit operations within an environment of total fire superiority and place it on armor operations against numerically superior adversaries. To facilitate this process, the Army reorganized its

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[688] Loory, *Defeated*, op cit pp. 22-64; Gabriel and Savage op cit pp. 83-94; and Edward N. Luttwak, "Refocusing the Military Profession," Marine Corps Gazette Vol. 65 No 6 (Quantico VA June 1981) pp. 61-65. This writer remembers contemplating an application to West Point at about this time. He was genuinely shocked when, upon examining the catalog, that it contained not a single course on military history, strategy, or doctrine, barring a couple of brief survey courses of the sort one could find in any college ROTC program. In other words, you could not study military history at the US Military Academy! This writer has since heard that in recent years one or two worthwhile courses have since been inserted but these courses have been made *optional* so as not to offend the female cadets! As for higher level military schools, this writer has attended several of them and their curricula are indeed a waste of time. However, occasionally some officer in a key position on the faculty will get it into his head that his school is supposed to teach something and proceeds to have it do so. The result is often very gratifying but usually short-lived. As soon as the officer in question leaves (usually within one or two years) everything soon returns to "normal" again.

[689] Sheehan, op cit pp. 149-154; and John L. Romjue, *From Active Defense to Air Land Battle* (Fort Monroe VA, TRADOC, 1984), p. 3.

[690] John L. Romjue, *The Army of Excellence, The Development of the 1980s Army*, (Fort Monroe VA, TRADOC, 1983) pp. 20-21 and 25.

doctrinal branch, then known as the Combat Developments Command (CDC). CDC operated under the Continental Army Command (CONARC) which also had responsibility for Army training and commanded operational (active and reserve) units located in the Continental United States (CONUS). By 1972 CONARC's limitations as both a training and operational headquarters were becoming apparent and so the Army split it into a Forces Command (FORSCOM) for operational matters, and a Training and Doctrine Command (TRADOC) for training and doctrine. TRADOC would be based at CDC's old headquarters at Fort Monroe Virginia. Its first commander would be William DePuy, who we first met in Normandy as a battalion S-3 and later as a colonel defending the Pentomic Army. We met him again as the brigadier general serving as the MACV operations chief who stressed massive firepower as the only way to deal with a Communist insurgency. Informed opinion has it that the "search and destroy" tactics, which the Army subsequently adopted, were to a large extent his idea. Later in the Vietnam War he commanded the 1st Infantry Division. There he earned a reputation as a martinet after he relieved more than 30 battalion commanders, most of them within days of their arrival at his division. Returning to Washington in 1967, he served as a special assistant to the Joint Chiefs of Staff for Counterinsurgency and later became Assistant Vice Chief of Staff of the Army. On 1 July 1973, after promotion to full general, DePuy took over TRADOC. The TRADOC command gave DePuy a great deal of control over the Army's future and while DePuy could be a shrewd observer he was not the visionary the Army needed. Nevertheless, an overhaul of Army doctrine seems to have been DePuy's major priority from the start but it took on even greater importance when the Fourth Arab-Israeli War flared up in October 1973. In this brief but violent conflict, Israel and her enemies (mainly Egypt and Syria) fought one another using mechanized armies on mostly open desert terrain. The war ended as an Israeli tactical success purchased at a high price in casualties and some near disasters. The Arab losses were heavier but the Egyptians achieved one of their principal war aims when the Israelis later agreed to cede them the Sinai Peninsula (which Israel had held since 1967).[691]

General DePuy ordered an extensive study of the 1973 War. To him, the conflict demonstrated that post-1945 advances in technology had given modern weapons unprecedented lethality. To back up this conclusion, DuPuy published numerous comparisons between major World War II, Korean War, and current weapon systems in Chapter 2 of the 1976 Edition of FM 100-5 to illustrate how dramatic the increases in weapons effectiveness over the years had been. In fact, DuPuy appears to have deliberately "cherry picked" much of this information so as to lead the reader to the desired conclusion. A great deal of it was highly misleading or even downright false. Whether DePuy really engaged in wilful deception, or acted from ignorance or excessive zeal in pushing a new concept, or whether he just let his staff isolate him is difficult to say. Nevertheless, DePuy seems to have been genuinely impressed with such weapons as wire guided Soviet-produced antitank missiles (NATO code-named "Sagger"), which operated similarly to the US Army's now discarded ENTAC. He also saw the advances in tank cannon caliber and fire control systems (which he especially exaggerates in FM 100-5) as important. DePuy seems to have been particularly impressed by the successful Israeli defense of the Golan Heights against Syrian armor. Though heavily outnumbered the Israelis occupied eminently defensible terrain that had been at least partially prepared beforehand. The Syrians, for their part, stubbornly persisted in launching massed and largely suicidal tank attacks even though a combined arms attack, spearheaded by infantry (with tanks and artillery in support), would not only have better conformed to Soviet doctrine but would likely have succeeded since the Israelis had very little infantry or artillery of their own with which to counter it, does not seem to have caught DePuy's attention. Instead, he focused on the high loss rates sustained by the tanks on both sides. However, such loss rates were by no means new and had occurred often enough during the Second (and even the First) World War.[✐] They had probably attracted less attention because armor represented a much smaller portion of a World War II army (even a lavishly equipped one like the US Army) than it did of one of the NATO, Warsaw Pact or Middle Eastern armies of the 1960's and 1970's. DePuy nevertheless decided that "the new lethality" brought about by modern weapons had changed the battlefield and had swung the balance of power decisively in favor of the tactical defense. This, he noted, would be the US Army's key to victory against a numerically superior yet technologically equal adversary like the Soviet Union.[692]

In order to put this theory into practice, the Army would need new doctrine and DePuy set about producing it. It duly appeared in the 1976 edition of FM 100-5, *Operations*, (formerly the old *Field Service Regulations*). The approach taken by the new FM 100-5 was to distill tactics and doctrine into to a series of procedures and "cookbook" formulas that even marginally trained American officers could understand. The overarching principle

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[✐] Regarding World War II armored combat, this writer will cite two examples. (1) Rommel's loss 386 of his 412 tanks during the several weeks of the British offensive known as "Operation Crusader" in North Africa in late 1942; and (2) The Soviet Army's loss of 17,000 out of its total stock of about 24,000 tanks during the opening months of Operation *Barbarossa*.

691 Sheehan, op cit, pp. 164-167; and Hackworth, *About Face*, op cit pp. 561-562.

692 Headquarters, Department of the Army, FM 100-5 *Operations* (Washington DC 1 July 1976) pp. 2-1 to 2-24 and Romjue, *Active Defense to Air Land Battle*, op cit pp. 6-7.

was that, as the weaker force, the US Army should start on the defensive so that it could take advantage of the power of the new technology to bloody its enemies to the point where it could safely assume the offensive and win the fight. (This, incidentally, recalls DePuy's theory of victory in Vietnam, which was simply to kill enough of the enemy to bring them to their "threshold of pain.") DePuy instructed corps and division commanders to concentrate their forces in such a way that at "the point of decision" their troops would never be outnumbered by more than three to one when defending and would outnumber the enemy by at least six to one when attacking. In order to make the most of the troops available, the generals would maintain very few reserves. Instead, any combat unit not already engaged with the enemy should be considered "in reserve." Once the attacking enemy's main avenues of advance had become apparent these "reserve" units should move laterally across their parent division's (or corps) area of responsibility (AOR) to reinforce the troops opposing the enemy's attack. As an example, FM 100-5 pointed out that a division commander might have to be willing to concentrate six to eight of his ten or so maneuver battalions on one fifth of his front line in order to oppose a breakthrough force of 20 to 25 battalions. He would have to accept the risk of leaving the other four fifths of his line to his air and ground cavalry troops and his few remaining battalions.

While the generals set the stage and committed their troops to fight within the prescribed force ratios, the brigade and battalion commanders would control and direct the battle. This involved fitting their forces to the terrain and situation, coordinating their fire support, resupply, and the employment of their organic weapons. In addition, units would receive sectors or battle positions to be defended or specific objectives to be attacked. In particular, battalion/brigade commanders would task organize their troops into company and battalion sized teams, each with an appropriate mix of tanks, infantry, and antitank weapons. Finally, company and platoon commanders would actually fight the battle. Using the cover and concealment offered by the terrain, platoons and companies would stay just ahead of the advancing enemy, keeping him under constant fire but, employing their weapons at their maximum effective ranges, so as to prevent the enemy from engaging them too closely. The use of long-range fire would also ensure that the enemy remained under fire for the maximum period of time as he advanced mindlessly towards the defenders. Eventually enemy losses would become great enough to leave them vulnerable to a counterattack.[693]

The perceptive reader has probably already noted at least some of the defects in DePuy's reasoning. However, it is only fair to note that DePuy also had ideas that were very worthwhile. His notion that weapons procurement should be driven by doctrinal requirements and not the other way round was eminently sensible, even if it was exactly the reverse of the thinking that usually prevails within American military circles. His advocacy of risk taking was also a very alien concept to American officers who had grown up in a "zero defects" culture while enjoying unquestioned numerical and material superiority over every opponent. Americans needed to be reminded that the weaker side *must* be prepared to take more risks if it is to have a reasonable chance of winning. DePuy also stressed the necessary, though for Americans, foreign concept of resource conservation. In a future war, American forces might not have the luxury of delaying their entry into combat until they had prepared their military and their industrial base. They might have to fight for months with only the troops and material that were actually available when the war began. More controversial was DePuy's emphasis on defense, despite the US Army's long-held belief that decisive action is only possible in offensive operations. However, DePuy's oversimplifications of Soviet doctrine and his facile assumption of a Soviet inability to react to situational changes were fatal flaws. Worse, DePuy assumed that US forces would display greatly superior tactical mobility and coordination over their Soviet opponents despite the fact that DePuy's doctrine had them moving laterally across ridge lines and friendly unit boundaries while their enemies advanced along major road and rail corridors. The latter was a major reason why the "Soviet" forces "won" most of the field maneuvers in which Active Defense was tested and practiced.[694]

Despite its shortcomings, DePuy and TRADOC aggressively pushed the Active Defense doctrine on the rest of the Army. He certainly moved with commendable speed, carrying his doctrine from concept to publication within the incredibly short space of three years. Nevertheless, DePuy could not prevent substantial opposition to his doctrine from emerging both inside and outside the Army.[695]

Opposition within the Army came from those who questioned DePuy's belief in the supremacy of the tank and from those who objected to FM 100-5's treatment of doctrine in general. The "anti-tankers," like the "pro-tankers" and many other American officers, worshipped at the altar of technology despite the fact that the Army had just emerged from a war in which all the technology of the world's most technically advanced nation had failed to change the outcome. Even so the Army could not stop searching for that "silver bullet" that would be the solution to everything. For the defense of NATO from the Soviets it seemed to many that either the latest antitank guided

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693 Sheehan pp. 154-160; FM 100-5 *Operations* (1 July 1976) pp. 3-1 to 5-14.

694 Sheehan pp. 159-161, 174-176, 196, and 212-216; and Romjue, *From Active Defense to AirLand Battle*, op cit pp. 13-21. DePuy's theory of victory in Vietnam is distilled from commentary in Hackworth op cit.

695 Sheehan pp. 179-181.

missiles and/or the new attack helicopters had to be the answer. Those who favored the former (the missileers) pinned their hopes on the M220 TOW (Tube launched Optically tracked Wire guided) missile, which had first seen action during the closing months of the Vietnam War. The TOW used a SACLOS (Semi-Automatic Command Line Of Sight) guidance system. Unlike an ENTAC gunner, a SACLOS gunner only had to keep the cross hairs of his optical sight on his target and the missile would fly itself to the target automatically. Having to track only the target instead of both the target and the missile, a TOW gunner needed much less training than an ENTAC gunner but still had a much higher chance hitting his target. The maximum range of the earlier versions of the TOW was 3,000 meters and the Army rated the maximum effective range of a tank cannon at no more than 2,000 meters. The difference between the two was called "standoff" and it meant that the missile gunner would (in theory) have 1,000 meters of battlefield in which he could hit the tank while the tank was too far away to hit him. A TOW launcher with its control unit weighed 172 pounds and each missile in its disposable launch tube weighed 54 pounds. The system was thus light enough for even the lightest motor vehicles to carry. The Army procured TOW missiles in such numbers as to drive down the cost per missile to a very affordable level. It also estimated that a reasonably competent TOW gunner had an 80% chance of a first round hit on a stationary tank sized target at 3,000 meters' range. Hit probabilities at lower ranges actually declined (though they remained relatively high beyond the TOW's minimum range of 65 meters) because the gunner had less time to make corrections in the missile's flight. However, target movement (even at speeds as high as 20 miles per hour) did not significantly affect a TOW's chance of hitting. Once hit no tank that the US Army knew about could withstand the impact of the TOW's massive shaped charge warhead. Add in the TOW's high hit probability and how does a tank survive? The missileers were quick to point out that the TOW was the perfect weapon for NATO. It was clearly defensive so its deployment could not be interpreted as provocative and it was a cheap way to counter the Warsaw Pact's superior numbers of armored vehicles.[696]

The chief advocate of the missileer point of view was the Infantry School at Fort Benning Georgia. Infantry Branch units operated most of the Army's ground based antitank missiles and the infantry had no wish to see a new Army doctrine that placed them in an inferior position to their rivals at the Armor Branch. Instead, in a 1974 proposal the Infantry contended that the technology that made the TOW possible had greatly diminished the importance of the tank and that Europe should base its future defense on missiles instead. A dense checkerboard array of mutually supporting infantry strong points each backed by artillery housing one or more TOW systems should stop any invading Soviet tank force. Against such a defense, the missileers argued, even the heaviest Soviet armored assault would smash itself to pieces. What other result could there be in a situation where the leading tanks came under deadly accurate missile fire even while they were still 3,000 meters (nearly two miles) from their objectives?[697]

The air mobility advocates favored the new antitank helicopters and repeated many of the same arguments that had been made prior to Vietnam about the suitability of air assault forces for European combat. They also pointed out that while the Army may have missed out on "a generation of mechanized tactics" because of its focus on Vietnam, Vietnam nurtured the development of a significant air mobility and attack capability. An air-launched version of the TOW was now available that could attain a range of 3,750 meters and a special helicopter existed to carry it. Designed during 1966-67 around the engine and drive train of the UH-1 "Huey," the AH-1 *Cobra* was the first of the purpose-designed attack helicopters and it sported a completely new airframe that housed two pilots sitting in tandem. It presented an enemy with an extremely small frontal target and could accommodate a weapons load that would have occasioned a standard "Huey" a serious loss in aerial performance. The *Cobra's* armament included up to four pods of bombardment rockets and a "chin" turret armed with any of a variety of cannon and machineguns. In later versions, pods of TOW missiles could be substituted for some or all of the rockets. The *Cobra* could fly very close to the ground ("nap of the earth" as its advocates liked to describe it) taking advantage of hills, trees, and other terrain to screen it from its targets until it was ready to fire. When the moment arrived the *Cobra* could pop up above whatever terrain it was hiding behind, fire its weapons and pop back down again so as to escape any return fire.[ff] Naturally a *Cobra*, being several times faster than even the fastest tank, could easily keep ahead of its adversaries while constantly damaging and delaying them and sustaining few losses itself.[698]

General DePuy did little to answer these rather weak challenges to Active Defense but he did broaden its doctrinal focus to put more emphasis on air mobility. DePuy rightly concluded that the missileers were only tinkering at the margins of the new doctrine and did not really oppose it. Furthermore, in framing their arguments

[ff] In 1972 (or thereabouts) this writer saw an Army training film showcasing these new attack helicopter tactics in maneuvers held in Germany against the West German Army. Laser designators triggered smoke grenades on targeted vehicles to simulate hits. The film was an impressive one though the scenario was arranged so as to favor the helicopters. The Army was expecting great things from its attack helicopters.

[696] US Army Infantry School, *Infantry Reference Data Tactics Data Book* ST 7-176 FY 83 (Fort Benning Georgia, USAIS 1983) pp. A-3 to A-4; and Sheehan pp. 182-184.

[697] Sheehan pp. 182-185.

[698] Ibid; and Dunnigan and Nofi, *Dirty Little Secrets of the Vietnam War*, *op cit* p. 112.

they had payed even less attention to potential challenges from the terrain or the enemy than DePuy had himself. Terrain studies carried out by the West German *Bundeswher's* geographical department had concluded that about 55 percent of all targets likely to be encountered in Central Europe would not be visible at more than 500 meters' range. Only 17 percent would be visible at more than 1,500 meters and only 10 percent beyond 2,000. Similar studies by the Soviets anticipated 40 percent of their potential targets at less than 500 meters, 20 percent at between 500 and 1,000, 25 percent at 1,000 to 2,000, and 15 percent at over 2,000 meters. Moreover, these studies only considered the effects of blocking terrain (hills, forests, buildings, etc.). They did not include the effects of darkness, smoke, fog, fires, and the inevitable difficulties of telling friend from foe. Although future improvements in optics would help, the Germans concluded that most of any future tank battles in Europe would occur at the same 300-meter ranges that they had occurred at during World War II. A close-range battle would be highly disadvantageous to the missileers since tank gunners could fire their weapons several times faster than the TOW gunners could and (at the shorter ranges) with at least the same levels of accuracy. Since they lacked any armor protection until well into the 1980s TOW gunners would also be very vulnerable to infantry, artillery and machinegun fire.[699]

Not only would long-range missile fire be impossible in many instances, it might frequently not even be desirable. World War II antitank doctrine stressed the need to hold one's fire until the last possible moment. This was not so much to insure a penetrating hit (antitank guns had become fairly effective at this by late in the war) as it was to minimize the enemy tanks' opportunities to escape. By contrast, antitank missiles by their nature encouraged firing at distances where the enemy could easily break contact. The odds of an enemy's blindly hurling himself on a concentration of missiles (without even calling in his own artillery), as both the Active Defense and the missileer doctrine assumed he would, would seem to be rather low. Nevertheless, a TRADOC assumption that the Soviets would fight under such a set of "Marquis of Queensbury" rules appears to have permeated Army doctrine. The Army seems to have been driven by a blind hubris that viewed the Soviets (much as it had viewed the Viet Cong) as nothing more than a target to be "serviced," not an opposing intelligence to be understood, outwitted, and then defeated. Indeed, one of the most striking features of current Army doctrine is its willingness to "assume away" all variables that it cannot predict such as terrain, weather, and the enemy. TRADOC, for example, seems to have assumed that the Soviets would not use their artillery rather than their tanks to counter our mostly unprotected antitank missile launchers. It also assumed that Soviet tankers would not accept lower hit probabilities and engage their enemies at greater distances than those that Americans would employ. Yet, a tank cannon's projectile can actually travel much further than a TOW missile, though it might not be very accurate beyond the first 1,000 to 2,000 meters. TRADOC also assumed that the Soviets would see their own tanks just as we saw ours, namely as tactical tank destroyers. However, the Soviets (like the World War II Germans) see tanks as operational-level weapons designed to exploit the breeches in the enemy's line created by the infantry and artillery. Once behind an enemy's front line they would attack his command posts, artillery (especially nuclear capable missiles or rockets), supply columns, and other important but vulnerable targets. For this purpose about half of a Soviet tank's ammunition load was high explosive fragmentation (HE-Frag). The other half was antitank ammunition but for the Soviets the destruction of enemy tanks was much more the responsibility of specialized antitank units, than of friendly tanks. The Soviet tanks' HE-Frag shells were designed to destroy the critical "soft" targets in the enemy's rear. Unprotected antitank missiles would, of course, have been vulnerable even to HE-Frag fired from long ranges. On the other hand, in more open terrain, such as desert, there would be more opportunities for longer ranged engagements that favored the missiles. Since the missiles and the vehicles capable of carrying them were relatively light and inexpensive, they could be deployed in larger numbers. However the Infantry Branch's contention that they could substitute for tanks was certainly without merit and General DePuy rightly dismissed it.[700]

More serious objections to the Active Defense were raised by the Army's Combined Arms Center at Fort Leavenworth. This institution was part of TRADOC and General DePuy had actually charged it with writing the initial drafts of FM 100-5. However, DePuy had not been satisfied with the results. The commander of the Combined Arms Center, General John Cushman, believed that doctrine should be a guide and a vehicle for discussion. It should be a way of thinking about war, not a set of instructions on how to execute it. The Combined Arms Center was the command normally charged with writing Army doctrine but DePuy disagreed so strongly with its views that he and his principal subordinates ended up writing FM 100-5 themselves.[701]

However, the most damaging of all the objections to the Active Defense came from outside the Army. General DePuy, given his autocratic style and aversion to criticism, could browbeat active duty soldiers into accepting his ideas easily enough. Civilians, on the other hand, were harder to deal with, especially when they actually knew what

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699 LtCol John A. English (Canadian Forces), "A Historical Perspective on Anti-armor," Marine Corps *Gazette* Vol 69 No. 12 (Quantico Virginia, Dec 1985) pp. 35-37; and Sheehan pp. 183-185.

700 Ibid; and David C. Isby, *Weapons and Tactics of the Soviet Army*, revised edition (London UK, Jane's Publishing Co. 1988) pp. 125-139.

701 Sheehan pp. 185-188.

they were talking about. One such critic was Dr. Edward Luttwak, a well-known defense analyst, who found fault with the Active Defense's excessive emphasis on defense and its neglect of the "operational" level of war. (This was later described by the 1986 edition of FM 100-5 as "…the employment of military forces to attain strategic goals in a theater of war … through the design, organization, and conduct of campaigns and major operations"). In other words, DePuy's manual talked about techniques at the expense of fundamental concepts. However, it was Mr. William S. Lind, then serving on the staff of Senator Robert Taft Jr., who really became "the skunk at the garden party." Lind (pushy congressional staffer that he was) had already embarrassed Army and Marine Corps congressional liaison officers (exposing their advanced state of professional ignorance) by asking them what they meant by the term "tactics." Unable to give a coherent reply, even after asking for help from the Infantry School, the Army liaison officers directed Lind to General DePuy, whom they described as the Army's premier expert on tactics. DePuy briefed Lind on Active Defense in February 1976. Afterwards, Lind returned to Washington and wrote the first draft of a paper that took the whole Active Defense concept to pieces. Lind strongly questioned DePuy's assumptions that new technology had shifted the advantage to the tactical defense and that the US Army and NATO should stake everything on winning the "first battles" of any future war with the Soviets. Too much emphasis on the first battle might hamper subsequent operations. Lind pointed out that the Soviets, with their system of attacking in multiple echelons, were certainly prepared to win subsequent battles even if they lost the initial ones. Against a multi-echeloned Soviet force, DePuy's plan to put everything on the first echelon could be disastrous. Going further, Lind attacked DePuy's "fight outnumbered and win" as being the product not of innovation or serious analysis but of blind optimism and "can do" spirit under which no mission is refused, however high the probability of failure. "Can do" was and still is an Army creed because of the belief that any admission of incapacity might damage the Army's credibility as an institution. Lind noted that such attitudes had contributed to the Vietnam debacle and might bring about a NATO disaster if the Army could not be more honest with itself and its civilian masters.[702]

Lind also strongly criticized DePuy's assumptions that US forces would be able to shift themselves laterally across their own front line fast enough to keep ahead of Soviet advances. That assumed a US superiority in tactical mobility, intelligence, and command and control that (as we have already noted) did not exist. Most importantly, Lind pointed out that the US Army had traditionally depended on a "firepower-attrition" tactical doctrine, in contrast to the "maneuver" style doctrine developed by the Germans. German maneuver doctrine was intended especially for bringing victory within the reach of the quantitatively inferior force. Both doctrines employed fire and maneuver but under firepower-attrition, maneuver merely positions firepower to carry out the enemy's physical destruction. Under a maneuver doctrine, firepower creates opportunities for maneuver. The purpose of maneuver is not so much the enemy's physical destruction as the breaking the spirit and will of enemy's leadership through the creation of unexpected and unfavorable situations. Lind pointed out that the Germans had used their maneuver doctrine to smash the firepower-attrition oriented French in 1940 and that both traditional US doctrine and the Active Defense had mainly originated from the French. He also stated that the Soviets had adopted a maneuver-oriented doctrine and would likely use it against NATO.[703]

Upon completion of his paper, Lind sent a copy to TRADOC. The Army has vigorously denied the rumors that General DePuy "hit the ceiling" after he had seen it. However, TRADOC did use its influence to block publication of Lind's paper in *Military Review*, despite the fact that this journal had already solicited the paper from Lind. (*Military Review* did eventually publish Lind's paper in March 1977). Despite this apparent attempt at suppressing Lind's paper, photocopies were so widely circulated within the Army that TRADOC felt obliged to publish rebuttals. To bolster its position, TRADOC even tried to get retired German (World War II) generals Hermann Balck and F. W. von Mellenthin and some active and retired Israeli officers to endorse Active Defense. None of them would. Lind's paper also emboldened many critics within the Army and caused officers who had initially endorsed Active Defense to reconsider their own views. Even worse was the continued unfavorable reporting from field exercises in which the "blue" (friendly) forces using Active Defense were still losing badly to their "red" (enemy) opponents. These developments eventually brought the whole Active Defense concept under heavy fire. Nevertheless, General DePuy strongly defended his doctrine until his retirement from the Army in July 1977. His successor and former deputy, General Donn Starry, also defended the ideas of his former chief but Starry's own experience as a corps commander in Germany had convinced him that the Active Defense would be difficult to implement and did not adequately address those multiple Soviet echelons. Unlike DePuy, Starry became head of TRADOC at a time when memories of Vietnam were fading and the Army was becoming genuinely popular with the public again. However, the 1979 Soviet invasion of Afghanistan, the Iran hostage crisis, and Cuban interventions in Angola, Yemen, and Central America were underlining America's relative military powerlessness.

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[702] Sheehan pp. 212-218; Romjue, *Active Defense to Air-Land Battle*, op cit pp. 13-18; William S. Lind, "Some Doctrinal Questions for the US Army," Military *Review* (Fort Leavenworth Kansas, March 1977) pp. 54-65; and Interview with William S. Lind on 8 February 1999.

[703] Ibid.

They eventually prompted the Carter administration to reverse its previous anti-military policies and began a major military buildup. Much of the resulting congressional largesse would go to the Army but the Army's responsibilities would once again expand well beyond a European war. It would need something more than just Active Defense for its doctrine.[704]

Despite his doubts, General Starry was unwilling to openly abandon Active Defense. Instead, he opined that the changed conditions brought on by the Carter buildup justified a "modification" to the Active Defense doctrine. The results appeared in 1982 in a new edition of FM 100-5 and were called "Air-Land Battle." The term "Air-Land Battle had actually been coined by DePuy and used in his 1976 edition of FM 100-5. It referred to the close cooperation between Army and Air Force units that TRADOC considered essential to the Army's future battlefield success. Starry took the concept a step further and used it to modify Active Defense so that it would satisfy *all* its critics. Not much was needed to please the air mobility people or the missileers since they had really been asking only for recognition, not serious change. To satisfy Dr. Luttwak and many of the Army's internal critics, Starry placed new emphasis on offensive operations. New techniques such as breaking out of encirclements and concepts like rear area protection would also help. There was also some de-emphasis on the NATO defense of Europe in favor of a broader range of possible campaign scenarios. Active Defense would be retained but only as one defensive technique among several that a commander might choose from. The Combined Arms center would incorporate its ideas about how doctrine should be used by rewriting FM 100-5 as a doctrinal statement of *what* the Army had to do to win battles and campaigns rather than specifically *how* to win them. The "how" questions and their "cookbook" solutions would be retained but relegated to the "how to fight" manuals that accompanied and supplemented FM 100-5. Some of Mr. Lind's concerns were addressed with the favorable mention of his "maneuver warfare" concepts. He was even invited to read and comment on some of the 1982 FM 100-5 drafts. This was all the more remarkable in view of the anger and hostility with which the writings of this "armchair field marshal" had been received by the TRADOC establishment. Though he had never served in the military the armchair field marshal was nevertheless a persuasive writer whose words had the ring of truth. He had made a number of important people in the Army look foolish and had dramatized the degree to which the Army's post-World War II de-professionalization had affected the competence of even its most senior officers. Unfortunately, it is unlikely that TRADOC's decision to move towards Lind's concepts was entirely sincere. Lind had a powerful patron in Senator Robert Taft Jr. and later Senator Gary Hart and the voices of the Army officers whom Lind had influenced also exerted a good deal of pressure.[705]

Specifically, Air-Land Battle reacted to Lind's criticism that a renewed emphasis on the human dimension of battle and the use of "mission" orders were needed. No longer was battle presented as a matter of statistics in which every enemy soldier had to be killed and every tank destroyed. The 1982 FM 100-5 only required that enough be done to cause the enemy to lose his will to fight. The rationale behind mission orders stemmed from the idea that on future (not to mention previous) battlefields seniors might find it impossible to exert close control over their subordinates. Instead they would have to be content with having their general intentions carried out in whatever ways their subordinates might choose. Such a command system is flexible, responsive, and only minimally dependent on good communications. However, it requires that both senior and subordinate officers not only be professionally competent but that they also know and trust one another completely. In other words, a "mission orders" system required a relatively small but high quality officer corps like the German (or pre-1973 Israeli) Army and not a large but hastily trained one like the American. Furthermore, the US Army's policy of frequent transfer of officers insured that seniors and subordinates would not get to know one another or their units very well. The Army's force structure, which centered on a relatively small number of combat formations (in 1979 this amounted to 16 divisions in an army of 785,000) most officers spent (and still spend) very little time commanding troops. Furthermore, the Army's "zero defects" culture strongly encouraged the close supervision of subordinates to ensure that they made no mistakes that might jeopardize one's own career. A doctrine genuinely based on "mission orders" is impossible under such conditions, yet neither TRADOC nor the Army (or Congress, for that matter) had (or has) any intention of changing the Army's culture merely to accommodate new doctrine or adapt to new military realities. Certainly few generals wished to change a system that had succeeded in reaching the top of. Furthermore, the generals ensured that the new doctrine retained General DePuy's theories of synchronization under which the elements of a combat formation were closely coordinated and kept under tight centralized control. Indeed, it is very doubtful if any of Air-Land Battle's brave talk about the "human element in war" and "mission orders" was ever meant to be anything but meaningless rhetoric to silence the Army's critics. Though attractively repackaged, the

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[704] Ibid; and Philip A. Karber, "Dynamic Doctrine for Dynamic Defense" Armed Forces *Journal* International (October 1976) pp. 28-29; John Patrick "Banned at Fort Monroe, Or the Article the Army Doesn't Want You to Read" Armed Forces *Journal* International (October 1976) p. 26; and TRADOC Staff, "TRADOC's Reply" Armed Forces *Journal* International (October 1976) pp. 27-28.

[705] Sheehan pp. 216-223; and William S. Lind "Some Doctrinal Questions for the US Army" op cit; and Romjue, *Active Defense to Air-Land Battle*, op cit pp. 51-61.

essentials of the Active Defense are still very much intact. They remain the bedrock of the Army's doctrine to this day.[706]

However, the centerpiece of Air-Land Battle, and the source of its name, was General Starry's plan for dealing with the second and later echelon troops that would feature in any Warsaw Pact invasion of Western Europe. Starry wanted to destroy these forces by launching "deep attacks" on them while they were still well behind the Warsaw Pact front lines. Deep attacks would be carried out by a massive air campaign supplemented by surface-to-surface missiles delivering both conventional and nuclear, chemical, or biological payloads. Air-mobile forces and long-ranged artillery would conduct attacks at shallower depths. In short, Air-Land Battle was really an extension of the Active Defense based solely on firepower. In this respect Air-Land Battle suffered from three serious weaknesses. First, in any war against the Soviet Union and the Warsaw Pact, the US Air Force, which would conduct the air campaign against the later echelon Soviet forces, would initially have to devote most of its resources to a struggle for air supremacy with the Soviet Air Force. Though the powerful US Air Force might well have prevailed in this struggle, its victory would have been far from immediate and during the early and crucial stages of any Soviet offensive it would have had little to spare for attacking Soviet ground troops. Even after it had gained air superiority the Air Force's ground attacks would be severely curtailed by the dense array of air defense guns and missiles that would have accompanied any large Soviet or Warsaw Pact ground force. Similar, though less dense and less sophisticated arrays had effectively protected the Egyptian and Syrian forces from Israeli air attack during much of the 1973 war. However, FM 100-5 did address certain techniques, based on Israeli experience, whereby Army and Air Force units might cooperate in destroying or suppressing these Soviet air defense systems. The second problem with "deep attack" was that the surface to surface missiles that the Army would use to supplement the Air Force's attacks did not yet exist. Third, the use of nuclear, chemical, and biological weapons was always a "wild card." Not only were the Soviets able to retaliate in kind but their ability to protect their troops, using gas masks, chemical warfare protective suits, air filtration systems, chemical alarms, etc. was superior to that of the US forces.[707]

Despite all of these problems, the 1982 edition of FM 100-5 was still a considerable improvement over 1976. Since its publication, Air-Land Battle doctrine has been further updated in 1986 and 1993 editions of FM 100-5. Yet another edition has just been released as this book goes to press. Unfortunately, these successive updates have gradually increased their emphasis on the essential principles of Active Defense though they have not explicitly abandoned maneuver as such. Like the old Pentomic Army, both Active Defense and Air-Land Battle can probably be seen as attempts to return to an older and familiar world following an unpleasant encounter with a new and alien one.

THE "H" SERIES INFANTRY AND AIRBORNE BATTALIONS 1970-1982

Until about 1983, most of the Army's efforts to reorganize its tactical combat units were limited to armored and mechanized forces. The Army left the organization of its infantry divisions and battalions to continue the slow evolutionary process that Vietnam had so rudely interrupted. Post-war changes were relatively minor and focused on manpower economy and the introduction of new equipment. While the troops in Vietnam used the ARCOV-derived temporary organization tables, the Army had continued to publish the standard tables for units serving outside of Vietnam. A "G" series of tables (for infantry and airborne units) appeared in 1966 but differed very little from the pre-Vietnam "E" and "F" series. Modifications dated 27 October 1969 split the battalion headquarters and headquarters company (HHC) into separate HHC and combat support (weapons) companies (CSC). Limited diagrams for these battalions appear in Appendix 10.1

The process of creating a permanent CSC was a gradual one. Some infantry battalions, especially those in the Army Reserve and National Guard, remained in the early "G" configuration until well into the 1970s. The airborne infantry battalions did not form CSCs until they switched to the H-series in the early 1970s. However, even those battalions that did not create CSCs reorganized their antitank platoons. The infantry battalions replaced their unpopular ENTACs with eight 106mm recoilless rifles. Six of these came from their three rifle company weapons platoons when these became mortar platoons. The other two came from the reconnaissance platoon. In the airborne battalions the antitank platoons received only six recoilless rifles but two rifles remained in each rifle company weapons platoon. In a few battalions (all infantry) the antitank platoon received six jeep-mounted TOW missile launchers as these became available. The initial "H" series infantry battalion is shown in Appendix 10.2.

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[706] Ibid. Regarding the military's current problems with a "zero defects culture" and "up or out" promotion system, too much has already been written to cite here. This writer's own experiences as a Marine Corps officer have confirmed the essential truth of most of it. He has also noted that while many officers can use maneuver warfare jargon very few know what it really means and would be hard pressed to put it to any practical use. Most seem to think that it calls for fancy battlefield movement at the expense of engaging the enemy with firepower.

[707] Ibid. and see Headquarters Department of the Army, *Operations* FM 100-5 (Washington DC 20 August 1982) pp. 2-3, 2-5 to 2-9, 7-1 to 7-7, 7-13 to 7-17, 11-4 to 11-8, and 12-6.

As in the later "H" series, airborne battalions differed from standard infantry battalions mainly in having much lighter motor vehicles. Mechanical mules substituted for many jeeps and even a few 2.5-ton trucks. Diagrams of the "G" and "H" series airborne battalions appear in Appendices 10.1 and 10.2.[708]

Neither the standard rifle company nor its airborne cousin changed significantly from its pre-Vietnam predecessors (see Appendix 10.3). The airborne rifle platoons replaced their M20 bazookas (or M72 LAAW) with 90mm recoilless rifles, thus bringing their nominal firepower in line with that of their standard infantry counterparts. Their actual firepower naturally remained inferior due to the limited ability of the airborne troops' lighter vehicles to replenish their ammunition. Both standard and airborne infantry gradually replaced their hand held M79 40mm grenade launchers for the rifle mounted M203 type. However, the airborne company had to LIWC's in lieu of the infantry company's 3/4-ton and 2.5-ton trucks and trailers, which meant that airborne company vehicles carried a significantly reduced payload. This could have been a substantial disadvantage in sustained combat.[709]

The new CSC imposed no change on the infantry's tactical doctrine since it merely eased the HHC company commander's job by relieving him the responsibility of training and administering the battalion's combat support units. The CSC would not function as a tactical unit. The battalion commander, through his S3, would the tactical employment of its platoons and sections, just when those elements had been part of the battalion HHC. In battle the CSC commander mainly served as an advisor to the battalion commander or as an S-3 "stand-in" at the battalion's alternate command post (available in case the primary command post had to move or became disabled).

The internal organizations of the CSC's platoons and sections were as shown in Appendix 10.4. The ground surveillance section consisted of four three-man AN/PPS-5 radar teams carried in jeeps plus a fifth jeep for the section leader. When authorized, the section could receive two additional teams. The Redeye section, with its five firing teams had changed very little since 1965. A radio operator could augment the lieutenant and section sergeant in the section headquarters. The CSC headquarters included maintenance personnel for the company's radars, generators, radios, and trucks. Weapons maintenance seems to have been left mostly to the platoons though a company armorer was provided. Though there was a sergeant communication chief CSC headquarters included only one radio operator and a switchboard operator. A spare parts clerk was the CSC headquarters augmentation.

The CSC had an antitank platoon that could be one of two types. The most common employed eight jeep-mounted 106mm recoilless rifles. However a few units might have a platoon with six of the new TOW missile launchers. A TOW system needed two jeeps to carry it. One would have the launcher, two missiles, an AN/GRC-160 radio, the gunner and a driver. The other would carry six reload missiles, the squad leader and a driver. The TOW platoon commander and platoon sergeant each had their own AN/VRC-47 equipped jeeps, probably so they could accompany individual sections. The 106mm recoilless rifle platoon generally operated as separate two-gun sections (three of them attached to rifle companies), but this did not apply to the TOW platoon. Although a section of two squads could operate as a detachment under the platoon sergeant it seems that the preferred method of employing the TOWs was to keep them together under the battalion commander's control. Given their long range, it was expected that they could cover most of the battalion's sector without any need for their attachment to individual companies.

The CSC of the "H" series airborne battalion was similar to that of an infantry battalion but (like the airborne rifle company) with lighter vehicles. Its ground surveillance section and reconnaissance platoon (in the airborne battalion it was the scout platoon) were only about half the size of their infantry counterparts (see Appendix 10.6).[710]

With all combat support elements transferred to a CSC Army planners could greatly simplify the HHC. An infantry battalion HHC is shown in Appendix 10.5. The HHC's command and service support responsibilities remained largely as it had been under the "E" series ROAD reorganization. Augmentation personnel were mainly for the service platoon to act as relief drivers and cook's helpers (as shown in Appendix 10.5). In the supply section, the warrant officer section leader and an assistant supply sergeant became augmentees because their primary duty, which was to maintain the battalion property book, was in the process of being taken over by the supply personnel of the battalion's parent division. Not all battalions were assigned to divisions, however, and those that were not and those in divisions that had not yet reorganized the supply sections in their headquarters would continue to use these extra personnel. The battalion maintenance platoon was significantly smaller since the CSC maintained the vehicles for the combat support platoons. Finally, the medical platoon picked up enough company aidmen so that four could

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[708] Dept Army T/O & E (Infantry Battalion) 7-15G, 7-16G, and 7-17G (all Washington DC, 31 March 1966 and 27 October 1969), and 7-28G (27 October 1969 only); and T/O & E (Airborne Infantry Battalion) 7-35G, 7-36G, and 7-37G (all Washington DC, 30 June 1966 and 1 September 1973).

[709] Dept Army T/O & E 7-15H Infantry Battalion, Infantry Division or Separate Infantry Brigade; 7-18H Rifle Company, Infantry Battalion; 7-35H Airborne Infantry Battalion, Airborne Division; and 7-37H Rifle Company, Airborne Infantry Battalion (Washington DC 30 Nov 1970).

[710] Dept Army T/O & E 7-28H Combat Support Company, Infantry Battalion; and 7-38H Combat Support Company, Airborne Infantry Battalion (Washington DC 30 Nov 1970); MAJ Graham J. Avera, "Return of the Combat Support Company" Infantry Journal Vol. 60 No. 5 (Ft. Benning GA Sep-Oct 1970) pp. 42-45; and CPT Bruce T. Caine "Combat Support Company Commander" op cit.

support each rifle company rather than three. This seems to have been the only feature of the "H" series battalion that was definitely a product of the Army's Vietnam experience.

As with the rifle company and CSC the airborne battalion HHC mainly differed from its infantry counterpart in having fewer and lighter vehicles and with corresponding reductions in drivers and maintenance personnel. For comparison purposes a simplified diagram (without personnel data is in Appendix 10.6.[711]

Between 1966 and 1972, while the Army was still fighting in Vietnam it found the time to conduct yet another detailed examination of the organization of its rifle squads. This study was known as IRUS (Infantry Rifle Unit Study) but its results only became available in time to affect the post-Vietnam Army. Its examination of the rifle squad and platoon was the most comprehensive to date. It covered every aspect of infantry small unit tactics and doctrine and included combat experience from World War II, Korea, and Vietnam. Computer simulations analyzed the results while sensitive electronic devices measured the effects of firepower used in the various test scenarios. As in the earlier tests IRUS also studied the effects of changes in size, organization, and/or armament on the squad's command and control, firepower, and ability to maneuver. Most importantly, IRUS sought to determine the best size for what it called the "basic infantry element" or BIE. Seeking to avoid the specific connotations associated with terms like "squad" or "fire team" and to insure objectivity, IRUS defined a BIE as the best combat capable fighting element that one man could control. IRUS testers soon concluded that to determine a BIE based solely on command and control considerations was impossible. One man's span of control would vary widely in different situations. However it seemed to the testers that while most men could usually control five others, it was noticeably harder for a leader to control seven or more, and that most men had considerable difficulty directing more than eight. These observations pointed the IRUS testers towards the maximum size for a BIE (nine men) but determining an optimum size was more elusive. In order to reach a conclusion, IRUS examined infantry squad attrition rates from World War II to Vietnam. The testers discovered that squads routinely operated at 20 to 30 percent below their maximum strength. They also observed that a squad or BIE tended to become ineffective when its strength fell below five men. The IRUS testers therefore recommended a BIE of six men. This conclusion, however, they based largely on subjective judgement and they acknowledged that the test data did not overwhelmingly support it. In fact, the nine-man BIE had actually outperformed the six-man BIE in the majority of the testing. IRUS also observed that squads in Vietnam effectively stopped using fire teams when squad strength fell below nine men. This generally agreed with the OCRSP conclusion that an effective fire team-based squad needed at least 10 men. Since most squads in Vietnam went into action with eight or less, their fire team structure rarely permitted squad-level fire and maneuver.

On the issue of squad weapons, IRUS determined that the best combination consisted of a single LMG (such as an M60 in LMG mode), a single 40mm grenade launcher, and rifles for all members other than the machinegunner and the grenadier. Based on live fire testing, the LMG proved to be superior for suppressing both point and area targets in both the attack and the defense. Its effectiveness actually improved as the range to the target increased and was particularly useful for covering the movement of another element. It far outperformed both massed rifle fire and the grenade launcher in all these areas. However, the grenade launcher did very well when used as an area suppression weapon in the attack but it was of little use in the defense. Rifle fire proved to be effective for point suppression at close ranges but could not match the combination of the LMG and the grenade launcher. On the other hand, one of the biggest surprises was the conclusion that two LMGs in a squad-sized BIE were actually inferior to one when used for target suppression. This was because the BIE leader was much less effective when his attention was split between two weapons than when he could concentrate on only one. Even though two LMG might be less effective one they still still had twice the ammunition consumption. Poorer supervision insured that much of the guns' fire would be wasted. Hence, IRUS recommended only one LMG and one grenade launcher per BIE.[712]

The results of the IRUS testing, plus the conclusions of the 1946 Infantry Conference and subsequent combat experience in Korea and Vietnam should have indicated that a nine-man squad with one LMG and one grenade launcher was the ideal BIE. However, the Army was very reluctant to accept this conclusion. The Army's belief in the efficacy of the fire team had become so well entrenched by this time that practically nothing could shake it. Since IRUS agreed that five men constituted the smallest effective BIE, the Army concluded that the true ideal was its 11-man squad, because it already incorporated two such BIEs. IRUS had recommended that each BIE include an LMG and a grenade launcher. The newly developed M203 grenade launcher, which attached to an M16 rifle so that the BIE grenadier could also serve as a rifleman, was certainly the best weapon in its category. However, OCRSP testing had demonstrated that the M60 machinegun was too heavy to be an LMG for a five-man team. Worse, the M60 did not even use the same ammunition as the Army's basic rifle, the M16. Therefore the Army issued a requirement for a Squad Automatic Weapon (SAW) that would be an LMG using the same 5.56mm cartridge as the

[711] Dept Army T/O & E 7-16H Headquarters Company, Infantry Battalion; and 7-36H Headquarters Company, Airborne Infantry Battalion, Airborne Division (Washington DC 30 Nov 1970).

