THE BRIGADE BASED DIVISION: SADDLING THE RIGHT HORSE

A MONOGRAPH
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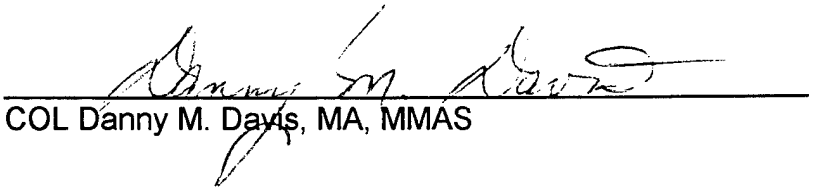

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ABSTRACT

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By Major Michael McCormick, USA 41 pages.

Global instability has grown substantially following the end of the Cold War. Changes in Army doctrine, incorporating concepts like OOTW and versatility, are a reaction to this increased global instability. The shift in doctrine is driving the need for change in the U.S. Army force structure. The Army is now considering three division design alternatives: The Modernized Heavy Division (Appendix A), the Modular Small-Based Division (Appendix B), and the Brigade Based Division (Appendix C). The purpose of this monograph is to determine which alternative best meets future joint warfighting requirements?

Historical analysis of three previous division reorganizations, and an abbreviated probe into the future, serve as mechanisms to help answer this question. Sun Tzu's dictum of knowing the enemy, yourself and the environment, provide the framework for each analysis. The intent is to discern key criteria from past reorganizations and apply them to the three pending alternatives in order to determine their respective strengths and weaknesses.

An examination of the McNair reorganizations of the early 1940s, the Pentomic reorganization of the 1950s, and the Army of Excellence reorganization of the 1980s produced three key criteria: versatility/modularity, scenario balance, and end-strength efficiency.

The Modernized Heavy Division structure reflects significant tactical flexibility. Similar to the AOE Heavy Division, because it has enough depth to accomplish a wide range of missions, it achieves versatility. The Modernized Heavy Division exceeds the requirements of the most dangerous conventional threat thereby failing to address manpower and budget limitations. No real flattening of the organization structure can be found in this alternative--hence improvements in end-strength efficiency were not apparent.

The Modular Small-Based Division, with both heavy and light maneuver brigades, achieves greater versatility and modularity than the previous alternative. The heavy-light configuration obtains a better scenario balance. In spite of attempts to reach better end-strength efficiency, this alternative still retains the typical division hierarchical structure.

The Brigade Based Division structure is METT-T driven. Brigades are the force building blocks vice the division. With this design, the division becomes more of a command and control echelon. This structure provides a greater degree of versatility and modularity. It is the least flexible tactically, yet achieves the best scenario balance of the three alternatives. End-strength efficiency is enhanced in terms of flattening the organization structure.

The Army should adopt the Brigade Based Division in order to better meet the joint warfighting requirements that lay ahead. The Brigade Based Division provides a more versatile/modular force that is better capable of meeting the varied missions required of the Army. This structure provides greater strategic and operational flexibility in terms of force size and mobility. It achieves prudent end-strength efficiency which ultimately addresses the realities of pending monetary and manpower limitations.

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Introduction

Thus it is said that if you know them and know yourself, your victory will not be imperiled. If you know Heaven and Earth your victory can be complete.[1]

The words of Sun Tzu ring as true today as they did twenty-five hundred years ago. As the U.S. Army approaches the twenty-first century, we see an organization struggling to answer these three questions—knowing the threat, yourself and the environment. Seeking correct answers to these questions has plagued nation-states and their armed forces since the time of Sun Tzu. For it is the correct knowledge and application of these answers that produces victory on the battlefield. These questions are difficult to answer even during periods of relative stability. Periods of instability increase the level of difficulty inherent in answering these questions.

The bipolar world that existed for forty-five years following World War II no longer exists. The Cold War forced relative stability and predictability throughout the world. In its place we see a world destabilized and, in many ways, more dangerous than its bipolar predecessor. Potential adversaries have risen out of the ruins of the Cold War to present different challenges to the United States and its Armed Forces. These adversaries, though not typically the echeloned threat of the past, are varied, and often defy conventional organizational structures designed to fight the Warsaw Pact on the European Continent. In the five years following the fall of the USSR, the U.S. Army has witnessed a marked increase in both the number and frequency of operations due, in part, to the resulting global instability. Significant changes at home also

influence how the armed forces approach solutions to these world-wide problems. The impact of the Goldwaters-Nichols Act (GNA) of 1986 has done much to ensure that the United States Military conducts its operations jointly. The declining Department of Defense (DOD) budget serves as the catalyst for what has proven to be a dramatic force reduction. In short, this is a period of significant change in world and domestic affairs.

Change is a constant of the human condition. However, we, as a species tend to shrink from change. Military organizations, particularly during peacetime, never seem to embrace change easily. We either change when change is not warranted, or we fail to change when (with the benefit of hindsight) the need stares us right in the face. In addressing the dilemma of the military embracing change, T.E. Lawrence stated that "the regular officer has the tradition of forty generations of serving soldiers behind him, and to him the old weapons are the most honored."[2] In a more positive approach, Michael Howard, the noted military historian, suggests that considerable outside assistance is essential for the military to efficiently manage change.