[712] Paul Melody *Infantry Rifle Squad* op cit pp. 31-36.

M16 rifle and would be substantially lighter than the M60 machinegun. The Army even demanded that the empty weight of the new weapon not exceed 15.5 pounds, because this was the same as the weight of the original BAR.

IRUS had also recommended a platoon with three squads and a headquarters consisting of a platoon commander, platoon sergeant, assistant platoon sergeants and two radio operators. One of the latter would carry an AN/PRC-77 man-pack radio for talking to rifle company headquarters and the other platoons. The other would carry a short ranged hand-held radio for communication with the platoon's own rifle squads. The Army rejected this idea, mainly for reasons of manpower economy. It dropped the assistant platoon sergeant and in lieu of the hand-held radio operator, the platoon commander and platoon sergeant would each operate their own hand-held sets. These would be follow-ons to the Vietnam-era AN/PRR-9 helmet mounted receivers and AN/PRT-4 hand-held transmitters.[713]

In response to these findings, the Army modified the organization of its H-Series infantry and airborne battalions. The rifle squads expanded to 11 men each but, apart from this, the most noticeable change was the elimination of the rifle platoon weapon squads. Since no squad automatic weapons (like the BAR) were available and since they were not actually expected to replace the longer-ranged and harder-hitting M60 machineguns in any case, the Army moved the former weapons squad's two three-man machinegun teams into the rifle platoon headquarters. The platoon commander could either operate the teams under his own control (or that of his platoon sergeant) or he could attach one or both teams to a rifle squad (see Appendix 10.7).

The new organization, however, provided no personnel to man the platoon's 90mm recoilless rifles. The Army had scheduled these for replacement by the M47 *Dragon*. The *Dragon* was a man-portable short-ranged counterpart to the TOW. It consisted of a missile in a disposable launch tube, which weighed about 24.5 pounds. For firing, the gunner would attach a non-disposable tracking device called the SU-36 to guide the missile to its target. The SU-36 weighed about 6.5 pounds and worked the same way that the TOW guidance system did. The gunner merely placed the cross hairs of his optical sight on the target and the tracker automatically directed the missile to the gunner's point of aim. As a practical matter, a *Dragon* gunner could not fire his missile from the prone position. Firing in this way would leave the breach end of the launch tube too close to the ground to safely vent the missile's back-blast. Therefore the *Dragon* gunner had to fire his weapon sitting down. To do this he rested the breach end of the launch tube on his shoulder and used a rather elongated bipod to support the muzzle end. This awkward firing posture not only made the gunner much more of a target, but it also made it hard for him to traverse the tube to follow a moving target. (Backblast could also betray the gunner's position and prevent him from firing inside buildings and other confined spaces.) Because the maximum range of the *Dragon* was only 1,000 meters the gunner would always be within the effective range of the target tank's machineguns. Finally, the *Dragon* also suffered from the same minimum range restrictions as the TOW. The missile's minimum arming distance was 65 meters and targets could be difficult to hit out to 300 meters because the gunner would have too little time in which to correct the missile's flight. The *Dragon's* tactical value was very limited in "close" terrain such as forests or towns. Yet this type of terrain is most favorable for the dismounted infantry most likely to be relying on the *Dragon* for its antitank defense. Close terrain limits a tank's mobility and the range of its weapons and permits infantrymen to closely approach it without being seen. At close quarters infantrymen can operate inside a tank's "blind spots" within which the tank's crew can neither see an attacker nor shoot at him. Unfortunately, the US Army never saw fit to equip its soldiers with light, short-ranged shaped charge antitank weapons that could exploit this vulnerability. Instead, the American soldier had only the M72 LAAW (Light Antitank Assault Weapon) that, at 6.5 pounds, was certainly light enough but whose rocket suffered from an insufficiently powerful warhead, a heavy back-blast, and a 10-meter minimum range. The rocket could travel out to 1,000 meters though accuracy deteriorated rapidly after about 200. One cannot help thinking that if the LAAW's designers had been willing to sacrifice some range for a bigger warhead they could have produced a much better weapon. Like the World War II German *Panzerfaust*, it would have been light enough to allow every soldier to carry one and thus not have to feel helpless in the face of enemy armor. However, the US Army would not (and to this day will not) sacrifice range for size, weight, or target effect (though political considerations have sometimes overridden this). The reasons behind the Army's preoccupation with range mostly originated with its Active Defense doctrine, which held that the longer an antitank weapon's range the longer (in theory) it could keep an enemy armored formation under fire and the more time it would have to score hits.[714]

The "H" series rifle companies received their *Dragons* as individual weapons without designated gunners. Each rifle platoon was allowed three SU-36 *Dragon* trackers. The missiles themselves, like M72 LAAW rocket

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[713] Ibid; and LTC Robert J. O'Neil "IRUS Recommends New Rifle Platoon Squad for 1970-75" Infantry Journal Vol. 62 No. 1 (Fort Benning Georgia Jan-Feb 1972) pp. 22-26.

[714] O'Neil "IRUS" Infantry *Journal* Jan-Feb 1972 op cit; and David C. Isby and Charles Kamps Jr. *Armies of NATO's Central Front* (London, Janes Publishing Co Ltd. 1985) pp. 421-423; Dept Army T/O & E 7-18H Rifle Company, Infantry Battalion Change 11 (Washington DC 1 September 1975); and LTC R. E. Funderburk, "Dragon" Infantry *Journal* Vol. 63 No. 5 (Fort Benning GA Sep-Oct 1973) pp. 10-18.

launchers, were regarded as rounds of ammunition and thus not included in tables of equipment. However, the usual practice was to issue two (sometimes three) missiles per tracker. Since, as we have noted, each missile in its launch canister weighed 24.5 pounds this was a considerable load and in combat and would have had a great impact on the infantry's tactical mobility, especially since no vehicle was supplied to carry this gear. Worse, since there were no designated gunners, the unfortunate soldiers who had to carry these missiles were likely to be only marginally competent at operating them. Given the difficulties of actually controlling and correcting the flight of a Dragon missile this would led to a lot of misses in battle. Naturally, the *Dragon* was not immediately available to many units and those still waiting to receive it would be issued two M67 90mm recoilless rifles per rifle platoon as substitutes. No gunners were provided for them either. The rifle squads would have to handle them as best they could.[715]

In addition to the rifle platoons, the changes to the "H" series rifle companies restored the antitank section to the company mortar platoon, thus causing it to revert to being the company weapons platoon (as it had been under the E series tables). The 81mm mortars (including their observers anf dire direction personnel) became a mortar section. The antitank section had two jeep-mounted TOW squads of whom the senior squad leader also served as section leader. In battalions that were not yet TOW-equipped, the rifle companies would have continued to use a company mortar platoon of the same type as in the old 1970 "H" series tables (see Appendix 10.7).[716]

Just as before, the airborne rifle company differed from the infantry company mainly in its use of lighter vehicles. Each mortar squad also lost an ammunition bearer who would now be available only as an augmentation.[717]

This same series of changes greatly increased the infantry battalion CSC's antitank capabilities (see Appendix 10.8). The increased availability of the TOW system as well as an Infantry Branch that was anxious to advance its "missileer" doctrine to secure its "fair share" of the Active Defense procurement and manpower "pie" had spurred this development. Some battalions, mainly those slated for employment in Asia or in the National Guard, continued to use 106mm recoilless rifles. In TOW-equipped battalions, the CSC TOW platoons replaced their six TOW squads with as many sections, thus doubling their total number of TOW launchers. The addition of the rifle company TOW sections tripled the number of TOW launchers per battalion. However, many in the Army believed that even 18 TOW and 27 *Dragons* per battalion was insufficient against a major tank threat. Given a typical battalion frontage of 3,000 meters this allowed only 15 antitank weapons per kilometer, or only about half the density of weapons that the Soviets used to repel German tank attacks at the Battle of Kursk. Also, these weapons would soon run out of ammunition. A TOW squad would carry only eight or nine missiles in its two jeeps while a rifle squad with a *Dragon* gunner would carry only two or three. Of course, battalions occupying key positions might hold shorter frontages. Tank units might reinforce them. Additional antitank missiles might be stockpiled in the TOW and *Dragon* firing positions. Unfortunately, the issue of whether "straight leg" infantry should even be fighting tanks in the kind of open terrain where TOWs and *Dragons* would be most effective was never addressed. Neither was the obvious solution to the problem of an insufficient antitank weapon density, which was to concentrate heavy antitank weapons into antitank battalions, just as General McNair had done in World War II. Antitank battalions would permit antitank weapons to concentrate where enemy armor was most likely to be encountered. Instead, the Army insisted on having a few antitank weapons everywhere (a doctrine that the defeat of the French Army in 1940 should have completely discredited). It employed its infantry battalions for both the antitank and infantry missions even though capabilities required by one role frequently detracted from those needed by the other. However, under the Active Defense doctrine with its elaborate models of weapon systems, hit probabilities, and rates of fire, the Army increasingly came to regard an infantry battalion's infantry mission as secondary to its antitank mission. The infantry itself probably feared that if it formed separate antitank battalions the Armor Branch might seek to absorb them, together with the manpower, money, and political influence that would go with them.[718]

Other changes in the CSC were relatively minor and mainly consisted of manpower economies. In TOW equipped units, the company headquarters picked up an additional mechanic who would help service the increased number of motor vehicles in the enlarged TOW platoon. The new 1.25-ton M561 "Gamma Goat" (of which more below) replaced the old 3/4-ton trucks. The airborne battalion CSC was the same except that the mortar platoon headquarters lost a fire direction man but picked up an extra Gamma Goat and a fourth PRC-77. Each mortar squad had two "mules" in lieu of a Gamma Goat. The TOW platoon remained at its original six-squad strength and its

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715 Ibid.

716 Dept Army T/O & E 7-18H Rifle Company, Infantry Battalion Change 11 (Washington DC 1 September 1975). The weapons platoon mortar section headquarters had a section leader, two fire direction men, three forward observers, and three radio operators.

717 Dept Army T/O & E 7-37H Airborne Rifle Company, Airborne Infantry Battalion Change 10 (Washington DC 1 September 1975).

718 MAJ Robert A. Doughty and MAJ L. D. Holder, "Antitank Doctrine" Infantry *Journal* Vol. 66 No. 2 (Ft. Benning GA Mar-Apr 1976) pp. 16-20; and LTC Robert G. Chaudrue, "Requiem for the Infantry" Infantry *Journal* Vol. 68 No. 3 (Ft. Benning GA May-Jun 1978) pp. 28-31; and Dept Army T/O & E 7-28H Combat Support Company, Infantry Battalion Change 11 (Washington DC 1 September 1975).

alternate, the 106mm recoilless rifle platoon, lost its four squad leaders. The senior team leader in each squad would double as squad leader. Finally the ground surveillance section remained at two teams and the scout platoon reorganized as a headquarters and three squads with two three-man machinegun jeep teams each (see Appendix 10.10).

As of 1975, the changes to the battalion HHC were mostly manpower economies (see Appendix 9.9). The most significant of these cut half the vehicles and drivers from the transportation section of the support platoon. The two lieutenant liaison officers in the battalion headquarters section became augmentation billets only. The evacuation section of the medical platoon also lost three of its six jeep-ambulances but the aid station acquired a warrant officer physician's assistant. The medical platoon leader, however, was still only a medical service corps officer and thus there was no battalion surgeon. Changes to the airborne battalion HHC were similar (see Appendix 10.10).[719]

The infantry and airborne battalions as of 1975 are shown in Appendix 10.11.

Throughout the infantry and airborne battalions and in the three mortar squads, the new M561 "Gamma Goat" replaced the old 3/4-ton trucks. The Gamma Goat was a 1.25-ton articulated vehicle that consisted of two units, front and rear, built of aluminum. The front unit was a 4x4 vehicle with a cab for two men and a rear mounted engine. Flexibly connected to it was a 2x2 rear unit that carried the vehicle's payload. A special articulating assembly connected the two units and it allowed them to arch, pitch, or roll independently of each other. It was hoped that this plus the fact that all wheels were powered and that the front and rear axles could both be steered would give the vehicle exceptional cross country mobility. The vehicle would even float if the rear cargo door was closed, the gasket that sealed it was in good condition, and the vehicle itself was not too heavily loaded. However, the vehicle proved to be a disappointment in service. It was complex and difficult to maintain and offered only a modest improvement in cross-country mobility over conventional trucks. It had been phased out of service by about 1990.[720]

This organization remained fairly stable over the next several years although in 1976 the airborne battalion CSC doubled its TOW platoon to six sections so that it resembled the infantry battalion TOW platoon as of 1975. In the same year, both the infantry and airborne CSCs lost their marginally useful ground surveillance radar sections. The next major change came in 1979, when the artillery battalions supporting the infantry and airborne brigades began to furnish Fire Support Teams (FIST) to these brigades' component battalions. Each rifle company would have a FIST attached to it. Each FIST would provide an officer observer with his enlisted assistants to company headquarters, and an enlisted observer to each rifle platoon. These observers replaced the observers for the rifle company's own mortars since they could equally well direct either mortar or artillery fire. Thus the company mortar section lost all its observers and two of its three radio operators. The FIST officer and his party could direct the battalion mortar platoon's fires as well so the battalion mortar platoon also lost its observers and their attendant radio operators.[721]

THE AIR-MOBILE BATTALIONS 1970-84

The 1st Cavalry Division's operations in Vietnam had firmly established the air-mobile division's place in the US Army's force structure. However, an air-mobile or air assault division proved to be so costly to operate and equip that the Army has never been able to afford to have more than one such unit in service at any given time. The scheduled conversion of the 101st Airborne Division to an air-mobile division had to wait until 1971 when the 1st Cavalry Division ceased to be an air-mobile division and adopted an experimental "TRICAP" or "triple capability" configuration. TRICAP combined an armored brigade with an air-mobile infantry brigade and an air cavalry combat brigade (helicopters only) but test results appear to have been disappointing and the Army soon converted the 1st Cavalry Division into an ordinary armored division. Test tables of organization for the battalions in the TRICAP air-mobile infantry brigade were dated 15 February 1971. The Army did not issue its first "permanent" tables ("H" series) for air-mobile infantry until the end of 1971 but these differed from the TRICAP tables only slightly (see Appendices 10.12, 10.13 and 10.14).

The new air-mobile rifle companies actually reverted to their pre-Vietnam configuration of rifle platoons only, with mortars and other heavy weapons concentrated in a battalion CSC. As can be seen above, the "H" series company used the same 11-man squads that the Army regarded as having been vindicated by the IRUS and OCRSP experiments. The Army allowed each five-man fire team an M60 machinegun and a 40mm grenade launcher (M203 type) despite OCRSP reporting on the negative effect that such heavily armed fire teams would have on the squad's

[719] Dept Army T/O & E 7-28H Combat Support Company, Infantry Battalion Change 11 and T/O & E 7-38H Combat Support Company, Airborne Infantry Battalion, Change 10; T/O & E 7-16H Headquarters and Headquarters Company, Infantry Battalion Change 11 and T/O & E 7-36H Headquarters and Headquarters Company, Airborne Infantry Battalion, Change 10 (all Washington DC 1 September 1975).

[720] Christopher F. Foss and Terry J. Gander ed. *Jane's Military Logistics 1990-91*, 11th Edition (Coulsdon, Surrey UK, Jane's Information Group Ltd. 1990) p. 550.

[721] Dept Army T/O & E 7-16H, 7-36H, 7-18H, 7-37H, 7-28H, and 7-38H *op cit*, all Change 18 (Washington DC 20 Oct 1979).

maneuver and close combat capabilities. Perhaps the Army hoped that helicopters could land the troops close enough to their objectives to make ground mobility less important. Admittedly, this might have worked with full strength squads though Army planners could hardly have expected this to be the norm. Each platoon in an "H" series rifle company included an antitank squad with a leader and two 90mm recoilless rifle teams. The TRICAP company had experimented with the alternatives of one recoilless rifle team in the platoon headquarters and no antitank squad or of an antitank squad of three teams and no separate squad leader. In addition, each TRICAP company whose rifle platoons used antitank squads rather than teams would also receive a 14-man TOW section, giving it an even more powerful antitank capability. However, the "H" series tables rejected this alternative in favor of keeping all TOW systems in the CSC (see Appendix 10.12).

The rifle (and CSC) company headquarters were kept as small and simple as possible. The company messenger (only supplied to full strength rifle companies) and the clerk could serve as additional radio operators. The senior radio operator could employ an AN/PRC-74 long-range set when one was issued to the company from the battalion communication platoon. The AN/PRC-74 was a low powered man-pack set that could be used for either voice or CW communication. It was intended for use in areas where direct line of sight communication was impossible. It could weigh 30 to 50 pounds depending on the type of battery used. Its signal could not be encrypted but it enjoyed the very respectable transmission range of 25 miles and thus reduced the Army's dependence on vehicle-mounted radios for long range communications (see Appendixes 10.12 and 10.13).[722]

Instead of adhering to the pre-Vietnam practice of stuffing all of the battalion's mortars into a single oversized platoon, the post-Vietnam air-mobile battalion CSC split its mortars into direct and general support platoons. The direct support platoon held three two-gun mortar sections for attachment to the rifle companies while the general support platoon employed two three-gun sections for the battalion. All mortars were 81mm. The Army regarded the 4.2-inch as too heavy for helicopter operations. A three-man team manned each mortar, whether it was in the direct or general support platoons and this was certainly a minimum-sized crew. The loss of even one member would have meant a substantial reduction in the team's efficiency. The team's mobility would also have been limited. Though it could carry its mortar over short distances the team could not have moved any ammunition without making multiple trips. However, the section headquarters could provide a few ammunition bearers plus a "mechanical mule" (LIWC) per mortar to further enhance the section's ground mobility in suitable terrain. The headquarters of each mortar platoon included a fire direction center but the direct support platoons only enough forward observers for two rifle platoons per company and the general support platoon had only one observer, period.

For its antitank platoon, the "H" series air-mobile CSC settled on six TOW squads. This was essentially the same as the antitank platoon employed by a TOW-equipped airborne battalion. The TRICAP CSC had experimented with, and rejected, alternative organizations, including a platoon of 106mm recoilless rifles (as in the infantry battalion CSC), or two TOW platoons rather than one (see Appendix 10.13).

The battalion scout platoon, like its pre-Vietnam counterpart, was unusually large, if very lightly armed. At its heart were three 10-man scout squads which, despite their size, were not structured to split into smaller scout teams, though a full squad would have made a heavy load for a standard UH-1 helicopter. The ground surveillance section had four three-man AN/PPS-5 radar teams forming two squads. A third squad could be added as an augmentation. A section leader and a radio operator (plus a mechanic under the TRICAP tables) formed the section headquarters.

The CSC also included a standard "Redeye" light air defense missile section despite the obvious objection that only the Soviet Air Force could pose enough of an air threat to justify its presence and US forces would be unlikely to encounter the Soviets except in a war in Europe. In any other part of the world the section would be useless.[723]

The battalion HHC generally followed the pattern set by the 1963-65 test organizations (see Appendix 10.14). There were very few ground vehicles besides the eight LIWC in the transportation section of the support platoon so most cargo would have to move by helicopter. Hence, there was no motor officer in battalion headquarters. The battalion headquarters section had lost all its radio operators and the communication platoon had only two but most jeep drivers could also act as radio operators. Though the Army could not spare men to be radio or radio-telephone operators it did see to it that every battalion headquarters section included its own career councellor, a direct response to the disastrously low retention and re-enlistment rates that the Army experienced in the wake of the Vietnam War and the end of the draft. The battalion communications platoon included very few long-ranged vehicle-mounted radio sets but it did have its own teletype team. The medical platoon had no doctor. The platoon leader was only a medical service corps officer. The tiny aid station/evacuation section depended almost totally on

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[722] Dept Army T/O & E 7-67T Rifle Company, Infantry Battalion (Air-Mobile), TRICAP Division, Tentative, Variations 10 and 20 (Washington DC 15 Feb. 1971); and T/O & E 7-57H Rifle Company, Infantry Battalion (Air-Mobile) (Washington DC, 31 Dec. 1971); USACGSC "Organizational and Tactical Reference Data" op cit pp. G-80 to G-81.

[723] Dept Army T/O & E 7-68T Combat Support Company, Infantry Battalion (Air-Mobile), TRICAP Division, Tentative, Variations 10, 20, and 30 (Washington DC 15 Feb 1971); and T/O & E 7-58H Combat Support Company, Infantry Battalion (Air-Mobile), (Washington DC 31 Dec 1971).

helicopters for casualty evacuation. The aidman section was the same as those in the infantry and airborne battalions.[724]

By late 1975 the air-mobile battalions had undergone substantial changes that paralleled those experienced by the infantry and airborne battalions. In March of that year, the Army reorganized the air-mobile rifle platoons in accordance with the results of the IRUS study (11-man rifle squads without machineguns, no weapons squads, two machinegun teams and three Dragon systems or two 90mm recoilless rifles without gunners in platoon headquarters – see Appendix 10.15).

In March of 1977, the increased number of *Dragon* trackers in the air-mobile battalions only to four per rifle platoon. Though this did not not mean that tt an air-mobile rifle platoon could carry any more missiles than an infantry or airborne platoon (with only three trackers), the use of helicopters would presumably ensure that the air-mobile troops got a faster missile re-supply. Since *Dragon* missiles would really only be needed in a war against the Soviets in Western Europe they could be left behind in other situations. The same set of changes also produced a revival of the company weapons platoons, thus bringing the air-mobile rifle company's basic structure in line with that of its infantry and airborne counterparts. In March of 1977, as in the infantry and airborne battalions, the availability of FIST teams from the artillery caused the elimination of forward observers from company and battalion mortar units (see Appendix 10.17).

The air-mobile rifle company headquarters changed very little. However, the indtroduction of centralized Personnel Administration Centers (PAC) in every combat battalion caused the Army to eliminate all company (or unit) clerks (except as augmentations for companies in battalions who had not yet set up their PAC systems). In keeping with the Army's increased concern about a nuclear confrontation with the Soviets, each company received a Nuclear, Chemical, and Biological (NBC) NCO and the battalion headquarters received an NBC officer.[725]

With the reappearance of weapons platoons for the rifle companies, the air-mobile battalion CSC could dispense with its direct support 81mm mortar platoon (see Appendix 10.16). The former general support platoon remained but with two mortars per section. After September 1977, both sections had to share the same radio operator. The senior squad leader was also section leader. The battalion mortar platoon headquarters included a forward observer for each rifle company and the rifle company mortar sections had mortar observers for each rifle platoon. As in the infantry and airborne battalions, this only lasted until September 1977 when the new FIST teams replaced all the mortar observers (see Appendix 10.18). At about the same time the battalion antitank platoon doubled itself from six TOW squads to six two-squad sections. In September 1976, the Army eliminated the ground surveillance section.[726]

The most significant change to the HHC was the progressive expansion and reorganization of the battalion headquarters section. This would increase the number of command and control personnel in the air-mobile battalion to a level comparable to that of an infantry battalion staff. As in other battalions, the assistant S-3 became the S-3 for air in March 1976. In September, the S2 acquired a lieutenant tactical intelligence officer, and a senior intelligence analyst (E-6) in addition to the existing battalion intelligence sergeant (E-8). The battalion headquarters section got its PAC section about September 1977. In October 1978, a battalion NBC officer and sergeant joined the S-3's assistants. The Army retitled the "career counselor" as a reenlistment NCO in early 1978.

In March 1976, the Army cut the battalion mess section in half in the hope that an increased reliance on pre-packaged rations would save some cooks. About a year earlier, the medical platoon's evacuation and aid station section lost an aidman but acquired a warrant officer physician's assistant to serve as *de facto* battalion surgeon. Another cut in April 1978 cost the evacuation and aid station section its "evacuation" title and four more aidmen.[727]

At the end of 1980, the air-mobile (now air assault) battalions participated in yet another an Army-wide reorganization (to be discussed in more detail later on) known as "Army 86." The purpose of Army 86 was to make better use of the Army's manpower resources and improve its capabilities for a European war. The improvements would mainly affect the armored and mechanized divisions but since both the 101st Air-Mobile Division and the 82nd Airborne Division were part of the Army's strategic reserve and would certainly participate in a war in Europe, Army 86 would have to include them as well. Few of the proposed changes to the 82nd Airborne Division were actually implemented but the infantry battalions in the 101st Air-Mobile Division for a time exchanged their H-series tables for a new "J-Series." General DePuy's Active Defense doctrine exerted a strong influence on the J-

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[724] Dept Army T/O & E 7-66T Headquarters and Headquarters Company, Infantry Battalion (Air-Mobile), TRICAP Division, Tentative, Variations 10, 20, and 30 (Washington DC 15 February 1971); T/O & E 7-56H Headquarters and Headquarters Company, Infantry Battalion (Air-Mobile), (Washington DC, 31 Dec. 1971).

[725] Dept Army T/O & E 7-57H Rifle Company, Infantry Battalion (Air-Mobile) Changes 6 (1 Mar 1975), 7 (1 Sep 1975), 10 (1 Mar 1977), 11 (1 Sep 1977), and 15 (20 Oct 1979) (Washington DC, dates as indicated).

[726] Dept Army T/O & E 7-58H Combat Support Company, Infantry Battalion (Air-Mobile) Changes 6 (1 Mar 1975), 7 (1 Sep 1975), 10 (1 Mar 1977), 11 (1 Sep 1977), and 15 (20 Oct 1979) (Washington DC, dates as indicated).

[727] Dept Army T/O & E 7-56H Headquarters and Headquarters Company, Infantry Battalion (Air-Mobile) Changes 4 (1 Mar 1974), 9 (1 Mar 1976), 10 (1 Sep 1976), 12 (1 Sep 1977), 14 (20 Oct 1978), and 16 (20 Oct 1979) (Washington DC, dates as indicated).

series tables. Under this concept "light" infantry, that is to say infantry without armored vehicles (though in other respects it might be loaded down with everything but the kitchen sink), was not expected to play more than a secondary role. However, DePuy had extolled the value of helicopters, not only for their antitank capabilities but also for their ability to move infantry across a battlefield at speeds that even armored troops could not match. A helicopter force could mass itself against the axis of advance of a Soviet-style armored force very rapidly and wear it down with long-range missile and rocket fires. It could also carry antitank teams of air assault (a more aggressive term than "air-mobile") infantry, position them to oppose an enemy's advance and later reposition them to conform to the ebb and flow of the battle. This closely followed the concepts behind the 11th Air Assault Division tests of 1963-65.[728]

To conform to this concept an air assault infantry battalion would have to field more and better armed antitank teams while remaining within manpower limits and still retaining a battalion's worth of riflemen. The Army accomplished this by first converting the CSC into an antitank company. Its mortars would move to the HHC. Its Redeye (or Stinger) equipped MANPADS (Man Portable Air Defense System) section would move to the division air defense battalion. The rifle companies would lose their weapons platoons. Their TOW sections would go to the former CSC, now the anti-armor company (AAC) and their mortar sections would go to the HHC. For a few years the air assault battaliond would revert to the old system of having a direct support 81mm mortar platoon that could attach mortar sections to the rifle companies and a general support mortar platoon reserved for battalion use. A seven-man motorcycle scout section would replace the battalion scout platoon. The manpower thus saved would permit the existing TOW platoon of 12 squads (plus six TOW squads contributed by the rifle companies) to expand to three platoons totaling 24 squads. Although the battalion acquired additional vehicles to carry its greater complement of TOW launchers, in other respects the battalion's motor transport allowance remained very austere. Its dependence on helicopters for its supplies and tactical mobility remained very great even though this might be less reliable in a fight against the Soviets than under the relatively benign conditions that prevailed in Vietnam.

With the loss (for the third time) of their weapons platoons the rifle companies reverted to their 1963-64 and 1971 configurations. However, the rifle platoon commanders would no longer have to issue their *Dragon* antitank missiles to designated gunners in their rifle squads. Army planners revived the weapon squads in air assault rifle platoons by combining the two platoon machinegun teams with four *Dragon* teams to create the new squad. However each machinegun team would have a gunner and an assistant gunner but no ammunition bearer. Each *Dragon* "team" would consist of a gunner only, carrying a *Dragon* tracker and one missile. Rifle squad members would have to carry additional missiles and ammunition for the machineguns. However, the Army believed that in a "mid-intensity" battle ("high intensity" would involve nuclear weapons) against a Soviet-style enemy infantry would rarely move more than very short distances on foot. It therefore did not expect this overloading to have serious consequences. In a "low intensity" battle against guerrillas or a lightly armed Asian army (which would not pose a significant armor threat), the *Dragons* would not be needed (and the gunners could act as ammunition bearers).[729]

The diagram of the rifle company in Appendix 10.19 depicts the J-Series tables with the changes made between 1980 and 1985. The M249 SAW squad light machineguns never became available prior to the AOE reorganization of 1985. The SAW gunners carried rifles instead. Likewise the new SINCGARS radios were also unavailable. The older AN/PRC-77 substituted for the AN/PRC-119 while the AN/VRC-46 substituted for the AN/VRC-90. An M151 jeep with M416 trailer (or an M274 LIWC) served in place of the company's authorized HMMWV truck. The HMMWV was to be a new 1.25-ton 4x4 tactical truck that was not yet in service. In about 1984 the Army authorized a 60mm mortar section but the implementation of this had to wait for the procurement of a sufficient number of the new M224 60mm mortars. As was the case in other Army and Marine infantry units, the fact that only three men were allowed per mortar would certainly have minimized the new section's combat value.[730]

The battalion HHC was considerably enlarged by the addition of two 81mm mortar platoons. However, the general support (GS) platoon with four mortars did not last long as it soon became clear that in practice it was seldom necessary (or feasible) to attach of the direct support (DS) mortar platoon's sections to rifle companies. Any mortar sections remaining under battalion control could handle general support missions. This permitted the removal of the general support (GS) mortar platoon and a considerable saving in manpower (see Appendix 10.20).

As of 1984, the new rifle company 60mm mortar sections meant that the battalion mortar platoon no longer had to attach mortar sections to the rifle companies. Thus Change 9 to the HHC tables (issued later in 1984) reduced the mortar platoon from three sections of three mortars each to one section of four mortars. In addition, since the air-

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728 Dept Army, FM 100-5 (1 July 1776) op cit. pp. 2-7 to 2-11; and John L. Romjue, *The Army of Excellence, The Development of the 1980s Army* (Fort Monroe, VA, US Army Training and Doctrine Command 1993) pp. 19-20 and 146-147.

729 Dept Army T/O & E 7-56J Headquarters and Headquarters Company, Infantry Battalion, Air Assault Division, Changes 7 and 9; T/O & E 7-57J Rifle Company, Infantry Battalion, Air Assault Division, Changes 6 and 8; and T/O & E 7-108J Anti-Armor Company, Infantry Battalion, Air Assault Division (all Washington DC, 12 Dec 1980).

730 T/O & E 7-57J (12 Dec 1980) with Changes 6 and 8, op cit.

assault battalion could obtain artillery and mortar observers from attached division artillery FIST teams, it's mortar platoon could afford to lose its mortar observers and their radio operators.

In the area of command and control, the only real change since 1979 was the formal division of the old battalion headquarters section into separate S-1, S-2, and S-3 sections. The supply and transport section in the support platoon would double as S-4 section. Extra radio operators went to the battalion headquarters and S-3 sections (to help run the battalion command post) and to the HHC headquarters.

The battalion support platoon changed hardly at all from 1979 except for the replacement of the battalion mess section by a six-man team that supported the HHC only. Three more teams fed the rifle companies. Since this represented a doubling of the number of battalion mess personnel it would appear that this was a retreat from the idea of designing rations to reduce the number of cooks. The three rifle company mess teams were not officially part of the support platoon though they must have worked closely with it. As had been the case with earlier air-mobile organizations, the mess teams depended heavily on helicopters to move their heavy equipment and to get hot meals to the troops. The HHC mess team was allowed one HMMWV (actually a jeep or an LIWC pending HMMWV availability). The three company mess teams shared two HMMWVs between them so they could carry their heavy food containers to the helicopters in the landing zones.

The air assault battalion medical platoon had always been smaller than the medical platoons in infantry or airborne battalions because helicopters, rather than ambulances, did most of the casualty evacuations. In lieu of an evacuation section the aid station merely received a few additional men to assist and direct the helicopters. These extra men were deleted in 1975 as an economy move but were restored again in 1980. Under Change 9 (about 1984), selected air assault battalions could augment their aid station/evacuation sections with six ambulances and 10 men. This would allow an alternate means of medical evacuation if sufficient helicopters were unavailable.[731]

A major objective of the J-Series tables was to create space within the air assault battalion for an anti-armor company. This unit, as depicted in Appendix 10.19, was fully motorized and armed with TOW missile launchers.

The diagram above shows the company equipped with HMMWV TOW carriers as of about 1984 (though jeeps would have still been in use at that time). The company fielded a total of 24 TOW launchers. This compared very well with the entire H-series air assault battalion, which did not include more than 18 TOW launchers. However, the anti-armor company's small section of seven motorcycle-equipped scouts was the only dedicated reconnaissance element in an entire J-series battalion. The company served as an antitank reserve whose TOW squads could move about the battlefield either in their vehicles or by helicopter. Helicopter transportation was the preferred means of movement, especially since rifle platoons and squads could be carried as well. However, a jeep-equipped TOW squad (with a launcher jeep and an ammunition jeep) would require two helicopters to lift it. With HMMWVs, the squad's situation would have been worse since no US tactical helicopter could carry a HMMWV internally.[732]

THE RETURN OF THE RANGERS 1974-2001

The rebirth of "commando" style infantry (as opposed to long range reconnaissance patrols or LRRPs) in 1974 was a surprise byproduct of the Army's rush to put the Vietnam War behind it. The early post-Vietnam years saw the Army suffering from widespread demoralization not only because of Vietnam but also from its inability to fund training and unit readiness. The Johnson administration had refused to raise taxes and instead forced the Army to pay for the war by starving its units in CONUS and Europe. When the war ended, the money that the Army hoped to use to rebuild itself vanished in the heavy defense cuts levied by the Carter administration. Manpower in what was soon to become an all-volunteer force rapidly became scarce and very expensive. A revival of the Rangers in their former "commando" role promised to cheaply create small and highly trained forces that could use advanced weapons and carry out missions that formerly required much larger units. That seemed like just what the Army needed.

The actual decision to form Ranger battalions was taken by Army Chief of Staff General Creighton Abrams. Since assuming office in 1972 Abrams had focused on the expansion of the Army's conventional forces. However he was receptive to the idea of a rapidly deployable force able to respond to emergencies around the world. The hijacking of four airliners to Jordan by Palestinian guerrillas in 1970, the murder of Israeli athletes at the Munich Olympics in 1972, and the worldwide alerting of American forces for the Yom Kippur War of 1973 dramatized the need for a rapid response force. The 82nd Airborne Division had been the nation's strategic reserve since World War II. However the Army now saw it as too large and heavy to react quickly to a rapidly developing crisis. A few battalions of elite Ranger-style infantry could respond much faster while the 82nd Airborne Division contributed heavier follow-on forces as required. Abrams at first envisioned the new Ranger battalions as elite but not special units. They would use a conventional, albeit lightly equipped, organizational structure. Most Ranger missions

731 T/O & E 7-56J (12 Dec 1980) with Changes 7 and 9, op cit.
732 T/O & E 7-108J (12 Dec 1980) Change 8 op cit.

(except perhaps for the raid and deep penetration missions that the Rangers had performed in World War II) would be within the competence of any good infantry or airborne battalion, but very few good battalions existed in 1972. Undoubtedly General Abrams also saw the Rangers as a means not only of raising Army standards but also of competing with the highly deployable Marine infantry. Rangers might even take over some missions from the Special Forces. Therefore on December 20, 1973, General Abrams ordered TRADOC to create doctrine and design a table of organization for a Ranger battalion of about 600 soldiers. One of these was planned for Fiscal Year 1974 and another for FY 1975.

At this time General William DePuy was still head of TRADOC and he tackled the Ranger problem with his usual energy. After conferring with Abrams, he decided to issue his staff with some very different guidance on Ranger doctrine than that which had appeared in General Abrams' order. Missions such as the training of foreign troops should be left to the Special Forces. Rangers should instead concentrate on "commando" style missions such as raids and the rapid seizure of key objectives. General Abrams affirmed this while pointing out that a Ranger battalion should be "a foot infantry battalion … [the] finest in the world." It would train to conduct infiltration by air, parachute, foot, or boat and to carry out platoon, company, or battalion-sized tasks. Ranger doctrine remained very vague but it did stress the need for Rangers to rely heavily on stealth, surprise, audacity, and soldier skills to compensate for their lack of firepower and their weakness in logistics.

To insure that the new battalions were fully manned and trained no specific time limit was placed on when they should become operational. The first battalion would reside at Fort Stewart Georgia where it would have access to extensive training facilities and an airfield capable of handling Air Force transport aircraft. During the March 1975 a 2nd Ranger Battalion began forming at Fort Lewis, Washington but the hoped-for 3rd Ranger Battalion would have to wait until there was more money in the budget. To get the 1st Ranger Battalion ready faster the Army filled it with experienced Special Forces and LRRP troopers, most of them Vietnam veterans. The 2nd Battalion was less urgently needed and could rely more on recruits who volunteered for the Rangers under the Army's "Unit of Choice" program. The requirement that all Ranger battalion members be graduates of the Army Ranger School (as well as parachute qualified) proved difficult to meet so the Army compromised by accepting junior men on the understanding that they would later attend Ranger School after serving an initial period with their platoons. The Rangers strongly attracted aggressive youngsters looking for excitement and though all Rangers had to be volunteers with high school diplomas and high aptitude and physical fitness test scores, recruiting was not a problem. Indeed, the Ranger battalion commander's power to transfer soldiers who did not measure up out of the Rangers was a great deterrent to potential slackers and trouble-makers and helped to keep Ranger morale and discipline very high.[733]

The Ranger battalion that TRADOC initially devised featured a very small HHC supporting three relatively large rifle companies. Interestingly enough, although a Ranger battalion might normally expect to operate outside the communication structure of a division or brigade, the only radio equipment its HHC possessed that could operate beyond the eight kilometer (five mile) range of an AN/PRC-77 was three AN/PRC-74 HF sets. The number of communication personnel was also very modest (by American standards) though the presence of extra communicators in the rifle companies partly compensated for this. The battalion headquarters included the usual captain as battalion communication officer. There was also a very small communication section and four radio operators and two radio-equipped jeeps (the battalion's only motor vehicles) in the battalion headquarters section. Apart from its relative austereity in communication assets, the Ranger battalion sacrificed very little of its command and control bureaucracy to achieve strategic mobility. Battalion headquarters was the same as that of an infantry battalion (except that an S-5 civil affairs officer served instead of a motor officer). The battalion headquarters section itself was not much smaller than its counterpart in an air assault battalion.[734]

If the HHC's command and control capabilities were not far short of those of a conventional infantry battalion HHC, its logistical capabilities were even less than they had been in World War II or Korea, which is to say that they were all but non-existent. A Ranger battalion could only carry what its men could carry. It was supposed to be able to operate for no more than three days without substantial external support, though its ability to sustain itself even for that long would be extremely doubtful. The support platoon had no motor transport at all and only a half-sized food service section. Its supply section consisted only of a few clerks and an ammunition chief who had no organic means of replenishing the battalion's ammunition. Mortars, machineguns, and antitank weapons could all "run dry" within minutes. For medical support there was an officer (an actual surgeon this time) but he had only two assistants. The Ranger companies did have their own medics. Even so, a Ranger battalion had less than half the number of medical personnel allocated to a conventional battalion. It would have been hard pressed to operate even a minimally capable aid station or to arrange for prompt casualty recovery and evacuation. To provide these missing

733 Hogan, *Raiders or Elite Infantry?* op cit pp. 195-204.

734 Dept Army T/O & E 7-85H Ranger Infantry Battalion and T/O & E 7-86H Headquarters and Headquarters Company, Ranger Infantry Battalion (both Washington DC, 1 May 1974) and Change 10 (20 October 1979).

services there was supposed to be some sort of service support unit but the Army and TRADOC seem to have believed a Ranger-type raiding operation would not last long enough for such a unit to have much to do.[735]

In terms of its structure a Ranger rifle company resembled a conventional infantry company. However, its rifle platoon machinegun squads (with three gun teams rather than the usual two) were identical to those proposed under the old ARCOV study. A rifle platoon headquarters included its own medical aidman and two radio operators. One of the latter carried an AN/PRC-74 long-ranged HF radio for higher level communication in situations where the platoon was acting independently or at an extended distance from its company headquarters. In the company weapons platoon the antitank section employed three three-man 90mm recoilless rifle teams. Given the weight of these rifles and their ammunition these teams would have been very heavily loaded, though they would have been better off than the two-man teams used in Vietnam. Still, leaving one rifle behind and using its team to carry ammunition for the other two would have helped. Far more heavily loaded, however, were the unfortunates in the company mortar section with its two three-man mortar "squads." Even at full strength, a squad could barely carry its own mortar and six rounds of ammunition. TRADOC expected rifle squad members (already heavily loaded) to carry additional mortar ammunition but, as we have already noted in the Vietnam chapter, the problem of how to get ammunition from the squads to the mortars in the middle of a firefight had not been solved. As in Vietnam, company headquarters personnel (though already heavily loaded with radio equipment) are better positioned to carry mortar ammunition since the mortars usually operate close to the company commander. However, the more common practice seems to have been for the mortar section to carry only one mortar or none at all. Merely for the sake of saving a few ammunition bearers, its effectiveness was largely defeated.[736]

However, the Ranger company headquarters was unusually large since it included its own fire support officer together with a reconnaissance sergeant to assist him. The Army intended to overcome the Rangers' lack of organic firepower by the heavy use of external fire support, primarily air or naval gunfire (plus any field artillery that might be within range). This continued the Vietnam concept of using the infantry merely to find and "fix" the enemy so that artillery and air attack can actually destroy him. Though, as we have noted in the Vietnam chapter, this idea has not been all that successful in either battering the enemy or saving our own troops, the US Army's faith in it has never been seriously shaken.[737]

By early 1979, The medic in each rifle platoon moved to company headquarters and the total number of medics increased to four. In April of 1978, the company fire support officer became the chief of a new company Fire Support (FIST) Team. His reconnaissance sergeant and his radio operator became, respectively, his fire support sergeant and a fire support specialist. His team also received three forward observers (E-5) and three radio operators for attachment to the rifle platoons. Beginning in 1978 company headquarters even owned a pair of radio-equipped jeeps. Naturally, in many combat situations the use of these jeeps would be impossible. The company also had no means of maintaining them or refueling them (except by seeking help from other units) so the company had lost its jeeps by 1986. Reliance on external transportation and maintenance support seems to have been even more extreme with the Rangers than it had been for General Kinnard's experimental air-mobile battalions in 1963.[738]

The creation of the new Ranger battalions inevitably raised the questions of what they should do and under whom they should serve. Early proposals were to place the Rangers under the 82nd Airborne Division or under a Ranger brigade headquarters. However, the Army's Forces Command (FORSCOM) placed the Rangers directly under its own control during peacetime. In war, until they were assigned to a specific mission, they would serve directly under the President, the Joint Chiefs of Staff, or a theater commander. After receiving a mission the Rangers would then serve under whatever headquarters was responsible for that mission. Nevertheless, a lot of uncertainty continued to surround these theoretical arrangements. As in Korea and World War II, few field commanders had any idea of how Rangers should be employed. The doctrinal ambiguity that surrounded statements about Ranger missions was difficult for many staff officers, who were used to clear and concise mission statements, to understand.[739]

One mission that was seriously considered for the Rangers was hostage rescue. This species of counter-terrorism garnered much publicity after the Israeli raid on Entebbe Airport in 1976, the German assault on a hijacked *Lufthansa* airliner at Mogadishu in 1977, and the British hostage rescue at the Iranian Embassy in 1980. When journalists inquired about whether American units could do these things, they were referred to the Rangers. The Rangers, who had hitherto been content to avoid the public gaze while post-Vietnam anti-military feeling ran high, suddenly found themselves thrust into the spotlight. They quickly got used to it and soon actively sought publicity to enhance their claims to a larger share of all those dollars that Congress was laying out for counter

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735 Ibid. pp. 201-202.
736 Dept Army T/O & E 7-87H Ranger Company, Ranger Infantry Battalion and T/O & E 7-86H (Washington DC, 1 May 1974).
737 Ibid.
738 Ibid; plus Change 10 (20 October 1979).
739 Hogan, *Raiders or Elite Infantry?* op cit pp. 204-205.

terrorism. The competition was fierce. Almost immediately, the Army's "Delta Force," newly organized from Special Forces personnel, beat the Rangers out of their hostage rescue mission. The Army had concluded that smaller units of more mature and experienced soldiers were better suited to the hostage rescue task. Special Forces "A," "B," and "C" Teams and the Marines and Navy SEALs also competed with the Rangers for classic "commando" raid missions. Marines and SEALs could not only carry out amphibious raids but could also deploy aboard Navy ships positioned close to their objectives. The Rangers, on the other hand, would have to fly from the United States. However, a small group of Rangers did participate with the Delta Force in the 1979 Tehran hostage rescue mission. This ended in a disaster that only caused American special operations forces to look foolish alongside of their more successful foreign contemporaries. It certainly did nothing to further the Rangers' search for a mission.[740]

The Army did not respond to the Tehran fiasco by changing its doctrine or even by firing the people responsible. Instead, it added a new management layer, the 1st Special Operations Command (1st SOCOM), to take charge of all the Army's Special Forces, Rangers, and special air units. The 1st SOCOM would be part of the Pentagon's Joint Special Operations Command (JSOC). JSOC would oversee special operations forces from all the military services. JSOC and 1st SOCOM's "baptism of fire" came with Operation "Urgent Fury" in late October 1983. This was the Reagan administration's invasion of the island of Grenada. A recent coup d'etat that allegedly threatened the safety of several hundred American medical students studying on the island provided the excuse to eliminate a Soviet Bloc transshipment point for arms for Marxist guerrillas in Central America. The island's primary defenders were a few hundred Cuban construction workers (who were also Army reservists) backed by no more than 50 Cuban regulars and about 1,500 lightly armed members of the Grenadian "People's Revolutionary Army." Most of the latter disappeared or surrendered as soon as it became apparent that the Americans were landing in force. At the time of the invasion the Cubans were engaged in improving the runway at Point Salinas Airport on the island's western tip.[741]

The American invasion began with a series of operations by various JSOC elements. These appear to have been conducted as much for their public relations value as for any operational requirement. Inept planning and execution caused most of them to fail and produce a lot of unnecessary casualties. They also deprived the main landings of the element of surprise. However, the overwhelming strength of the American attack guaranteed success, despite all the mishaps. The two Ranger battalions had assembled for the operation at Hunter Army Airfield in Georgia, but only ten C-130 transport aircraft, able to lift about 500 troops between them, were immediately available for the flight to Grenada. The pilots promised to return for a second trip but the two Ranger battalion commanders guessed correctly that they were unlikely to do so. Lacking any overall superior to make a decision, the two commanders each took five aircraft, loaded on them what troops they could, and set out for the island. The resulting "two-headed" attack force was certainly not ideally suited to the Rangers' mission of securing Point Salinas Airfield. A Delta Force detachment of about 40 was to have cleared the runway of the construction equipment blocking it but the Cubans had killed several of the Delta men and cornered the rest at one end of the airfield. The Rangers would have to come to their rescue. Due to some good luck (and bad Cuban marksmanship) the Rangers suffered very few casualties in their parachute landing. Soon afterwards about 150 Cubans surrendered and the rest retired towards their barracks. However, some exaggerated reporting about the level of Cuban resistance caused a brigade of the 82nd Airborne Division to be landed on the airfield as reinforcements. These troops came under fire themselves as soon they arrived because the Rangers had secured only the western end of the runway. They had made little progress due to their inability to do anything but take cover and call for fire support whenever they encountered any opposition, however slight. No one among these elite troops seemed to have known how to execute basic infantry tactical evolutions such as a single envelopment or setting up a base of fire. Meanwhile, a battalion of Marines landed on the island and a second brigade from the 82nd Airborne Division would soon follow. Despite the feeble resistance, it took the Rangers, the Marines, and the Paratroopers three days to secure the island and rescue all the medical students. The Cubans could easily have killed them had they wished to do so. Though the American invaders had often shown excessive caution, this failed to prevent either numerous casualties among JSOC personnel[*] or the loss of 21 Army and Marine helicopters.[742]

All in all, Grenada had not been an auspicious debut for America's new Ranger battalions. However, in the wake of Vietnam and the news of Communist advances in Africa, Afghanistan, and even Central America the

[*] Regarding American casualties, Gabriel (pp. 156-162) cites a film shot by an American named Gaylord who was living on the island at the time. Gaylord captured much of the battle, including the disastrous Delta Force attacks on Richmond Hill Prison and on Point Salinas Airfield. His film shows them suffering scores of casualties (possibly over 100 and including many dead) in the Richmond Hill attack. Statements by survivors point to additional fatalities among the SEALs and Delta Force units.

740 Ibid. pp. 206-210.

741 Hogan, *Raiders or Elite Infantry?* op cit pp. 219-220; and Richard A. Gabriel, *Military Incompetence, Why the American Military Doesn't Win* (New York, Hill and Wang, 1985) pp. 149-155.

742 Hogan, op cit p. 220; and Gabriel op cit pp. 155-173.

American public was starving for success. The news from Grenada was greeted with great enthusiasm and the operation's imperfections went largely unnoticed. The Rangers got so much good press that the Army was able to persuade Congress to fund a third Ranger Battalion, which began forming in October 1984. In July 1984, the Army also set up a regimental headquarters at Fort Benning (the 75th Infantry) to command all three Ranger battalions. The new headquarters would have few tactical responsibilities but would concern itself with training, doctrine, and relations with higher headquarters. In combat the Rangers would still operate as independent battalions or companies.[743]

When the rest of the Army began to reorganize in 1985 under the new "Army of Excellence" (AOE) model (see Chapter 12) the Rangers were included though their restructuring was less dramatic than most. Some changes actually occurred just before AOE was instituted and while the H-Series tables were still in effect. The most important of these occurred in 1984 with the removal of all vehicles and fire support personnel from the rifle companies and their consolidation in a fire support element in the HHC (see Appendix 10.22).[☞] This facilitated training and gave the fire support element commander (a captain) more control and responsibility while still making it easy enough to attach a fire support team to each rifle company whenever a combat operation was in progress. Apart from the loss of fire support personnel from their headquarters, the Ranger rifle companies remained unaffected by this change.[744]

The AOE reorganization directly affected the Rangers by forcing them to reduce their rifle squads to the Army's new standard size of nine men each (see Appendix 10.23). This cut each battalion's "foxhole" strength (on paper at least) by 54 riflemen. The Ranger rifle squads would, however, be among the first units in the Army to actually receive the Army's new 5.56mm M249 Squad Automatic Weapon (SAW). This would bolster the squad's firepower but would also mean a substantial increase in the weight of the equipment that it would have to carry. In fact a Ranger battalion HHC now has over 11,000 pounds of gear, excluding consumable items like ammunition, food, water, parts, batteries, etc. and no organic means for moving any of it, apart from the backs of the Rangers themselves and a couple of HMMWV trucks in the communication section (intended to carry radio retransmission stations). There were no handcarts or even "A-frame" packs. Though they had lost their radio jeeps, the rifle companies still had nearly 9,000 pounds of gear apiece. Not all of it would be needed on any given mission but it still had to be stored, maintained, and trained with.[745]

In addition to cuts in the rifle squads, the rifle companies lost the combat medics in their company headquarters to a new combat medic section in the battalion headquarters company. Apart from its organic sniper team (present since May of 1974), the AOE Ranger rifle company headquarters became exactly the same as a light infantry company headquarters.[746] The Army plowed back some of the manpower saved from the Ranger rifle squads into the rest of the battalion in the form of additional radio operators and other communication specialists for the fire support teams. The battalion communication section tripled its size. The battalion headquarters had already acquired two radio operators under the final H-Series organization tables. Two other changes are worth noting. In conformity to AOE practice, TRADOC broke up the battalion headquarters section into separate S-1, S-2, and S-3 sections. The S-4 section left the support platoon and became independent. The support platoon now controlled only the food service section, though it was also supposed to direct and coordinate with whoever might deliver supplies to the battalion. However, it is hard to see why the assistant S-4 could not also have performed the support platoon leader's job. The S-4 section also had a warrant officer to look after the battalion's property book. For most AOE battalions the parent division would have performed this function. The battalion surgeon and the fire support officer also became part of battalion headquarters. The S-3 section had swollen as well and included no less than three officer-assistants.[747]

As shown in the diagrams, the changes occurring to the AOE Ranger battalion between 1987 and 2001 mostly comprised minor additions to the HHC and the introduction of new equipment. The communication section continued to grow and has now outsized the communication platoons in the airborne and air assault battalions. Most recently, the battalion medical treatment section doubled in size. This made it equal to similar organizations in other AOE infantry battalions and able to care for a many more casualties than before. An important reason for this change was the October 1993 battle in Mogadishu, Somalia in which "Task Force Ranger" (formed around "B" Company, 3rd Ranger Battalion) suffered 18 killed and more than 75 wounded (many of them seriously) in action

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[☞] At the same time the battalion headquarters section naturally lost its fire support personnel but maintained its original size by picking up a Perspnnel Administration Center (PAC).

[743] Hogan op cit p. 223.

[744] Dept Army T/O&E 07086H40 Change 19 Headquarters and Headquarters Company, Ranger Infantry Battalion, and 07087H40 Change 18 Ranger Company, Ranger Infantry Battalion (both Washington DC Apr 1984).

[745] Dept Army T/O&E 07087L0 Rifle Company (Ranger), Infantry Battalion (Ranger) (AOE) (Washington DC 1 Oct 1986).

[746] Ibid.

[747] Ibid and Dept Army T/O&E 07086L0 Headquarters and Headquarters Company (Ranger), Infantry Battalion (Ranger) (AOE) (Washington DC 1 Apr 1986).

against a local Somali warlord. In the rifle companies (see the diagram below) the only change in manning was the elimination of the communication chief from the company headquarters. This had been made possible by the changes in the communication platoon, which could now furnish a forward signal support NCO to each rifle company to perform the communication chief's duties. Apart from this, the primary changes were in equipment. In recent years, the Rangers have exchanged most of their M16A2 rifles for the shorter and lighter M4 carbine. They have also replaced their old M60 7.62mm machineguns with Belgian-designed M240 weapons, although temporarily a tripod-mounted version of the M249 SAW had to substitute until the M240 was available. Radio and night vision equipment has been continually upgraded. The Rangers set great store by their ability to fight at night. Unfortunately, this capability is more dependent on fancy equipment than sound training. Active infrared emitting night vision devices have tended to predominate over passive light-gathering devices because they can "see" further and in lower light conditions than light gathering devices. However they are more complex and costly, use up battery power faster, and against a relatively sophisticated opponent, are vulnerable to detection. Night vision equipment does not appear in the organization diagrams shown in these pages, because there is far too much to list it fully. There is at least one device for every man and crew-served weapon. However, although much of the Mogadishu fighting occurred at night, the Rangers had left most of their cumbersome night vision gear at home. Thus it was of no use to them at all.[748]

The antitank section previously operated either three *Dragon* systems or three Vietnam-era 90mm recoilless rifles. The former were used in situations where enemy tanks were a serious threat and the latter were meant for use when bunkers or fortified buildings (or light armored vehicles) were the main targets. The *Dragons* have since been replaced by the new *Javelin* missiles while the 90mm recoilless rifles have given place to the 84mm RAAW (Ranger Anti-Armor Weapon) system.

The RAAW is actually the US Army version of the old Swedish Karl Gustav recoilless rifle. It is about the same size and weight as the 90mm but it can substantially outrange it. It is considered effective against point targets (50% or better first round hit probability) out to 700 meters or "area" targets out to 1,000 meters. It can also fire high explosive and white phosphorus as well as anti-tank ammunition. Due to improvements in shaped charge technology, its anti-tank shells are far superior to those of the 90mm, despite their smaller weight and caliber. The RAAW has only been procured in limited numbers as a special purpose weapon for the Rangers. However, given that the massed armor threats of the Cold War days have largely vanished, the RAAW is a more than adequate weapon against what remains and it can address a much wider variety of situations. Its ammunition is also much lighter and cheaper to use than missiles.[749]

As this manuscript was still being edited, the Army announced yet another reorganization of its Ranger battalions. As shown in the diagrams on this page, the main change was the consolidation of the company mortar sections into a battalion mortar platoon. This left each rifle company with only an antitank section rather than a full weapons platoon and thus saved the battalion a couple of platoon leaders. It also ensured that the battalion could man at least a few 60mm mortars adequately (though probably not more than four of the six weapons provided). It would seem that the 81mm and 120mm weapons, supplied as alternative weapons to the 60mm, could only be used when plenty of helicopters were available to move these weapons and ammunition directly into their firing positions. This would tend to slow down the tempo of an operation and to sacrifice the element of surprise. For Rangers, these should be serious drawbacks. The use of heavy weapons can seem attractive in certain situations but for unconventional "commando" troops like the Rangers it is a trap. Merrit Edson recognized the danger and strongly (and successfully) resisted Headquarters Marine Corps' attempts to saddle his Marine Raiders with 81mm mortars. William Darby, being an ex-artilleryman, was more easily beguiled. As he loaded up his Rangers with more heavy weapons they became increasingly engaged in the conventional combat that such weapons encourage and for which Darby's men were ill suited and in which they were ultimately destroyed.[750]

Other changes to the battalion were fairly minor. The S-3 section lost a radio operator. The S-4 section gained a clerk. The communication platoon received a radio relay team chief and another repairman to service the battalion's growing stock of (mostly impractical) electronic gadgets. A US Air Force weather team, probably available in the past on an informal basis became an official part of the HHC. The same tendency to "heavy up" the Rangers'

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[748] Dept Army T/O&E 07086L0 Headquarters and Headquarters Company (Ranger), Infantry Battalion (Ranger) and T/O&E 070870 Rifle Company (Ranger), Infantry Battalion (Ranger) (AOE) (both Washington DC 26 Jun 1997). For an account of a highly scripted exercise night exercise staged to emphasize night vision equipment (but conducted in such a deliberate manner that in real life the enemy would have had plenty of time to escape) see LTC P. K. Keen and CPT James Larsen "Ranger Company Night Live-Fire Raid" Infantry *Journal* Vol. 86 No. 5 (Ft. Benning GA Sep-Oct 1996) pp. 21-27. Also see Mark Bowden *Blackhawk Down, A Story of Modern War* (New York, Atlantic Monthly Press, 1999) pp. 215, 239, 247, and 249 for an excellent account of the fight in Mogadishu, for which the Rangers had foolishly left their night vision devices at home.

[749] Ibid. Brief details on the RAAW are given in David C. Isby and Charles Kamps Jr. *Armies of NATO's Central Front* (New York and London Jane's Publishing Co. 1985), pp. 51, 292, and 295-97.

[750] Dept Army T/O&E 07086L0 Headquarters and Headquarters Company (Ranger), Infantry Battalion (Ranger) and T/O&E 070870 Rifle Company (Ranger), Infantry Battalion (Ranger) (AOE) (both Washington DC 27 March 2001).

conventional firepower at the expense of their mission (and even survival) that we saw with the mortar platoon can be seen elsewhere in the battalion with the issue of the very heavy .50-caliber (12.7mm) sniper rifles (a revival of the old antitank rifle and likely to be just about as effective) to the rifle companies and the huge stock of heavy machineguns held by the HHC company commander. However useless they may be in unconventional combat such weapons must still be maintained and trained with at the expense of more important activities. Thus, at best, they are an energy drain and at worst they can encourage tactical decisions that Rangers would do well to avoid. Hopefully, they are just harmlessly gathering dust in Ranger armories.[751]

[751] Ibid. In addirion, the Rangers have replaced the Army's standard hand-held radio, the AN/PRC-126, with the newer AN/PRC-148.

CHAPTER 11 - THE POST-VIETNAM MARINE CORPS

As was the case with the Army, the post-Vietnam recovery of the Marine Corps was long and painful. To maintain their numbers, the Marines accepted a great many marginal recruits and performance standards plumeted. Low morale manifested itself in high rates of violent crime, illegal drug use, and unauthorized absence and in depressingly low re-enlistment rates (especially among combat veterans).[ɕ] Manpower reductions made it difficult to maintain combat units at full their strengths. The M-Series organizations had proved satisfactory in Vietnam so the Marine Corps continued to use them afterwards. However, as was the case with the Army's H-series organizations, certain "billets" (positions) that were less immportant for peacetime training and operations had to be designated as "contingent" and left unmanned (except in emergencies) so that other billets could be filled. To reflect these realities the Marines issued several series of organization tables. All shared the same organizational baseline but each would be manned at different levels reflecting the using unit's wartime mission priority and peacetime training and readiness requirements. The tables with the highest manning levels were (initially) the provisional "G" series. These would generally apply to active duty units serving on the East Coast under Fleet Marine Force Atlantic (FMFLant). They reflected a military-wide post-Vietnam reorientation towards a possible future war against the Soviet Union and Warsaw Pact. The "P" or peacetime tables applied to active units serving on the West Coast of the United States or in the Pacific region where another armed conflict seemed less likely. Apart from changes to the rifle squad (to be discussed) the P series tables mainly reduced the number of ammunition bearers for machineguns, mortars, antitank, and other crew served weapons. The Reserve forces came under the old M-series tables but only after they experienced strength cuts greater than those of the P-series (for further information see Appendices 11.1 and 11.2).[752]

Between its withdrawal from Vietnam in 1971 and late 1975 the Marine Corps made three significant changes to its infantry's Vietnam War organizational structure. These changes were mainly to accommodate new equipment. They did not reflect any new doctrine nor were they even aimed at manpower economy. The first of these changes affected the rifle squads. The new M203 grenade launcher, designed for use while attached to a standard M16 rifle, made the presence of a separate M79 grenadier unnecessary. Army units had started to receive their M203 launchers even while Army ground combat units were still fighting in Vietnam. The Marines did not get their launchers until several years later but Marine rifle squads would lose their grenadiers immediately and revert to their original strength of 13 men. The M79 launchers would remain in unit armories as additional weapons until the M203 launchers arrived to replace them (see Appendix 11.1).

The second change that occurred was the elimination of the battalion flame-thrower sections. A new M202 multi-shot flame weapon (MSFW) would replace the heavy, short-ranged, dangerous and outdated M2A1 man-pack flame-throwers. The M202 consisted of a launching device with a pack of four rockets of the same type as used by the LAAW but carrying an incendiary payload rather than an antitank warhead. The M202 was much lighter than the M2A1 flamethrower, much easier and safer to use, and enjoyed a far greater range but the payload and effectiveness against a target of its small rockets was so disappointing that the weapon was never popular and only remained in service for the lack of a replacement. However, the rifle company assault sections (not a battalion-level section) would employ the M202. Each full-strength assault squad would have one M202 team consisting of a gunner with the M202 and an ammunition man carrying a second pack of four rockets. The squad would also have two two-man teams armed with M72 LAAW antitank rockets rather than the old 3.5-inch rocket launchers. The "3.5," however, would not disappear immediately. The battalion headquarters and service (H&S) company headquarters would receive a weapons section of four two-man 3.5-inch rocket launcher teams in lieu of its flame-thrower section (see Appendices 11.1 and 11.2). This new section would only last until 1977.

[ɕ] The author himself can attest to conditions at Camp Lejeune in the 1970s since he served there during 1975-76 and was even asked to do a study probing the causes of the high rates of desertion and unauthorized absence being experienced. During 1972-79, Marine infantry was organized under several series of tables, though the M-series was standard, there were G- and Q-series that differed in minor details, but mostly in which of their billets were "contingent."

[752] HQMC T/O&E 1013I, and M plus G (provisional) and P (peacetime), dated 12 Dec 1975, 21 July 1977, 12 Aug 1977, and 22 Oct 1977 (Washington DC). Information from these tables appears in the diagrams but data on equipment (as opposed to personnel) is not indicated on those tables and is much less reliable. Headquarters Marine Corps has traditionally published separate tables of organization and tables of equipment. A fairly complete collection of tables of organization has been maintained on microfilm from the early 1970s (paper records were used before that) until the late 1980s (after which they survive as computer files). However, few tables of equipment (probably because they are much longer and more elaborate and continually undergoing detail changes) have survived from this same period. Therefore historians have to rely on officially and unofficially published lists that are always incomplete, frequently inaccurate, and are seldom published simultaneously with a given Table of Organization. Despite this problem, it has been relatively easy to determine what weapons were authorized. The Tables of Organization show the personal weapon assigned to each man and it is not too difficult to determine where crew-served weapons go (they do have crews, after all!). However the recording of important but less glamorous items like motor vehicles and radio equipment has often been neglected. The author has done his best to determine which of these went where as best he can. He believes his estimates to be generally correct, however he cannot guarantee their accuracy.

The third post-Vietnam change was the addition of a battalion surveillance and target acquisition (STA) platoon. This was an expansion of the small element of scouts and radar operators that had (on paper at least) been a feature of every battalion S-2 section since the introduction of the M-Series organization tables in 1960-61. It was an almost purely passive intelligence gathering organization doubtless inspired by the many months spent in protecting the perimeters of Vietnam firebases. The original plan was that a captain, with a staff sergeant as his deputy, should command it but soon became clear that it would be more efficient if the S-2 doubled as platoon commander and the chief of the radar section doubled as his platoon sergeant. The platoon had a radar section with eight two-man teams, a night observation device (NOD) section with four operators and a scout section with eight scouts. Though surveillance radars had delivered only a mediocre performance in Vietnam neither the Army nor the Marines had lost hope that a truly effective system might be only an upgrade away. The AN/PPS-6 radar weighed 37 pounds in operating mode and could (in theory) detect personnel out to 1,500 meters and vehicles out to 3,000. The AN/PPS-15 replaced it. This system had about the same operating range but was much lighter (11.3 pounds in hand-held mode, 16 pounds in tripod mode or 18 pounds in remote mode). The 35-pound AN/TVS-4 light gathering telescope, was the standard NOD device. It could spot targets out to 1,000 meters on dark nights or out to 2,000 meters during a full moon. An operator could be attached to each rifle company. The company would supply relief observers to insure continuous surveillance. The NOD operator would act mainly as an instructor in the use of the device and would perform maintenance and minor repairs. The eight scouts could operate in pairs to provide the rifle companies with expertise in scouting and patrolling (see Appendix 11.2).[753]

Another important post-Vietnam change to the H&S company was the enlargement of the battalion medical platoon. Each rifle company medical section increased from eight Navy Hospital Corpsmen to 11. This allowed the attachment of three Corpsmen, rather than two, to each rifle platoon, or one per rifle squad. The Marine Corps was convinced that its Vietnam experience had established the need for one Corpsman per rifle squad (plus one for the weapons platoon and the senior Corpsman with company headquarters) to give immediate first aid as casualties occurred. The Army, however, continued to supply only one medic per rifle platoon (plus one for the weapons platoon) and to instead emphasize rapid evacuation and training soldiers to give first aid to each other. The (Marine) battalion aid station (BAS) had fielded forward and rear echelons (each with an officer and 10 or 11 men) since 1961. Evacuation under the Marine (Navy) medical system was directly from the battalion aid station to division (or Force) level field hospital or collecting station, using either helicopters or medical battalion ambulances. The regimental headquarters company was not involved in this process since it only had enough medical personnel for its own use although there was a senior medical officer on the regimental staff. The battalion's organic ability to collect its own casualties and move them to an aid station or helicopter landing zone had increased only slightly (from one ambulance to two) and still depended to a great extent on ad hoc stretcher teams despite their manpower requirements that could leave the battalion temporarily unable to perform its primary mission. Navy personnel also took over certain medical supply and administration duties at the battalion level and also supplied the chaplain's assistant.[754]

By August 1977 the Marines were following the Army's lead and replacing their 106mm recoilless rifles and Ontos tank destroyers with the M220 TOW and the M-47 *Dragon* antitank missile systems. However, the Marines adopted a somewhat different approach from the Army when it came to actually incorporating these new weapons into their combat units. The TOW missiles would not become battalion-level antitank weapons. Instead an oversized company with 72 jeep-mounted TOW launchers would replace the old *Ontos*-equipped antitank battalion and would become part of the tank battalion. If required, this company could attach a section of eight TOW launchers to each of the infantry battalions in a Marine Division. Though this company could enable a Marine Division commander to mass his antitank missiles at the point where the enemy armor threat was greatest (General McNair would certainly have approved of this) it seems that the real motivation for placing all the TOW systems in one company was to centralize training, maintenance and supply. The TOW company would seldom if ever operate as a tactical unit. The Marines' Nicaraguan-born tradition of dividing up all crew-served weapons equally among the available infantry units was too deeply entrenched to allow much chance of the TOW systems being used in any other way.

The *Dragons*, meanwhile, became the Marines' battalion-level antitank weapons. The rationale for this move was that both *Dragons* and the recoilless rifles that they would replace (in theory at least) enjoyed approximately the same maximum effective range. Unlike the Army's approach under which rifle squad members would carry and operate the *Dragons* as an additional duty the Marines would operate their *Dragons* with dedicated gunners from the battalion antitank platoon. This platoon would have either three (in a P or M series battalion) four sections (in a G series battalion) each with a leader and eight two-man teams (a gunner and an assistant in each). The new antitank

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[753] Ibid. See also Capt. M. J. Ronner and Capt. C. E. Dolejs "Sensors: Extending the Battlefield," Marine Corps *Gazette* Vol. 65 No. 7 (Marine Corps Association, Quantico VA July 1981) pp. 56-58.

[754] Ibid; and USMC T/O&E 1037P and M plus P (peacetime), G (provisional), R (reduced) and Q (cadre), all HQMC Washington DC, dated 12 December 1975 and 12 August 1977. Comments under Footnote 688 above also apply.

platoon would be significantly larger than the old 106mm-equipped platoon it replaced and in order to minimize the manpower impact of this all of the battalion H&S company headquarters lost their weapons sections when their antitank platoons converted to *Dragons* (see the *Dragon* platoon in the Weapons Company in Appendix 11.3).

Each *Dragon* team would have either an SU-36 (day only) Dragon tracker or an AN/TAS-5 (day/night) tracker and three missiles. Since a team could not carry more than two of its 24.5-pound missiles it would have to leave at least one missile in the vehicle (jeep and trailer or LIWC "mechanical mule") that would accompany its parent section. In theory at least one section per platoon carried the SU-36 tracker because it weighed only six pounds whereas the AN/TAS-5 weighed over 25 pounds. The Marine Corps approach of concentrating an infantry battalion's *Dragons* into a single platoon helped to ensure that the gunners were well trained (by keeping them together under the supervision of an antitank officer) and that the rifle squads would not lose their rifle strength by having to divert men to carry missiles. When the rifle squads and platoons needed antitank support they could have *Dragon* teams attached to them, or used in direct support, as necessary. On the other hand, many Marine infantry officers expressed regret that their battalions lacked organic TOW systems. However, Marine antitank doctrine at this time held that the primary responsibility for antitank defense should lie at the division level. From there it would be easy enough to coordinate the actions of close support aircraft, tanks and, of course, the TOW companies to whittle the enemy's tank strength down to a manageable size. The infantry battalions need only deal with whatever enemy tanks might escape these primary systems. Many Marine officers disagreed with this approach, however, and recommended adoption of the Army's Active Defense-related practice of giving the infantry a more prominent antitank role.[755]

In August 1979 budget cuts and recruiting shortfalls forced the Marine Corps into making further manpower economies in its FMF units. For the infantry this meant the introduction of two new series of organization tables for its active forces. The Marine Corps had concluded that it was no longer possible to maintain four rifle companies in each of its infantry battalions. It is true that the Marine Corps could have gone to smaller companies but that would have involved fundamental changes to a combat-proven organizational system that the Marines were unwilling to make without thorough study. The economies had to be made immediately so there was no time for this. The removal of a rifle company was a "quick fix" that would tide the Marine Corps over until a more permanent organizational structure could be devised. This change would not (for the present) affect the Marine Corps Reserve, whose M-series infantry battalions would remain on the four-company standard. In order to fill the gap in each battalion created by the lost rifle company, Headquarters Marine Corps ordered the removal of the mortar and antitank platoons from the battalion H&S company and their reorganization as a new battalion weapons company. This weapons company (which represented no real increase in strength) would assume the letter designation of the fourth rifle company in each battalion or companies "D," "H" and "M" in each regiment. Like an Army combat support company (CSC) the new Marine unit would not function as a tactical unit. In battle its two platoons would be directly under battalion headquarters (just as they had been before). In combat the company commander, with a few assistants would work with the S-3 section as battalion fire support coordinator. As such he would orchestrate the battalion's supporting air, artillery, and naval gunfire assets along with its organic mortars and other weapons (though in Vietnam the S-3 section had been able to get this job done without an additional officer). The weapons company did, however, simplify the structure and functioning of the headquarters and service company and the job of its company commander. The new tables that incorporated the weapons company were the "X" (expanded) series, which replaced the provisional "G" series and the "I" series, which replaced the "P" series. No change in tables of equipment paralleled these changes in organization so every battalion retained the equipment of its missing rifle company. X-series battalions also retained the machinegun and mortar crews from the missing rifle companies so the weapons platoons of each of their three remaining rifle companies had four squads each in their machinegun and mortar sections (see Appendix 11.4). X-series weapons companies had four sections (rather than three, as in the I-series) in their *Dragon* platoons and each one was also supposed to have a seven-man assault section. This section was to operate three "assault weapons" of undetermined type. It is doubtful if these sections were ever actually manned. The X and I series battalion headquarters and service (H&S) companies were also very similar. An X-series company had a full STA platoon rather than a reduced one. The radio section of its communication platoon also had eight additional radio operators for attachment to rifle (or weapons) company headquarters so that these companies would not have to find their own operators by taking them "out of hide" (see Appendices 11.3, 11.4 and 11.5).[756]

In addition to these changes the X and I series tables centralized their personnel administration in the battalion S-1 section. This meant the elimination of an administration chief, a personnel clerk and a unit diary clerk from each

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[755] Ibid; and USMC T/O&E 1037M dated 12 August 1977; and see LtCol Donald J. Robinson II "Myths and Realities of Antitank Capabilities" Marine Corps *Gazette* Vol. 64 No. 3 (Quantico VA March 1980) pp. 41-48.

[756] Ibid. See also Operational Handbook 6-3 *Operation of the Revised Infantry Battalion* (Quantico, VA CG Marine Corps Development and Education Command October 1979).

rifle company headquarters and a great expansion of the S-1 section. Supposedly this was done to economize on administrative personnel in the battalion but in fact the total number of clerks actually increased slightly. Since the company mess details had been collected into a battalion mess section since 1960 company headquarters were now very small (see Appendices 11.3, 11.4 and 11.5).[757]

Another change introduced by the X and I tables was the removal of all communication personnel from the battalion mortar platoon and their replacement by a new mortar support section in the battalion communication platoon. This step largely completed the process of concentrating all the battalion's school-trained communication personnel in the communication platoon. The platoon's mortar section furnished a team of two radio operators and a wireman for each of the four mortar sections and the mortar platoon headquarters. One radio operator per mortar section would accompany that section's forward observer when the latter was attached to a rifle company. The other radio operator and the wireman would support the platoon (or section) fire direction center and inter-communication within the mortar platoon. The mortar platoon headquarters' team supported the liaison NCO who represented the mortar platoon with the battalion Fire Support Coordination Center (FSCC).[758]

The regimental headquarters company remained largely unchanged although its sniper platoon and command post security "platoon" (or section) remained vacant and would be manned only in wartime (see Appendix 11.7).

All these changes left a lot of questions about the status and future direction of Marine infantry organization. The loss of the fourth rifle company was keenly felt. It had been a key feature of the original M-series tables and in combat in Vietnam had done much to increase the flexibility and overall effectiveness of the battalion. However the need to conserve manpower to maintain the 27-battalion active force structure was paramount. On the other hand Headquarters Marine Corps only intended this "X-I" reorganization to be temporary pending the results of a new study. This study would be the first comprehensive look at Marine infantry organization since the Hogaboom Board of 1956. However, it would only consider the infantry battalion and none of the study team members ranked higher than lieutenant colonel. The team's directive was to design "an optimum infantry battalion for the nineteen-eighties." The new battalion was to offer the same capabilities as existing battalions but its strength would be limited to about 900 officer and enlisted Marines. The team was to structure the battalion to permit the most effective possible utilization of personnel, weapons, equipment, and technology. The study was executed as a series of analyses, each sufficiently related to the others that any given analysis could be refuted or validated by at least one other analysis. Unfortunately, in this writer's opinion, the quality of the study's output was very disappointing. There was little in the way of new ideas or original thinking. The battalion structure finally chosen needed numerous changes to make it usable and even then it proved less than optimal. Fortunately, it has seen very little combat use.[759]

The Study began with an extensive discussion of the threat. In 1979, war against the Soviets was all the rage and therefore the Battalion Study members concluded that their Marine battalion should be able to fight a Soviet-style mechanized force in relatively open terrain. (They used the flatlands of Denmark for their test scenario.) Though much lip service was paid to the importance of being able to fight in cities, the study included no practical examples or suggestions about how this might be accomplished. Like their Army counterparts, the Marine Battalion Study Group members planned against the most dangerous but least likely scenario. They assumed, just as the Army had before Vietnam, that the ability to defeat a heavily armed but relatively easy-to-target adversary like the Soviets would automatically confer the ability to defeat lightly armed but difficult-to-target enemies like the Viet Cong or the Afghan Mujahideen. Variables like terrain and weather and the possibility that the enemy might resort to unexpected or unconventional courses of action were not considered. However, in order to do the Study Group members justice, we must remember that, unlike the Army, the Marine Corps insisted on only one type of infantry battalion, which with appropriate reinforcement, had to carry out every kind of infantry mission. Naturally, this would narrow the Study Group's options and force some painful compromises. However, if a Marine battalion was going to fight a Soviet-style force in a place like Denmark it could count on reinforcement by tanks, assault amphibian vehicles (AAV), antitank weapons (TOW missiles), and/or close air support. The rules of the Study, on the other hand, and in contradiction to one of its expressed assumptions, precluded any consideration of attached or supporting units. This was in spite of the fact that all Marine combat units doctrinally fight as part of an air-ground task force. The infantry battalion had to be capable, not merely of defending itself, but of completely destroying its attackers with its *organic* assets. This led to a large and scarcely supportable increase in the quantity of the battalion's organic *weapons* that the Study Group seems to have confused with a genuine increase in *firepower*.[760]

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[757] Ibid; and USMC T/O&E 1037M, X, and I; all HQMC Washington DC, dated 12 December 1975 and 12 August 1977.

[758] USMC T/O&E 1037I and 1037X, both dated 18 Dec 1980 (HQMC Washington DC); and see Marine Corps Gazette Staff, "Infantry Battalion Restructure" Marine Corps *Gazette* Vol. 63 No. 7 (Quantico VA July 1979) p. 4.

[759] LtCol M. D. Wyly "It's two up and one back again or is it three up and ? back?" Marine Corps *Gazette* Vol. 63 No. 12 (Quantico VA December 1979) pp. 17-18; and USMC Study, "Marine Infantry Battalion 1980-1990, Final Report" (Quantico Virginia, Sep 1980) pp. 1-12. Referred to hereinafter as "USMC Battalion Study."

The Study Group began with an examination of the effects of attrition on the combat effectiveness of specific battalion elements. It conducted wargames (mostly computer simulations) to determine the best overall configuration of the battalion (such as whether it should have three or four rifle companies) but none of it was exhaustive and no real attempt to isolate the effects of specific variables was made. The Group also considered weapon systems, command and control and logistical issues, and performed an assessment of the battalion's vulnerability to nuclear attack. The Study Group determined that a battalion with four rifle companies was superior to one with only three in almost every respect. However, the Study Group members concluded that the 900-man limit per battalion would not permit the inclusion of a fourth rifle company in addition to the other features (such as increased antitank firepower) that they deemed essential. The Group members do not appear to have studied the all-important issue of combat attrition at the battalion level. They did, however, examine it at the company level and below through the use of a privatekly developed computer simulation and called Analysis of Military Organizational Effectiveness (AMORE). AMORE sought to determine the effects of attrition on an organization by dividing its members and equipment into "minimum essential teams" and then measuring attrition effects on those teams in terms of both their "surge" and "sustained" operational abilities. However, in this writer's view the teams selected seemed to bear little resemblance to any organization that might be used in a tactical situation. The effect of losses on performance and the "recovery times" assessed (supposedly time needed to recover from mental shock and/or to reapportion duties among surviving personnel) seemed very arbitrary. Discussion of personnel and material "choke-points" that led to such earth-shaking conclusions as that cross training of personnel will mitigate the effects of casualties, were not especially helpful. Furthermore, although the Group used AMORE to model I-Series organizations it did not model any of the proposed alternatives. While some of the AMORE data conclusions seemed fairly logical, others were rather bizarre and contradictory to known experience. This was especially true of the simulation's evaluations of equipment attrition, which for example, greatly overvalued certain items such as the M203 grenade launcher. The Study Group also appears to have ignored all of the US Army's experience and developmental work on rifle squads and platoons. They seem to have never heard of IRUS (or any other Army study, including the 1946 Infantry Conference), though IRUS and the other Army studies drew on much more extensive databases than the Study Group had access to. Additionally, and like their Army counterparts, the Study Group did not consider the effects of attrition on logistics, particularly as it affected the ammunition supply for crew served weapons. The old awareness that a crew served weapon can easily consume several times its own weight in ammunition within a few minutes' firing seems to have completely vanished. The Group appears to have done little or nothing to provide for either an adequate initial supply of ammunition with each weapon or to arrange for rapid replenishment (or indeed for any movement at all of ammunition forward of the combat trains). Instead, the Study made facile assumptions such as that a three-man team could carry and operate a 60mm mortar even though six men had been unable to do this job adequately in either World War II or Korea. Four men had not done too badly in Vietnam but they had enlisted other members of their parent rifle company, especially the company headquarters, to carry ammunition for them and they also relied heavily on helicopter replenishment. Even so, the mortars had to be extremely sparing in their ammunition use. Now, the company headquarters was to be much smaller and the new M224 mortar was to have greatly expanded capabilities, including a more than 100% increase in range. Also, the new SAWs and M203 grenade launchers would cause the rifle squads to be more heavily laden (and therefore even less able to carry ammunition for the mortars) than ever before. Forward observers (to better exploit the mortars' extended range) and a dedicated fire direction center might have been desirable also. However, the tiny three-man mortar squads could hardly provide such services. They would be unable to furnish their own security either. However, the M224 mortar's exceptionally flimsy sight (which often fails under field conditions) has led many users to leave the bipod behind and fire the weapon in "hand held" mode. Though the weapon's range is reduced in this mode, it has been said to be surprisingly accurate. The weight saved by leaving the bipod behind could translate into a few more rounds of ammunition but, of course, the mortar's additional range capabilities would be completely lost. Also, if one or two mortar teams left their mortars behind they could carry additional ammunition for the mortar or mortars that remained.[761]

In the end, the Study Group's conclusions about attrition effects (and many other issues) did not rely primarily on computer models like AMORE (and certainly not on historical examples or field testing) but on "military judgement." Therefore the Study Group's work, while interesting, was highly subjective and not very conclusive.[762]

The Study Group recommended that an 11-man rifle squad form the foundation of the future battalion. This squad would have two five-man fire teams similar to those in the SLA Marshall/IRUS squad even though,

[760] USMC Battalion Study, op cit. pp. 8 to 12 and II-2 to II-51. See also Robinson II "Myths and Realities of Antitank Capabilities" Marine op cit for a representative view of Marine Corps inadequacies in the antitank field.

[761] USMC Battalion Study, op cit. pp. III-3 to III-100, IV-16 to IV-21, V-22 to V-41, and Appendix A; and see Capt. Donald B. Langley "Too Much Gear, Too Few People" Marine Corps *Gazette* Vol. 69 No. 6 (Quantico VA June 1985) pp. 50-51. See also 1stLt L. M. Pappa "More Marines for Mortar Section" Marine Corps *Gazette* Vol. 67 No. 9 (Quantico VA Sep 1983) pp. 22-24.

[762] USMC Battalion Study Ibid.

according to the Study, the design of the Marine squad was solely the product of AMORE modeling, two days of squad-level field exercises, and "military judgement." As in the Army, each fire team (BIE) would operate one SAW (when it became available) but, thanks to AMORE, it would also weigh itself down with two M203 grenade launchers rather than one. During their brief period of squad field testing, the Marines evaluated several squad configurations but all were fire team based. They never considered unitary or non-fire team based squads, even as an experimental "control". Test squads were always at full strength throughout any given field problem. Thus there was no attempt to analyze attrition effects during combat. However, at the end of each problem an evaluator might assess several "casualties" in order to test the squad's ability to evacuate them to a helicopter landing zone. Testers assumed that a squad could operate as a fire team based organization with as few as seven men, despite the IRUS conclusion that the real minimum was ten. Marine testing indicated that the new squad would not only save manpower and be easier for the squad leader to control, but would offer the same firepower as the old 13-man squad. While the first two of these conclusions may have been justified the third certainly was not. Once again, the problem was ammunition. The grenade launchers alone presented problems. Reports from Vietnam indicated that even 14-man squads sometimes had trouble carrying enough ammunition for *one* grenadier, let alone an 11-man squad carrying grenades for four! Additionally, the new squad would have to carry SAW light machineguns. With 800 rounds of 5.56mm ammunition per weapon these would weigh 42 pounds apiece.[763]

The Study's proposed rifle company would have three rifle platoons and a weapons platoon. A lieutenant, a platoon sergeant and one messenger carrying an AN/PRC-77 radio constituted a platoon headquarters but there were no radios or dedicated messengers for communication within the platoon. A rifle platoon would have three rifle squads. The weapons platoon would have a 10-man mortar section, a 22-man machinegun section and a seven-man anti-armor squad (equipped with three *Dragon* systems). Company headquarters would include a clerk to handle company correspondence and work with the battalion S-1 section, and two driver/messengers.[764]

Since a fourth rifle company was not possible for its recommended battalion, the Study Group proposed instead that the battalion weapons company become a combined arms company (CAC). The CAC would have a mixed mortar platoon (an officer and 52 men) with two 10-man 60mm mortar sections (same as those in the rifle companies) and two 15-man 81mm mortar sections (with two five-man mortar squads in each). The company would also include an anti-armor platoon (an officer and 75 men) with four 13-man *Dragon* sections (six teams each) and a 21-man TOW section (four five-man squads operating two TOW launchers each). The study group also proposed a 19-man heavy machinegun section. This unit would have four four-man gun squads, each with two two-man gun teams. A gun team would operate a jeep with a .50-caliber machinegun. The 40mm MK-19 grenade machinegun could serve as an alternate weapon when it became available. The .50-caliber guns, using improved armor piercing ammunition could supplement the fires of the TOWs and *Dragons* by engaging the enemy's lighter armor and might even engage enemy attack helicopters as well. However, by far the most significant and controversial feature of the CAC was the Special Infantry Troop (SIT). The SIT was an attempt to squeeze the rifle strength of a fourth rifle company within the 900-man ceiling of the new battalion but without skimping on the antitank weapons which everyone believed were essential. The SIT was essentially a rifle company without a weapons platoon. The SIT commander was a captain who was also the CAC executive officer. The CAC commander was also a captain. Two lieutenants assisted him, one serving as CAC operations officer and the other serving as SIT executive officer. The rest of the CAC headquarters was the same as that of a rifle company except that there was a supply sergeant and a master sergeant (operations chief) in place of the company gunnery sergeant (since the CAC commander would also be battalion fire support coordinator). This gave the CAC a total strength of nine officers and 262 men.[765]

The proposed battalion H&S company (20 officers, 154 men) showed few changes from its I-series predecessor. It would have a battalion headquarters (16 officers and 34 men) that differed from the I-series headquarters only in the trimming of the career planner and a couple of clerks from the S-1 section and the addition of a clerk to the S-3 section. The S-4 section received an embarkation officer. Apart from this there was no serious examination of the structure or functioning of the battalion staff. The communication platoon (one officer and 63 men) lost four radio operators, six wiremen, and two radio mechanics even though neither its equipment nor its tactical responsibilities had diminished. In the service platoon (one officer and 46 men) lost men from its supply and mess sections as well as its motor transport officer. The Study Group allowed only nine men for the STA platoon. Four of these manned two radars and four more manned the NOD section. In lieu of a sniper section, company messengers would serve as snipers as an additional duty. All of these changes produced a battalion of 47 Marine officers and 869 Marine enlisted, which only slightly exceeded the Study's 900-man limit. However the Study

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763 USMC Battalion Study, op cit. pp. III-106 to III-108 and IV-1 to IV-15. See also LtCol Charles J. Pyle "Infantry Weapons Modernization: The XM-249 Squad Automatic Weapon" Marine Corps *Gazette* Vol. 65 No. 7 (Quantico VA July 1981) pp. 23 and 25; and Maj E. J. Robeson IV "Rethinking the Infantry Battalion Changes" Marine Corps *Gazette* Vol. 66 No. 4 (Quantico VA April 1982) p. 18.

764 USMC Battalion Study, op cit. pp. VII-25 to VII-33.

765 USMC Battalion Study, op cit. pp. VII-34 to VII-46

Group members pointed out that if additional men could be made available they should be used in logistics and combat service support billets.[766]

The Marine Corps' principal commanding generals (from the Education and Development Command at Quantico, FMF Atlantic, FMF Pacific, and the Reserve forces) responded to the Battalion Study by expressing many of the criticisms already given above. Although Headquarters Marine Corps was still willing to accept the Study in principle, it had to make numerous changes to the Study's recommended battalion structure. Under the new "C-Series" tables that Headquarters Marine Corps eventually released, the rifle companies experienced the fewest changes from what the Study had proposed. Company headquarters was left as it had been under the I-Series tables, which is to say that the proposed company clerk and one driver messenger were both dropped in favor of a company supply sergeant. In the weapons platoon the antitank section became an assault section armed with the new MK-153 SMAW (Shoulder-launched Multipurpose Assault Weapon). The SMAW was a bazooka-like device, designed to attack buildings, bunkers, and lightly armored or unarmored vehicles. It used a warhead consisting of two bursting charges in tandem. The first of these would punch a hole in the target, through which the second would then pass and explode inside. An antitank round was planned for the future. Beginning in 1984, each rifle company assault section would get six SMAW but since even the section was only allowed seven men, it could effectively use no more than three SMAW. The assault section would remain unmanned until its SMAWs were delivered (see Appendix 11.8).[767]

Headquarters Marine Corps did not like the CAC. It therefore converted it back into a weapons company by eliminating the SIT. The now weapons company executive officer could be a lieutenant rather than a captain and the company operations officer and a headquarters clerk could disappear. The generals had concluded that the SIT would be a most unsatisfactory substitute for a fourth rifle company. It was almost certain to be misused as a CP security force and a source of casual labor. It should either be a full rifle company or eliminated altogether. It might become a full company if the TOW section was eliminated and 32 more men were added to the battalion's strength. The generals rejected this, however as they regarded the strength increase as unaffordable especially in view of the urgent need to shore up the proposed battalion's very inadequate combat service support elements.[768]

However, the elimination of the SIT freed up more than enough manpower to support changes elsewhere. Headquarters Marine Corps discarded the Study's proposed mixed mortar platoon on the grounds that two different types of mortar would require two different sets of fire commands and two different internal communication systems. This would lead to complexity, confusion, and probably some fatal accidents. The platoon should instead have four 81mm sections and no 60mm. Though each 81mm section would also lose another fire direction man, at full strength, it could still carry out its missions. The eight jeeps and four trailers allotted to the mortar sections could, between them, haul the impressive total of some 560 rounds of 81mm ammunition that the four sections required. However the platoon would have to depend on these vehicles than ever before. British experience in their war in the Falkland Islands, in which they used a nearly identical battalion mortar platoon, indicated that such a unit might only be able to support two mortars rather than eight if ammunition had to be carried by hand. Also, without vehicles, the HMG section would probably be unable to move at all, since just the receiver of a .50-caliber machinegun weighs 85 pounds. However, if the terrain was too difficult for vehicles then the enemy tank threat would be minimized and some members of the *Dragon* platoon could become mortar ammunition bearers as well (see Appendix 11.9).

Regarding the proposed battalion antitank platoon, Headquarters Marine Corps decided to drop the TOW section. Each infantry regiment's headquarters company would soon have its own TOW platoon. Centralizing the TOWs at the regimental level would simplify the training of TOW gunners and give the regimental commander his own antitank reserve. This platoon would be in addition to the 72-launcher company in the Marine Division's tank battalion and thus represented a doubling of the number of TOW launchers in the division. In addition, the proposed heavy machinegun section would enhance the infantry battalion's ability to defeat light armor, despite the loss of the TOWs. Headquarters Marine Corps also strengthened the four *Dragon* sections to eight teams apiece. This balanced the cancelled rifle company antitank sections and insured that just as the TOW missiles were centralized at the regimental level, so the *Dragons* would be centralized at battalion level. To carry its spare missiles, the *Dragon* platoon was allocated a jeep and trailer for each section and another jeep for platoon headquarters. No drivers were provided so one of the section members had to do the driving. One jeep and trailer could carry 12 missiles in addition to the maximum of 16 that dismounted section members might carry.

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766 USMC Battalion Study, op cit. pp. VII-46 to VII-62.

767 USMC T/O&E 1013C dated 22 Jan 1985 (HQMC Washington DC); see also Marine Corps *Gazette* Staff "Coming Changes in Ground Units" Marine Corps *Gazette* Vol. 65. No 9 (Quantico VA September 1981) pp. 28-29; and Marine Corps *Gazette* Staff "Corps Eyes New Assault Weapon" and "More Changes to Infantry Battalion Structure" both from Marine Corps *Gazette* Vol. 66 No. 1 (Quantico VA Jan 1982) pp. 6 and 24-25.

768 See USMC Battalion Study, op cit. Appendix A.

As for the HMG section, it was badly overloaded. Gun teams were limited to two men each not only because of manpower shortages but because one jeep could not carry more than two men in addition to its .50-caliber machinegun and 400 rounds of ammunition. There was no room at all for a MK-19 but these weapons would not be available until 1986-87. A jeep could carry a MK-19 and 200 rounds *instead of* a .50-caliber machinegun, however, but it was too light to serve as a firing platform for either the .50-caliber or the MK-19. The amount of ammunition carried was also inadequate. However the *Dragon* section jeeps each had space for up to 1,500 rounds of .50-caliber or 600 rounds of 40mm. Also, the battalion motor transport section had received four extra jeeps with trailers (but no drivers) to carry four spare MK-19 guns (or more ammunition until the guns were available). They could operate with either the weapons or H&S company. HMG maintenance was also a serious problem. Two heavy machineguns and a jeep were a heavy responsibility for just two Marines especially since one Marine might often be absent for one reason or another. The team could not function at all without both of its members.[769]

Regarding the H&S company, Headquarters Marine Corps vetoed most of the Study's proposed cuts in administrative and service support personnel. It also planned to restore the STA platoon (though this could not be done immediately) to where it could man all its assigned equipment and give surveillance support to the companies.

The battalion S-1 section got its career planner back and received the four clerks that the Study Group allocated the rifle companies and the CAC. This gave the S-1 a huge section with more than 20 clerks to do a job for which an H-Series Army airborne battalion S-1, for example, needed only nine. Yet Marine S-1s often complain about being overworked. This writer has seen plenty of battalion admin shops function well on only a fraction of their authorized strengths. He also notes a steady increase in the number of battalion clerks even as manual typewriters and carbon paper give way to computers, faxes and email (all supposedly to save labor). This manpower extravagance, in contrast with the extreme stinginess, shown in the manning of the rifle and weapons companies, can perhaps be best explained in terms of Parkinson's Law of Civil Administration. Based on his experience in the British Colonial Office (which ballooned in size even as the colonies disappeared), the well-known author C. Northcote Parkinson propounded the whimsical but perceptive theory (somewhat paraphrased) that a job expands or contracts to fit the time and/or resources allowed for it. Nevertheless, to be fair, in a combat situation this large number of clerks could still act as a battalion labor pool to supply stretcher bearers and perform other tasks not provided for in the table or organization without having to call on details from the rifle companies. Even so, it can hardly be said that all these clerks are efficiently employed.[770]

The S-4 section actually grew in size. It kept its full-time embarkation officer though an embarkation officer's function of planning and supervising the loading and unloading of the battalion and its equipment onto transport ships or aircraft is not continuously required. In the past it had been an additional duty for the service platoon commander or the S-4 himself. However, this was the 1980s and the S-4 would not only get a full-time embarkation officer, he would also get a full-time maintenance management officer (MMO). The MMO tracks (but does not perform or supervise) the maintenance of major equipment items. In the past this had been another additional duty for the S-4, the communication officer (many of the more important items are signal equipment), or motor transport officer. One wonders why at the part-time MMO and embarkation officer jobs could not have at least been combined into only one full-time position. As it was there were now five officers performing tasks that had required no more than three in Vietnam and only two in World War II and Korea. Was Parkinson's Law operating once again?

In the battalion communication platoon, the Study's decision to reduce the number of radio operators caused particular concern. Headquarters Marine Corps determined that the radio section needed a chief and a supervisor (who did not man radios themselves) and at least 16 operators. Ten operators would guard three regimental and up to two battalion tactical nets on a 24-hour basis. Two were supposed to serve with each rifle company but these tended to be used to offset attrition, temporary absences, and extra requirements while the rifle companies were left to find substitute radio operators on their own. However, as with other planned increases, this one had to be delayed until manpower was available. Likewise, Headquarters' dissatisfaction with the Study's cuts in the number of wiremen and radio repairmen would also have to wait until enough men were available to undo the cuts.

In the battalion service platoon Headquarters kept the number of supply men at their original I-Series level. It also added another armorer to help with the battalion's additional weapons. It scheduled the existing jeeps and LIWC in the motor transport section for replacement by the new HMMWV 1.25-ton trucks and it restored the motor transport officer. However, it left a number of unsolved problems. Many of these arose from the fact that the motor transport section only had enough drivers to operate 12 to 14 of its own vehicles. Using units would have to find

[769] Ibid. And see USMC T/O&E 1027C dated 22 Jan 1985 (HQMC Washington DC); Capt. Thomas X. Hammes "Making the Weapons Company Work" Marine Corps *Gazette* Vol. 69 No. 6 (Quantico VA June 1985) pp. 66-73; and LTC Robert H. Scales Jr., "Firepower in the Falklands Campaign" Field Artillery *Journal* Vol. 56 No. 3 (Fort Sill OK, May-June 1986) pp. 14-21.

[770] USMC Battalion Study, op cit. Appendix A; and USMC T/O&E 1037C 22 Jan 1985 op cit. See also "More Changes to Infantry Battalion Structure" Marine Corps *Gazette* Jan 1982 op cit. and C. Northcote Parkinson, *Parkinson's Law and Other Studies in Administration* (Boston, Houghton Mifflin 1957).

their own drivers for the vehicles that the motor transport section issued to them. The motor transport section's biggest responsibility was moving ammunition to using units, especially the battalion mortar platoon but it also had to move food, water, and other essentials as well. The rifle companies, having no vehicles or drivers of their own depended totally on the motor transport section for such support. The weapons company dids have some vehicles of its own but not enough to replenish its ammunition or other consumables or to move its men's packs and other baggage. The mortar platoon had two jeeps per section and while this was better than the one jeep that each section had to manage with during the Korean War, for serious combat it would probably have still proven insufficient. The antitank platoon, with only one spare missile jeep per section, was much worse off. We have already seen that the HMG section did not even have enough vehicles to carry all its assigned equipment, let alone its ammunition. For long road marches the motor transport section would have to carry mortars, machine guns and *Dragons* as well.[771]

Yet another problem with the service platoon was the battalion mess section. Headquarters noted that while there had been 19 cooks per battalion since Korea the workload had increased substantially even though the number of men that actually had to be fed had decreased. The 18-man mess sections of the K and L-Series battalions had been feeding (including Navy, but not attached personnel) just over 1,100 men each. In Vietnam, a 19-man M-Series section fed about 1,200. The Battalion Study reasoned that a 16-man section ought to be able to feed 985. The number of cooks in a World War II battalion had been higher but these had been employed in relatively inefficient company mess details. To serve A or B Rations, a battalion mess section needed about twice as many unskilled assistants as it had cooks in order to serve the meal and clean up afterwards. At first, the additional messmen came from the supernumeraries authorized to each battalion as "live-in" replacements. After these were taken away in 1952, troops from other elements of the battalion had to be temporarily diverted from their primary duties to serve as messmen. Naturally this practice had a particularly bad effect on the rifle and weapons companies since they were continually having men to divert from training and their other primary duties. Worse, mess duty was (and is) a hard, dirty, and thankless task that could be as damaging to morale as it was to training. This unfortunate situation was (and is) in large measure due to the fact that the basic types of field rations and the inefficient and manpower intensive methods of preparing and serving them had not changed significantly over the past 30 years. More recently, there has been an increased tendancy to hire civilian contractors to feed the troops when they are in garrison. Also, many officers make a mental resolve to rely heavily on C-rations (or the newer MRE) to feed their men when they are in the field. However exclusive reliance on C-Rations or MRE's does, over time, have significant health consequences, especially on troops operating in extreme climates or difficult terrain. To resolve this problem, the US Army and Marine Corps may have to swallow their pride and look at what foreign armies do. Most of them use fewer men for food service and yet their troops often eat better than ours. The Germans, for example, both during World War II and in their postwar army used two cooks and a driver with a rolling kitchen (on a trailer or truck) to feed a company. The kitchen trailer is essentially a large double boiler in which simple soups and stews are prepared. The staple is bread (which can be pre-packaged) but the soups and stews provide the essential hot food (usually three times a day, even in combat) that the troops need. Of course there is also an "iron ration" that is eaten cold when the normal food supply fails. The Soviets have a similar arrangement. So have the French (during the world wars). Three men per company amounts to only 15 in a five-company battalion. Better still, the detailing of additional soldiers for mess duty is seldom needed in the field.[772]

Unfortunately, neither the Study Group nor the Headquarters Marine Corps reviewers really examined food service or other logistical issues. They just changed the number of cooks in the battalion mess section. Where the Study had reduced them from 19 to 16, Headquarters increased them to 23 even though the C-series battalion that they would be feeding had shrunk to only 896. Both the bloated S-1 section and the poorly thought-out mess section together represented a waste of about 20 men per battalion. Worse, this waste detracted directly from the battalion's combat power. Unnecessary officers had also been proliferating. The infantry battalion headquarters had swollen to 13 officers (excluding the three air officers) to do a job for that "Chesty" Puller on Guadalcanal thought too small to justify even five. The number of their enlisted assistants multiplied as well. Some would argue that the complexities of commanding a battalion today have greatly increased since "Chesty's" time but have they really? Battalions are still made up primarily of men, and the tactical problems that they face are not fundamentally different. They do operate over much greater distances and frontages than in the past but modern communication and data processing equipment should have been able to meet such challenges without much need for additional personnel. As we have already noted this creeping bureaucratization of battalion (and higher) staffs has encouraged decision-making by committee, and thus slowed the battalion's ability to react to changing situations. It has also increased the battalion commander's isolation both from his company commanders and the situation on the ground. However, leadership by committee holds advantages for an officer corps whose members spend little time in command of anything.

[771] USMC Battalion Study, op cit. Appendix A.

[772] Ibid; and see also Capt P. J. Klepper II "Food Service and Maneuver Warfare" Marine Corps Gazette Vol. 66 No. 1 (Quantico VA Jan 1982) pp. 26-27.

Inexperience and incompetence can more easily hide in a crowd and real decision-making can be split in so many ways that true responsibility is avoided. The decision process tends to be slow and is much more likely to produce a "lowest common denominator" solution that produce bold, rapid or decisive action (see Appendix 11.10).[773]

The new infantry regimental headquarters (including its new TOW platoon) of which the C-series battalions would be a part appears in Appendix 11.11. It is worth noting that regimental staffs, together with their battalion counterparts had also been increasing their size.[774]

The Marine Corps only gradually phased in its new C-series organization. The first infantry battalion to convert to it, the 3rd Battalion 6th Marines did not do so until October 1982. However, as more Marines became acquainted with the new organization, it came under heavy fire. The loss of a rifle company was accepted as inevitable and it was hoped that an improving manpower situation might make it possible to restore that company at a later date. Far less acceptable were the changes to the rifle squad. The five-man fire team was denounced as awkward. Critics alleged that the old four-man team required the team leader to control only three subordinates whereas the leader of a five-man team would have four and this would complicate his task. New doctrine was also needed since a two-element squad was replacing a three-element squad. Formations and control methods would all have to be revised. Critics also complained that the new squads would have only two SAWs and not three and decried the resulting (if mainly theoretical) reduction in the squad's firepower. Like the Study Group members, they paid little attention to the question of who would carry ammunition for those SAWs and how that ammunition was going to be replenished during a firefight or how the weight of a third SAW might affect squad mobility (especially after the squad had suffered some attrition). The critics also noted that the new squad was smaller than the old 13-man squad by two men and that this was yet another cut in the Marine Corps' dwindling rifle strength. The 13-man squad had been in service since 1944 (more than 35 years) and a lot of Marines had grown very attached to it. However, as we have already noted the old squad had two serious weaknesses. It used a lot of manpower and, while it worked well at full strength, it was brittle. Casualties would quickly negate the value of its fire team organization. Furthermore, even at full strength the squad's BIE, the four-man fire team, would be heavily loaded with one SAW and one M203. Even with the 11-man rifle squad, the basic load of each squad member could easily exceed 100 pounds. Loads for weapons platoon members would be even higher (140 pounds or more). Losses to the rifle squads (shifting even heavier loads to the remaining members) could be expected even before a battle began. With most of the "fat" (such as "other duty" privates, ammunition bearers, messengers, etc.) long since cut away, practically all strength shortfalls would directly affect "muscle." Weapon crews and support services were already cut to the bone. The only manpower reserve left was the riflemen in the squads. Thus, the squads could almost never expect to be at full strength and would, far more often than not, be well below it. The awkwardness of the five-man fire team in the new rifle squad should not have been an issue since fire teams would rarely if ever have their full five men. A far more constructive suggestion was that the 13-man squad be reorganized to have two six-man teams rather than three four-man. That would have allowed a larger and more durable BIE and fewer team leaders. It had not always been possible to find three good team leaders even in a full 13-man squad. If only two team leaders were needed they could be of better quality.[775]

The critics also attacked the new battalion for having too few men and too much equipment. The claim that the new battalion offered a 10% manpower reduction and a 25% firepower increase was largely illusory due to the lack of any crews for many weapons and the lack of ammunition supply arrangements for the others. The absence of ammunition bearers would increase the battalion's dependence on its motor vehicles, thus tying it closer to the roads. Critics also noted that the Battalion's command, administrative, and maintenance structures were all inadequate. At full strength they might enjoy a kind of card castle stability but casualties and other stresses should quickly cause them to break down. Even in peacetime battalions were always having to supply men for guard and mess duty and tasks required under the Fleet Assistance Program (FAP). Men would also be absent with or without leave and even on paper the Marine Corps in peacetime routinely mans its infantry battalions at only 90% of their authorized strengths unless they are due to deploy overseas. To answer some of these manpower requirements the commander of the 3rd Battalion, 6th Marines (3/6) called for the addition of a clerk, a training NCO, and two weapon

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[773] For more information on the decline of Marine Corps officer competence see LtCol Gordon D. Batchellor "Officer Competence" Marine Corps *Gazette* Vol. 66 No. 1 (Quantico VA January 1982) pp. 21-22.

[774] USMC T/O&E 1096C 22 Jan 1985 (HQMC Washington DC).

[775] Capt. J. P. Rogers Jr. "Don't Cut the Rifle Squad" and Capt. G. K. Cunningham "Revising Squad Tactic" both Marine Corps *Gazette* Vol. 66 No. 8 (Quantico VA August 1982) pp. 31-34; and 1stLt. Frederick J. Whittle "13 to 11: "What's So Unsound?" Marine Corps *Gazette* Vol. 66 No. 11 (Quantico VA November 1982) p. 44; LtCol. R. A. Beeler "The New Battalion Structure – An Overview" Marine Corps *Gazette* Vol. 67 No. 6 (Quantico VA June 1983) pp. 17-19; Capt W. A. King "Rifle Squad Remains the Key Element" Marine Corps *Gazette* Vol. 67 No. 6 (Quantico VA June 1983) pp. 26 and 28. Capt. R. S. Moore "Two Teams for the Rifle Squad" Marine Corps *Gazette* Vol. 67 No. 9 (Quantico VA September 1983) pp. 20-21. Capt. T. X. Hammes "Rethinking the Rifle Squad" Marine Corps *Gazette* Vol. 68 No. 7 (Quantico VA July 1984) pp. 15-18; 1stLt. R. L. Breault "Employing the Five-Man Fire Team" Marine Corps *Gazette* Vol. 69 No. 3 (Quantico VA March 1985) p. 29; Capt. R. B. Neller "New Look for 13-Man Squad?" Marine Corps *Gazette* Vol. 69 No. 10 (Quantico VA Oct 1985) pp. 46-47. And see Capt. George P. Fenton, "The Prescribed Load" Marine Corps *Gazette* Vol. 69 No. 6 (Quantico VA Jun 1985) pp. 43-49.

custodians (to help with the armory) to each company headquarters. He also wanted nine more radio operators (mostly to provide radio men for the rifle companies), to upgrade the heavy machinegun (HMG) section to a platoon and increase its gun teams from two men each to three. The squads in the 81mm mortar platoon should increase from five men each to seven. There should be more mail, supply, and legal clerks, and maintenance people as well. He advocated a total increase of an officer and 71 men, though he would be willing to part with one *Dragon* section (17 men) in partial compensation for this. Other critics believed, however, that the battalion's antitank firepower was too little. Some even advocated issuing *Dragons* to the squads (the weight of which would have completely immobilized them unless other weapons were dropped). The 3/6 commander, however, seems to have been on the right track with his criticism that the new battalion was too heavily weighted in favor of defensive anti-mechanized operations. It would have made much more sense for the battalion to have focused on its close quarters antitank weapons, which were best suited to anti-armor combat in close terrain, where light infantry would enjoy the advantage. Long-range fires could come from attached weapons like TOWs and tanks. Unfortunately the only short-ranged weapon available was the inadequately powerful LAAW. However, several foreign-designed alternatives existed.[776]

As for the HMG section, most Marines supported it at least in principle. They welcomed its ability to deliver long ranged machinegun fire against troops, tactical aircraft, and light armor. The section also showed promise of being able to integrate itself with *Dragons* and attached TOWs to form Combined Anti-Armor Teams (CAAT). Its mobility problems would probably be solved by the expected introduction of HMMWV trucks in place of the inadequate jeeps. Not only would the new trucks actually be able to carry the section's ammunition and weapons, it would permit a much-needed increase in gun team size.[777]

In 1985, Headquarters Marine Corps responded to these criticisms even before the initial phase-in of the C-series battalions was complete. Though the changes mandated under the new E-series tables had some negative impacts on other elements of the Fleet Marine Force (for example, the new Light Armored Vehicle Battalions had to forfeit their infantry dismount teams) the infantry battalions received extra men in order to meet some of the critics' demands. The rifle squads reverted to 13 men each, even before the 11-man squads had been fully phased in. Most rifle companies received their seven-man assault sections but those in the 2nd Marine Division received "enhanced" assault sections of 13 men each. These could man up to six SMAW teams (see Appendix 11.8). In the battalion weapons company, the HMG section became a platoon with an officer and 21 men. There would only be six gun teams but each one would get three men. In partial compensation for these increases, the *Dragon* platoon lost one section. In the H&S company the service platoon was slightly strengthened and the STA platoon regained its original strength level. Most of the other manpower shortfalls would have to wait for better times (see Appendices 11.9 and 11.10).[778]

"Better times" came in 1988 when more manpower cuts and the end of the "Cold War" caused the Marine Corps to trim its active duty force structure from 27 infantry battalions to 24. The men saved through this forced economy allowed several additions to the remaining battalions. The most important change was a limited return to the old four-rifle-company configuration. Of the 24 surviving active battalions sixteen would be organized under the F-series tables which only called for three active rifle companies each plus one from the reserves. The other eight battalions would be under the G-series tables and as such they actually would have four active rifle companies, plus a standard weapons company, and a slightly enhanced headquarters company (see Appendix 11.12). In general, battalions stationed in the United States would be under the F-series tables. Those currently deployed preparing to deploy aboard amphibious ships, as part of a Marine Expeditionary Unit (MEU) would switch to the G-series. Eventually, however, this system broke down. Manpower constraints during the 1990s were such that it became impossible to maintain a fourth company even in just eight battalions. Thus, the Force Structure Planning Group that convened in 1992 (and which mostly reviewed organizations outside the infantry battalions) dropped the fourth rifle company from the G-series units. Henceforth, all infantry battalions would have only three rifle companies apiece.

Both F and G-series rifle companies were the same. Each of their rifle platoons received an extra sergeant to act as platoon guide and take over the platoon sergeant's administrative and logistical functions. Their assault sections went to 13 men each. By the early 1990s, in an effort to reduce the number of pistols used in combat units, Headquarters Marine Corps ordered that all rifle or weapons platoon leaders and all platoon sergeants be armed with

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776 Beeler, "The New Battalion Structure – An Overview" op cit; LtCol R. A. Beeler "New Infantry Battalion Structure Revisited" Marine Corps Gazette Vol. 68 No. 7 (Quantico VA July 1984) pp. 14-15; and Maj. John P. Gritz USA, "Dragons in the Infantry Squad" Marine Corps *Gazette* Vol. 66 No. 9 (Quantico VA Sept 1982) pp. 26-28.

777 Beeler, "New Infantry Battalion Structure Revisited" op cit; Capt. W. L. Smith "Major Impacts on Weapons Company," 2dLtJohn F. Schmidt "Heavy MG Section in Crawl Stage" and 2dLt John F. Schmidt "Improving our Anti-armor Punch" all Marine Corps *Gazette* Vol. 67 No. 6 (Quantico VA June 1983) pp. 19-26.

778 USMC T/O&E 1013C, 1037C, and 1037C, all dated 13 November 1985 (HQMC Washington DC).

rifles (or the new M4 carbine) in lieu of pistols. This produced the rifle company structure in Appendix 11.12. There have been no significant changes in it since this writing.

In the weapons company, the principle changes were at first the replacement of jeeps and "mules" with HMMWVs, and the strengthening of the mortar and HMG squads. Mortar squads increased to six men and the mortar platoon reorganized as two sections of four squads each, each section having its own vehicles and fire direction section. By 1992, the six squads in the HMG platoon would increase again to four men each (for a platoon strength of an officer and 27 men). The HMMWVs ensured that the new HMG platoon could carry all its equipment and at least some ammunition with just its organic vehicles. Likewise, the HMMWVs reduced the 81mm mortar platoon's dependence on the battalion motor transport section by carrying a much larger payload than the jeeps ever could. Nevertheless, the mortar platoon received extra men to limit its dependency on its new vehicles and to increase its ability to provide fire support over extended periods of time. Six-man mortar squads could split into three-man "watches" and would be better able to retain their capabilities in the face of losses from "normal" attrition. The HMG platoon's larger gun squads operated not only as a hedge against attrition but because they were big enough to carry their guns over short distances, could choose to fire from less exposed positions on the ground, rather than directly from their vehicles. There were enough HMMWV armament carriers to carry, under limited armor protection, all six gun teams in the HMG platoon and the four spare MK-19s in the motor transport section (see Appendices 11.13, 11.14 and 11.16). In 1990 Headquarters Marine Corps decided to break up the old TOW company in the division tank battalion. This would allow the addition of a second TOW platoon to each infantry regimental headquarters company but implementation was repeatedly delayed as Headquarters reconsidered its decision. As it happened few if any regiments ever got their second TOW platoon (see Appendix 11.15). The fall of the Soviet Union in 1989 had considerably reduced any tank threat that the Marines were likely to face. In 1991 Headquarters decided instead to break up the existing regimental TOW platoons and give a TOW section to each infantry battalion.[779]

Although it had long since been equipped with the HMMWV TOW carrier as its prime mover the TOW section was still structured as it had been when it used M151 jeeps around four five-man squads (see Appendixes 11.15 and 11.16). Each squad manned two launchers but since a HMMWV TOW carrier could accommodate a TOW launcher, six spare missiles, and four men, the squad leader did not have to drive a separate ammunition vehicle and could ride with one of his gun teams. However this left the other gun team with only two men and, as was the case in the original HMG section that was too small. To operate at full efficiency a TOW needed a driver, a gunner and a loader. The absence of a loader would significantly lower the launcher's rate of fire. The TOW section headquarters also has its own armored HMMWV armament carrier (AC) able to carry a MK-19 that the section can scarcely man or maintain. Worse, there was no real provision for ammunition replenishment. Once a TOW vehicle fired its six missiles it would have to either depend on the still heavily committed battalion motor transport section to bring it more or else at least some TOW vehicles would have to go individually to the nearest ammunition supply point for new missiles, an awkward thing to have to do in the middle of a battle! However, surprisingly, few complaints have been voiced in published literature about under-manning in the TOW section, though there were plenty of complaints about it in the heavy machinegun section before the HMG teams/squads were expanded. TOW section members were more inclined to complain about their new vehicles. The HMMWV had been touted as an all-purpose light truck with greatly increased payload, limited armor protection, diesel engines, and run-flat tires. However, the vehicle is conspicuously large, too wide for many roads and trails, and very noisy. It is ill suited to air-mobile operations because it will not fit in any transport helicopter. Its "run flat" tires do not hold up nearly so well as advertised and basic maintenance often presents unique problems. The central tire inflation system makes even a routine task like changing a tire into major effort. A crew cannot even paint their own vehicle because the infrared absorbing paint is carcinogenic and hugely expensive. If the HMMWV gets stuck in mud or a ditch, as it frequently does, its unfortunate crewmembers find that it is much harder to push a 7,000 to 8,000-pound truck than a 2,500-pound jeep. Thus the HMMWV, in some ways, had less off-road mobility than the vehicles it replaces. It certainly could not leave the roads as easily as a tank (and are no match for them as weapons platforms) and yet they were part of a light infantry battalion, one of whose principal tactical advantages is supposed to be its relative independence from the road network. Also, the crews of armored HMMWV armament and TOW carriers can mistake them for true armored vehicles and try to use them as such. Most Marine infantry battalions have combined their TOWs and HMGs into ad hoc Combined Anti-Armor Teams (CAAT). There have also been proposals to convert the weapons company into a mobile assault company (MAC). The MAC would use HMMWV trucks, fast attack vehicles (at first these were rebuilt M151 jeeps with roll bars and beefed up suspensions; now a small fleet of

[779] Staff article "Force Structure Changes Approved" Marine Corps *Gazette* Vol. 72 No. 7 (Quantico VA July 1988) p. 4; Staff article "Timetable for Force Structure Changes" Marine Corps *Gazette* Vol. 72 No. 8 (Quantico VA August 1988) p. 4; 1stLts John D. Coleman and David D. Badger "TOWS: Where Do They Belong?" Marine Corps *Gazette* Vol. 74 No. 6 (Quantico VA June 1990) pp. 34-35; and Staff Article "Tank/TOW Reorganization" Marine Corps *Gazette* Vol. 76 No. 10 (Quantico VA October 1992) p. 7.

heavier and more powerful Mercedes Benz vehicles is in use) and light armored vehicles mounting TOW missiles and HMGs. Overall, the decision to include weapons in an infantry battalion that are almost totally dependent on armored HMMWVs for tactical mobility may well be questioned. Weapons that require such vehicles are especially ill adapted to operations in close terrain and might be better employed in separate companies or battalions that could be attached to the infantry when needed. While the TOWs and HMGs can work well together and generate considerable firepower, their value to an infantry battalion can, in many situations, be much less than it appears to be.[780]

In 1994, in yet another cost and manpower cutting move Headquarters Marine Corps ordered the three *Dragon* sections in the antitank platoon reduced to one. The new section would have three eight-man (four-team) squads rather than the usual two but this cut the total number of *Dragon* teams in half. However, changes in the table of equipment reduced the *Dragon* trackers (being replaced by command launch units for *Javelin* missiles) at first to eight and then to six (see Appendix 11.16). The remaining teams are scheduled to carry the new *Predator* Short-Range Assault Weapon (SRAW). The *Predator* is a US-built version of the French *Eryx*. It is a small missile in a throwaway launch tube with an effective range of 17 to 600 meters. Because it uses a minimal propelling charge to expel the missile from the launch tube before the latter's rocket motor ignites and sends it down range, it can be safely fired from inside buildings or other enclosed spaces. Like the *Javelin*, the *Predator* has an on-board guidance system. The *Predator's* guidance system is an inertial system with a forward-canted laser that profiles the leading and trailing edges of the target tank, magnetically confirms that it is a tank or other armored vehicle and then initiates an explosive-formed penetrator warhead that attacks the target from above. The gunner need only place the cross hairs of his sight on his target and fire. Since the Predator is a modular system it can accommodate other warhead payloads for destroying bunkers, light armor, and other material targets with direct hits. It could also replace the nearly worn out SMAW launchers. Each *Predator* round weighs just under 20 pounds. *Predator* has all the hallmarks of the high cost, high complexity weapon systems so beloved to today's armed forces. However, unlike the TOW, *Dragon*, and *Javelin*, and despite its weight, it has the potential to be fairly effective in closed terrain.[781]

In the new infantry battalion headquarters and service company changed hardly at all as it moved from its from its older C and E-series configurations to the F-series. The company's enlisted strength even fell slightly (to 180 men) as a result of cuts in the communication platoon, that the addition of one man to the S-1 section did not balance. Whenever a battalion adopted the four-rifle-company G-series configuration its H&S company would receive an increase of 16 enlisted men as shown in Appendix 11.14. Since it was usual for the motor transport section to attach a HMMWV (hopefully, with a driver) to each rifle company to serve as a weapons and supply carrier, the motor transport section would receive two extra HMMWV whenever the battalion had a fourth rifle company. One HMMWV would serve as the new company's attached vehicle. The other would help to bear the additional supply load that supporting the new company would entail.[782]

More significant changes to the H&S company were in the works, however. The Surveillance and Target Acquisition (STA) platoon, adopted in the wake of Vietnam, had not been a great success. Critics described it as too small, overly specialized, and unable to train adequately. Its concept was that of an equipment-intensive organization that would gather information through passive surveillance rather than active reconnaissance. During the 1980s, dissatisfaction with the performance of the AN/PPS-15 radars caused the radar section to become a de facto second scout-sniper section. The withdrawal of the heavy AN/TVS-4 NOD in about 1990 left the NOD section with nothing more effective than a 300-meter ranged starlight scope. Thus, by default, scouting and sniping became the STA platoon's principle activity. For this role the critics saw the platoon as too small and lacking in any capabilities not already resident in a well-trained rifle company. Nevertheless, it did give the battalion commander his own scouts without forcing him to rob one of his rifle companies. However, the platoon's sniper role created a "turf" problem because sniping was an operational or S-3 activity even though the platoon belonged to the S-2. This example of bureaucratic infighting creeping down to even the lowest echelons prompted calls to do as the Army had done with its battalion scout platoons (because of their dual S-2 and S-3 related roles) and place the STA platoon in the weapons company, renaming it a combat support company. Also, in peacetime most battalion staffs place little

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[780] 1stLt David M. Monroe, "Comments on the TOW Platoon" Marine Corps *Gazette* Vol. 74 No. 10 (Quantico VA Oct 1990) pp. 45-46. For examples of CAAT operations see 1stLt Timothy E. Winand "Employing TOWs in the Infantry Battalion" Marine Corps *Gazette* Vol. 78 No. 2 (Quantico VA February 1994) pp. 19-21; 1stLt Michael T. Cuccio "CAAT Employment: A MEU Perspective" and 1stLt Michael V. Samarov "Integrating Weapons Company's New Assets" both Marine Corps *Gazette* Vol. 78 No. 7 (Quantico VA July 1994) pp. 37-41; 1stLt Jason B. Tanner "The Search for a New CAAT Table of Organization" and Capt. Paul J. Kennedy and 1stLt Tye R. Wallace "MAC II: The Improved Weapons Company" both Marine Corps *Gazette* Vol. 78 No. 11 (Quantico VA November 1994) pp. 46-52.

[781] Staff article "SRAW Update" Marine Corps *Gazette* Vol. 77 No. 11 (Quantico VA November 1993) p. 9; Staff article "Predator Update" and Staff article "Anti-armor Capabilities Reduced" Marine Corps *Gazette* Vol. 79 No. 1 (Quantico VA Jan 1995) pp. 4-5. See also USMC Table of Equipment, unpublished printout dated 18 Nov 1996 N 1173 Weapons Company, Infantry Battalion (HQMC Washington DC).

[782] USMC FMFRP 1-11 *Fleet Marine Force Organization 1990* (Quantico VA).

value on tactical intelligence and tend to saddle the S-2 with additional duties like that of special service officer. Thus, while he might be under-employed in his primary duties the S-2 frequently lacked the time needed to properly train and supervise his platoon. Yet another problem is that while sniping is more glamorous, scouting is much more important and, as a practical matter, the two roles cannot be performed simultaneously. Thus sniping tends to detract from the platoon's efficiency as a scouting unit. In 1992, the Force Structure Planning Group reconfigured the STA platoon with a platoon sergeant and eight two-man scout/sniper teams. In 1994, it again restructured the STA platoon as four four-man scout teams and made it an integral part of the Battalion S-2 section, thus firmly taking it out of the S-3's jurisdiction. The planning group even gave the STA platoon its own officer platoon leader despite the scarcity of intelligence officers in the Marine Corps (and despite the fact that the S-2 had relatively little intelligence work to do). Despite its move into the S-2 section, the STA platoon's sniping capabilities were maintained and even increased. The platoon not only retained its eight M40A1 7.62mm rifles but by 1992 had also acquired two 32.5-pound M82A1 .50-caliber sniper rifles as well. The lighter weapons can range out to 1,000 meters and the heavier ones to 1,800 meters (see Appendix 11.17).[783]

Other changes to the battalion H&S company have been limited to minor increases in the service platoon (more cooks and a couple of technicians to maintain TOW equipment) and the addition of one more clerk each to the S-1 and S-3 sections. In 1994 the H&S company headquarters received a property/training NCO and an armory custodian in addition to the company first sergeant and company gunnery sergeant. These changes brought the Marine battalion's structure to the form in which it exists as of this writing. Its configuration seems to be much more the result of budget cutting, temporary expediency, and a desire to incorporate the latest "gimmick" than of careful planning or long-term experience. Efforts to give it greater tactical and logistical independence while skimping on manpower have seriously harmed its air and off-road mobility and burdened it with large quantities of weapons and equipment that it can hardly use. It has also cursed it with a slow-reacting and top-heavy command structure that requires excessive numbers of men and radios to make it all work. However, the evolution of the battalion is still very much an ongoing process. Unlike the other services, which cannot seem to change their Cold War habits, Marine Corps has been conducting field exercises that actually have something to do with the threats that US forces are likely to face in the post-Soviet era. It is very much to be hoped that these exercises will propel both Marine Corps doctrine, and the combat unit structures that support it, towards real improvement (see Allendix 11.17).

[783] Capt. J. D. Williams "Rethinking the STA Platoon" Marine Corps *Gazette* Vol. 68 No. 9 (Quantico VA Sept 1984) pp. 26-28; 1stLt J. D. Anderson "A Need to Strengthen the STA Platoon" Marine Corps *Gazette* Vol. 74 No. 7 (Quantico VA July 1990); and Capt. Jeffery E. Dearolph "The Infantry Battalion Scout/Snipers: Scouts or Snipers?" Marine Corps *Gazette* Vol. 78 No. 11 (Quantico VA Nov 1994) pp. 53-55. See also Capt. Jason M. Williams "Does the Marine Corps Need Infantry Battalion S-2 Officers?" Marine Corps *Gazette* Vol. 75 No. 9 (Quantico VA Sept. 1991) pp. 24-25. This writer's own experience as an S-2 in an artillery battalion has confirmed many other accounts that he has received about the S-2's non-role at the battalion level in peacetime.

CHAPTER 12 – THE ARMY OF EXCELLENCE

By the end of the 1970s, popular memories of the Vietnam War were fading and new American humiliations overseas, such as the Soviet invasion of Afghanistan and the Iran hostage crisis had persuaded the previously peace-loving Carter administration to fund a major military buildup. Much of the new spending would go to the Navy and Air Force. The Army, until this time, had focused on the defense of NATO. Though this mission was not politically controversial and justified a lot of expensive weapons, its goal of defending ungrateful and penurious allies from a Soviet invasion that would probably never happen was unlikely to fire the public imagination. Neither would it attract a lot of new dollars, even during a military revival. Thus, in 1979 the Secretary of Defense turned down an Army request for a seventeenth division so he could use the money to pay for maritime pre-positioning squadrons that would support Marine forces participating in a new joint service Rapid Deployment Force (RDF). The RDF was intended to allow rapid American intervention in any non-European emergencies that might occur. Although the RDF offered a role for the Army, most Army divisions were too heavy to deploy with it. Therefore, the new Army Chief of Staff General Edward C. Meyer called for an Army motorized division that would employ new technology to make itself light enough for the RDF but retain the firepower of a much heavier unit. It would be an "all purpose" formation able to fight heavily armored adversaries in Europe or the Middle East (at least until reinforcements could arrive) or the primarily infantry armies likely to be found in Asia. It should be able to deal with with irregular or guerrilla forces as well. Gen Meyer added a requirement to develop this motorized division to the "Army 86" project, which already existed to update heavy division organization. As usual, the Army's over-reliance on technology to solve its problems yielded disappointing results. The Army 86 project proposed several division organizations only to have them rejected as being unacceptably large and heavy, yet lacking in firepower and tactical mobility.[784]

A renewed effort to solve the problem produced a division based on the proposed motorized infantry battalion design shown in Appendix 12.1. To test the concepts behind it the Army designated the 9th Infantry Division at Fort Lewis Washington as the high technology test-bed (HTTB) for a future high technology light division (HTLD).

For its tactical mobility the new battalion would rely on an improved armored HMMWV-type truck (a "light armored wheeled carrier," or LAWC), rather than a light tank or an armored personnel carrier. This vehicle would carry a turret-mounted cannon (most likely of 25mm caliber) as well as a rifle squad. The squad would carry extra crew-served weapons (a *Dragon* system and an M60 machinegun) that it could have the option of using whenever it dismounted. The extra weapons would also make platoon weapons squads or company weapons platoons unnecessary. The battalion would have to shed most of its vehicles (and crew-served weapons) whenever it conducted air-mobile operations or attempted to operate away from an established road network. In closed terrain, with its vehicles restricted to the roads and trails, the battalion would have been vulnerable to ambush. In open terrain it would have been outgunned by heavier enemy armor and vulnerable to enemy artillery fire.[785]

However, an alternative to this heavy, expensive, and yet fragile HTLD had already started to emerge. Since 1980, pundits both inside and outside the Army had shown increasing interest in the revival of light ("straight leg") infantry forces. The Air-Land Battle doctrine published in the 1982 edition of FM 100-5 supported this view by paying much greater attention to conflicts that might emerge outside of the NATO defense of Europe. Nevertheless, so completely had the Army adopted the perceptions and the "all armor" concepts behind the Active Defense that many treated the whole light infantry idea as if it were something entirely new. Nevertheless, in early 1982, TRADOC began to explore the utility of a small 10,000-man light infantry division (LID) in a non-European environment. In June, it approached Dr. Edward Luttwak to write a study on combat units that could support the Army's heavy forces. Luttwak, together with William Lind, had previously attacked General DePuy's Active Defense doctrine but Luttwak's criticisms had not been sharp enough to burn his bridges with the Army. The study he subsequently produced stressed the importance of light infantry. It pointed out that heavy forces needed it to control forest, mountain, urban, and other terrain where heavy combat vehicles would be at a disadvantage. Luttwak examined eighteen different uses for light infantry, mostly in a European setting, and contended that the Army should revive the traditional general-purpose light infantry that it had largely abandoned after Vietnam. Such infantry could employ simple tactics and operate in a wide variety of environments. The 1982 success of British infantry in defeating numerically superior Argentine forces in the Falkland Islands gave added force to Luttwak's arguments. Also, the revival of light infantry and, by extension, the development of a light infantry division (LID) that was smaller and easier to transport than other Army divisions not only made sense militarily, it would also resolve a number of bureaucratic issues. First, a small LID could help the Army to maintain or even increase its total number of divisions without additional manpower. Second, it would give the Army some strategically mobile forces with which they could compete with the Marines for a bigger share of the RDF mission. Third, the relatively

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[784] Michael J. Mazarr, *Light Forces and the Future of US Military Strategy* (New York, Brassey's Inc. 1990) pp. 9-22.

[785] John L. Romjue, *A History of Army 86 Vol. II* (Fort Monroe VA, US Army TRADOC 1982) pp. 25-57 and 130-131.

low cost of equipping a light infantry division would help to balance the very high cost of the heavy Army 86 divisions.[786]

The Army did not act upon these ideas, however, until General John Wickham succeeded General Meyer as Army Chief of Staff. In April 1983, as soon as his selection for this new post was announced, Wickham set up a study group called "Project 14" (so named because there were 14 officers in the group). Project 14 would advise Wickham on the major issues that he would face when he became chief of staff in July and it would help him to get a head start on resolving them. Two of the more significant conclusions reached by Project 14 were that the heavy divisions designed under the Army 86 program were not affordable and that the Army should build light infantry forces. Though Wickham did not abandon the HTLD, his new emphasis on light infantry was in many ways an implicit rejection of Meyer's high technology approach. Soon after General William Richardson became head of TRADOC in March 1983, Wickham asked him to design a light infantry division of approximately 10,000 officers and men able to be airlifted in not more than 500 sorties by Air Force C-141 transport aircraft. Meyer's HTLD would have needed at least 1,500 C-141 sorties to lift its 15,000 men and thousands of vehicles. In his previous job as head of the Combined Arms Center (CAC) at Fort Leavenworth, Kansas, Richardson had supervised much of the design work for Army 86 and had thus gained considerable experience in force structure matters. Based on this, he agreed to design Wickham's 10,000-man light infantry division but advised that such a project was best undertaken as part of a general restructuring of all the Army's fighting forces. Wickham adopted this suggestion and announced his objective to increase the active Army from 16 to 18 divisions and the National Guard from eight divisions (plus 18 National Guard and three Army Reserve separate maneuver brigades) to ten. The smaller light divisions, the manpower economies likely to result from Richardson's proposed restructuring, and the continued use of roundout brigades should make it possible to man this force at about 90% of its full wartime strength. This was in spite of the fact that the Army's active duty "end strength" was not expected to rise above 780,000 before 1990. Since the term "excellence" had been the "buzzword" of an Army public relations campaign announced by Army Secretary John O. Marsh Jr. at the beginning of 1983, the new force would be known as the "Army of Excellence" or AOE.[787]

TRADOC presented its views on the AOE at the August 1983 conference for the Army staff and the commanders of its principal commands. It suggested that the heavy divisions be made lighter and more flexible. It saw the light infantry divisions as only one part of a diverse structure for Army light forces that would include all the Army's non-mechanized infantry battalions assigned to infantry, airborne, or air assault divisions, and to the garrison brigades in Berlin, Alaska, and Panama. It also presented two alternative structures for a 10,000-man light infantry division. Both could respond to a wide variety of contingencies while serving as part of a corps or joint task force. TRADOC also stressed the need for local air supremacy, as if U.S. air supremacy could ever be in doubt in any part of the world except where the main strength of the Soviet Air Force might be encountered. It even expressed concern about the potential vulnerability of a light division to air attack despite extensive World War II, Korea, and Vietnam experience indicating that light infantry is far less vulnerable to air attack than motorized, armored or mechanized forces. Indeed, if it takes any trouble to conceal itself, light infantry is all but invisible from the air. Despite its groundless concerns, TRADOC proposed two alternative light infantry division structures, basing both of them on a notional 675-man light infantry battalion. TRADOC's first alternative would have eight of these battalions but only limited artillery and no organic aviation. The second incorporated aviation and more artillery but had only six infantry battalions. Regarding the airborne and air assault divisions TRADOC believed that both could be reduced in size along similar lines to the proposed light infantry division. It criticized the HTLD for its relatively low infantry strength and noted that its wheeled troop carriers offered poor cross-country mobility, and that even after recent changes, the HTLD would still require at least 1,300 C-141B sorties to lift it. On the other hand, TRADOC praised improvements in the HTLD's communications, tactical deception capabilities, and logistics concepts.[788]

Based on the proceedings of this conference, General Wickham announced his decisions about how the AOE restructuring would be handled. First, the heavy divisions would continue their conversion to Army 86 structures but TRADOC would make additional changes to save manpower. Second, prototypes of both the LID and the HTLD should be fielded as soon as possible. The LID would be a new unit and the Army's seventeenth division. TRADOC would work out the design but Wickham rejected the two LID structures that TRADOC had already presented. Instead, Wickham instructed TRADOC to produce a third design with nine infantry battalions and optimized for the Pacific, Latin America, and Africa but still able to operate in urban or forested areas in Europe or the Middle East. They would be "…the nucleus of (an)…elite light force serving as the cornerstone of global flexible response in conjunction with air assault and airborne forces." HTLD capabilities should be used whenever possible but Wickham stressed that the limitations of 10,000 men and the ability to deploy within 400-500 C-141

[786] Mazarr op cit pp. 22-31; and Romjue, *The Army of Excellence* op cit. pp. 24-25.
[787] Romjue, *The Army of Excellence*, op cit. pp. 23-33.
[788] Ibid. pp. 31-37.

sorties would remain. Third, TRADOC should review the air assault and airborne division structures with the object of reducing them to 15,000 and 10,000 men, respectively. At the end of August TRADOC passed on these requirements to CAC, which, under its new chief Lieutenant General Carl E. Vuono, would take charge of the actual AOE design. Work began on 22 August and continued at a high intensity over the next two months. CAC closely coordinated its efforts with the major Army commands and schools. They even took the most unusual step (for the US military) of examining previous US light infantry organizations (instead of behaving as if such things had never existed before). This effort included having the Army Center for Military History study the World War II era 71st and 89th Infantry Divisions (Light) and the reasons behind their failure at the Hunter Liggett Maneuvers of 1944. However, the "light" infantry battalions that the Army used in Vietnam (which used the same organization tables as air assault battalions but operated in separate brigades and not within an air assault division) were not considered. Neither were any US Marine Corps or foreign organizations. In late September General Richardson reviewed CAC's progress and made several decisions about how to lighten the new light divisions. First, he ordered that the existing 11-man squad be cut to nine men by reducing its two fire teams from five men each to four. Each team would still have a SAW and an M203 grenade launcher despite IRUS test results showing that a four-man team was too small for this and that two LMG per squad was counter-productive. Second, Richardson decided against an infantry battalion antitank company and opted for just a platoon instead. Third, rather than use a motorized platoon for battalion reconnaissance, Richardson ordered that a dismounted platoon be developed. Most infantry battalions had successfully used dismounted scout platoons under the ARCOV-inspired modified tables of organization used in Vietnam.

While there were few objections to the dismounted scout platoon, the decision for an antitank platoon rather than a company provoked widespread complaints that the light infantry battalion would be defenseless against enemy armor. General Glenn K. Otis, commanding US Army Europe welcomed the high infantry strength of the LID design and appreciated its strategic mobility. He also agreed that there was "light division terrain" in Central Europe where light infantry could usefully supplement mechanized troops. However, he insisted that "experience" proved that a light infantry division was helpless against enemy armor. What "experience" General Otis was referring to is difficult to discover. It is true that American infantry equipped with (by then) outdated bazookas had suffered at the hands of the heavier German tanks in 1943-45 and from North Korean armor during in 1950. However, once improved bazookas became available, the GI's had no further difficulty. Perhaps General Otis had forgotten that German infantry equipped with their very short-ranged but highly effective *panzerfaust* rocket propelled grenades had been able to threaten even the heaviest Allied armor (at least in "closed" terrain). One also wonders if the General had ever heard about how Soviet armor fared against light infantry opponents in Afghanistan (or even Budapest). One could conclude that his statements reflected a widespread prejudice within much of the Army against any infantry not operating from armored infantry carriers. Even that variety of infantry has nearly disappeared. The new M2 "*Bradley* Fighting Vehicle," (BFV) has practically eliminated foot soldiers from the mechanized infantry battalion's force structure. One BFV can only carry a "landing party" of about five or six men. In theory, a platoon of four BFVs could furnish as many as 20 dismounts though in practice the number actually available is less than half that.[⏲] Thus, a typical BFV platoon might dismount only a dozen soldiers.[789]

Although the new light infantry units would be roundly criticized for being "low tech" and under equipped, in fact they would be among the first recipients of much of the new equipment first introduced in the mid-1980s under the Carter-Reagan military buildup. This included a new fleet of tactical trucks of which the High Mobility Multi-purpose Wheeled Vehicle, or HMMWV was one of the most important types. The HMMWV is a 1-1/4-ton 4x4 truck with a front-mounted diesel engine that sits far enough back that the seats in the passenger compartment are alongside the power train. The engine and three-speed automatic transmission are based on commercial models. The vehicle is also extremely wide (85 inches) but (for its size) has a very low profile. The width was at least partly a reaction to the jeeps, which tended to be narrow and top-heavy and to roll over rather easily. The HMMWV has appeared in a large number of variants. The standard troop/cargo carrier can seat two troops in its cab and up to eight more troops or 2,500 pounds of cargo on its rear bed. It can also be reconfigured as a four-seat command

[⏲] An AOE BFV platoon had four BFVs carrying three nine-man rifle squads and a platoon headquarters with the platoon commander, platoon sergeant, two vehicle crewmen, and a radio operator. Each BFV requires a crew of four if it is to fully utilize its weapons and each rifle squad had to man its own BFV. At best that leaves five men per squad who can dismount but normal strength shortfalls will greatly reduce this. Under the Army's current "Force XXI" reorganization, a crew of three is provided for each of the platoon's BFVs and the three rifle squads are in addition to this. However, a fourth crewmember per BFV (to help load the missile launcher and the 25mm gun turret) is still needed and four BFVs lack space for the more than 40 troops that a Force XXI BFV platoon is authorized. Again, however, strength shortfalls will insure that the number of "dismounts per BFV platoon is likely to increase only slightly. In fact, the total number of dismounts will actually decrease because a Force XXI mechanized infantry battalion has only three rifle companies instead of the four companies allowed per AOE battalion.

[789] Ibid. pp. 37-44 and 112-113. See also MAJ Reid E. Smith USA (Ret) "Bradley's Infantry Has Evaporated" Letter to Infantry *Journal* Vol. 88 No. 3 (Ft. Benning GA Sep-Dec 1998) p. 3; Dept Army T/O & E 07247J410 Rifle Company, Infantry Battalion (Bradley) (Wash DC, 24 Jul 1985) and Dept Army T/O&E 07247F000 Rifle Company, Infantry Battalion (Mech) (Wash DC, 1 Apr 1999).

vehicle with extra radios. Armament carrier (AC) and TOW carrier (TC) variants feature supplemental armor plates that provide limited protection against small arms fire and shell fragments. Either variant carries its primary weapon on a ring mount over the cab. The mount gives the weapon a 360-degree traverse but allows no protection for the gunner. The TC's primary weapon is, of course, a TOW launcher (with up to six missiles stowed internally). The AC carries a machinegun (either a 7.62mm, a .50-caliber, or a MK-19). There are also armored and unarmored ambulances (each able to carry a crew of two and up to four stretcher or eight sitting patients). In addition, any HMMWV can tow a 3/4-ton cargo trailer, though a HMMWV without a trailer can still carry twice the payload of a jeep with a trailer. Since the HMMWV usually replaced jeeps and Gamma Goats (and LIWC "Mules") mostly on a one-for-one basis, the changeover to the HMMWV has meant a large increase in total vehicle payload for many combat units. Though the HMMWV has proven to be a useful and versatile vehicle, its size has often been a handicap. It is too wide for many of the roads and trails in "Third World" countries and too wide to be carried internally by any tactical transport aircraft. Helicopters can carry it by slinging it externally, but this is very awkward in a combat zone. The HMMWV is also heavy. Curb weights run from 5,200 to 7,180 pounds, with the AC's and TC's being over 6,000 pounds. Gross weights run between 7,700 and 9,100 pounds with most types being over 8,000 pounds. The cargo variants are the lightest and the armored ambulance the heaviest. A smaller vehicle that can more easily move by air or along narrow trails is probably needed to supplement the HMMWV but in 1984 the Army believed that the HMMWV would be the only light tactical transport vehicle that it would require.[790]

In the field of communications, the Army began by introducing the AN/PRC-68 squad/platoon-level radio to replace the unsatisfactory AN/PRT-4 and AN/PRR-9. At just over two pounds, the AN/PRC-68 was relatively light though its weight would increase to three pounds if an optional secure voice module (SVM) was attached. The maximum transmission range of the AN/PRC-68 with its antenna extended was still about a mile but a soldier could wear the radio on his belt and monitor it through an earplug without having to use his hands. The AN/PRC-68 could operate within the same frequency range as standard VHF-FM radios like the AN/PRC-77 and AN/VRC-12 series. Unfortunately, the AN/PRC-68 was also expensive and not overly reliable. Its service life would be short.[791]

The Army's introduction of its new SINCGARS (Single Channel Ground and Airborne Radio System) series of tactical radios was a much more significant event. SINCGARS used a set of common components that would allow more usable channels, better reliability, the ability to send digital data, and better survival against nuclear and non-nuclear electro-magnetic pulse effects. The basic man-packed SINCGARS was the eight-kilometer ranged AN/PRC-119, which would replace the AN/PRC-77. The AN/VRC-87 was the vehicle-mounted version of the AN/PRC-119. It would replace the AN/VRC-64. The AN/VRC-88 was an AN/VRC-87 with the necessary antenna and battery pack to enable it to be dismounted and used as an AN/PRC-119. It would replace the AN/GRC-160. The AN/VRC-89 was essentially a combination of two AN/VRC-87's of which one would have a power amplifier that extended its range to 35 kilometers (about 22 miles) while the other had the standard eight-kilometer transmission range. The AN/VRC-89 was equivalent to either a single AN/VRC-47 set or to both an AN/VRC-64 and an AN/VRC-46. The AN/VRC-90 was a single AN/VRC-87 with the long-ranged (35-kilometer) power amplifier. It would replace the AN/VRC-46. The AN/VRC-91 was the same as an AN/VRC-89 except that the short-ranged (eight-kilometer) radio could be dismounted and used as an AN/PRC-119. It was equivalent to both an AN/VRC-46 and an AN/GRC-160. Finally, the AN/VRC-92 would consist of two long-range (35-kilometer) AN/VRC-90's. It could replace either two AN/VRC-46s or one AN/VRC-49. SINCGARS seems to have suffered difficulties in its development and the initial production models proved unsatisfactory. It took some years to cure the problems. Meanwhile, there was much confusion over which SINCGARS models should be issued (the tables of equipment published during the mid-1980s did not specify them) though in most cases, the older pre-SINCGARS types tended to be used instead.[792]

Finally, there were new weapons. By the mid-1980s, the most important of these were (in approximate order of appearance) the M224 60mm mortar (or Light-Weight Company Mortar System, LWCMS), the 40mm MK-19 grenade machinegun, and the M249 squad automatic weapon (SAW). The M224 mortar weighed only slightly more than the M19 mortar it replaced but its range of 3,500 meters was nearly double that of the earlier weapon. It even exceeded the range of the M1 81mm mortar from World War II. Ammunition improvements gave the mortar's shells a casualty effect about equal to the older types of 81mm mortar ammunition. These improvements persuaded the Army to bring the 60mm mortar back into the rifle company in place of the 81mm.[793]

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[790] Berndt, *Standard Catalog of U.S. Military Vehicles*, op cit pp. 72-74; and and US Army TOE Handbook 07075L-CTH (Washington DC 1984) pp. 200-202.

[791] US Army Command and General Staff College (USACGSC) "Organizational and Tactical Reference Data for the Army in the Field" (Ft Leavenworth KS June 1986) pp. G-34 and G-78; and TOE Handbook 07075L-CTH op cit pp. 209-210.

[792] Ibid.

[793] USACGSC "Organizational and Tactical Reference Data" op cit pp. A-10 to A-11; and LtCol Charles J. Pyle USMC, "Infantry Weapons Modernization: M224 60mm Mortar" Marine Corps *Gazette* Vol. 65 No. 5 (Quantico VA, May 1981) pp. 32-33.

The MK-19 grew out of an effort by the Navy to provide an area fire weapon for their river assault groups in Vietnam. It put the original design (XM-174) into production in great haste and this naturally left many flaws uncorrected, though this still proved to be an effective weapon. A series of successive redesigns solved most of the problems by the time the MK-19 Model III grenade machinegun was ready for production. Both the Army and the Marine Corps adopted it in 1981. The MK-19 is a machinegun that fires 40mm grenades at a cyclic rate of about 350-450 rounds per minute. These grenades are "high velocity" projectiles originally designed for helicopter use. They differ from the "low velocity" grenades used by the M79 and M203 launchers only in their larger propelling charges, which enable them to range out to about 1,500 meters with some accuracy or up to 2,200 meters if only "area fire" is needed. The low velocity grenades, on the other hand, are only accurate to about 350 to 400 meters. The standard HEDP (High Explosive Dual Purpose) high or low velocity grenade has an effective casualty radius of five meters against troops and includes a shaped charge that can penetrate up to 50mm of armor. Though it is often touted as an anti-armor weapon it is difficult for a MK-19 to hit a moving target, due to its grenades' high trajectory. Also, even a lightly armored vehicle target would probably require multiple hits from the MK-19's small and low-powered grenades in order to be "killed." The MK-19 itself is also quite heavy, weighing about 70 pounds and firing from a 44-pound tripod. Ammunition comes in 50-round boxes weighing 53 pounds each. Though it can be hand carried for very short distances and fired from the ground, the MK-19 as a practical matter must have a truck in order to move anywhere. Hence, its usefulness to a supposedly foot-mobile light infantry organization is questionable.[794]

The M249 was the squad automatic weapon that the IRUS tests had recommended for upgrading infantry firepower. Based on a Belgian design it fires the same upgraded 5.56mm cartridge as the M16A2 rifle. It weighs 15.15 pounds empty, has a quick-change barrel, and normally fires from its bipod though the Army later obtained an optional tripod for it. Ammunition feed is normally from a 200-round belt packed in a plastic box that attaches to the side of the weapon. Standard 30-round rifle magazines can be used in emergencies. The SAW's effective range, penetrating power, and firing stability are all significantly inferior to those of an M60 machinegun.[795]

THE NEW LIGHT INFANTRY

On 20-21 October, CAC and TRADOC presented their AOE designs to a new Army commander's conference. Although they had achieved a substantial manpower saving by trimming about 2,500 men from each armored and mechanized division, the real centerpiece of their presentation was the new LID. The form that the LID and its infantry battalions had assumed by this date has remained relatively unchanged until this day. In defending their creation, TRADOC and CAC pointed out that while intervening with too small a force might actually aggravate an overseas crisis, the early use of a larger force, even if composed mainly of light infantry, could stop trouble before it started. The new LID could not, however, offer a "forced entry" capability. It could only land at an airfield if unopposed and it had no ability to conduct amphibious operations. The briefers expressed the hope that any necessary forced entry capability could come from the 82nd Airborne Division. Otherwise, the Army might have to rely on the Marines. The LID infantry battalion was built with a stinginess in personnel that even General McNair and his "no men" might have considered excessive in a combat unit. The new battalions each consisted of only an HHC and three rifle companies as shown in Appendix 12.2.[796]

The three rifle companies were extremely austere (see Appendix 12.2). Three rifle platoons with nine-man rifle squads supplied most of the combat power. General Richardson directed that each rifle squad have two fire teams with a SAW (weighing 42 pounds with 800 rounds of ammunition) and an M203 grenade launcher (about 20 pounds, with ammunition) in each despite IRUS testing that showed that this was more than what a squad could efficiently handle. Unlike H-series rifle squads, however, the light infantry squads would not have to contend with the added burden of hauling 24.5-pound *Dragon* missiles around. That would be the responsibility of the six two-man *Dragon* teams of the company antitank section. In areas where there was no significant armor threat antitank section members could serve as scouts or extra riflemen, or as ammunition bearers for other weapons. Each rifle platoon headquarters would include two two-man M60 machinegun teams. Vietnam experience had showed that two-man gun teams were workable, provided that other men were available to carry their ammunition. The Germans in World War II discovered that this also applied to their comparably sized and equally capable MG-34 and MG-42 machineguns. On the other hand, the Germans only expected their guns to support squads and not platoons. However, the biggest weakness of the two-man gun team was that it could not afford any losses. Any missing team

[794] Stanley C. Crist "Automatic Grenade Launchers, Prelude to the Future" Infantry Journal Vol. 85 No. 2 (Ft Benning GA, Mar-Apr 1995); LtCol Charles J. Pyle, "Infantry Weapons Modernization: MK19 40mm Machinegun" Marine Corps *Gazette* Vol. 65 No. 4 (Quantico VA, April 1981) pp. 21-22; and Donald J. Loughlin "MK-19 – Useful But" Marine Corps *Gazette* Vol. 78 No. 7 (Quantico VA, July 1994) p. 41.

[795] USACGSC "Organizational and Tactical Reference Data" op cit pp. A-15 to A-16; and Kenneth D. Martz, "The M249 Machinegun" Infantry *Journal* Vol. 78 No. 5 (Ft Benning GA, September-October 1988) pp. 35-38.

[796] Ibid. pp. 45-47; and Dept Army T/O & E 07015J400 Infantry Battalion (Light) (Washington DC, 1 April 1984).

member would have to be replaced or the gun would be out of action. Cross training of riflemen as machinegunners could minimize this problem but the need to carry ammunition for the machineguns, and supply them with replacement gunners would act as yet another drain on rifle squad strength. When one also considers the need to carry extra ammuntion for the mortar section, additional radios and encryption equipment, night vision equipment, body armor (weighing up to 35 pounds per man), gas masks, chemical warfare suits, hand grenades, individual antitank weapons like the LAAW or its much heavier successor, the AT-4, and each soldier's own weapon and personal equipment a light infantry was (and is) anything but "light." This was certainly a far cry from the US Army of 1940 agonizing over the slight mobility loss occasioned by the addition of a BAR to the (then) 12-man rifle squad. Today's Army (and Marine Corps) just piles on the gear without (apparently) any thought for the consequences.

In contrast to the rifle platoons, rifle company headquarters was almost extravagantly manned (at least by Marine Corps standards) and included its own armorer and radio operators.[797]

In its command element (in the HHC) the AOE light infantry battalion paralleled the changes applied to H-Series units since about 1981, though the AOE battalion headquarters did not include a motor officer. The battalion's parent brigade would handle most of the battalion's motor vehicle maintenance. The AOE battalion headquarters also provided a HMMWV with radio operators for the battalion commander's mobile command post. As in the later H-Series, the AOE battalion had separate S-1, S-2, and S-3 sections in lieu of a battalion headquarters section. The old supply section had become the new S-4 section and ceased to be part of the support platoon. As in the later H-Series, the AOE battalion S-1 section was doing a job with seven clerks (the eighth member of the section was the chaplain's assistant) for which the Marine Corps needed 22! However, the AOE S-2 section included a second intelligence officer even though there is hardly enough intelligence work at the battalion level one. The S-3 section included an NBC officer as well as an assistant S-3 but no liaison officers, even as a wartime-only augmentation. A liaison sergeant would have to serve instead. He would operate the S-3 section's AN/PRC-77 man-pack radio. In combat, the S-2 and S-3 sections would form the battalion main Command Post (main CP). Within the main CP, a Tactical Operations Center (TOC) supervised by the battalion executive officer performs the staff activities involved in sustaining current operations or planning future ones. In the field, the TOC would work from a shelter erected around the S-3's HMMWV (also shared with the S-2). Tactical command of the battalion is exerted from the battalion commander's mobile command post. The mobile command post would usually include the S-3, possibly the S-2, and a few liaison officers from air, artillery, or other units that might currently be attached to, or in support of the battalion. The communication platoon was supposed to directly support the main CP and the command group but under AOE this unit was cut back so severely that it could offer little more than equipment maintenance, a few operators for the main CP (later eliminated) and a single three-man radio relay team, which used the platoon's HMMWV and long-range AN/VRC-49 radio (see Appendix 12.3).[798]

Though the combat support elements of the AOE battalion constituted three platoons (mortars, scouts, and anti-armor), CAC planners abandoned the post-Vietnam practice of organizing them into a combat support company (such a company would have had only about 70 men in it in any case). The scout platoon would consist of three five-man squads (with a sniper and an M203 grenadier in each) and a standard platoon headquarters but no vehicles. Helicopters and (in theory) motorcycles (available from the support platoon) could enhance mobility as needed. However, it would be several years before any doctrine was available to govern the new platoon's employment.[799]

The battalion mortar platoon was to receive the powerful but very heavy 4.2-inch mortar. Not only was this not the ideal weapon for light infantry but there were no lighter 60mm or 81mm mortars in the rifle companies to supplement it. The Army seems to have been reluctant to forego the firepower of the heavier mortars despite their limited tactical mobility. Each five-man mortar squad had its own HMMWV to carry its gun and crew and there was also a HMMWV with a trailer for every two squads (the squads supplied the drivers) to carry ammunition. Although a HMMWV and trailer could carry a two-ton payload, the ammunition capacity of the platoon was not very large. Platoon headquarters mostly consisted of a fire direction center. Forward observers for the platoon would come from a fire support team (FIST) attached to the battalion from division artillery (see Appendix 12.3).[800]

The battalion anti-armor platoon fielded just four HMMWV-mounted TOW launchers and, as we have already observed, many critics within the Army considered this to be inadequate. However, TRADOC and CAC agreed that no more men could be spared for antitank defense if the battalion was to fit within its size limitations and still yield the minimum "foxhole" strength required of it. Furthermore, as has already been noted the TOW was not the ideal antitank weapon for light infantry since it was designed mainly for use in open terrain ("tank country"). It might

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797 Dept Army T/O & E 07017J400 Rifle Company, Infantry Battalion (Light) (Washington DC, 1 April 1984).

798 Dept Army T/O & E 07016J400 Headquarters and Headquarters Company, Infantry Battalion (Light) (Washington DC, 1 April 1984); Dept Army FM 7-72 *Light Infantry Battalion* (Washington DC March 1987) pp. 2-7 to 2-11 and 2-26 to 2-27; and Dept Army FM 7-20 *The Infantry Battalion* (Washington DC, 6 April 1992) pp. B-7 to B-10.

799 Ibid; and see SFC John E. Foley "Light Infantry Scouts" Infantry *Journal* Vol. 78 No. 2 (Ft. Benning, GA Mar-Apr 1988) pp. 20-24.

800 Ibid.

have been better to have "pooled" the few TOW launchers in the LID in a small antitank battalion (General McNair would have advised this). This would have made it possible to mass them at the most critical points. However many of the "Third World" nations in which the LID might operate had few tanks of any sort. If no armor threat was expected, the anti-tank platoon could put away its TOW systems and act as a motorized reconnaissance platoon. If the armor threat was significant, the Army planned to reinforce its LIDs with corps-level TOW Light Antitank (TLAT) battalions, each equipped with 60 HMMWV TC vehicles and manned by the National Guard.[801]

An even more controversial aspect of the AOE light infantry battalions lay in their combat service support arrangements. In the H-series infantry battalions, the S-1 and S-4 staff sections and the support, maintenance and medical platoons had handled combat service support. AOE eliminated the maintenance platoon, the mess section and all support platoon vehicles heavier than a HMMWV. To replace some of these lost capabilities the AOE light infantry brigade HHC would provide mess and maintenance platoons to support its three battalions. The old ROAD logistics system, under which the division support command (DISCOM) contributed company-sized detachments from its medical and maintenance and battalions and a platoon from its supply and motor transport battalion to support of each of its brigades would continue. Under AOE these DISCOM elements would operate as a Forward Area Support Team (FAST) under the command of an officer known as the Forward Area Support Coordinator (FASCO). By 1992, permanently organized Forward Support Battalions (FSB) had replaced the temporarily organized FAST teams. What had been known as the "brigade trains" under the old ROAD system would now be called a Brigade Support Area (BSA). It would house most of the brigade HHC and its supporting FAST or FSB. Ideally, a BSA should occupy an area accessible to motor vehicles, close to or astride the brigade's main supply route (MSR), and with enough open space for a helicopter landing zone. It should also be far enough to the rear to be reasonably free from enemy interference but close enough to respond quickly to front-line requirements.[802]

As it had done under the ROAD system, each of the brigade's infantry battalions would organize its own service support elements by allocating them to its field or combat trains. As before, the distinction between the two referred to both location and function. The combat trains, consisting of the service support vehicles and personnel needed for combat, would position themselves in the combat trains area. This is located as far forward as vehicles can operate while still avoiding direct enemy fire. Like the BSA, the battalion combat trains area should allow for adequate vehicle dispersal and, ideally, a helicopter landing zone. All vehicles and service support personnel not in the combat trains are in the field trains, usually located in the BSA. By AOE doctrine, the battalion S-4 commands the combat train and his own section. He operates the combat train headquarters, while keeping representatives in the battalion's main CP. The combat trains CP not only controls the combat train but also serves as the battalion's administrative and logistics command post (admin-log CP). As such it resembles a scaled down version of the main CP that includes representatives from the S-2/S-3 who maintain a current tactical situation map. This not only makes logistical support more responsive but also permits the combat train CP to serve as the alternate battalion CP. Thus, the ROAD practice of establishing a separate alternate CP has been abolished. The battalion field train operates under a smaller CP manned by S-1/S-4 personnel and headed by either the HHC commander or executive officer (whichever of these two that was not engaged in this duty would be in charge of security at the main CP). The support platoon commander assists. The S-1 would operate a Personnel Administration Center (PAC) in the field trains while maintaining communication with the combat trains and main CP.[803]

As under the ROAD system, the battalion HHC or the rifle companies can establish their own train areas. However, since the rifle companies have no organic vehicles, this is usually no more than a movement control point or a place where a single vehicle (such as an ambulance or a supply truck) can be temporarily positioned.[804]

The actual functioning of the battalion's logistical system centered on the support platoon's transportation section. Its 11 HMMWV trucks were usually divided between a transport section, an ammunition section, and a POL (Petroleum, Oil, and Lubricants) and water section. This subdivision, however, should be seen as no more than a guide. In practice, any vehicle could be assigned to any mission or section, depending on current requirements or on the battalion's standard operating procedure (SOP). However, under the norm prescribed in FM 7-72, the transport section should include five drivers and a mechanic operating three trucks supporting the rifle companies and a fourth supporting headquarters company. TRADOC later added a fifth truck to serve as combat trains command vehicle. This vehicle and the rifle company vehicles carried long-range AN/VRC-47 radio sets. The one mechanic in the transportation section probably worked at the combat trains to perform any emergency repairs needed there. The brigade maintenance platoon (supplemented by the maintenance company in the FAST/FSB) in the field trains/BSA could perform all other maintenance tasks. By doctrine, although the company trucks were

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801 Romjue, *The Army of Excellence*, op cit. pp. 46-47, 61, and 152-157; and Dept Army T/O & E 07016J400 (Light Infantry Battalion HHC) op cit; and staff article "Infantry Division (Light)" Infantry *Journal* Vol. 74 No. 2 (Ft. Benning GA Mar-Apr 1984) pp. 14-16.

802 FM 7-72 op cit. pp. 6-1 to 6-9; and FM 7-20 op cit pp. 8-3 to 8-8 and B-10 to B-12.

803 Ibid; and see CSM Dwight E. Anderson and 1SG Jeffrey G. Franks, "Light Infantry Combat Support," Infantry *Journal* Vol. 83 No. 2 (Ft Benning GA Mar-Apr 1993) pp. 27-31.

804 Ibid.

there for the support of their respective companies they do not belong to those companies but operate solely under the support platoon. If a company commander wanted "his" vehicle for a particular purpose he was supposed to request it in the same way as he might request support from any other battalion asset. The companies could, however, use the trailers attached to "their" vehicles to store equipment and other baggage that they did not immediately require.[805]

Six HMMWV trucks manned by the ammunition squad leaders, specialists, and ammunition handlers formed the transportation section's ammunition section. It normally functions as two squads of three trucks each and operates under the direction the battalion ammunition chief who was also the support platoon sergeant. Finally, the POL and water section consisted of only one HMMWV operated by a petroleum supply specialist. Initially, there were only eight 3/4-ton trailers for the transport section's 11 vehicles but this number had increased to ten by 1986. The support platoon commander's HMMWV received a trailer as well. This gave a trailer to every support platoon HMMWV except the one that supported the HHC. Also by 1986 the HHC vehicle and one vehicle from each of the two squads in the ammunition section received shorter ranged AN/GRC-160 radios. Not provided by the table of organization but usually needed in the field were two non-commissioned officers to serve as truckmasters overseeing the operations of the vehicles and drivers currently serving with the field and combat trains, respectively.[806]

In addition to its HMMWVs, the transport section was supposed to maintain 15 single seat motorcycles. These were commercial trail bikes intended for use by company or battalion level messengers or by the battalion scout platoon. However, these bikes were not a great success. Many units never received theirs (or received only a few) and by the early 1990s the Army quietly withdrew the few bikes that it had issued.[807]

The usual means for the transportation section's HMMWVs to deliver supplies to front line units is by logistical package or LOGPAC. A LOGPAC is a pre-configured package of supplies whose composition is determined by the receiving unit's current situation and mission. It mainly includes ammunition, food, and water. The exact details of the composition and handling of a LOGPAC in a given battalion would be addressed in its SOP. However, the general rule was to furnish each element in the battalion with a LOGPAC at least once every 24 hours or before and after any major operation lasting less than 24 hours was undertaken. Delivery of additional LOGPACs would have to be planned if the operation was to last longer than 24 hours. In a situation where combat was relatively intense, ammunition deliveries (according to doctrine) would have to occur at least twice per 24 hours (but it would be far more often than that if there ever was any serious combat). The two ammunition squads would alternate with one another in making these trips. A LOGPAC delivery would occur as part of a cycle. The now-empty vehicles that had just delivered the previous LOGPAC would move to the field trains to prepare for their next trip. The supply sergeants from the HHC and the three rifle companies would normally accompany them, riding in (or driving) the trucks designated for the support of their respective companies. Meanwhile, the already loaded ammunition squad that had not participated in the previous LOGPAC delivery would reposition itself in the combat trains in case an immediate infusion of ammunition was required. After their return to the field trains all of the now-empty vehicles would top off their own fuel tanks and water cans at the fuel and water points established within the BSA. Next, they would move through a maintenance area operated by the brigade HHC maintenance platoon. This platoon, no larger than an H-Series battalion maintenance platoon, would furnish one three-man maintenance team per light infantry battalion. The fact that a light infantry battalion has relatively few vehicles and all are of the same basic type would make the team's job of assisting the vehicle drivers in performing post-operation checks and carrying out unit-level maintenance much easier. Vehicles requiring significant repair work would be forwarded to the maintenance detachment furnished by the supporting FAST/FSB.[808]

After this, the rifle and headquarters company vehicles would pick up water for their companies. They could then deliver damaged equipment collected from their respective companies to the appropriate FAST/FSB or brigade HHC maintenance personnel to receive the necessary repairs. They could also pick up items previously repaired or replacement items for delivery back to their companies. They could also pick up any mail addressed to members of their respective companies. Combat replacements assigned to their companies could also be taken on board. Next, they would move to the mess team location to pick up rations for their companies. Since there was no mess section in an AOE light infantry battalion, each light infantry brigade supplied a mess platoon. It was hoped that this would be an easy change, since most cooking and maintenance chores had been carried out in the battalion field trains, anyway, even in H-Series units. The AOE light infantry brigade mess platoon furnished each battalion with one six-man team. This team could issue MREs (or Meals Ready to Eat, these items replaced C-Rations and differed from them primarily in that their food is packed in plastic bags rather than in cans) or a hot meal. The Army's food

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805 FM 7-72 op cit p. 6-3; T/O & E 07016J400 op cit; and Anderson & Franks "Light Infantry Combat Support" op cit.
806 Ibid.
807 Romjue, *The Army of Excellence*, op cit. pp. 46-47 and 152-157.
808 FM 7-72 op cit pp. 6-14 to 6-15; and Anderson & Franks "Light Infantry Combat Support" op cit.

supply system is supposed to furnish each man with at least two hot meals per day. However, a heated MRE (and an MRE can be heated by putting the main entrée into a water-filled canteen cup and then burning a compressed fuel tablet underneath) counts as a "hot meal." On the other hand, subsistence solely on MREs over an extended period of time can cause health problems. (Surgeon General Jocelyn Elders in 1995 ruled that MREs should not be used as the troops' sole source of subsistence for more than 21 days.) One way to vary the MREs was to issue "T-Rations." The T-Ration was a B-Ration alternative that would enable hot meals to be prepared and served by a minimal number of personnel. They are "heat and serve" rations consisting of complete (except for bread and milk) meals packaged in tray packs similar to commercial "TV dinners." The trays are packed and heated in 18-meal modules, after which one only has to issue them and then dispose of the resulting trash. T-Rations can be issued at least once a day, but the tactical situation would have to be stable enough to allow messing in at least platoon-sized groups. Though T-Rations required fewer cooks than A or B Rations the six cooks in a battalion mess team still needed at least five to six additional soldiers (detailed form a rifle company or the HHC) to assist them. If T-Rations were to be issued with the current LOGPAC then they would not be picked up from the mess team until the very last moment before the LOGPAC's departure so that they would not have too much time to cool prior to being issued.[809]

Meanwhile the vehicles with the ammunition squad, having received fuel, water, and any necessary maintenance would proceed to the ATP (ammunition transfer point) established in the BSA by the supporting FAST or FSB for their ammunition load. (Unlike the ROAD system, they would not have to go a longer distance to an Army-level ammunition supply point.) The types and quantity of ammunition picked up would be based on an estimate from the S-4. Once this action was complete they would return to the field trains for further instructions. When practical and appropriate the support platoon leader would issue a warning order for the next LOGPAC mission. It would include the time and place where the operations order would be issued. The operations order itself is issued to the assembled company supply sergeants, each of whom would lead his own vehicle and (except for the HHC supply sergeant) an ammunition squad vehicle. The order would specify the route, departure times and estimated arrival times. The support platoon leader would then conduct a pre-mission check of the LOGPAC vehicles and movement would begin at the scheduled time. First stop would be at the combat trains where the LOGPAC could link up, if necessary, with the ammunition squad already there and where the support platoon leader could get any last-minute instructions from the S-4. Next, the company supply sergeants each move their vehicles to their respective Logistical Release Points (LRP). Each LRP has been coordinated with the S-4 with regard to its location and expected arrival times. Each company secures its own LRP, meets its vehicles and directs them to the place where the company executive officer or first sergeant has directed the company to actually pick up its supplies. In practice, however, this is likely to be three different locations since a light infantry company generally deploys by platoon and these would likely be too widely dispersed to make a central supply pick-up location practical. However, in many situations the LOGPAC vehicles might be unable to deliver their supplies anywhere close to the intended recipients. In that case, the companies receiving supplies would have to furnish carrying parties (placing yet another strain on their "fat free" organizations). Having made their deliveries, the now empty LOGPAC vehicles then make their way back to their LRP and then the combat trains. From there they would move to the field trains to begin the process anew. The procedures for delivering a LOGPAC to the HHC would be more complex since HHC elements might be in widely dispersed locations (main CP, combat trains, field trains, and three combat support platoons). However, only the mortar platoon and possibly the anti-armor platoon would require any large quantity of ammunition and they would normally send some of their own vehicles to the rear (preferably with a LOGPAC convoy) to obtain it. If helicopters were available, a LOGPAC could also be delivered by air. Support platoon personnel were expected to be expert sling loaders so that they could assist with this.[810]

Medical support for the battalion also had to be carefully rationed though the CAC planners were more cautious about cutting back the medical platoon than they had been with the support platoon. The rapid treatment and evacuation of casualties was still very much a concern for the Army, even if it was not willing to devote as many men to this purpose as the Navy and Marine Corps. The number of officers in the medical platoon actually increased, as there was once again a medical corps captain to serve as battalion surgeon. A medical service corps lieutenant continued to handle medical supply and administrative matters. He would obtain medical supplies for the battalion by requesting them from the FAST/FSB medical company and then back-hauling them in ambulances. He also supervises the repair of medical-related equipment. With the S-1 he coordinates the recovery and evacuation of casualties. Together with the battalion surgeon, the warrant officer physician's assistant worked as an assistant surgeon in the medical platoon treatment section. When united with the medical platoon headquarters, this element formed the battalion aid station and normally operated from the combat trains. With its two vehicles and two surgeons it could split itself into two elements whenever there was a need to deploy one element forward of the

[809] FM 7-72 op cit p. 6-15; Anderson & Franks op cit; and Dept Army FM 10-23 *The Army Field Feeding System* (Washington DC, 18 Apr 1996) pp. 2-9 to 2-10 and 3-3 to 3-4; see Dept Army TOE Handbook – Infantry Battalion 07075L-CTH (Washington DC 27 Dec 1991) p. 200.

[810] FM 7-20 op cit. pp. 8-8 to 8-10; FM 7-72 op cit. pp. 6-15 to 6-17; and Anderson & Franks op cit.

combat trains. The treatment center would not set up in the field trains because the medical company from the supporting FAST/FSB would already have a field hospital there. One concession to manpower economy was the merger of the aidman and evacuation sections. The crews of the three HMMWV ambulances that had once constituted the evacuation section were cut to two men each and the number of aidmen fell to 12. All 12 would go to the rifle companies. None were available for the mortar, scout, or anti-armor platoons or for the main CP. Vietnam experience had shown that even four aidmen per company was inadequate. Therefore, under AOE the Army began training selected non-medical personnel to function as "combat lifesavers," who can either augment the full-time "medics" when casualties are heavy or else act as substitutes in units that do not have them. The medical platoon's three ambulances could carry casualties to the battalion aid station at the combat trains or directly to the FAST/FSB medical company, whichever seemed more practical. Three ambulances were not enough, however. A slight reorganization, occurring as a result of field testing in 1985-86, replaced the Aidman and Evacuation section, with one section of 12 company medics and two ambulance squads with two ambulances in each. The addition of a fourth ambulance made it possible to form two ambulance squads but by many accounts four ambulances are still insufficient. Ordinary trucks or FAST/FSB ambulances can augment the battalion ambulances but stretcher parties must still be improvised to recover wounded men from places that the ambulances cannot reach.[811]

In several respects the AOE light infantry battalion's logistical system may be a little more frugal than is wise and this had produced a number of weaknesses. The first of these is overdependence on the HMMWV truck whose size, weight, and width limits its ability to operate in forward areas. It also increases the demand for engineer support to strengthen bridges and/or widen roads or trails enough to allow it to pass. Its central tire inflation system has probably helped its cross-country mobility but not enough to get it through dense vegetation, up steep slopes, or over very rocky ground. Another difficulty with the HMMWVs was that there were not enough of them. The support platoon's transportation section has barely enough to maintain the battalion for even a limited time and without heavy ammunition expenditure. Rifle company commanders like to make things worse by insisting that a HMMWV be permanently attached to each of them. They need the vehicles not only to carry supplies and equipment but also for such tasks as posting and checking guards during the conduct of a security or peacekeeping missions and as a mobile medium-range radio station. Naturally the logistical system cannot accommodate such requests since all the support platoon's HMMWV's must be available to it. For sustained operations, such as those conducted in Somalia, the battalions had to have additional vehicles attached to them. Even with this advantage, at least one officer who had served with a light infantry battalion in Somalia declared that a second HMMWV per company was desirable and advocated at least a partial return to a scale of vehicle issue similar to that of the heavier H-series organization.[812]

This brings us to the second weakness of the logistical system, which is its over-dependence on what the troops can carry on their backs. Any tactical logistical system is supposed to enhance the troops' mobility by minimizing what they must carry, while at the same time insuring that everything they do need turns up when and where they need it. Unfortunately, in the AOE "light" infantry battalion the troops must carry a "normal" 60-72 pound load that can easily increase to 100-pounds (if marching is restricted to 20 kilometers a day) and even 150-pounds, causing considerable fatigue and risk of injury. As in World War I, each soldier is supposed to carry two days' rations, a day of water, a day of ammunition, a gas mask and a set of NBC (nuclear, biological, chemical) clothing, the latter a very bulky item (though the more recent versions are less bulky). In World War II, Korea, and Vietnam, the troops rarely carried more than a day's ration, threw their gas masks away as soon as they could, and never carried NBC clothing. More frequent ammunition deliveries (and a many more ammunition bearers) helped minimize World War II ammunition loads. Since 1945 all the effort and ingenuity that went into cutting down the excessive loads that the troops had to carry in 1918 has been largely negated and we appear to be back where we started. To mitigate this situation, the troops are advised to divide their burden into a fighting load and an approach march load. The latter consists mostly of the soldier's rucksack and its contents. The soldier drops his rucksack shortly before entering combat, leaving him a fighting load of (supposedly) 30-50 pounds but body armor alone can easily double this. There is no real provision for the recovery and delivery of the men's rucksacks if the battle should end in a different place from where it began. This is unlikely to encourage a lot of tactical maneuver.[813]

Before we judge the CAC planners too harshly, we should remember that they had to work within severe manpower constraints. Also, the Army displayed little or no interest in procuring equipment (such as lightweight motor vehicles, handcarts etc. – these are not "high tech," after all) to meet the light infantry's logistical needs. In the post-Vietnam era, the Army's concept of warfare was changing. The nation's political leadership had become extremely cautious about risking American ground troops into any combat situation. They would do so only against

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811 FM 7-20 op cit. pp. 8-3 and F-1 to F-6; FM 7-72 op cit. pp. 6-13, 6-23, and 6-24.

812 LTC Martin N. Stanton "Let's Reorganize the Light Infantry Division" Infantry *Journal* Vol 86 No. 3 (Ft. Benning GA May-June 1996) pp. 16-18.

813 Dept Army FM 7-71 *Light Infantry Company* (Washington DC April 1987) pp. 7-6 to 7-12.

weak and demoralized opponents who were easily overwhelmed (as in Grenada or Panama) or in "peacekeeping" situations in where no organized opposition existed Thus, most of the time the logistical system would only have to feed and water the troops. It would not have to deliver a lot of ammunition or care for a lot of wounded. Also, the infantry's HMMWV trucks could probably have negotiated European terrain under combat conditions fairly well. Furthermore, the Army expected its light infantry to rely heavily on its supporting air or artillery units to furnish the bulk of its firepower. Hence, (it was hoped) the importance of the light infantry's organic crew-served weapons (and of keeping them supplied with ammunition) would diminish.[814]

VALIDATION OF THE LIGHT INFANTRY DESIGN

As soon as CAC presented its design of the LID, including the light infantry battalion, was at the October commander's conference, General Wickham approved it for test purposes. He did, however, insist that every LID soldier be issued with a night vision device. Since Vietnam, night vision equipment had become smaller, lighter, and much more capable. General Wickham believed that the advantage it would give in night fighting, especially against a "Third World" opponent with little or no night vision equipment of its own, would be well worth the expense. With this change, Wickham then ordered the 7th Infantry Division at Fort Ord California to become the Army's first LID and to validate the new structure through extensive testing and trials. This unit would also have priority for new equipment, particularly the new SAW light machineguns of which the first production weapons appeared in 1984. At the same time the Army would plan the conversion of additional infantry divisions to the LID structure.[815]

Meanwhile, General Wickham set about selling the rest of the Army on what a good idea the LID really was. In April 1984, he issued a "white paper" for the commander's conference of that month and ordered its distribution throughout the Army. The white paper emphasized the LID's elite image, rigorous training, tactical flexibility, high skill levels, resourceful leadership, and incorporation of the best lightweight technology available. To the greatest extent possible, the Army would maintain its LIDs at 100% of their authorized strengths (ALO-1). He also announced the conversion of the 7th Infantry Division and noted that the 25th Infantry Division on Hawaii would convert also. The 25th Division at that time included a National Guard round-out brigade, which the smaller LID structure would render unnecessary. However the 25th Division's round-out brigade plus any others that AOE might displace would retain their organization and affiliation with their former parent divisions and would become corps troops in time of war. In order to promote greater unit cohesion in the LIDs, and particularly in their infantry battalions, the white paper announced the introduction of the cohesion and operational readiness and training, or COHORT system. Under COHORT all the officers and soldiers of a given infantry battalion would serve a four-year period together. The most junior men would join the battalion right after basic training and stay with it throughout their first enlistment. Transfers would be minimized in order to stabilize the battalion's composition as much as possible. General Wickham recognized that the constant personnel turnover within Army combat units played havoc with any attempt at instituting progressive training programs, and damaged morale and efficiency. People were not together long enough to get to know each other. Indeed, COHORT does seem to have brought substantial improvement to the units where it was tried but the Army Personnel Command saw it as a bureaucratic threat to its power and prerogatives and was able to eventually kill it.[816]

The white paper also announced the planned formation (during Fiscal Year 1985) of the 10th "Mountain" Division, named in honor of the original 10th Mountain Division, which fought in Northern Italy during the closing months of World War II. The active Army's eighteenth division, another LID, to be designated the 6th Division, would emerge during 1985-87 from the planned expansion of an existing infantry brigade stationed at Fort Wainright, Alaska. Finally, the National Guard would form another LID, the 29th Infantry Division, through the conversion of separate infantry brigades in Maryland and Virginia, respectively.[817]

The full conversion of the 7th Division to a LID configuration began in March 1984, and ran until September 1985. By that time much of the testing and validation of the LID concept had already occurred. The new 7th LID joined the Rapid Deployment Force in October. By early 1985, LID validation testing had caused additional changes to the light infantry tables of organization. For the infantry battalions, the most important changes were made to their mortars. Lighter and more practical 81mm weapons would replace the original 4.2-inch mortars of the battalion mortar platoon. A British-designed 81mm mortar, to become the M252, was now available and offered a superior range (5,400 meters) to that of the older M29 mortar (4,500 meters). The use of this mortar also enabled

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814 For good discussions of American post-Vietnam military operations see Frank G. Hoffman *Decisive Force* (Westport CT, Praeger, 1996) and Richard A. Gabriel, *Military Incompetence, Why the American Military Doesn't Win* (New York, Hill and Wang, 1985).

815 Romjue, *The Army of Excellence*, op cit. pp. 52-55; and Martz, "The M249 Machinegun" op cit.

816 Ibid. pp. 55-56.

817 Ibid. pp. 56-59 and 73-74.

trailers attached to the platoon's four mortar-carrying HMMWV to replace its two ammunition HMMWVs. This in turn made it possible to add one HMMWV (with driver) to the battalion headquarters to serve as an S-4 vehicle (for the combat trains headquarters) and another HMMWV to the medical platoon to serve as its fourth ambulance. Experience in Somalia showed that the S-3 needed another HMMWV (in addition to the one he shared with the S-2) and the battalion executive officer needed one as well. These were usually obtained by robbing the mortar platoon of its two headquarters vehicles. A second significant change was the addition of a 60mm mortar section to each rifle company. The new longer-ranged M224 60mm mortar would help to counter the light mortars favored by many of the light infantry armies (particularly Asian) that US forces might encounter. However, each company mortar section would only have six men to carry and operate its mortars. This produced an even worse situation with regard to undermanning than existed in the Rangers or the Marines. A full strength mortar section could carry no more than its two mortars and 12 rounds of ammunition and that was without anybody to carry the section's radio. Even without ammunition this load was sufficiently heavy to cause the section to have difficulty keeping up with the rest of the company on foot marches. The section needed at least least four to six additional men not only to carry radios and ammunition but also, during combat, to retrieve mortar ammunition from other elements of the company or from the company trains or supply vehicle. Otherwise, the mortar section might be hard pressed to operate more than one mortar except in a "set piece" situation in which ammunition for the mortars could be positioned in advance.[818]

Other changes to the battalion included the reduction of antitank platoon TOW squad from four men to three (with the squad leader doubling as loader). This was purely an economy measure. The moves to separate the aidman and evacuation sections and to add a fourth ambulance in the medical platoon have already been mentioned. These changes increased the light infantry battalion's strength from 544 to 559 officers and men. At the same time the total size of the LID increased from 10,212 to 10,843 and the number of C-141 sorties required to lift it crept up to about 550. The Army published its first set of field manuals explaining the new light infantry doctrine in 1987.[819]

During the LID validation, many other concerns were raised that could not be addressed without unacceptable increases in the division's size or reductions in its (nominal) firepower. Many critics could only think in terms of the light infantry's limited antitank firepower and lack of motorized mobility. Indeed, the task of "selling" a lightly equipped but manpower intensive force to a Congress, a public, and an Army Secretary used to forces that substituted heavy and/or high technology equipment for manpower was a daunting one. However, the Army focused its defense of the LID not so much on its potential for dominating forests and towns (including its ability to defeat enemy armor in such terrain) but on its ability to move overseas in a limited number of C-141 sorties and on very short notice. It also tried to impress its critics by appending long lists of weapons and equipment make to make the division's tactical capabilities seem more impressive even though the table of organization did not provide sufficient soldiers to operate more than a fraction of it. The fact that both the 6th and 10th Divisions would each have only two active brigades and in order to fully deploy overseas would need extra time to mobilize a roundout brigade also tended to undermine General Wickham's arguments about the LID's rapid deployability.[820]

Despite General Wickham's public relations blitz, the LID remained very controversial within the Army. Critics charged that the LID existed more to meet political and fiscal requirements than military ones and that they would likely prove ill suited for most combat operations. They might have some value in counter-insurgency warfare but that, said the critics, was what the Special Forces were for. For mid-to-high intensity conflict, the critics charged, the LID lacked both firepower and "staying power," even after augmentation with a mechanized brigade. Even its strategic mobility, the critics said, was not all that good, considering the amount of real combat power being moved. The critics also cited the improvements that many "Third World" armies were making in their equipment inventories. Not only were mid-eastern armies becoming mechanized, but armies in other parts of the world were acquiring light armored vehicles, which could serve as tanks in many situations. Though the critics' observation that some light armored vehicles for the LID would be desirable certainly had merit, the Army strongly opposed the acquisition of light armor for the LIDs since this could create a bureaucratic threat to its heavy forces. Also, since even the lightest anti-armor weapons could defeat enemy light armored vehicles, the critics' fears about the LID's vulnerability to light armor were probably groundless. The critics also tended to rate a division by "bean counting" vehicles and weapons while ignoring genuine capabilities. People, not equipment, fight wars and the LIDs generally got good people who wanted to experience a more traditional form of soldiering. Also, light infantry soldiers with less equipment to maintain would have more time to spend in actual training for battle. The LID's ability to fight in cities, forests, or other "closed" terrain remains very relevant, even in much of the Middle East. It

[818] Ibid. pp. 62-65; and see FM 7-71 op cit; and FM 7-72 op cit;. For problems with the under-manned 60mm mortars see CPT Morton Orlov II, "AOE and the 60mm Mortar" Infantry *Journal* Vol. 77 No. 5 (Ft. Benning GA Sep-Oct 1987) pp. 26-30; CPT John M. Spiszer "The 60mm Mortar, How Good Is It?" Infantry *Journal* Vol. 80 No. 3 (Ft. Benning GA May-Jun 1990) pp. 19-21 and see Stanton "Let's Reorganize the Light Infantry Division" Infantry *Journal* Vol 86 No. 3 (May-June 1996) op cit.

[819] Romjue, op cit. pp, 63-65, 153, and 175.

[820] Romjue, op cit. pp. 63-65.

is especially useful against enemies (such as the Viet Cong) who use terrain to minimize a wealthier opponent's advantages in armor and firepower. Whether the LID itself was really the best way to achieve light infantry capabilities is another matter. However many of the LID critics did not seem to understand that a light infantry force that answered all of their criticisms with regard to its firepower and tactical mobility would not be a light infantry force at all.

If the newly validated LID had many critics it also had many defenders. Prominent among them was the now retired former TRADOC commander General William DePuy. DePuy described the LID as "an essential element in a balanced force." He emphasized the use of light infantry in appropriate terrain, in areas such as Central America and Korea but also the forests and hills of Central Europe. He also noted the light infantry's ability to prepare the way for other arms such as the artillery and, in "close" terrain, the armor. DePuy did admit that the light infantry's chief weakness was that recent advances in armor technology had left its hand-held antitank weapons unable to penetrate the frontal armor of the more recent Soviet tanks. However, he believed that such problems would eventually be solved and that in any case events, not conditions, should drive the employment of the light divisions. He also warned against reinforcing the light divisions as this would leave them too heavy for the "close" terrain but not heavy enough for open terrain. Even so, DePuy found that many light infantry soldiers were confused about what missions they should be training for. General Wickham noted that light infantry training should begin at low intensity conflict and work up to the mid- to high-intensity battle. Light units should also train alongside heavy. He noted that light infantry doctrine was likely to increase its focus on conventional operations. Few of the critics were convinced, however. They answered that the LIDs could not fight heavy armor without heavy armor of their own. Like had to deal with like. Tanks had to fight other tanks, artillery would counter enemy artillery, and so forth. There was no concept of asymmetry (infantry countering tanks, for example) despite abundant historical evidence of its validity. There was also little willingness on the part of the critics to trade raw firepower (or any other quality) for strategic mobility. Even so, the critics were effective enough that General Wickham had to defend his light infantry divisions in front of the Senate Armed Services Committee in early 1985. This he did successfully and the Army proceeded with its light divisions as planned. Criticism of the LID's would continue for some years, however.[821]

LIGHT INFANTRY IN THE 1990s

Most of the structural changes made to the light divisions after 1985 focused on the introduction of more new equipment. The shoring up of the battalion's inadequate service support capabilities, while minimizing any overall increases in its manpower or heavy equipment "footprint," has also had a high priority. In these efforts, Army planners have been fairly successful. The current rifle company appears below. A reorganization of the battalion communication platoon made it possible to remove the communication chief from its headquarters but no other changes in the rifle company's authorized manpower were made. During the early 1990s, additional M249 SAW were equipped with tripods and issued to the rifle platoons as lighter weight replacements (albeit inferior in range and hitting power) for the largely worn out M60 machineguns. Between 1993 and 1995, the M240 machinegun (a US produced version of the Belgian FN MAG, whose design is actually older than that of the M60) replaced the M249 in its machinegun role. SINCGARS tactical radios, a new small unit radio (SUR) the AN/PRC-126 that has replaced the AN/PRC-68, and better night vision equipment have also appeared. The M4 carbine has also been issued as a shorter and lighter weight replacement for some M16A2 rifles.[822]

The light infantry battalion HHC has generally been updated in three stages. The first consisted of the changes instituted as a result of validation testing in 1985-86. Most of these have already been described. The second was instituted in the late 1980s and early 1990s. The most important changes were to the battalion's command and communication elements. The battalion headquarters received two additional HMMWV trucks, one for the battalion executive officer and one for the sergeant major, though only the executive officer's vehicle included a driver. The sergeant major would have to operate his own vehicle (with its AN/VRC-90) or make someone else do it as an additional duty.[ꝑ] The commanding officer and executive officer vehicles each carried an AN/VRC-92D and an AN/

[ꝑ] The validation changes to the HHC in 1985-86 also included the addition of trailers to the S-1 and S-4 sections to carry their equipment. The second round of changes also stripped the reorganized signal platoon of most of its radio operators. In addition to receiving another vehicle, the transport section was also reorganized, gaining ammunition but losing the fuel specialist (his job was deemed not to require special training). In another minor adjustment, the S-4 section could no longer use a trailer in the S-3 section to carry its gear but would get a trailer of its own. Presumably this was intended to facilitate the setting up of the combat trains command post. As an additional detail, the chaplain's assistant was dropped from the S-1 section to become a separate "unit ministry team." For simplicity, this writer has included him in the battalion headquarters since that is where he and the chaplain would operate from in any case.

821 One of the LID critics was Maj William B. Caldwell IV who wrote a paper for the Army's School of Advanced Military Studies at Ft Leavenworth Kansas titled "Not Light Enough to Get There, Not Heavy Enough to Win: The Case of US Light Infantry" (Ft Leavenworth Dec 1987). Another was Michael J. Mazarr, *Light Forces and the Future of US Military Strategy*, op cit. For more on the critics and for General

GRC-213. The GRC-213 was not a SINCGARS system but was instead a vehicle or man-pack (battery powered) version, of the improved high frequency (IHF) AN/PRC-104A. This equipment, capable of transmitting to 50 kilometers, enables both officers to monitor any two radio nets and to have a long-range radio set that can follow them even after they dismount from their vehicles. When a GRC-213 is unavailable, two man-pack AN/PRC-119 radios are usually substituted. The battalion S-3 section, which under current doctrine assumes most of the responsibility for the day-to-day running of the battalion, has its HMMWV carry, in addition to SINCGARS equipment, its own facsimile machine and an AN/VRC-97. The latter actually functions as a cellular telephone, allowing secure full duplex communication on a discreet-address basis. Unfortunately, it weighs about 90 pounds. New equipment has also reshaped the battalion communication platoon (now known as the S-6 section). It lost all its specialized wire personnel and transferred three signal support system operators (E-3 junior communicators) to the S-3 section (presumably to support the TOC but two were eliminated by 1995). In exchange, it acquired an E-4 signal system maintenance specialist and two additional (for a total of three) forward signal support NCOs (more experienced E-5 communicators) who provide direct assistance to the rifle companies (and substitute for their communication chiefs). Operations in Somalia led to complaints that the reorganized platoon was too small and required augmentation when the battalion engaged in sustained operations. In particular, a second three-man radio relay team (with HMMWV-mounted AN/VRC-92) was needed when the battalion operated over extended distances.[823]

The hand-held AN/PRC-68 (and its AN/PRC-126 follow-on) proved to have inadequate range to support the battalion scout platoon's operations. By 1993 manpack AN/PRC-77 and, later, AN/PRC-119 radios had replaced them. The platoon commander or platoon sergeant could no longer monitor the platoon radio net with a hand-held radio carried in his pocket. He needed a second AN/PRC-77 or –119 in addition to the one used to talk on the battalion command net. Since this additional radio would weigh about ten times as much as a hand-held, the platoon headquarters needed a second RTO to carry it.

Despite the complaints about their inadequacy, the first and second stage updates largely ignored the weak state of the battalion's combat service support elements. By 1993 the Army had actually weakened the battalion's medical support by cutting the number of rifle company aidmen from 12 to nine. Given normal attrition this was not even enough to ensure that each rifle platoon would get its own "medic." Many battalions addressed this problem by using non-medical soldiers to drive ambulances. This freed regular ambulance drivers (who were also trained medics) to act as company aidmen. However, by early 1999 the Army had restored the number of aidmen per battalion to 12.

By 1993, the transportation section of the support platoon received a twelfth HMMWV (with driver) to serve as its command vehicle. Due to concerns about the tactical security of LOGPAC vehicles during the trip forward from the field trains, the transportation section also received a pair of MK-19 40mm grenade machineguns. Together with three spare SAW light machineguns issued to the support platoon headquarters, these weapons could arm improvised escort vehicles. Doctrine requires that at least two escort vehicles accompany each LOGPAC convoy.[824]

It was only with the third round of updates, beginning in the late 1990s, that the Army has tried to shore up the light infantry battalion's service minimal support capabilities. The most noticeable change was the restoration of the battalion mess section. Though the published literature on this move is sparse, it appears that the Army has decided that it was important that the light infantry battalion be able to prepare and distribute its own A and B-rations in the field. MRE and T-rations alone were not enough. The new battalion mess section received no less than 18 men, though the manning impact of this change was partially offset by the fact that it made it possible to degrade the brigade mess platoon to a much smaller mess section serving the brigade HHC only.[825]

The new battalion mess section's two 2.5-ton LMTV trucks are the heaviest vehicles in the battalion. They have violated the Army's ideal of having all light infantry battalion vehicles be of the same type and weigh less than 9,000 pounds (to facilitate air transportation). However the battalion can leave its two trucks behind when it deploys if it accepts some degradation in its food service support. The two trucks are light ("L") versions of a newly introduced family of Medium Tactical Vehicles (MTV). Like the older 2.5-ton trucks they replaced they have flat cargo beds with drop sides and can be defensively armed with .50-caliber or MK-19 machineguns. However, they also feature automatic transmissions and a central tire inflation system (for better cross-country mobility). An LMTV truck can tow a cargo trailer with the same 5,000-pound payload that the truck is rated for. However, the mess section trucks would more commonly tow the Army's new Mobile Kitchen Trailer (MKT) of which five

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DePuy's views see Romjue, *Army of Excellence*, op cit pp. 113-121.

822 Dept Army T/O & E 07017C Rifle Company, Infantry Battalion (Light) (Washington DC, 21 June 1995) and see and TOE Handbook – Infantry Battalion 07075L-CTH (27 Dec 1991) pp. 203 and 203, 205, 209, and 210.

823 See T/O & E 07016C HHC, Infantry Battalion (Light) (21 June 1995) op cit; and TOE Handbook – Infantry Battalion 07075L-CTH (27 Dec 1991) pp. 203 and 205-208. Also, see Stanton "Let's Reorganize the LID" op cit.

824 Ibid. Also, see Stanton "Let's Reorganize the LID" op cit.

825 Ibid.

different variants are in use. The MKT is a complete kitchen unit mounted on a trailer that can be airlifted by helicopter as well as towed. A metal roof that can be folded for storage or transportation protects the trailer from the weather. Fabric panels or mosquito netting can be hung round the sides. The cooks stand on folding metal platforms. One MKT can prepare A, B, or T-rations for up to 300 troops. Two MKTs hooked together can feed up to 700. For situations in which decentralized feeding is required (or when the LMTV trucks cannot be used) the mess section also has four "company" kitchens. Designated as Kitchens, Company Level, Field Feeding Enhanced (KCLFF-E), each includes selected components found on the MKT and is carried in (but not operated from) a HMMWV with a trailer. A KCLFF-E has a limited ability to prepare A, B, or T-rations for about 150 soldiers and can also reheat rations previously prepared by an MKT. Two cooks can operate it but if A or B rations are to be prepared they need at least two to three additional soldiers to help them. The four HMMWVs used to carry the KCLFF-Es can also carry prepared rations for the LOGPACs.[826]

In the battalion reconnaissance platoon, the snipers in the scout squads received the Army's M24 sniper rifle as alternate weapons to their M16 rifles or M4 carbines. This was a very heavy and not very popular bolt action 7.62mm weapon. Although the anti-armor platoon underwent no change in organization, it received enough .50-caliber and MK-19 machineguns to equip all of its HMMWV TOW carriers. A universal mount, which could carry either the TOW launcher or a heavy machinegun, was fitted to each vehicle. Thus, a TOW carrier could alternatively serve as an armament carrier. In the wake of the fall of the Soviet Union and the Warsaw Pact, the prospects for encountering large numbers of hostile tanks (outside of the Middle East) had fallen sharply. Making the battalion anti-armor platoon readily convertible into a heavy machinegun platoon was a really excellent idea and has proven to be very useful in Somalia and elsewhere.[827]

However, the sharp decline of potential tank threats in the post-Cold War world has not prevented the introduction of a new medium infantry anti-armor weapon to replace the *Dragon*. Beginning in mid-1998 the Rangers, the 82nd Airborne Division, and a few Special Forces units began to take deliveries of the AAWS-M (Anti-Armor Weapon System-Medium) or *Javelin* missile system. Many other units have replaced their *Dragons* with *Javelins* since then. Like the *Dragon*, the *Javelin* consists of a missile packaged in its own disposable launch container to which the gunner attaches a non-disposable tracking device. Also, like the *Dragon*, the gunner fires the missile from his shoulder, awkwardly supporting the muzzle of the launch tube on a monopod. However, the *Javelin* enjoys a range of 2,000 meters, or twice that of the *Dragon*. Also, the *Javelin* gunner does not have to keep his tracking device trained on the target throughout the missile's flight. The missile automatically flies towards whatever it "sees" when it is launched. Thus it has a true "fire and forget" guidance system. If attacking a heavily armored vehicle, such as a tank, the gunner can set the missile to fly over the target and explode, sending a self-forging penetrator through the target's vulnerable roof. Against a more lightly armored vehicle or a bunker, the gunner can set the missile to strike the target directly. The *Javelin's* biggest drawback is its weight. Each missile in its launch container weighs 35 pounds (or 10.5 pounds more than a *Dragon*). Its Command Launch Unit (CLU) weighs about 14 pounds (or 7.5 pounds more than the *Dragon's* SU-36 daytime tracker, though the Army prefers to compare it with the all-weather but incredibly heavy and seldom used 48-pound AN/TAS-5). A *Javelin* CLU plus a missile comes to just under 50 pounds, a very heavy load for one soldier who might already be carrying 60 pounds or more. The Army seems to be very pleased with the *Javelin*, and it appears to have done well in field-testing. However its weight, which is largely the result of incorporating range capabilities rarely if ever needed at the infantry platoon or company level, makes it ill suited to be a light infantry weapon. However, it might be more valuable in a HMMWV-based antitank platoon as a TOW replacement, due to its superior potential for dismounted operation.[828]

Despite the numerous changes and additions that the Army has made to its light infantry battalions, it has been remarkably successful in limiting the growth of its manpower and heavy equipment. Since the testing and validation of the battalion was completed (and the necessary changes implemented) in 1985, the net manpower growth in the light infantry has been only 11 soldiers per battalion. However, nearly all of these were balanced by reductions made to the light infantry brigade headquarters. Since the battalions were operating their own mess sections the reductions in the brigade HHC's food service platoons could be especially dramatic. A large number of brigade-level communication personnel were also cut but the number of mechanics had to be significantly increased. This latter change at brigade level was necessitated by a substantial boost in the number of motor vehicles per battalion. The 34 HMMWV trucks and 21 3/4-ton trailers allowed per battalion in 1985 have become two 2.5-ton trucks, 41

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826 Ibid. For information on kitchen equipment see FM 10-23 op cit pp. 8-1 to 8-6, and 9-1 to 9-19. For truck information see Dept Army TOE Handbook – Infantry Battalion 07075L-CTH (Washington DC 27 Dec 1991) pp. 200 and 213.

827 T/O&E 07016C (21 June 1995) op cit. See also Dept Army FM 7-20 *The Infantry Battalion* (Washington DC 6 Apr 1992) pp. 7-29 to 7-31. For an example of the "dual use" of HMMWV TOW carriers see CPT Michael P. Lerario "Anti-armor – What To Do With a Delta Company" Infantry *Journal* Vol. 83 No. 3 (Ft. Benning GA May-Jun 1993) pp. 12-15.

828 MAJ Bradley N. McDonald "Javelin, A Quantum Leap in Infantry Weapons" Infantry Journal Vol. 88 No. 3 (Ft Benning GA Sep-Dec 1998) pp. 4-6.

HMMWV, two MKT, two water trailers, and 27 3/4-ton trailers. Not all of these vehicles would be needed for short deployments, though additional vehicles (and manpower) would be necessary for longer ones.

THE NEW AIRBORNE AND AIR ASSAULT INFANTRY

At the same October 1983 Army commanders' conference at which the Combined Arms Center presented its proposed light infantry division, the CAC also proposed LID variants that could replace the existing H and J-Series structures then in use by the 82nd Airborne and 101st Air Assault Divisions. The AOE airborne division that CAC proposed would have had only 10,856 personnel at full strength. This was only a little larger than the proposed LID and much smaller than the existing airborne division (16,500). Its airborne infantry battalions would be resemble the proposed light infantry battalions except that their larger antitank components would increase their strength to 592 each. CAC's proposed air assault division (with its much larger aviation brigade) would have nearly 13,000 men but this was still much less than the 18,900 called for under the H/J tables. The air assault infantry battalions would actually be the same as light infantry, albeit with some differences in training and equipment. The Army could not implement these proposed reorganizations immediately since the two divisions constituted most of the Army's strategic reserve. Their "downsizing" would have to be a phased process dependent on the delivery of new equipment and on the continued adherence to the divisions' readiness and deployment requirements.

Meanwhile, TRADOC decided that the CAC's proposed AOE airborne and air assault divisions were too austere and that the Army could afford to strengthen them to 13,200 and 14,900 troops, respectively. TRADOC would work closely with the Forces Command (FORSCOM) and the commanders of the two divisions to develop new tables of organization based on these larger numbers. Nearly half of the additional manpower would go to the two divisions' infantry battalions. TRADOC was able to get all the parties to agree on the essential details of the infantry battalions by the middle of 1984 but disputes over the overall configuration of the air assault division delayed publication of the tables of organization by more than a year. Though the infantry battalions resembled light infantry in many ways, there was less restriction on their manpower and heavy equipment. This seems to have been not only a consequence of the increased payload capacity of post-Vietnam Army helicopters but also a result of the Army seeing its air assault troops less as specialists and more as general purpose soldiers able to fight with or without their helicopters. The high cost and generally low reliability and maintainability of Army helicopters has undoubtedly strengthened this view. Likewise, the Army sees airborne combat operations as unusual and has therefore further oriented the structure of its airborne battalions towards conventional (non-airborne) operations.[829]

As can be seen from the diagrams of the airborne and air assault battalions, which appear in Appendices 12.6 through 12.9, both were very similar to one another. The main structural difference between them was that in lieu of the light infantry battalion's TOW-equipped anti-armor platoon in the HHC, an airborne or air assault battalion had an anti-armor company of five platoons (see Appendix 12.8). These companies and the additional HHC personnel needed to support them accounted for most (though not all) of the size differences. The authorized "foxhole" strength of an airborne/air assault battalion is nearly indentical to that of a light infantry battalion. However, despite the airborne and air assault divisions' high priority as the Army's "fire brigade" they their priority for new equipment was still lower than that of the light infantry divisions. They would not get the new HMMWV trucks right away but would instead have to make do with jeeps and "gamma goats" until enough HMMWVs could be built for them.

The airborne/air assault rifle companies differed from their light infantry counterparts (following their 1984-85 field testing and modifications) only in that they included a weapons squad in each rifle platoon in lieu of the light infantry's platoon headquarters machinegun teams and company-level anti-armor section (see Appendix 12.7). Each weapons squad includes two two-man machinegun teams and two two-man *Dragon* teams, thus yielding the same number of machineguns and *Dragons* as a light infantry company and only slightly more men. In addition, the air assault rifle company (besides being a little more lightly equipped) sported a longer-ranged HF AN/PRC-74 radio in lieu of a VHF AN/PRC-77 VHF in its company headquarters to improve communication with Army aircraft. The air assault company also gave only one AN/PRC-77 to its mortar section (probably wise, since those six unfortunate soldiers already had more than enough to carry) and did not use the ineffective PRT-4/PRR-9 radios in its squads.[830]

Both airborne and air assault battalions include a five-platoon anti-armor company (see Appendix 12.8). Both companies were very similar though, as was the case with the rifle company, the air assault version was somewhat less heavily equipped. Although five platoons might be difficult for a single company commander to control

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829 Romjue, *The Army of Excellence*, op cit pp. 48, 77-78, 169-170, and 187-188.

830 Dept Army T/O & E 07035L00 Infantry Battalion (Airborne), Airborne Division (Washington DC, 1 Oct 1985) and Dept Army T/O & E 07055J500 Infantry Battalion, Air Assault Division (Washington DC, 1 April 1985). Also, Dept Army T/O & E 07037L00 Rifle Company, Infantry Battalion (Airborne), Airborne Division (Washington DC, 1 Oct 1985); T/O&E 07057J500 Rifle Company, Infantry Battalion, Air Assault Division and T/O&E 07037L Rifle Company, Infantry Battalion (Airborne) (both Washington DC, 1 April 1985).

tactically, TRADOC expected that in battle he would rarely have all five platoons under his command. His battalion commander would take at least one or two platoons to strengthen selected rifle companies while the remaining platoons (under their company commander) would constitute a reserve that the battalion commander could deploy where the danger of tank attack was greatest.[831]

The anti-armor company typified the thinking behind the antitank mania that had swept the Army during the "Active Defense" era and had continued under "Air-Land Battle." TRADOC undoubtedly hoped that it would help to silence criticisms about the adequacy of the single anti-armor platoon in the light infantry battalion. However, the anti-armor company is too specialized. Though the later addition of heavy machineguns to the company's equipment made it useful for security and peacekeeping operations even when no hostile armor threat existed, it still functions best on the roads and open terrain that light infantry should avoid. Its complete dependence on its vehicles for tactical mobility makes it very ill suited to airborne or air assault operations, especially after the heavy HMMWV trucks replaced the original jeeps. Thus the company's tactical compatibility with the rest of the battalion is questionable.

The differences between the AOE airborne and air assault infantry battalions were most apparent in their HHCs (see Appendix 12.9). Even here, the differences were mainly in their equipment. They closely resembled the light infantry battalion HHC but included a maintenance platoon, no anti-armor platoon, a larger communication platoon, and a transportation section with heavier trucks. There were also slight differences in their staffing. The airborne (but not the air assault) battalion HHC included an extra combat medic in the company aidman section for the anti-armor company. After the LID validation testing in 1984-85, the Army naturally applied the changes mandated by the results of this testing to its airborne and air assault battalions as well as its light infantry battalions.[832]

The additional manpower that TRADOC allowed for the airborne and air assault battalions permitted their HHC's to include additional and more capable service support elements than a light infantry HHC would have. These included both a maintenance section and a mess section, thus reducing the battalion's dependence on the division support command (DISCOM) for these services. The mess and maintenance sections would mostly operate from the battalion field trains but the maintenance section would keep a contact team (with a 1.25-ton "Gamma Goat") with the combat trains. Although each battalion transportation section maintained a jeep with a trailer and radios[⑦] for each rifle company it relied mainly on heavier vehicles to carry out its LOGPAC runs. In the airborne battalion these were six 2.5-ton trucks with trailers. These could carry twice the payload of a HMMWV but they were too heavy for helicopters to lift or to participate in a parachute landing. In many instances they would also be too large and conspicuous to make deliveries forward of the battalion combat trains. The anti-armor company (AAC) and the HHC had their own light vehicles that could bring them what they needed from the combat trains but a rifle company had no such vehicles and the one jeep that the transportation section maintained for it would by itself have been inadequate as a supply carrier. The four five-ton trucks in the air assault battalion's transportation section would suffer from similar limitations. However that section also included eight Gamma Goats. The heavier helicopters could at least sling lift these vehicles and they would have been small enough to be able reach the rifle company trains in most situations. It is likely that the airborne battalion did not receive similar vehicles because they could not participate in a parachute landing any more than the 2.5-ton trucks could. The reader may also note that the total payload of the air assault transportation section is significantly greater than that of the airborne battalion, a very radical change from the Vietnam era when air assault ground transportation was so limited. By comparison the seven 2.5-ton trucks that made up most of the service company transportation section that served a World War II or Korea era battalion could lift a similar payload to that of an AOE airborne battalion of the 1980s but the AOE battalion would also have three 2.5-ton trucks to carry its field kitchens (see Appendices 5.16, 7.7 and 12.9).[833]

Subsequent changes made to the airborne and air assault battalions also paralleled those applied to the light infantry battalions (see Appendix 12.11). The rifle companies (see Appendix 12.12) changed hardly at all beyond the loss of the communication chief from the company headquarters and the introduction of new equipment. The latter included SINCGARS tactical radios, *Javelin* missiles, M4 carbines, and M240 machineguns.[834]

With the anti-armor companies, the picture was much the same. By around 1987 they had exchanged their jeeps and trailers for HMMWV TOW carriers and (just as it did in the anti-armor platoon of the light infantry battalion) the Army reduced each anti-armor squad from four men to three. SINCGARS radios began arriving soon

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[⑦] These would be either two AN/VRC-46 (airborne battalions) or one AN/VRC-47 (air assault) per jeep (see Appendix 12.9).

[831] Dept Army T/O & E 07038L00 Anti-Armor Company, Infantry Battalion (Airborne), Airborne Division (Washington DC, 1 Oct 1985) and Dept Army T/O & E 07058J500 Anti-Armor Company, Infantry Battalion, Air Assault Division (Washington DC, 1 April 1985).

[832] Dept Army T/O & E 07036L00 Headquarters and Headquarters Company, Infantry Battalion (Airborne), Airborne Division (Washington DC, 1 Oct 1985).

[833] Ibid. See also Dept Army FM 7-20 *The Infantry Battalion* (Washington DC, 1979) pp. 2-13 to 2-19 and 3-6.

[834] Dept Army T/O & E 07037L00 Rifle Company, Infantry Battalion (Airborne), Airborne Division (Washington DC, 4 Nov 93 and 2 Apr 98) and Dept Army T/O & E 07057L00 Rifle Company, Infantry Battalion, Air Assault Division (Washington DC, 4 Nov 93 and 31 Jan 97).

afterwards. By 1993 the air assault anti-armor company had followed the airborne anti-armor company's example by acquiring a 5.56mm SAW light machinegun for each of its anti-armor sections. However, the airborne company had already gone further by obtaining a .50-caliber heavy machinegun, a MK-19 grenade machinegun and, in many cases, an unofficial M60 7.62mm machinegun for each of its anti-armor sections. The Army has since acquired a universal weapon mount that can carry a TOW launcher (plus a SAW) or either the .50-caliber, MK-19, M60, or SAW plus the TOW launcher's combination day/night sight. A typical weapon "mix" used in Bosnia was for the four HMMWV TOW carriers in a platoon to carry one .50-caliber and one MK-19 for long range and anti-light armor work and one M60 and a SAW to deliver anti-personnel fire (while leaving their TOW launchers at home). Some units have also unofficially exchanged their unarmored platoon headquarters vehicles for armored ones and mounted machineguns on them, despite a scarcity of gunners. This has given platoon headquarters a more combatant role, though it must supply vehicles to fetch ammunition (and other supplies) for the platoon from the combat trains. However, since these platoons have seen very little actual combat the importance of this function has not always been appreciated. The air assault anti-armor company implemented similar changes in 1996. Since then it has not differed from its airborne counterpart in any important detail (see Appendix 12.12).[835]

This "reinvention" of the anti-armor company has been very significant. The collapse of the Soviet Union and the Warsaw Pact in 1989 so drastically reduced the massed tank threat that even the US Army could not help but notice. "Peacekeeping" and operations in small "Third World" nations able to pose little or no armor threat have become the norm. The anti-armor companies' new machineguns have converted them to weapons companies that can either furnish direct fire support to the rifle companies or serve as separate maneuver elements in their own right. As such they can furnish motorized patrols or act as a light armor element. Officers who have commanded these motorized companies have been effusive in their praise of them. In situations where little or no organized opposition exists they have performed well as lighter, cheaper, less threatening, more easily supported and more strategically mobile substitutes for armored fighting vehicles like the *Bradley*. However, the anti-armor companies' multiple weapon systems must inevitably complicate their training, maintenance, and supply and the mobility characteristics of their HMMWVs are incompatible with those of light infantry. The latter should be helicopter transportable and able to operate in the closed and broken terrain that HMMWVs should avoid. Though light infantry and HMMWV-based anti-armor units can certainly cooperate in many situations it would probably be better if the anti-armor companies were assigned to separate anti-armor battalions and attached to the light infantry on an "as needed" basis.

As in other combat units, the manpower in these motorized companies has been cut to the bone. The absence of even one member of a three-man TOW/machinegun "squad" can seriously degrade that squad's effectiveness. The anti-armor companies have, on occasion, attempted to cover their manpower shortfalls by the questionable practice of borrowing drivers from brigade-level motor transport. While this could be practical in a "peacekeeping" environment where there is not too much strain on the logistical system it would never do in combat. The anti-armor platoons' ability to operate dismounted is also minimal. It would probably be impractical for even a full crew to set up and operate a TOW or heavy machinegun more than 300 meters from their carrier and they would probably have to abandon their weapon if forced to withdraw in a hurry. In an air assault operation most of the HMMWV's would probably have to be left behind. Dismounted operations would likely be impractical in most situations unless only the lighter machineguns were used. However, in spite of all these difficulties there is little doubt that the current configuration of the anti-armor company is a distinct improvement.[836]

Like the rifle and AAC companies, the HHCs of both airborne and air assault battalions experienced changes similar to those of their light infantry battalion counterparts (see Appendix 12.13). The battalion command elements changed very little. The battalion headquarters acquired the same three vehicles for the commanding officer, executive officer, and sergeant major as in the light infantry battalion. A fourth vehicle was for the chaplain.[ɕ] The airborne battalion S-3 section differed from its air assault counterpart in having an extra operations sergeant (to help plan parachute jumps) and a clerk-typist in lieu of two drivers. By 1993 both S-3 sections acquired additional radio operators for the Main CP from the reorganized battalion communication platoon, only to lose them again in a further communication platoon restructuring. The S-3 and S-4 sections each include a vehicle to carry the personnel and equipment of the Main CP and the Combat Trains CP, respectively, and each also carried a pair of SAW light machineguns for the security of these command posts. However, local security is the primary responsibility of the

[ɕ] The chaplain's assistant left the S-1 section to become the "unit ministry team." As in the light infantry battalion diagrams he is shown as part of battalion headquarters for simplicity.

[835] Dept Army T/O & E 07038L00 Anti-Armor Company, Infantry Battalion (Airborne), Airborne Division (Washington DC, 4 Nov 93 and 2 Apr 98) and Dept Army T/O & E 07058J500 Anti-Armor Company, Infantry Battalion, Air Assault Division (Washington DC, 4 Nov 93 and 31 Jan 97). See also CPT Michael W. Lwin "The Delta Company, One Commander's Observations" Infantry *Journal* Vol. 86 No. 6 (Ft. Benning GA Nov-Dec 1996) pp. 20-21; and LTC R. D. Hooker and CPT John R. Lightner "Airborne Heavy Weapons Company, Peace Enforcement Operations in Bosnia" Infantry *Journal* Vol. 88 No. 2 (Ft. Benning GA May-Aug 1998) pp. 35-38.

[836] Ibid.

HHC company commander. For this purpose he has a pool of weapons with which he can arm HHC elements for self-protection. At first these included only M203 grenade launchers, but by 1993 the airborne battalion HHC received SAW machineguns, subsequently replaced by MK-19 grenade machineguns. By 1997, the air assault HHC headquarters received 19 SAWs in lieu of MK-19s and of the SAWs previously issued to the S-3 and S-4 sections.[837]

As in the light infantry battalions by 1993, the airborne and air assault battalion communication platoons replaced their combat signal team chiefs with four forward signal support NCOs who also assumed the functions of the communication chiefs in the three rifle companies and the anti-armor company. As wireless equipement replaced Teletype and conventional wire telephones the men associated with these systems were also dropped. The net effect has been a reduction in the number of battalion communication personnel by about one third, despite complaints that even the original communication platoon was too small to support the battalion in sustained operations. Unlike the light infantry communication platoon, the airborne/air assault platoon maintains a second vehicle (in addition to the retransmission station vehicle) for the battalion communication officer's use.[838]

In the combat support arena, most of the changes have resulted from the introduction of new vehicles and the expansion of the support platoon's food service (mess) section. As had occurred in the light infantry battalions, the expanded mess section could serve full A and B rations as well as T-rations and MREs. Its equipment included three of the new mobile kitchen trailers (MKT), two of which could feed the whole battalion from the field trains area. HMMWV-mounted KCLFF-E kitchens supplement the MKT kitchens and feed the forward-deployed rifle and anti-armor companies. Army literature is generally silent on why an air assault battalion needs four more cooks than an airborne battalion to feed the same number of men with the same equipment. Most likely, it was because air assault operations tend to leave the battalion more dispersed, thus requiring the mess section to form more detachments and operate less efficiently. Even so the original 12-man section should have been large enough to cook at least the occasional A or B ration to vary the T-rations and MREs. It would appear that the new mess equipment and pre-cooked packaged meals are not producing the savings in food service personnel that the Army had hoped for.[839]

Both the airborne and air assault battalion transport sections continued to maintain a radio-equipped jeep and trailer or HMMWV (and no trailer) for each rifle company but they increased their complements of heavier trucks. The airborne battalion transportation section expanded from six 2.5-ton trucks and three cargo trailers to 11 2.5-ton trucks, nine cargo trailers, and a water trailer by 1993. By 1997, seven 2.5-ton LMTV trailers replaced the older 1.5-tonners. Until 1997, the air assault battalion transportation section maintained one element that was not helicopter transportable (the four 5-ton trucks) and another element that was (the eight Gamma Goats that HMMWVs later replaced). By 1993, new MTV 5-ton trucks (they were heavier counterparts to the LMTV) replaced the older 5-tonners. At first one MTV was configured as a fuel truck but it became a standard cargo truck after the introduction of a new fuel handling system that used 500-gallon fuel bladders and a pumping unit and could easily convert any cargo truck to a fuel carrier. After 1997, the air assault battalion transportation section abandoned its separate air transportable and non-air-transportable elements and replaced its 5-tonners and HMMWVs (other than the three that supported the rifle companies) with the same 11 LMTV trucks that the airborne battalion transportation section already had (but with two additional trailers). Like the earlier 2.5-ton and 5-ton trucks an LMTV is too large for operations forward of the combat trains in a conventional combat situation but in today's peacekeeping environment it probably does not matter too much. However if the LMTV's in fact serve forward of the combat trains the three rifle company HMMWV's would be too small to carry full LOGPACs for their companies, though the HMMWV's from the food service section can assist by carrying rations and water.[840]

The battalion medical platoon remained relatively untouched. The warrant officer physician's assistant in the treatment squad became a commissioned officer (presumably to encourage more people to become physician's assistants). Just as in the light infantry battalions, the Army reduced the airborne and air assault company aidman or combat medic sections to 10 men each by 1993 (one per rifle platoon plus one for the AAC) but increased it back to 12 for the airborne battalion and 13 for the air assault battalion, respectively, in 1999.[841]

LIGHT MOTORIZED INFANTRY

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[837] Dept Army T/O & E 07036L00 Headquarters and Headquarters Company, Infantry Battalion (Airborne), Airborne Division (Washington DC, 4 Nov 93 and 2 Apr 98). Dept Army T/O & E 07056L00 Headquarters and Headquarters Company, Infantry Battalion, Air Assault Division (Washington DC, 4 Nov 93 and 1 Jan 97).

[838] Ibid.

[839] Ibid.

[840] Ibid.

[841] Ibid.

Although General Wickham had carried the development of the Army's light forces in a very different direction from that pursued by his predecessor and former chief, General Meyer, he continued Meyer's support of the 9th Infantry Division at Fort Lewis, Washington, as the testbed for a future High Technology Light Division (HTLD). Like the old 11th Air Assault Division, the 9th Division carried on its work independently of the usual doctrinal and procurement channels. Unfortunately, it was not achieving satisfactory results. Since late 1983 the 9th Division had experimented with designs for combined arms battalions (CAB), combining motorized infantry and lightly armored "assault guns" (lightly armored 20-ton tanks carrying 105mm guns) and light assault battalions (LAB) that featured machinegun and missile-armed "light attack vehicles."

In late 1984, The Army Chief of Staff's office limited the "end-strength" for a motorized division to 13,600. Its fighting elements would consist of seven CABs and two LABs. Testing covered every kind of technology that might strengthen the division against a mechanized adversary of the sort that might be encountered in the Middle East. However, Congress was becoming impatient. The HTLD suffered much criticism for its excessive dependency (for an infantry division) on its vehicles and for the fact that it was still too heavy to achieve the strategic mobility that the Army sought. Worse, the designs for its two most critical weapon systems, the light attack vehicle and the assault gun, had not been finalized despite numerous experiments with different prototypes. In the meantime, TRADOC drafted new AOE-style tables of organization during 1986 for the combined arms and light attack battalions.[842]

Diagrams of both the "light" and "heavy" versions of the CAB and of the LAB appear in Appendix 12.14. The light and heavy CAB's differed from each other in that the heavy had two assault gun companies and only one rifle company while the light had one assault gun company and two rifle companies. Two of the motorized division's seven CABs would be light and the other five would be heavy. The Army intended that each assault gun company should have 14 assault guns but until these were ready, the company would have to use 20 HMMWV-mounted TOW systems as substitutes, arranged in four platoons of five TOW vehicles each (see Appendix 12.15).[843]

The 9th Infantry Division had received a lot of criticism for not having enough infantry. That these criticisms were entirely justified may be seen in the diagram of the motorized rifle company that appears in Appendix 12.15. These companies were not only few in number (only nine were authorized for the entire division) they were very weakly manned. TRADOC allowed the rifle squads only eight men apiece rather than the usual nine or more. The fact that at least the driver and usually one machinegunner would have to remain with the squad's vehicle (an unarmored HMMWV troop/cargo carrier) at all times, meant that a squad could dismount no more than six men. The weapons squad could provide some reinforcement. Apart from its squad leader and the driver and gunner that operated its own vehicle the squad included five *Dragon* gunners (each with a *Dragon* tracker and one or more missiles). One of these gunners would ride in each vehicle in the platoon to ensure that no element would be without at least a medium ranged antitank weapon. Since this would leave only four men on board the weapon squad vehicle could as a platoon ammunition and supply vehicle. Much of the rifle platoon's firepower was tied up in its five 40mm MK-19 grenade machineguns. Each platoon vehicle mounted one of these weapons but their value in actual combat would be problematic. Though it is not difficult to fire a MK-19 from the ground, its own weight and that of its ammunition would make its movement over any distance and setting up a very time and labor-intensive process. Firing from the vehicle itself is much faster and simpler but a HMMWV has no gun stabilization system, so firing from it while it was on the move would be impractical since the gunner would have little hope of hitting anything. Firing from a stationary unarmored (and large and conspicuous) HMMWV at any enemy who was so crass as to shoot back could also have some obvious drawbacks but alternative tactics were difficult to devise. The fact that the motorized rifle company could dismount few men and even fewer weapons tied it closely to its vehicles. These effectively restricted it to roads and open terrain and made it especially vulnerable to mines, ambush, and artillery fire.[844]

The light attack battalion (LAB) differed from the CAB only in that it had three light attack companies in lieu of assault gun and rifle companies. It was to be based on the Fast Attack Vehicle (FAV). This was a 4x4 "dune buggy" ~~type~~ designed to achieve very high speeds off the roads but only over firm and open ground. It was supposed to carry up to three men and either a TOW launcher or a MK-19 grenade machinegun. Though completely open and unarmored the vehicle did have roll bars to protect the crew from accidents. It was hoped that its high speed and small target profile would be a sufficient protection from enemy fire. Since no actual FAV's were available, apart from a few prototypes, HMMWV armament carriers served as substitutes. The basic fighting element was the light attack section of two FAV one carrying a MK-19 and two men and the other carrying a TOW, a SAW and three men (including the section leader). Like the HMMWVs in the rifle companies these vehicles had

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842 Romjue, op cit. pp. 74-77 and 178-179.

843 Ibid. See also Dept Army T/O & E 17998L0 Assault Gun Company, Combined Arms Battalion, Infantry Division (Motorized) (Washington DC, 1 Apr 87).

844 Dept Army T/O & E 17998L0 Rifle Company, Combined Arms Battalion, Infantry Division (Motorized) (Washington DC, 1 Apr 87).

to be stationary in order to shoot accurately. The very small number of men in a light attack section would have given it the same vulnerability to attrition and inability to conduct effective dismounted action that characterized most of the HTLD's fighting elements. Apart from reconnaissance, it is difficult to see what sort of combat mission the "light attack" section might have been able to execute. Its designers must have watched too many Hollywood war movies or else put too much faith in computer simulations (see Appendix 12.16).[845]

The motorized battalion combat support company (for both the CAB and the LAB organizations) included the same combat support elements found in the light infantry battalion HHC. Its scout platoon was supposed to have six FAV's but it had to substitute a mixture of motorcycles and HMMWV armament carriers. The mortar platoon operated as two separate sections so it could give continuous support to the battalion (one section firing while the other displaced) in a rapidly moving situation. The TOW platoon was of exactly the same type as found in the light infantry battalion except that it was supposed to use FAVs as TOW carriers rather than HMMWVs. It would be the only TOW unit in a CAB once the assault gun vehicles were actually in service (see Appendix 12.16).[846]

Like the combat support company, the motorized battalion headquarters and headquarters company (HHC) was generally the same for both the LAB's and the CAB's but there were some minor variations (see Appendix 12.17). The battalion command element (headquarters, staff sections, and communication platoon) resembled that of a light infantry battalion except for its much larger number of vehicles. The battalion headquarters itself included a maintenance or motor officer in addition to its usual members. There were three HMMWV armament carriers with MK-19 grenade machineguns for the use of the battalion commander, executive officer and S-3, respectively. The battalion support platoon's transportation section relied mainly on five-ton trucks but included a 2.5-ton truck to carry decontamination equipment. The LAB HHC substituted HMMWV trucks four of the five-tonners, presumably because the light attack companies needed fewer supplies. In the CAB (light), the mess section included a third truck and kitchen trailer and a fourth company kitchen) even though it only had about 50 more men to feed than a CAB (heavy) mess section. The medical platoon included six ambulances, rather than the usual four, despite the smaller number of potential casualties in a very lightly manned unit.[847]

Although the Army continued to develop the CAB and light attack battalion tables of organization through 1993, the effort ultimately foundered on the Army's failure to both to procure an assault gun and to come up with a realistic doctrinal foundation for what was a fairly unconventional unit that differed markedly from the heavily armored formations that the Army was used to. Since a HMMWV TOW carrier could never really substitute for an armored assault gun on an armor-dominated battlefield the Army considered using the M60A3 main battle tank instead but its 58-ton combat weight made it far too heavy to deploy with the rest of the division. TRADOC believed that without assault guns, the direct firepower of the motorized division would be fatally compromised. Field-testing at the National Training Center at Fort Irwin, California generally seemed to confirm this view. Testing also demonstrated what everybody already knew, which was that the motorized division did not have enough infantry. Although the Army had tested a number of assault gun designs it ultimately rejected all of them because it was unwilling to sacrifice armor and firepower for lighter weight. Although descriptions of the assault guns carefully avoided the use of the word "tank" it seems clear that the Army did see the assault gun as a tank and not as a species of self-propelled gun. As a tank it had to be able to fight the best tanks that any enemy could offer, in "single combat" or on a "head to head" basis. Naturally, this was impossible for a 20-ton vehicle within current technology limits. Additionally, the Army never considered the use of alternative doctrine and techniques to maximize a lighter assault guns' effectiveness and survivability. This unwillingness to change old ways to meet new requirements finally doomed the Army's efforts to produce an air transportable motorized division. The Army officially abandoned its assault gun program in 1989. In 1988, it reduced the 9th Division's active duty manpower allocation by 2,510. This meant the replacement of one of the Division's active duty brigades with a National Guard mechanized brigade (with two battalions of M60A3 tanks and two battalions with infantry in M113 armored personnel carriers). The Division's two remaining active brigades totaled one tank battalion (M60A3), two LABs, and four CABs (two heavy and two light). The Division disbanded in 1992. Half of its motorized battalions survived as elements of the 199th Motorized Infantry Regiment. A few years later, this unit reorganized and moved to Fort Polk, Louisiana as the 2nd Armored Cavalry Regiment (Light).[848]

The ill-fated 9th Infantry Division was not the US Army's only attempt to build a motorized force. If HMMWV-mounted infantry could not face down some Middle Eastern warlord, it might still have a role in nuclear security.

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845 Dept Army T/O & E 17998L0 Light Attack Company, Light Attack Battalion, Infantry Division (Motorized) (Washington DC, 1 Apr 87).

846 Dept Army T/O & E 07068L0 Combat Support Company, Combined Arms Battalion or Light Attack Battalion, Infantry Division (Motorized) (Washington DC, 1 Apr 87).

847 Dept Army T/O & E 07066L0, 07096L0, and 17996L0, Headquarters and Headquarters Company, Light Attack Battalion (07066L) or Combined Arms Battalion (Light) (07097L0) or (Heavy) (17996L0), Infantry Division (Motorized) (Washington DC, 1 Apr 87). The S-3 section also included an extra captain to serve as yet another assistant S-3. His function is difficult to determine.

848 Romjue, op cit. pp. 76-77. See also LTC Steven D. Vermillion, "Motorized at the NTC," Infantry *Journal* Vol. 79 No. 2 (Ft. Benning GA Mar-Apr 1989) pp. 11-14.

Since the 1950s, the US Army had maintained tactical nuclear weapons and their delivery systems in Europe to deter a Soviet invasion. The weapons ranged from 155mm and larger caliber nuclear artillery shells to theater level ballistic missiles. Naturally, such weapons were high priority targets for the Soviets, who might attack them with air, artillery, or missile strikes, or even conventional ground forces that broke through the NATO front line. They could also attack them with special operations, or SPETSNAZ forces. SPETSNAZ, and the threat that it represented, was first brought to the public's attention by a Soviet defector writing under the name of Victor Suvarov. Suvarov's first book, *Inside the Soviet Army*, appeared in 1983 and detailed the organization and operation of SPETSNAZ forces in an unclassified forum for the first time. SPETSNAZ soldiers were not only highly trained, they often operated in clandestine fashion, and could position themselves behind an enemy's front lines, and even deep inside his home country before fighting broke out. Nuclear weapon systems would be their highest priority targets. Once open hostilities began, many more SPETSNAZ units would enter NATO rear areas either by parachute or infiltration. Regular Soviet Army airborne troops would join them. Soon, NATO forces would face enemies both in front and behind. The SPETSNAZ-led Soviet forces in their rear would be attacking not only nuclear delivery systems but headquarters, communication facilities, supply dumps, airfields, transportation networks, and truck convoys. They would also spread panic, confusion, and disruption among the civil population. NATO took this threat very seriously. However, the US Army was unwilling to allocate troops to combat it. Instead, it planned to rely on the West German Territorial Army and on similar forces recruited in other countries. The German Territorial Army was mainly a light infantry force organized as independent regiments, companies, and platoons distributed in every town and community throughout Germany. Most of its members were reservists and in the event of war they would protect US rear areas as well as German ones. However, the US Army did protect its own nuclear delivery systems. Its pentomic era Missile Commands had each deployed with an organic infantry company or battalion that provided local security. During the 1960s the Army replaced the missile commands with the 56th Artillery Brigade, which included an infantry battalion as its organic security force. At first this was only a standard E-, G- or H-Series infantry battalion and for 14 years the Army never attempted to restructure it to suit its special role. However, the mid-1980s were a particularly tense period in which the Reagan administration deployed a new generation of theater-level nuclear delivery systems, particularly cruise missiles and *Pershing II* short-ranged ballistic missiles. These were intended to counter Soviet weapons such as the SS-20 and SS-23. However the improved *Pershings* focused Soviet attention on the 56th Artillery Brigade as never before. The brigade's security would have to be increased but when faced with the prospect of doling out more of its very scarce and expensive soldiers the US Army finally elected to optimize the brigade's infantry battalion for its special security mission.[849]

The restructured battalion would be an AOE-type motorized unit that used only standard and readily available equipment. Motorization would enable elements of the battalion to take advantage of the German road network to patrol an extended security zone around the missile batteries. The "sharp end" of the battalion would be 13 rifle and four scout platoons. These could conduct route reconnaissance and provide close-in protection to the *Pershings* wherever they went. They could also rapidly respond to enemy activity, even conducting air assault operations (without their vehicles) if helicopters were available. The battalion did not employ armored personnel carriers or infantry fighting vehicles. This was probably because the HMMWV trucks imposed less of a fuel and maintenance burden and were better adapted to road movement. Each of the battalion's rifle companies fielded four rifle platoons and a scout platoon. Although this was a relatively large number of sub-units it allowed the battalion to have fewer company headquarters and thus economize on command and administrative personnel. Given the fact that platoons might often act independently, relatively little tactical control would have been needed (see Appendix 12.18).[850]

With an authorized strength of 11 men a rifle squad in the new battalion was much larger than one from one of the 9th Division's motorized rifle companies. It included a HMMWV armament carrier (AC) with a machinegun to serve as scout vehicle and an unarmored HMMWV troop carrier to lift most of the squad's personnel. The squad followed the old SLA Marshall configuration of a leader and two five-man fire teams. Two of the squad's riflemen drove the two HMMWVs. A third assisted the Dragon gunner that the platoon headquarters would normally attach to each squad, even though all of the *Dragon* equipment he would use belonged to that squad. The platoon headquarters also provided each squad with a machinegunner (and an M60 machinegun in addition to the one each squad already had). It is likely that the attached machinegunner, a driver, and a third man who might be a rifleman or a team leader would man the HMMWV AC. The nine remaining squad members plus the attached *Dragon* gunner, would ride in the troop carrier. The squad's own machinegun would serve as a spare weapon for use either

[849] See Victor Suvarov, *Inside the Soviet Army* (New York, Macmillan, 1983), especially pp. 92-99. Suvarov provided additional material on SPETSNAZ in Victor Suvarov, *Inside Soviet Military Intelligence* (New York, Macmillan 1984); *Spetsnaz* (New York and London, W. W. Norton 1987); and *Inside the Aquarium* (New York, Macmillan 1986). For details on the German Territorial Forces see David C. Isby and Charles Kamps, Jr. *Armies of NATO's Central Front* (London, Jane's Publishing Co. 1985) pp. 227-231. See also Dept. Army, FM 90-14 *Rear Battle*, (Washington DC June 1985) which describes late Cold War rear area security doctrine as well as German Territorial Forces.

[850] Dept Army T/O & E 7-217L Rifle Company, Infantry Battalion, Field Artillery Command (*Pershing*) (AOE) (Washington DC 1 April 1985).

in lieu of, or in addition, the two SAW machineguns. It might also be mounted on the HMMWV troop carrier as a self-defense weapon. The squad, minus the crew of its HMMWV AC and one or two men to take care of its HMMWV troop carrier, would fight dismounted whenever possible. Even with five men manning its vehicles it could dismount up to eight men rather than the six that a motorized rifle squad in the HTLD could manage. Although the battalion had no anti-armor weapons heavier than the *Dragons*, the Army did not expect it to have to deal with more than a small number of Soviet armored vehicles at any one time. Each of the battalion's four scout platoons had eight M60 machinegun-armed HMMWV armament carriers grouped in four two-vehicle sections.[ⱷ] One section doubled as platoon headquarters. Route reconnaissance would have been the platoon's primary mission.[851]

The battalion headquarters and headquarters company (HHC) included an extra scout platoon and an extra rifle platoon (see Appendix 12.19). The scout platoon gave the battalion commander his own reconnaissance unit while the rifle platoon gave him an emergency reserve (and headquarters security force), without forcing him to weaken one of his rifle companies. The rest of the HHC consisted of only command and service support troops. The battalion headquarters had the same officers as in an AOE light infantry battalion plus a motor officer (who also commanded the maintenance platoon) and the battalion surgeon (also commanding the medical platoon). The two HMMWV trucks belonging to the battalion commander and executive officer, respectively, had only one driver/radio operator apiece. The S-1 section included the chaplain's assistant and vehicle. The S-3 section included a German-speaking liaison officer (in addition to the S-3 for air and the chemical officer). The battalion communication section did not even include the usual radio relay team. However, since battalion communications depended on relatively powerful vehicle mounted radios it seems likely that little radio retransmission support was needed.[852]

Given the size of the unit that they were supporting, and its substantial number of vehicles requiring maintenance and repair, the battalion combat service support elements were naturally fairly large. The support platoon fielded separate mess sections for each company. The transportation section could equip up to four of its trucks (with trailers) as fuel vehicles and another as a nuclear, biological, or chemical decontamination vehicle. The rest would carry ammunition. The section carried more machineguns for its own local security than it could possibly man or even maintain properly. Presumably, the cooks from the mess section would help. The transportation section's employment may have differed somewhat from transport sections in other battalions. Since the enemy could appear from any direction it was probably impractical to establish a battalion-level combat trains in many situations. Supplies would probably have to move from the field trains area directly to individual company train areas, leaving it to the companies to make further distribution to their own platoons. Each company headquarters had extra supply men and three 2.5-ton trucks to deal with this situation. The battalion medical platoon was relatively small. Its treatment section had only four enlisted assistants instead of the usual six, probably because it would only operate from the field trains and also because other medical units would be nearby. The combined aidman and evacuation section could provide "medics" for the rifle platoons but not the scout platoons. The battalion maintenance platoon included maintenance contact teams for each rifle company and the HHC.[853]

After the fall of the Soviet Union in 1989, the SPETSNAZ threat to the *Pershing* Brigade quickly evaporated. Once it was no longer needed to protect the *Pershings* the security battalion disappeared even though, given a few changes, it might have had some real utility in post-Cold War peacekeeping operations.

NATIONAL GUARD INFANTRY

AOE-type unit structures soon gained wide acceptance within the Army, if for no other reason than all the manpower they saved. However, although the Army's active divisions converted to AOE fairly quickly, most of the Army National Guard lagged behind. Although doubts about AOE's combat effectiveness still existed, the biggest obstacles to the National Guard conversion to the new system were political and fiscal. Given their numerous ties and obligations to both their local communities and state governments, Guard units were reluctant to give up the extra manpower and equipment that the older H-Series tables allowed them. In addition, Congress provided none of the funding for the unit and facility restructuring in hundreds of communities across the United States that would be essential if the National Guard was to convert its force structure to the AOE type.[854]

[ⱷ] Army doctrinal liturature on this battalion is generally lacking. Much of this paragraph is based on this writer's own observations.

[851] T/O & E 7-217L op cit.

[852] Dept Army T/O & E 7-215L Headquarters and Headquarters Company, Infantry Battalion, Field Artillery Command (*Pershing*) (AOE) (Washington DC 1 April 1985).

[853] T/O & E 7-217L op cit.

[854] Romjue, op cit. p. 79.

Therefore the Army its tables for H-Series infantry units and it continued to develop them on behalf of National Guard and other units that had not been included in the initial rounds of AOE conversions. The Army continued to update both the infantry and airborne battalion tables even though all the airborne troops were converting to AOE. The Army authorized SAW light machineguns for H-Series infantry or airborne rifle squads even though it was not until about 1988-89 that they actually received them. By 1981 the rifle company weapons platoon had become a mortar platoon again when its TOW section moved to the battalion combat support company. The mortar platoon itself officially exchanged its jeeps for HMMWV trucks and its 81mm mortars for the new M224 60mm. However, since the 60mm mortars had not been delivered and the 81mm were still in use, the platoon's structure did not change. However, airborne rifle companies replaced their mortar platoons with six-man sections since they would be receiving their 60mm mortars much sooner (see Appendix 12.20).[855]

The most important change in the infantry battalion combat support company was the reorganization of its antitank platoon (see Appendix 12-21). With three additional TOW sections migrating to the CSC from the rifle companies, the existing platoon would become inconveniently large. The Army therefore split it into three platoons with three TOW sections each. In the past the CSC's three platoons (scout, mortar, and anti-tank) had operated directly under the battalion commander. Now that there were three anti-tank platoons, the CSC commander would control them, as a *de facto* battalion anti-tank company commander. In the airborne battalion the CSC antitank element remained a single six-section TOW platoon even though the rifle companies had lost their TOW sections. The few H-series infantry battalions still using the 106mm recoilless rifle also retained a single antitank platoon (with four sections or eight rifles) in lieu of TOW platoons or of rifle company TOW or recoilless rifle sections. The arms stopped issuing tables of organization for such units about 1984. In both infantry and airborne CSC's the air defense section was transferred to the division air defense battalion.[856]

The changes in the H-Series battalion HHC (see Appendix 12.22) that the Army instituted during the early 1980s generally paralleled those introduced in the AOE light infantry battalion in 1984. From about 1981, the old battalion headquarters section split into separate S-1, S-2, and S-3 sections. When authorized, two liaison officers could augment the S-3 section and a journalist and an extra mail clerk could augment the S-1 section. The battalion supply section became the S-4 section but, contrary to the practice in AOE units, it remained as part of the battalion support platoon until 1984-85. Battalion headquarters included a motor officer (he was dropped later) but no chaplain, though a chaplain was usually attached. Like its AOE counterparts, the battalion headquarters also received two HMMWVs (or jeeps with trailers) but only one radio operator and one driver (rather than two of each). The battalion support platoon, maintenance platoon, and medical platoon experienced no significant AOE-related changes, although the evacuation section ambulances had three-man crews. In the airborne battalion HHC, there were four ambulances rather than three. In other respects, however, the airborne HHC was not so well endowed, since it had a significantly smaller transport section (only eight men with six HMMWVs with trailers), maintenance platoon (only nine enlisted men), and mess section (23 men and five augmentees).[857]

By 1987, the Army had decided to bow to political reality and devise a new AOE-type infantry battalion for the National Guard that would use H-Series manpower and equipment scales and avoid a lot of bad feeling and restructuring costs. Restructuring would also improve the Guard's ability to support a NATO war in Central Europe. The maneuver elements of the Guard's five infantry divisions would switch from eight infantry, one mechanized infantry and one tank battalions each to three infantry, three, mechanized infantry, and four tank battalions. This would make them *de facto* armored divisions with stronger infantry components. More important, however, the Army planned to use some of its non-mechanized National Guard infantry to create a group of separate "theater defense brigades." Each would have three infantry battalions and be relatively easy to transport by air. They would help to back up the heavy forces in Europe by dealing with Soviet (and Soviet-sponsored) rear area security threats. However, the Army did not take the theater defense brigades all that seriously and tended to treat them more like a "jobs" program meant to keep the Guardsmen busy. The Guard's changeover to the modified AOE tables had to be phased in over a number of years.[858]

The rifle companies differed from the AOE airborne and air assault battalions mainly in having organic vehicles and 81mm mortar platoons (the 60mm were still unavailable). Their organic vehicles would make them less dependent on battalion transportation sections. The mortar platoon came directly from the H-Series tables and used Gamma Goats for transportation until HMMWVs could replace them. The rifle company headquarters' two jeeps (with their driver/radio operators) were primarily long-range communication vehicles for the company

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855 Dept Army T/O & E 7-18H Rifle Company, Infantry Battalion Change 30 and 7-37H Change Rifle Company, Infantry Battalion (Airborne) Change 30 (both Washington DC, 1 April 1984).

856 Dept Army T/O & E 7-28H Combat Support Company, Infantry Battalion Change 33 and 7-38H Combat Support Company, Infantry Battalion (Airborne) Change 32 (both Washington DC, 1 April 1984).

857 Dept Army T/O & E 7-16H Headquarters and Headquarters Company, Infantry Battalion Change 27 and 7-36H Headquarters and Headquarters Company, Infantry Battalion (Airborne) Change 27 (both Washington DC, 1 April 1984).

858 Romjue, op cit. pp. 79-80, 92-93, and 189-190. See also Isby and Kamps *Armies of NATO's Central Front* op cit pp. 382-387.

commander and executive officer. The company armorer drove one 2.5-ton truck with trailer that would have been used mainly to carry company supplies as well as weapons and equipment not currently in use. It could also carry the men's rucksacks whenever these were not needed. The other truck, driven by the company NBC sergeant, would carry chemical and biological decontamination equipment. During combat both trucks could bring food and ammunition forward, though they could expect to encounter the usually difficulties that larger and heavier vehicles would have in operating forward of the battalion combat trains (see Appendix 12.23).[859]

The battalion anti-armor company was nearly identical to the anti-armor companies used by the airborne and air assault battalions (see Appendis 12.24).[860]

The battalion HHC was merely an expanded version of the AOE HHC in an airborne or air assault battalion (see Appendix 12.25). However, it did use the older 4.2-inch mortars in its mortar platoon and had a motorized scout platoon (eight machinegun jeeps) in lieu of dismounted scout squads. One Gamma Goat in the communication platoon carried the retransmission team and their equipment. One jeep was for the communication officer and another was for a two-man radio teletype team. When the HHC displaced, ten communications platoon members rode in one of the 2.5-ton trucks from HHC headquarters. One of the transportation section's fifteen trucks served as a refueler vehicle. The rest were for ammunition As with the motorized battalion that operated with the *Pershing* brigade, service support doctrine with this battalion tended to de-emphasize the combat trains, using them primarily for the battalion aid station and also as a collecting point for damaged or disabled vehicles. The transportation section would deliver their loads to company trains areas for distribution within the companies by company headquarters vehicles. LOGPAC comvoys would include a mess section truck to distribute meals. The size of the battalion maintenance platoon was in consistent with its larger stable of vehicles. However, the medical platoon was surprisingly small. The treatment section and two ambulance squads were typical of smaller AOE battalions. Even at full strength the medical aidman section allowed only one combat medic per rifle platoon and one for the anti-armor company.[861]

Ten years later the Army had applied the same changes to these battalions as it had applied to other AOE units. The rifle and anti-armor companies lost their communication chiefs (see Appendix 12.25). TOW squads in the anti-armor companies went from four men each to three. HMMWV and LTV trucks replaced the older vehicles. The AAC received enough .50-caliber and MK-19 heavy machineguns to enable each HMMWV TOW carrier to mount a heavy machinegun in lieu of a TOW launcher. For its local defense each TOW section (two vehicles) also received one 5.56mm SAW (see Appendix 12.27).[862]

The changes made to the HHC were somewhat more complicated and so they are shown in Appendix 12.28.

In the battalion headquarters, the S-1, S-2, S-3, and S-4 sections as before, though three signal support system specialists (for the battalion TOC) reinforced the S-3 section. Two supply specialist assistants in HHC headquarters not only assist the supply sergeant but also drive the HHC commander and executive officer's HMMWVs. The HHC armorer and a driver operate the two HHC headquarters trucks. As in other AOE units, the communication platoon lost its teletype team, telephone wiremen and switchboard operators. Four forward signal support NCOs replaced most of the team chiefs. In the battalion support platoon, the transportation section picked up an LMTV to carry NBC decontamination equipment. The mess section expanded to 20 men and three trucks as a result of the Army's retreat from prepackaged "heat and serve" food. The section also has the new MKT kitchen trailers plus two company kitchens (without vehicles) for limited decentralized battalion feeding. The medical platoon's aidman section received enough additional medics to allow up to four per rifle company.[863]

In 1991 the Army Reserve and National Guard counted 10 combat divisions (all National Guard) and 24 maneuver brigades or armored cavalry regiments (21 Guard and three Reserve). Together, these units included about 70 infantry battalions of the National Guard type. By 1999 most if not all these battalions had either deactivated or converted to light, air assault, or mechanized infantry. The number of light infantry battalions in the Guard (and, prior to 1991, the Reserves) has increased from about 13 to more than 30. Most are in separate brigades since, of the eight National Guard Divisions, only the 29th has a light infantry structure. The conversion to light infantry has enabled the Guard to absorb recruiting shortfalls without losing additional combat units and has made its infantry brigades easier to transport overseas. Two of the Guard's divisions (seven out of eight are armored or mechanized except for the 29th) each include an air assault infantry brigade.[⌀] These use the current AOE structure

[⌀] In 1985, the National Guard had two armored, two mechanized, five infantry and one light infantry divisions. It also had 17 separate brigades (three armored, six mechanized, and eight infantry), four armored cavalry regiments, and a number of separate maneuver battalions, companies and platoons. The Army Reserve could add three separate brigades (one mechanized, one infantry, and one light infantry) and a few smaller units. As of 1999 all the Army Reserve Brigades had become to training support units. Only eight Guard Divisions remain (one armored, four mechanized, two "mixed" (with an armored brigade, a mechanized brigade, and an air assault infantry brigade in each), and one light infantry). The Guard also has 17 "Enhanced Readiness" Brigades (one armored, five mechanized, two armored cavalry, and seven light infantry) and two other brigades (one armored and one infantry), presumably kept at a lower state of readiness.

859 Dept Army T/O & E 07077L0 Rifle Company, Infantry Battalion (AOE) (Washington DC, 1 April 1987).

but even they represent a manpower economy since they still require fewer soldiers than the National Guard type battalions did.[864]

The Army currently retains one specialized cold weather battalion. It is a National Guard unit, the 3rd Battalion, 172nd Infantry (Mountain) and is headquartered in Vermont, but has rifle companies in New Hampshire, Maine, and Rhode Island. Despite 3/172 Infantry's "mountain" title, its mobility in mountainous terrain would not be much better than that of any other AOE light infantry battalion. Its HMMWV and 2.5-ton trucks cannot negotiate steep slopes or narrow mountain trails any better than similar vehicles in other units. The battalion is intended for use in areas where even the US Army does not fear a major tank threat and thus it has no anti-armor company. However, under the guise of making the battalion more suitable for "mountain" operations, the Army used the extra manpower available in the Guard to stuff the this unit full of the extra weapons and specialized sub-units that it could not afford to have in other battalions (see Appendix 12.29).[865]

The battalion's three rifle companies field the same 27 nine-man rifle squads that form the core fighting strength of every AOE-type light infantry, airborne, air assault, National Guard, or Ranger battalion. The rifle platoons resemble those in the Ranger battalions in that each has a machinegun squad rather than a weapon squad or separate machinegun teams. The company has separate mortar and anti-armor sections rather than a weapons platoon. The anti-armor section resembles the one in a light infantry company. The mortar section has its own headquarters (with section leader, fire control computer, and radio operator) and three, rather than the usual two three-man squads. The sniper squad (armed with the M24 sniper rifle) is intended to operate as three two-man teams (see Appendix 12.29).

The rifle company headquarters was the same as its counterpart in an airborne, air assault, or light infantry battalion except that the company commander, executive officer, and supply sergeant each had his own HMMWV. The latter vehicle towed a 3/4-ton trailer loaded with company equipment that was not currently in use. It could also assist the transportation section in hauling supplies to the company from the combat trains.[866]

Like the rifle companies, the mountain battalion HHC resembles similar units in other AOE battalions but with numerous but mostly non-essential additions (see Appendix 12.30). However, battalion headquarters has neither a dedicated radio operator for the executive officer nor a vehicle for the sergeant major. The S-3 section includes two liaison officers to better enable the battalion to operate outside of a brigade structure. The S-4 section also includes a warrant officer and an E-5 to keep the battalion's property book (a task normally done at division level).

The battalion reconnaissance platoon is an enlarged version of the standard AOE dismounted type. Since the antitank platoon was intended for dismounted operations (appropriate in mountainous terrain) it exchanged the usual TOW carriers for three squads with the same *Dragon* or *Javelin* missiles that the rifle companies use. Having no organic vehicles this platoon must rely on the battalion transportation section for missile resupply. The battalion's enhanced mortar platoon is similar to those in the motorized combined arms battalions of the now defunct 9th Infantry Division. Like the Army's independent airborne battalion in the Southern European Task Force (SETAF), the 3/172 Infantry has received authorization for its own engineer platoon, MANPADS (MAN-Portable Air Defense System) section and maintenance section, though the manpower for these units may not yet be available. These units provide the battalion with support services that would otherwise come from a parent division. Besides the usual combat engineer tasks (including demolitions) the engineer platoon can build roads or trails, small buildings or shelters, suspension bridges, and mortar firing positions. The MANPADS section operates *Stinger* shoulder-fired surface-to-air missiles but the current absence of any air threat makes such a section difficult to justify.[867]

The mountain battalion's medical platoon features an enlarged company aidman section that can attach up to five medics per rifle company rather than the usual three or four. The purpose seems to have been to better deal with cold injuries but, given the Army's relative shortage of medical personnel, a similarly sized aidman section might be

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860 Dept Army T/O & E 07078L0 Anti-Armor Company, Infantry Battalion (AOE) (Washington DC, 1 April 1987).

861 Dept Army T/O & E 07076L0 Headquarters and Headquarters Company, Infantry Battalion (AOE) (Washington DC, 1 April 1987). See also Dept Army *TOE Handbook* 07075L-CTH (Washington DC 27 Dec 91) pp. 57-63.

862 Dept Army T/O & E 07077L0 Rifle Company and T/O & E 07078L0 Anti-Armor Company, Infantry Battalion (AOE) (both Washington DC, 4 Apr 1997).

863 Dept Army T/O & E 07076L0 Headquarters and Headquarters Company, Infantry Battalion (AOE) (Washington DC, 4 April 1997).

864 Army Green Book 1999-2000 Unit List, published in AUSA Magazine Vol. 49 No. 10 (Washington DC Oct 1999) pp. 224-241. See also Isby and Kamps *Armies of NATO's Central Front* op cit pp. 382-387. See also the Army "Green Book" (AUSA Washington DC) for 1999.

865 CPT James D. Campbell, "Mountain Infantry Company, Winter Raid" Infantry Journal Vol. 86 No. 3 (Ft. Benning GA, Sep-Dec 1998) pp. 39-44. See also T/O&E 07316L and 07317L below.

866 Dept Army T/O&E 07317L0 Rifle Company, Infantry Battalion (Mountain) (AOE) (Washington DC 31 Oct 1997).

867 Campbell "Mountain Infantry Company" op cit. See also Dept Army T/O&E 07316L0 Headquarters and Headquarters Company, Infantry Battalion (Mountain) (AOE) (Washington DC 31 Oct 1997). For SETAF see Dept Army T/O&E 07035E0 Infantry Battalion (Airborne) SETAF. This battalion features an enlarged HHC and a Combat Support Company (CSC) that included a MANPADS section, a combat engineer platoon, and an assault and barrier platoon (a more specialized engineer unit).

very desirable in other infantry battalions. The service platoon's transportation section has five HMMWV trucks that primarily deliver ammunition to the rifle companies and the combat support elements of the HHC. Five of the 2.5-ton trucks serve as fuel carriers while the sixth is the battalion decontamination vehicle. The battalion's unusually large fuel requirement stems partly from the need to heat shelters and partly because, in deep snow the battalion will usually have a number of M-973 SUSV (Small Unit Support Vehicles) attached. The SUSV is actually the Bv-206 all-terrain carrier built by Hagglunds of Sweden. The US Army bought about 700 of them as special purpose vehicles for cold regions and has issued them to the former 6th Infantry Division, now the 172nd Infantry Brigade in Alaska, as well as to the 3/172 Infantry. The Bv-206/SUSV consists of two tracked and fully enclosed (but unarmored) units linked by a steering unit. Wide tracks allow the vehicle to "float" on deep snow and the two linked units together achieve the very high degree of cross-country mobility that was attempted but not achieved in the old Gamma Goat. The vehicle is amphibious and can ascend a 60% slope. Top speed is just over 30 miles per hour. Five or six men can ride in the front unit and 11 in the rear unit. Total cargo payload is nearly five short tons. When SUSVs are used, typically one is assigned to the engineer platoon, one or two go to the maintenance section, and two to each rifle company. Enough vehicles go to the transportation section to lift at least one rifle company. SUSVs can supplement or replace 2.5-ton trucks if weather and terrain conditions are especially unfavorable.[868]

[868] Ibid. For a description of the SUSV/Bv-206 see Christopher F. Foss and Terry J. Gander Ed. *Jane's Military Logistics* 1990-91 (New York and London, Jane's Publishing Co. 1991) pp. 613-614. Recently the Army released new tables of organization for the 172nd Brigade in its current cold weather configuration. Each battalion received 33 SUSV's (three command variants, four ambulance, five flatbed cargo and 21 standard cargo) for its support platoon's transportation section. Each support platoon also received a 10-man battalion maintenance section (with two LMTV trucks, one MTV wrecker, and one LMTV trailer). Apart from this there has been little change to the standard light infantry battalion structure. See Dept Army T/O&E 07015L200 Infantry Battalion (Arctic) (Light); 07016L200 Headquarters and Headquarters Company, Infantry Battalion (Arctic) (Light); and 07017L200 Rifle Company, Battalion (Arctic) (Light) (all Washington DC 27 March 2001). Tables for an airborne version of this battalion have also been issued.

THE FUTURE

Speculation on the future of any enterprise has always been a dangerous activity that has spelled the ruin of many a reputation. Nevertheless, this writer hopes that, since he has penned so large a volume about the past the reader may excuse him a little theorizing about the future. However, even for this we must look at the past once again. Specifically, we should examine the defeat of Task Force Smith near Suwon in South Korea in July 1950, since this event that has had so much to do with the shaping of the post Cold War Army that we see today.

At the beginning of the American involvement in the Korean War, it seemed as if the US Army had reached its nadir. At the end of World War II the US Army had 89 combat divisions, most of them battle-tested, but only five years later the only Americans available to go to the aid of South Korea were ill trained and under strength garrison troops equipped with worn out and poorly maintained weapons. Task Force Smith was hurridly assembled in Japan as an immediate reinforcement that would reach South Korea by air and fight to gain enough time to allow most US forces to arrive by sea. Named after its commander, Lieutenant Colonel Charles Bradford Smith, Task Force Smith consisted of about half of Smith's 1st Battalion, 21st Infantry of the 24th Infantry Division plus a few elements from the 21st Infantry's mortar, service, and medical companies. The fact that only six C-54 transports were available for the flight from Japan limited the size of Task Force Smith to 17 officers and 389 enlisted men. These formed two understrength rifle companies (B and C Companies, 21st Infantry), half a battalion headquarters company, and a composite weapons platoon (two 75mm recoilless rifles and two 4.2-inch mortars). In the rifle companies the weapons platoons had only two 60mm mortars apiece and no recoilless rifles. The rifle platoons were more or less complete but the bazookas in the platoon weapon squads were obsolete 2.36-inch (60mm) M9's with badly deteriorated ammunition. On 4 July Battery "A" of the 52nd Field Artillery Battalion (plus elements of the battalion headquarters and service batteries) joined Task Force Smith. This reinforcement totaled nine officers, 125 men, six 105mm howitzers and 73 vehicles. At about 0300 next morning Smith's men occupied a group of three hills that overlooked the road and railroad running from Suwon to Osan. These hills also commanded a good view of much of the surrounding countryside. After placing his infantry on the hills and his artillery a short distance behind them Smith hoped that he would be able to at least delay the North Korean advance on the town of Osan. About 0730, the Americans saw tanks approaching along the Suwon-Osan road. They proved to be 33 Soviet-built T-34/85 mediums from the 107th NKPA Tank Regiment. They drove right through the infantry's position, hardly deigning to notice the bazooka rockets that bounced ineffectively off their side and rear armor. Four tanks were disabled, mostly by hits from the six antitank shells that Army Ordnance had been able to supply to the howitzers. The rest of the tanks continued their advance towards Osan, destroying one howitzer as they passed. Meanwhile, infantry from the 16th and 18th Regiments of the 4th NKPA Infantry Division were approaching Smith's positions along the same road that the tanks had come. Most rode in trucks escorted by a few tanks. Smith waited until the enemy (none of whom had taken any notice of the Americans) were about 1,000 yards away and ordered his men to open fire. Unfortunately, the Americans were still too far away for their fire to be really effective and the North Koreans soon recovered from their initial surprise and casualties. About 1,000 of them launched a counterattack, which soon began to envelop Smith's men on both flanks. Fearful of being cut off Smith ordered a retreat but this soon became a rout as the Americans in their anxiety to escape, began to abandon their vehicles, heavy weapons, and even their wounded. Fortunately, the North Koreans did not pursue. They seemed content just to occupy Smith's former positions, loot his supplies, and collect trophies. Meanwhile, after Smith's men had finally straggled into Taejon (south of Osan) more than a third of them (184) were still missing. All were presumed dead or taken prisoner. The battle had cost the NKPA 42 dead and 85 wounded.[ℱ] They had hardly been delayed at all.[869]

The next few weeks brought a succession of US defeats that were sufficiently humiliating that the Task Force Smith debacle seemed almost tolorable. Many officers who had witnessed these fiascos had doubtless promised themselves that they would never allow the Army to fall into such a woeful state of unreadiness again. In a purely material sense they can be said to have succeeded. Since the late 1970s, Army infantry units have been indunated with high tech equipment, said to be the finest in the world in every category. Manpower has been far better in both quality and quantity except during the late 1970s as the Army recovered from its moral collapse in Vietnam. By most measurements the Army's infantry has come a long way since Korea and Vietnam. But has it?

Since Vietnam the Army has seen very little actual combat. Even the ground war in Desert Storm hardly qualified as "combat." The Iraqi Army merely retreated without offering any organized resistance. Most of the "fighting" consisted of US troops shooting at abandoned Iraqi tanks - or at each other. However, over the past 20

[ℱ] The North Korean losses shown include a few casualties that were actually sustained at P'yongt'aek the next day. The American casualties apparently included a few seriously wounded men who managed to escape or get themselves evacuated. The bulk of the wounded did not escape. Few were heard from again.

[869] This account of Task Force Smith's defeat comes primarily from Roy E. Appleman, *South to the Naktong, North to the Yalu* op cit pp. 59-76. Also consulted was Harry G. Summers, Jr. *Korean War Almanac* op cit pp. 272-273.

years or so the Army has been training its troops by using lasers to simulate the effects of rifle and cannon fire. Though still a long way from real combat it does offer a degree of training realism (in direct fire engagements at least) that was never possible in the past. The Army has set up a number of combat training centers (CTC) in both the Continental United States and in Germany where combat battalions and brigades fight a simulated "wars" against Soviet style "opposing force" or OPFOR units made up of US Army personnel who play the "enemy" full time. The best-known CTC is the National Training Center (NTC) at Fort Irwin California. NTC has mostly desert terrain and is used to train mainly armored or mechanized brigades. The Joint Readiness Training Center (JRTC) at Fort Polk, Louisiana mainly trains light, airborne, or airmobile infantry, though some heavy units can train there as well. The Combat Maneuver Training Center (CMTC) in the Hohenfels Training Area in Germany also trains light and mechanized forces. Though it must be emphasized that these CTC exercises are not real war, their level of realism is such as to give them some credibility as measures of unit effectiveness and officer skill.[◔] If we accept this premise then it should be disturbing to note that these exercises routinely end with the defeat of the "friendly" or "Blue" force. It should be said, however, that since the OPFOR units at the training centers do nothing provide opponents for these "force on force" exercises, they will naturally tend to become much more proficient than most real enemies are likely to be. Realizing this, the training centers usually try to "level the playing field" by restricting their OPFOR units' use of mines, artillery, and chemical weapons and by forcing them to use highly scripted and predictable versions of Soviet tactics. Such will, of course, reduce realism. Realism is further reduced when one realizes that future opponents will probably not use "traditional" (or at least the US Army's conception of) Soviet tactics. On the other hand the Army has rejected the alternative of "free play" exercises that would pit one "Blue" unit against another and without the need of an OPFOR. Of course, pitting "like" against "like" (though they need not be very much alike - light infantry units could fight armored ones, for example) may not provide good training for fighting dissimilar enemies. However, perhaps the biggest objection from the Army's standpoint is that it will introduce genuine competition to combat training. Winning and losing and acquiring combat skills (or at least the skills that enable one to win at these wargames) might even become an important part of an Army officer's career. The Army has used free play maneuvers in the past, most notably in the Louisiana Maneuvers of 1941 that did so much to prepare the Army for World War II. However, nobody likes to be found wanting. Promoting a favorite could also become difficult if he keeps losing in free play exercises.[◔] Thus, the officers commanding Blue forces are not graded on whether they win but on how closely they adhere to official Army doctrine and procedures.[870]

The Army is understandably reluctant to provide detailed data on its exercises to outsiders. However, we do have good information on at least one exercise held in October 1993 at the CMTC. The "Blue" force was built around the 3/325 Airborne Battalion Combat Team (ABCT). The 3/325 ABCT constitutes the Army's Southern European Task Force (SETAF). It is considered an elite unit and gets some of the best officers and men that the Army has. Based at Vicenza, Italy, it was one of the lead units in the Army's recent occupation of Bosnia-Herzegovina. The 3/325 ABCT is based on a standard AOE-type airborne battalion with an enlarged headquarters and communication platoon and reinforced by a combat support company (mostly engineers) and a light artillery battery (that appears to have remained in Italy). For the CMTC exercise the 3/325 received attachments in the form of a full battalion of self propelled 155mm howitzers, an attack helicopter company (eight AH-64), a multiple rocket launcher system (MLRS) battery, two military police (MP) companies, and enough UH-60 and CH-47

[◔] Recently, the Army's numerous commitments in the former Yugoslavia and the Middle East have made additional inroads into training time and money and caused CTC performance to deteriorate still further. See the Brief given to the FORSCOM Commanders' Conference on NTC (January 2000), for which this writer has the slides. It is surprisingly frank and describes deficiencies in every area but particularly in the poor initiative of small unit leaders and lack of skills of staff officers and commanders. Also, see the briefing given on 30 August 2001 by Mark L. Lewis (who had recently resigned as an Army captain) titled "The Army Transformation Meets the Junior Officer Exodus." Lewis presented the results of his own research, based on publicly available Army data, to the "Security for a New Century" 107th Congress Discussion Group. Lewis says that the Army's efforts to make good the shortfalls caused by the increased numbers of captains choosing to leave the service since 1995 (many of them fleeing the effects of poor senior leadership and a declining culture) have led to a dramatic decline in officer quality. He notes that the quality drop is relected in, among other things, unit performance at the CTCs. Lewis cites a January 1999 Inspector General's report to the senior Army leadership and testimony to Congress by the NTC OPFOR commander and a number of other senior officers and NCOs detailing a rapid decline in combat skills. Lewis also cites a September 1999 GAO report "Full Training Benefits from Army's Combat Training Centers Not Being Realized" which details the Army's efforts to unit performance at the CTCs by handicapping the OPFOR. As we will see below, even pre-1995 performance was not all that hot.

[◔] The poor record of "Blue" forces is difficult to document precisely because the Army does not like to record its exercise data in terms of "winning" and "losing" (too judgemental!). However, a few examples may suffice. In one study (Army Research Institute, "The Determinants of Effective Performance of Combat Units at the National Training Center" MDA903-86-R-0705 Final Report, June 1992) of a group of 14 battalion task forces that had trained at NTC, the battalions completed only 17% of their missions successfully. Companies performed at about the same level (18% success) while platoons did better (27%).

[870] Some of the unrealities of CTC "battles" are described in Lt. Ross F. Lightsey and SFC George L. Brooks, "CMTC Lessons from the Platoon Leader's Perspective," Infantry *Journal* Vol. 88 No. 2 (Fort Benning, GA May-August 1998) pp. 38-41. More documentation of company level exercises can be found in Bryan W. Hallmark and James C. Crowley, *Company Performance at the National Training Center* (Rand Corp. Arroyo Center 1997). Additional information is usually available at the General Accounting Office website at http://www.gao.gov.

transport helicopters to lift at least one rifle company. Detachments of civil affairs, communication, and logistics personnel and even a propaganda (PSYOPS) unit brought the ABCT to a total of over 1,000 troops. The 3/325's OPFOR opponent consisted of a Soviet-style motorized rifle battalion task force with a tank company and two "motorized rifle" companies. The tank company had 12 M60A1 main battle tanks representing Soviet T-72 tanks. The motorized rifle companies totalled 24 M113 armored personnel carriers representing Soviet BMP infantry fighting vehicles. These carried (we presume) 18 rifle squads. Artillery would be in support. The entire OPFOR was supposed to have 500 troops, or about half as many as the 3/325 ABCT. Its mission was to penetrate the 3/325 ABCT's sector and capture the town of Ubungsdorf. Ubungsdorf is not a real town but an $11 million "combat town" built specially to train troops in urban warfare. Therefore, the 3/325 could actually have defended it, had it chosen to do so, and without incurring the ire of the German populace. The 3/325 ABCT's mission was to defend its sector and destroy the OPFOR.[871]

The 3/325 ABCT's situation bore some similarities to that of Task Force Smith 43 years earlier. It was occupying hilly terrain in order to stop an attack by enemy armor and infantry against a town. However, it outnumbered its opponents by two to one whereas Task Force Smith was itself outnumbered by nearly eight to one. The 3/325 ABCT also had far more opportunity to prepare itself for battle than Task Force Smith ever did. It had already conducted about five days of platoon and company level training in the area it was to defend. It knew what the OPFOR's exact objective was and at least approximately the route it would have to take to reach it. To make its preparations (issuing orders, preparing the ground, etc.) exercise controllers gave the 3/325 an unrealistically generous 36 hours. The 3/325 even conducted several pre-battle rehearsals to ensure maximum readiness. (Task Force Smith, by contrast, had only a little more than four hours to prepare on terrain that no one had seen before, apart from a few officers who had briefly reconnoitred it on the previous day. There was no time for rehearsals. Most of the officers and men already had several days of little or no sleep. The 3/325 was well rested.)

The 3/325 ABCT's sector was about 8,000 meters in length from the start of its security area to its rear boundary. Width varied between 2,500 and a little over 4,000 meters. The area contained about a dozen low hills. In the open level ground between the hills the 3/325 ABCT planned about a dozen "engagement areas" (EA) that would offer clear fields of fire for 3/325 ABCT's numerous antitank weapons. Given its easily defended position and numerous heavy weapons the 3/325 ABCT should have easily made short work of the OPFOR.[872]

The actual "battle," however, turned out rather differently. In about 90 minutes (or half the time it took the NKPA to deal with Task Force Smith) the OPFOR overran the 3/325 ABCT and captured the town. Exercise controllers determined that the OPFOR had destroyed 80% of 3/325 ABCT at a cost of about 20% of its own men and equipment, including six tanks. Neither Task Force Smith nor 3/325 ABCT ever made any real attempt to maneuver or seize the initiative and merely opened fire as its enemies approached. Task Force Smith's actions are understandable. It was ill prepared and badly confused about its situation. The 3/325 ABCT, on the other hand, was well prepared and fully informed. Its commander knew that Ubungsdorf was the OPFOR's objective. He could easily have held it with a rifle company but instead chose to leave it completely unguarded. He never made use of his transport helicopters to either move troops into the town or to postion them for an ambush as the OPFOR approached. The 3/325 commander did nothing because Army doctrine taught him that any sort of maneuver by dismounted infantry in the presence of a mechanized enemy is "suicidal." The fact that actual combat has repeatedly demonstrated the nonsense of this idea has counted for little since few Army officers study combat any more. Instead, the 3/325 ABCT tried to destroy the OPFOR with artillery and attack helicopters while leaving its infantry to stand by as passive spectators. Never mind that artillery rarely destroys armor or that attack helicopters need close coordination, are vulnerable to the weather and air defenses, and are often unavailable due to maintenance requirements. In CMTC, NTC, and JRTC) exercises artillery and helicopter support frequently does fail. Nevertheless, the 3/325 commander decided to rely on them to stop OPFOR from reaching the town and scattered his troops throughout his sector in detachments that were so small that OPFOR could easily overwhelm or bypass them. Though the anti-armor company's TOW launchers had their own lightly armored HMMWV TOW carriers, each remained as voluntarily immobile as the rifle units. Also, the terrain restricted TOW engagements to ranges of less than 1,500 meters, where the TOW crews were vulnerable to OPFOR cannon and machinegun fire. When, the OPFOR moved too fast for the Blue artillery to react and the Blue attack helicopters failed to show up on time, the 3/325 ABCT remained passive and let itself be overrun just as it had at the CMTC exercise of the preceding year. Similar battalion task forces of Rangers, airborne, air assault, and light infantry troops have performed in similar

fashion.[1] Despite its inexcusably poor performance, the 3/325 ABCT was complemented on its "professionalism."[2] Its faithful application of Army planning and doctrinal processes that had made the operation a "success."[873]

Although such field exercises suggest that Army doctrine requires some serious rethinking, they also indicate that the Army has lost faith in any infantry that is not encased inside of armored vehicles or does not fly over the battlefield in helicopters. However, armored vehicles and helicopters are merely transportation. Without its feet on the ground the infantry cannot fight. Recent combat experience in Chechnya and elsewhere should have demonstrated that the infantry can still fight and survive quite successfully on the ground, even against mechanized opponents. In fact, the capabilities of the newer anti-armor weapons suggest that its ability to do so has never been greater. However even the best infantry can hardly guarantee the casualty and/or risk free combat that today's politicians and public opinion seem to demand. Though armored vehicles and/or helicopters cannot ensure risk free success any better than footsoldiers can they do offer an illusion of safety that the Army seems willing to settle for even if the reality is unattainable. Therefore the Army has scripted its CMTC and JRTC exercises so that the "friendly" infantry must rely not on its own capabilities but on its air and artillery support to win. Worse, these exercises are encouraging Army officers to exalt process and routine over imagination, initiative, and even victory.[874]

The Army's insistance that only "heavy" (or armored) forces can win land battles encountered serious difficulties during the recent 1999 Kosovo War. The Army's contribution to what had been primarily an air war waged on behalf of ethnic Albanian insurgents in the Serb-owned province of Kosovo was to have consisted of Task Force "Hawk." Task Force "Hawk" was a battalion of 24 AH-64 attack helicopters backed up by a large support force. One company of 70-ton M1 main battle tanks and three companies of 30-ton M2 infantry fighting vehicles (with 14 tanks or IFV's per company) constituted a ground security force. (This was in spite of the fact that even the M2s were too heavy to use most of the bridges and in many areas could not leave the roads.) Fighting the Serbs on the ground would risk too many casualties. Despite the mountainous terrain in Northern Albania the security force included no light infantry (although there were some military police). Other task force elements included a battery of MLRS multiple rocket launchers to suppress any Serb air defense units operating close to the Albanian border. Engineer units would build and maintained the helicopters' bases. Service units would provide supply, maintenance, and medical support. Transportation elements included 24 UH-60 utility helicopters and 13 CH-47 medium helicopters. A brigade headquarters would command the Task Force while a corps headquarters in overall command ensured total micromanagement at every level. In all, the support of Task Force Hawk's 24 attack helicopters consumed 6,200 troops and 10,300 pieces of equipment totalling 26,000 tons. In April 1999 Task Force Hawk deployed from Germany to northern Albania to launch helicopter strikes against the Serbs. The deployment required one month, 480 million dollars, and 550 C-17 sorties. (The C-17 is the Air Force's latest inter-theater transport aircraft. It can lift a 70-ton cargo payload.) Despite the effort and expense devoted to it Task Force Hawk never saw any combat. The pilots were not trained to fly in Albania's mountains and there was great concern about helicopter casualties from Serbian light antiaircraft guns and hand-held missiles. However Task Force Hawk still managed to lose three of its AH-64 helicopters (and one two-man crew) in training accidents. After the United

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[1] Even when Army light infantry does try to maneuver and become proactive, the results tend to be disappointing. In what was described as a typical example of a JRTC problem, one light infantry company on a "search and attack" (i.e. "search and destroy") mission encountered a fire team of OPFOR light or irregular infantry. Though the lead platoon actually surprised the OPFOR initially, the lead squad leader forfeited his advantage by waiting for orders and it was the OPFOR who attacked. Lightly equipped OPFOR members were soon running circles around their unreacting and confused opponents and ultimately subjected them to four and one half hours of harassment with ambushes and sniper and mortar fire. Blue force members were carrying their rucksacks due to the limited capabilities of their combat trains. They left them badly overloaded, even though this was only a training exercise and involved carrying very little ammunition. As SLA Marshall described in his book, *The Soldier's Load*, the result was slowed movement and reaction times, increased fatigue, and the surrender of a big advantage to the OPFOR. Naturally, poor initiative and the conspicuous lack of Blue force leader skills did not help much either. As had so often occurred in Vietnam, the Blue force soon forgot its original mission and the action soon degenerated into a casualty evacuation exercise. When OPFOR team finally broke of the action it had lost one of its own men but had "killed" or "wounded" 11 of the 24 effective men present in the Blue first platoon, had knocked out two of Blue's battalion ambulances, and completely frustrated Blue's mission. Similar actions had often occurred in Vietnam. The Russians undoubtedly have had similar troubles in Chechnya. CPT Steve Young, "Joint Readiness Training Center (JRTC) Dissecting a Firefight, OPFOR Observations from the JRTC" Combat Training Centers (CTCs) *Bulletin* No. 95-1, Feb 95 (Fort Leavenworth, Kansas, Center for Army Lessons Learned, TRADOC 1995) pp. 15-19.

[2] It is disturbing but interesting to note that the Army rarely punishes officers for doing poorly at CTC training (so long as they observe correct procedure!) and just as rarely rewards those who do well. The reader should contrast this with the way the Army treated the Louisiana Maneuvers of 1941, which were intensely competitive and taken very seriously. The Army removed 31 of its 42 division, corps and army commanders for poor performance and to make way for a new generation of younger men including, among others, Dwight Eisenhower. The Army's senior leadership for the coming war was undoubtedly much improved by this. Carlo D'Este, *Patton*, op cit pp. 395-400.

[871] MAJ Greg Pickell USANG "The Defeat of Task Force Smith, 20 October 1993" Unpublished manuscript. MAJ Pickell witnessed this operation as part of the exercise control group. He compares it to the Task Force Smith battle and his descriptions provide considerable detail.

[872] Ibid.

[873] Ibid.

[874] Lightsey and Brooks, "CMTC Lessons from the Platoon Leader's Perspective," op cit.

States and its allies were forced to conclude the war by backing down on their more strident demands for Serbian concessions, the Army needed another 81 C-17 sorties plus the use of 30 trains and 20 ships to return Task Force Hawk to Germany.[875]

Task Force Hawk brought the Army's leadership face to face with the prospect of permanent irrelevance if it could not do something to improve the Army's strategic mobility. Before the end of 1999 the new Army Chief of Staff General Eric Shinseki had announced that the Army would undergo a "transformation" to increase its strategic mobility without sacrificing its combat effectiveness. However the transformation focused not on the Army's aviation units whose support requirements had doomed Task Force Hawk to impotence but upon the Army's ground combat units. Though the Army saw its "heavy" units equipped with M1 tanks and M2 IFV's as invincible in battle, it complained that were too heavy to be able to reach a foreign battlefield within an acceptable time frame. The Army saw its "light" units (light infantry, airborne, air assault, etc.) as lacking "staying power," meaning that the Army did not believe it possible to fight effectively without heavy armor and artillery. The Army's solution was to eventually replace all its "light" and "heavy" forces with a "medium" force equipped with a family of 19-ton medium armored vehicles (MAV). The 19-ton weight limit was to ensure the Air Force's smallest long-range transport aircraft, the C-130 *Hercules*, could lift even the heaviest piece of medium force equipment.[876]

The Army plans to phase in its medium force in two stages. The first stage is to convert certain brigades into an "interim" force equipped with an interim medium armored vehicle, or IMAV. The IMAV would be an "off the shelf" armored vehicle design, selected after competitive trials, and modified to meet Army requirements. An IBCT would be structured to independently and would include its own artillery and other support troops though it would also retain any divisional affiliations it might have. Brigades not converted into IBCT's would constitute the Army's "legacy" force. Current budget restrictions have limited the interim force to six brigades (including a National Guard brigade). These brigades would serve as the nucleus for most Army expeditionary forces. The second stage of the "transformation" (requiring about 10 years) will be the move to the "objective" force. The objective force would employ a purpose-designed MAV to be known as the FCV or Future Combat Vehicle. Predictably, the FCV will use "emerging technology" to obtain the same levels of firepower and armor protection currently enjoyed by the 70-ton tanks and 30-ton IFV's that it would be replacing.[ৡ] With minor exceptions (like the Rangers) all the Army's light, heavy and interim forces would gradually convert to the objective force standard.[877]

The Army published its first tables of organization for an IBCT on 12 April 2000. It has three motorized infantry battalions, supported by a field artillery battalion, a battalion-sized reconnaissance squadron, a (logistical) support battalion, and separate engineer, signal, anti-armor, military intelligence, and headquarters companies. In late November the Army announced its selection of the LAV-III (Light Armored Vehicle, originally a Swiss design), offered by General Dynamics and General Motors of Canada, as its basic IMAV design. The IMAV would appear in ten different variants (personnel carrier, reconnaissance, mortar carrier, forward observer, engineer, ambulance, antitank, NBC reconnaissance, and mobile gun system). As of this writing (December 2000) an IBCT infantry battalion has a fairly conventional structure based on an HHC and three rifle companies. It will include 75 IMAV's. Four MAV personnel carriers will lift each rifle platoon (three nine-man rifle squads and a weapon squad). Since April 2000 the weapon squad has its two *Javelin*-equipped anti-armor specialists (shrinking itself to a leader and two three-man machinegun teams). However, each rifle squad includes its own anti-armor specialist with a *Javelin*. Besides three rifle platoons, a rifle company includes a 10-man mortar section with two IMAV's, a mobile protected gun (MPG) platoon (three IMAV's), a three-man sniper team, and a fire support team (with IMAV). The mortar section can employ either two 60mm or two 81mm mortars in either a mounted or dismounted configuration. The MPG platoon will use an IMAV equipped with a direct fire 105mm main gun in an armored

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ৡ As of this writing, two Army brigades are undergoing conversion to IBCTs at Fort Lewis Washington. One of these is a former heavy brigade from the 2nd Infantry Division in Korea and the other is a former light infantry brigade from the 25th Infantry Division in Hawaii. Reccently, the Army announced the planned conversion of two more brigades. Currently, both are light infantry units. One is a second brigade from the 25th Infantry Division (and it is on Hawaii) and the other is the 172nd Infantry Brigade (Separate) in Alaska (it is the former 6th Infantry Division). Another IBCT is expected to come from the National Guard. If a sixth IBCT is required it will almost certainly be converted from an existing light brigade. Since it appears from the foregoing that most IBCT conversions will be from light brigades it would seem that the "transformed" Army will actuually be getting heavier and not lighter. See Sean D. Naylor, "Two New Interim Brigades Likely Going to Hawaii, Alaska" Army *Times*, 5 March 2001. Additionally, the Army has also announced that it will be replacing its remaining older but relatively easy to supply and maintain AH-1 Cobra attack helicopters with AH-64s. This is in spite of the fact that the AH-64's excessive maintenance and support requirements were directly responsible for the Task Force Hawk disaster. Another move towards a "lighter" force! Erin Q. Winograd "Task Force Finds Aviation Transformation At Least $2.5 Billion Short" *Inside the Army*, 25 December 2000.

875 Dana Priest, "Army's Apache Helicopter Rendered Impotent in Kosovo," The Washington *Post*, (Washington DC) December 29, 1999. US General Accounting Office, "Report to the Chairman,, Committee on Armed Services, House of Representatives, Kosovo Air Operations, Army Resolving Lessons Learned Regarding the Apache Helicopter" Document GAO-01-401 (Washington DC, March 2001) is a political whitewash that ignores most of the real issues involved. It does mention that Task Force Hawk used an MLRS battalion rather than a battery.

876 Official brief attended by the author on the Army's "Transformation" presented by Army Staff members under Col. Neal Anderson at the Pentagon Room 5A107 on 5 January 2000.

877 Ibid.

turret. Rifle company headquarters will have two command IMAV's, two five-ton trucks, and two HMMWVs. One truck is for supply and the other carries a company tactical operations center (TOC), thus helping to extend centralized micro-management to the lowest possible levels. Besides the usual command elements, the battalion HHC is to include a mortar platoon (with four squads carried in IMAV's and operating either 81mm or 120mm weapons), a reconnaissance platoon (four recon IMAV), a fire support section, a medical platoon (four IMAV ambulances), and a 10-man sniper squad. The former support platoon is now a part of the brigade support battalion. It will operate out of the brigade support area while sending detachments forward to support the battalions out of their combat trains areas.[878]

When compared to the failed High Technology Light Division (HTLD) of the 1980's, a "transformed" Army division with three IBCT's does at least offer more infantry. On the other hand, since its standard combat vehicle will be a 19-ton IMAV rather than a four or five-ton armored HMMWV, it will be significantly heavier. In fact, one IBCT will likely require nearly half the airlift of a current heavy mechanized brigade.[879] Since the Army seems to be inclining towards converting many more light than heavy brigades to the IBCT configuration it seems that at this stage the Army's attempts to reduce its airlift requirements will actually increase them. To meet its deployment objectives the Army has specified that the weight of an IBCT's equipment be no more than 7,800 short tons but as of April 2000 an IBCT weighed 12,600 tons. Changes to the tables announced in October 2000 reduced the IBCT's manpower from 3,900 to 3,500 and cut its weight to about 10,000 tons. More reductions will be needed. Part of the problem is the Army's insistance that all fighting elements in an IBCT infantry battalion ride in IMAVs. This is in spite of the fact that in many situations, such as air assaults or operations in urban or non-trafficable terrain, the IMAV's will only be in the way. The recent fighting in Chechnya and Afghanistan in which so many Russians died in the apparent safety of their armored personnel carriers should have reminded us that riding in an armored vehicle does not necessarily offer better protection or mobility than being on foot. Like Russian BTR-60/70/80 series personnel carriers, the new IMAV's are mainly transportation vehicles that lack the firepower and armor protection needed to survive direct combat. It would be better to do as General McNair might have done and, at brigade level or higher, pool enough carriers to lift one battalion per IBCT and make them available only when needed. Placing the IMAVs in separate transportation units will not only ensure sufficient ground mobility for the infantry, it will also prevent the weakening of the rifle platoons by diverting rifle squad members to fill MAV crew vacancies and by using time needed to hone infantry skills to perform MAV maintenance instead.[880]

It seems clear that the Army hopes that its new IBCT's will combine most of the advantages of its existing heavy and light forces though it appears more likely that they will instead combine many of their disadvantages. The difficulty with the "transformation" is that it is not really a "transformation" at all but just another shopping spree, embarked upon in the hope that "technology" will cure every ill. So far the Army has revealed no fundamentally new doctrine. Although light, medium, and heavy units all fight differently from one another, the Army still adheres to General DePuy's "Active Defense," as expanded and supplemented by General Starry's "Air-Land Battle," which was intended mostly for use by heavy forces. Until there is some fundamental change here it is difficult to see how the Army's "transformation" transforms anything. It has merely introduced a "medium force" that is too light to operate in open terrain like a heavy force and too heavy to fight in close or urban terrain like a light force. Although the Army is aware that fighting in cities will become much more difficult to avoid in future wars, Army combat units seem to be doing everything possible to not train for it in the present. The 3/325 ABCT commander's failure to defend Ubungsdorf in that unfortunate 1993 CMTC exercise can be seen as a case in point. Although the Army has built some excellent urban combat training facilities, they tend to go unused. It seems likely that at least part of the reason is that the Army's heavy-force-oriented doctrine tends to discourage training in situations where heavy armored vehicles are at a disadvantage.[881]

However, the most revealing part of the Army's "transformation" is that it represents yet another attempt to use technology as a patent medicine to cure the Army's troubles. The Army has been periodically attempting to make

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[878] Dept. Army T/O&E 07095F0, Infantry Battalion Brigade Combat Team; T/O&E 07096F0, HQ and HQ Company, Infantry Bn, Brigade Combat Team; and T/O&E 07097F0, Rifle Company, Infantry Bn, Brigade Combat Team (all Washington DC 12 April 2000). See also Kim Burger "Changes in Brigade Combat Structure May Strain Commanders, Soldiers Say" *Inside the Army* 9 Oct 2000 (Washington DC). In selecting the LAV-III as its IMAV the Army rejected an updated version of its existing tracked M-113 armored personnel carrier. See Hunter Keeter "Army Chose LAV-III For Commonality, Low Support Costs, General Says" Defeense *Daily* 20 November 2000 (Washington DC).

[879] Kim Burger, "Brigade Teams To Cost 40 Percent Less In O&S Than Heavy Brigades" *Inside the Army* 11 Dec 2000 (Washington DC). Given the Army's experiences with Task Force Hawk the official figures quoted by Burger of 212 C-17 sorties needed to lift an IBCT and 430 needed to lift a current "heavy" mechanized brigade may prove to have been very optimistic.

[880] Burger, "Changes in Brigade Combat Structure" op cit; and Sandra I. Erwin, "Slimmer Brigade Is Still Not Trim Enough" *National Defense* December 2000 (Washington DC). For an excellent account of the 1995-96 fighting in Grozny see Timothy L. Thomas "The Battle of Grozny: deadly Classroom for Urban Combat" *Parameters* June 1999 (Fort Leavenworth Kansas).

[881] For accounts of the Army's difficulties with Military Operations in Urban Terrain (MOUT) see Sean D. Naylor "Newest MOUT Site Is Top-Notch But Underused" and "Urban Crisis: Why the Army is not ready for a door-to-door gunfight" both from the Army *Times* 20 November 2000 (Washington DC).

technology its savior ever since the Pentomic Army of the late 1950's. However this approach has never succeeded in the past and is inherently unlikely to succeed in the future. It tends to see technology and its capabilities only in isolation and not as they react with the real world. It does not anticipate that an enemy may respond by changing his tactics and/or developing countermeasures, or even new technology of his own. It also assumes that new weapons work perfectly "out of the box" and will not require a long development period before they are really useful (and by which time the technology behind them has become generally available). Finally, we should note that the nature of warfare is changing. The slow but inexorable spread of weapons of mass destruction (i.e. nuclear, biological, chemical) is making it steadily more difficult to employ the old style industrial age mass armies that the IBCT's are actually designed to fight. Most of the world's nation state economies cannot adequately support such armies in any case. Future armies are likely to be much smaller, cheaper, harder to detect, and less conventional in their operations. They will increasingly force us to fight in areas, like cities, where superior firepower will do us little good.

Although the size and skill levels of our current infantry forces are plainly deteriorating, it this important? Do we really need the infantry any more? After the Vietnam debacle a consensus grew within the officer corps of the US military that, barring a showdown with the Soviet Union, the United States should never again accept any significant risk of defeat. All military objectives should be clear-cut and achievable and lead us to a recognizable "end state" that would let us know when it was time for the troops to come home. After Desert Storm, Army Chief of Staff General Colin Powell further expounded on this doctrine, calling it "decisive force."[882]

The Army has adhered to the Powell doctrine mainly by ensuring that it always operates against any adversary with a level of numerical and/or firepower superiority that all but eliminates any significant military risk. The enemies it has been called on to oppose (though not always to fight) have usually been small, weak, and politically and economically (and often geographically) isolated. The invasions of Grenada and Panama fit this pattern. Even the Desert Storm rescue of Kuwait from an Iraqi invasion and occupation did not noticeably deviate from the pattern. The Iraqi Army was far weaker than it had at first appeared to be and the United States was backed by the armies (and air forces) of a powerful coalition of European and Arab states. However, despite their aversion to risky situations, United States forces have not always been successful, even against some of their (apparently) weakest opponents. The 1982 bombing of the Marine Barracks in Beirut and the 1993 attack on Task Force Ranger in Somalia are examples. Therefore in its most recent adventures in the former Yugoslavia, the United States has relied solely on its airpower to coerce its enemies. It has mostly used ground forces in a policing and peacekeeping role and then only after all actual or potential opposition forces either leave the area to be occupied or agree to disarm.

However, is this an adequate response to post-Cold War realities? The United States likes to think of itself as something new and unique and that a lengthly period of Pax Americana lies ahead of us. Are we the first of something new or are we really the last of something old? This writer is inclined to think that the latter is more likely to be true. The United States is the only great power that has survived the Twentieth Century. Eight great powers existed one hundred years ago but two world wars reduced Great Britain, France, Germany, Italy, and Japan to second or third-rate status and eliminated Austria-Hungary altogether. The collapse of the Soviet Union cost Russia its great power status. China's current efforts to become a great power appear to be doomed by a weak economy, water shortages and widespread high-level corruption. What distinguished a great power from other nations was its ability to amass the necessary wealth and manpower to support large conventional armies, fleets, and (later on) air forces. In 1997, the United States spent 37% of the world's military budget and this share has been steadily increasing. Russia spent maybe 10% (probably decreasing). China spent only one percent and other "rogue" states (North Korea, Iraq, Libya, Syria, etc.) together spent about two percent. Given such a huge disparity in resources the United States' military position in the world would seem to be unassailable.[883]

As a result of its wars against Iraq and Serbia the United States has come to rely on air power as the principal means of projecting its power abroad. Though the evidence that has subsequently come to light has tended to show that the actual losses inflicted by air strikes against Iraqi and Serbian military forces were pretty small, the Air Force has argued that whatever those losses may have been they were enough to accomplish at least the short-term political objectives that the United States went to war for and at a vanishingly small cost in American lives. However, both Serbia were conventional nation states defending discreet territories vulnerable to the sort of conventional attacks that US air power could deliver. Furthermore, neither was defending an interest that it considered vital to itself and thus both were fighting limited wars for which they were willing to make only limited sacrifices.[884]

[884] News releases issued by Coalition forces after Desert Storm claimed that they (and especially their airpower) inflicted huge losses on Iraqi forces. Though these claims were later reduced in all probability they remain well above reality. In 1991 this writer had the opportunity to speak with members of a survey team sent from the Marine Corps Command and Staff College to Kuwait to actually count the number destroyed Iraqi tanks and other combat vehicles still in Kuwait. An Army team made a similar count and it came up with nearly the same totals. The teams could not operate outside Kuwait and its immediate vicinity (the Kuwaiti Theater of Operations or KTO) or count any wrecks that might be located there. However, Coalition ground forces did not operate outside KTO. Coalition air forces outside of KTO would almost certainly have ignored

For the US Army the Iraqi and Serbian air campaigns have pointed towards a return to the Eisenhower-era "new look" but with precision guided weapons replacing nuclear firepower. To many it appears that the long-sought American military ideal of being able to destroy the enemy from a safe distance without American casualties is upon us. In the future, ground forces will be needed only for police, security, and occupation duties.

However, one should not underestimate the power of human ingenuity or the effects of changes wrought by politics, technology, culture, or economics.

For one thing it seems doubtful that American-style airpower could have won Russia's recent (1994-95 and 1999 to the present) wars in Chechnya. Chechen guerrillas cannot easily be targeted from the air and this has forced the Russians to rely on their ground forces to defeat them. Though the Russian Army is still strong (even by American standards) in air and artillery-delivered firepower and this has enabled it to achieve certain objectives such as the capture of Grozny, it has not been enough to bring the war to a satisfactory conclusion. The Chechens have leveraged their urban and mountainous terrain, plus their ability to carry on a protracted guerrilla war to fight the Russians to a standstill in a costly war of attrition that the Russians are ill prepared to sustain. Tactically, the Chechens have used highly mobile and independent light infantry teams and sections equipped mainly with rifles, light machine guns, and rocket propelled grenades to get the better of a heavily mechanized opponent. Though

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"tactical" targets like tanks in favor of "strategic" targets (airfields, transportation systems, command and manufacturing centers, etc.) it seems very unlikely that the amount of destroyed Iraqi Army equipment outside KTO could be very large. As it was, the two survey teams counted only about 600 destroyed (or abandoned) Iraqi tanks plus an unspecified (but similar) number of other armored vehicles and artillery pieces. The tanks were mostly the older and less effective types and included less than 50 of the relatively modern T-72s. Close investigation revealed that most of the tanks and armored vehicles had been abandoned before being hit. (Evidently, Coalition forces had fought a lot of "battles" against empty hulks.) The teams' findings were supposed to have been published by the Marine Corps Research Center as Research Paper No. 92-0002 "Armor/ Anti-Armor Operations in South-West Asia" (Washington DC, Department of the Navy July 1991). This writer obtained a copy and discovered that almost all statistical data had been removed. Author Robert A. Pape seems to have obtained a less heavily edited version for his book, *Bombing to Win, Airpower and Coercion in War* (Ithaca NY, Cornell University Press, 1996). However, even Pape's copy appears to contain contradictory information. It mentions both the Army and Marine teams and says that the CIA also did a survey that relied mostly on aerial imagery. It suggests that the number of "kills" counted were much higher that those given by the Marine team members to this writer. However, it then goes on to say that the Marines actually inspected only 163 destroyed or abandoned tanks (and that they found only 30 tracked vehicles along the so-called "highway of death") and that half the vehicles they inspected had never been hit. Team members had told this writer that most of the armored vehicles had been hit but only after they had been abandoned. The "official" report then says that the Marines estimated that 20% of the Iraqi equipment in KTO was destroyed by air attack (did they mean 20% of the total number of vehicles destroyed or 20% of the number believed to have been in KTO during the war?). Pape then quotes a CIA study titled "Operation Desert Storm, Snapshot of the Battlefield." It states that the postwar Iraqi Army retained only 842 tanks, 1,412 APCs and 279 artillery pieces. Since the Iraqis had to maintain substantial ground forces outside KTO throughout the war for the CIA figures to be accurate they would have had to have lost nearly everything they sent to KTO. Instead, we know that as soon as the Iraqi Republican Guard and the more capable Army formations left KTO, they went on to crush a major armed rebellion among the Shia tribes in southern Iraq. They then used the country's "destroyed" transportation network to move against the Kurdish tribes in the north. Colonel James Burton USAF detailed these facts in a briefing, based on considerable research, that he delivered in June 1995. Pretty strange behavior for a defeated army that had supposedly lost more than a third of its men and most of its heavy equipment! As for personnel casualties, the battlefield revealed little evidence of large numbers of Iraqi killed and wounded. Marine survey team members told this writer that their estimate of the dead was a little under 4,000. However, more than 80,000 Iraqi soldiers did surrender to Coalition forces. Subsequent information, on the other hand, revealed many of these to be Kurd or Shia tribesmen of doubtful loyalty to the Baghdad regime. Many had been dragooned into the Iraqi Army at the last minute to make it appear stronger. They not even been armed, clothed, or fed properly.

NATO reporting on the results of the bombing of Serbian Army and police units in Kosovo in 1999 reveals a similar story. It began with fantastic claims of hundreds of armored vehicles destroyed and 10,000 Serbian dead. However the appearance of the Serbian Army as it left Kosovo contradicted these statements. Most men were uninjured and most vehicles undamaged and nearly the same numbers of both were counted out as were known to have gone in. The Serbs subsequently admitted to losing a total ~~(to NATO bombing and Albanian guerrillas)~~ of about 50 armored vehicles and artillery pieces and less than 700 soldiers and policemen killed in action. Ethnic Albanian KLA guerrillas probably inflicted many if not most of these casualties. About 10 disabled vehicles came out on transporters but at least some of these would have been mechanical casualties. Stung by press criticism that he had greatly exaggerated Serb losses, NATO commander General Wesley Clark, USA, ordered a Kosovo munitions effectiveness team to assess the damage. They visited every site that NATO was known to have bombed yet they found the wrecks of only 26 tanks and self-propelled guns. They also found about a dozen light armored vehicles and half a dozen towed artillery pieces. Most of these were of older and/or of obsolete types and some may have been unserviceable even before the NATO air campaign began. General Clark briefed the press on 16 September 1999. He asserted that the Serbs had really lost 93 tanks and self-propelled guns, 153 other armored vehicles, and 389 artillery pieces but had somehow managed to conceal them. However he never supported this with any evidence. Armored vehicle wrecks (and the tell-tale debris that surrounds them) are extremely difficult to remove or conceal. They thus constitute a reliable casualty indicator. Physical evidence of mass (personnel) casualties, such as dead bodies, limbs, blood, discarded bandages etc. was also lacking. For more on the Kosovo "tank count" shannigans see Timothy L. Thomas, "Kosovo and the Current Myth of Information Superiority" *Parameters* (Fort Leavenworth Kansas, Summer 2000). For further information see Tim Ripley, "Europe: Kosovo, A Bomb Damage Assessment," Janes Intelligence *Review* Vol. 11 No. 9 (London, Janes Information Group, September 1999).

Both Kosovo and Kuwait suggest that the old Vietnam "body count" mentality is very much alive and well in the US armed forces. Anxious to appear invincible and to justify its expensive procurement programs (particularly of aerospace weapons), it appears that American military leaders are very willing to suppress or falsify factual data even long after any legitimate military need to do so has passed. This has yielded an exaggerated impression of US military prowess and may have deterred some potential enemies from acting against us. However, it has also encouraged complacency and discouraged any real attempts at rectifying our military shortcomings.

[882] F. G. Hoffman, *Decisive Force*, op cit pp. 19-33.

[883] Senator Gary Hart, *The Minuteman* (New York, Free Press, 1998) pp. 27-54 and 64. See also Martin Van Creveld, *The Transformation of War* (New York, Free Press 1991).

rampant corruption, low morale, and severe funding shortfalls have severely damaged the Russian Army has since the fall of the Soviet Union there is little reason to suppose that US forces placed in a similar situation would have been much more successful. The poor performance demonstrated by American officers in field training, the unsuitability of most US weapons for close combat, and the US failures against unconventional opponents in Mogadishu, Beirut, and Vietnam all suggest that this would be so. Muscle-bound conventional militaries are in decline and their future ability to adapt themselves to new unconventional threats may well be questioned.[884]

Of as much concern to the mighty as the decline in the power of conventional militaries is (or should be) the impact of the computer revolution and the Internet. Attacks launched from remote locations against computer-controlled public utilities (water, electricity, etc.) have the potential to bring highly developed nations like the United States to a standstill. The potential for computer systems coupled with strong encryption technology to enable individuals to instantly and illegally move knowledge and wealth across national boundaries threatens the ability of traditional governments to collect revenue and to protect militarily significant technology. If a nation cannot control money flow it cannot collect taxes and this will profoundly affect the way in which it operates. In the past, wealth was not very portable. Much of it was tied up in land or (during the industrial age) in factories, offices, and other permanent and immovable fixtures. Even cash could not move all that easily without cashier's checks, letters of credit, or other negotiable paper that was relatively easy to intercept. Thus, governments were free to tax and regulate their people on as large a scale as they could bear. This made it possible to bring together the vast wealth that made the world's great armies and navies possible and that, more recently, has financed the welfare state. The ability of the computer to reduce wealth to electrons that can travel at the speed of light can enable that wealth to flee highly taxed jurisdictions for less taxed ones. Since governments in developed countries tend to survive by taxing their wealthier citizens to bribe their poorer ones into voting them into office serious revenue shortfalls can threaten their very existence. Genuinely mobile wealth could increasingly force governments to compete with each other for taxpayers. This in turn would force governments into becoming much smaller, cheaper, and efficient. In short, they may well have to act like businesses (while large business corporations increasingly start to act like governments). For such hybrid business-governments large militaries and welfare programs can become unaffordable. Humans are unlikely to get any less cruel or violent but their wars, though increasingly numerous and often bloody, are likely to decrease in terms of their individual size and become more local or regional in character.[885]

Another point worth noting is that none of the world's conventional armies are physically, psychologically, or doctrinally prepared for change. The United States Army is still the trendsetter, much as the French Army was from 1815 to 1870, and again from 1918 to 1940. Just as in the United States Army, training and morale in most of the world's armies in response to increasing corruption, shrinking budgets and a growing perception that most of the potential threats out there are either too large to deal with or too small to worry about. Like the US Army, most armies hope that new technology, especially the kind used in precision weapons, which at an ever-increasing cost that can hit targets with an ever-increasing accuracy and lethality. However the targets they are designed to hit will be tanks, aircraft, and other equipment that most nations will increasingly be unable to afford and will thus become ever less common and ever less militarily relevant. At the same time, nations will also invest in ever more elaborate and sophisticated communication systems that will enable senior leaders to usurp the initiative and decision making powers of their juniors. Since such centralization is likely to work in battle about as well as in a Communist-style command economy, the new command and control technology will not only be expensive but will make conventional forces even less capable of dealing with their austere but agile unconventional foes. For a time the United States will benefit from this trend as potential foes squander their resources on increasingly irrelevant and ineffective technology. However those who are too poor to follow our example, or are too perceptive to be taken in by it, can become formidable adversaries.[886]

How will this affect the future of the infantry battalion? If armies are going to get smaller and lighter then infantry battalions may become one of the largest permanent ground combat units (assuming a role that divisions once played) or may disappear altogether as fixed organizations. Many that do survive will probably do so as militia units as few governments may be have the wealth to support any great number of full-time soldiers. This suggests

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[884] For an excellent description of the troubles experienced by the Russians in capturing Grozny (in 1999-2000), see Timothy L. Thomas "The Battle of Grozny: Deadly Classroom for Urban Combat," *Parameters* Summer 1999 (Fort Leavenworth Kansas) pp. 87-102. For additional material on the troubles of the Russian Army see Mark Galeotti "Europe, The Russian Army in Chechnya" Janes *Intelligence Review* Vol. 11 No. 12 (London, Janes Information Group Dec 1999). For a brief look at USMC shortcomings in urban warfare (currently, the Marines are doing most of the US military's urban warfare training and doctrinal development) see Peter J. Skibitski, "GAO Study Criticizes Pentagon Urban Warfare Capability" *Inside the Navy*, February 7, 2000 (via Internet).

[885] Much of this view of the future comes from James Dale Davidson and Lord William Rees-Mogg, *The Sovereign Individual* (New York, Simon and Schuster 1997). See also Van Creveld, *The Transformation of War*, op cit.

[886] For more on the Russian Army's failure to adapt itself to new military realities (while blindly following the United States Army's lead instead) see Mark Galeotti, "News Analysis, The Russian Army 2000?" Janes *Intelligence Review*, Vol. 12 No. 1 (London, Janes Information Group Jan 2000).

that the story of the American infantry battalion is nearing its end. Even if events take a different course from the one we have described. It seems clear that with the end of the Twentieth Century we are at a turning point. The situation will likely have changed considerably before we have gone very far into the Twenty-first.