> The less support which the Armed Forces get from their environment—intellectual, psychological, economic, and personal support—the less efficient they are likely to be, or the harder it is for them to remain efficient; and the greater is the danger that they will harden into an inbred, inward-looking group fundamentally at odds with their surroundings.[3]

Successful military organizations change (wisely during times of peace, quickly during times of war)[4] to meet future requirements. The past is history and therefore uninfluenced by change accomplished today. The present is often a storm of confusing actions and reactions that degrade our visibility of the future.

Therefore the only leverage point available to the military is the future.[5] Based on external and internal factors, the U.S. Army is undergoing change in an attempt to better meet future requirements.

The 1993 edition of FM100-5, Operations, defines doctrine as "the condensed expression of the Army's fundamental approach to fighting, influencing events in operations other than war, and deterring actions detrimental to national interests."[6] Doctrine sets the Army's azimuth on coping with change, by means of training, leading and organizing. This latest version of the Army's keystone doctrinal manual introduced concepts that, while not totally new to the U.S. Army, were a marked change from its requirement to "fight and win the nation's wars." An entire chapter in the 1993 version of FM 100-5 is devoted to Operations Other Than War (OOTW). OOTW was not mentioned in the previous three editions of FM100-5, although the Army has participated in a number of OOTW missions over the years.[7]

The increase in the frequency and duration of OOTW requirements is visible in other parts of FM 100-5. The introduction of versatility as the fifth tenet of army operations reinforces the fact that a significant addition to the Army's purpose is at hand. The operational manual defines versatility as "the ability of units to meet diverse mission requirements."[8] The introduction of OOTW and versatility were the initial doctrinal attempts to meet the changes brought about by the end of the Cold War. These "new" concepts of OOTW and versatility suggest that the post Cold War Army must be multifunctional, capable of

operating across the full range of military operations, and able to perform at all three levels of warfare.[9]

With the significant turn in global affairs, we see a world less stable and more dangerous. The U.S. Army is experiencing increased operational tempo, performing a variety of missions, despite severe reductions in end strength and budget. There also appears to be a corresponding shift in the U.S. Army's written doctrine. With these significant changes, a modification of the Army's organizational structure appears necessary.

In response to the complexity associated with a post Cold War world, the Army is now considering three alternatives to its current division organizational structure. The U.S. Army's Training and Doctrine Command (TRADOC) developed three alternatives which are depicted in the following appendixes: Appendix A- Modernized Heavy Division, Appendix B- Modular Small-Base Division, and Appendix C- Brigade Based Division. It is beyond the scope of this monograph to consider different alternatives than those proposed by the Force Design Directorate of TRADOC.

This monograph will attempt to determine which of the three pending restructuring alternatives will best meet the joint warfighting requirements of the United States, as it enters the twenty-first century. The intended audience of this monograph is doctrine writers and force developers. By examining the Army's past restructuring efforts, this monograph will attempt to confirm the direction that the Army is headed towards.

While the future is the point of leverage from which all militaries should develop their structure, it is the past that often points the way towards a clear vision of that future. In understanding the complex issues involved in the conduct of current and future military operations, history is a help -- indeed a powerful and flexible ally.[10] By analyzing three 20th Century U.S. Army reorganizations, this monograph hopes to take lessons from the past, combine it with a vision of the future and recommend the organization best suited for the 21st Century. The 20th Century U.S. Army, because of its dramatically fluctuating size, offers many examples of success and failure in terms of reorganization. Beginning with WWI, there have been eight major divisional reorganizations. In each case, Army planners sought to match current development to the new or anticipated conditions.[11]

This monograph will begin with a historical analysis of three previous U.S. Army divisional reorganizations: First, it will examine the McNair reorganizations during the early days of World War II. Second, it will explore the Pentomic Division of the 1950s. Third, the monograph will study the Army of Excellence (AOE) of the 1980s. The first two reorganizations selected are significant in that they demonstrate significant change and speak to many of the same challenges that face the U.S. Army today. The selection of AOE is important because it identifies our current structure -- the jumping off point for any discussion of future organizational structures. The monograph will examine each reorganization in terms of Sun Tzu's three imperatives -- know the threat, know yourself and know your environment. The goal is to identify the key criteria used during past

reorganization efforts, so that we use them to evaluate TRADOC's three future design alternatives.

The analysis and evaluation section will first present TRADOC's decision criteria, which were used to select the three proposed alternatives. Secondly, this section shows the key decision criteria developed from the previous sections of this monograph. The intent is to identify significant differences in criteria and determine possible relevance in selecting an alternative. Finally, this section will reveal the critical characteristics of each different alternative and examine them in the context of the key reorganization criteria.

The conclusion section will summarize the findings of the monograph and recommend the alternative that best meets future joint warfighting requirements.

McNair Reorganization

> **General McNair's leading idea in tactical organization was a simple and definite one: to concentrate a maximum of men and materials in offensive striking units capable of destroying the enemy's capacity for resistance.**[12]

As Chief of Staff of the U.S. Army, General George C. Marshall is credited with preparing the Army, and indeed the nation, for war. Labeled by Winston Churchill as "the true organizer of victory," Marshall's task, as he assumed the duties of Chief of Staff in 1939, were overwhelming. Critical to Marshall's success was his no-nonsense reputation, his capacity to delegate, and his innate ability to correctly size-up his subordinates. His selection of Major General Leslie J. McNair, as the person responsible for raising and training the Army, demonstrated Marshall's ability to choose wisely. McNair's success in

rapidly organizing and training U.S. Army's divisions for combat was an integral part of the American rearmament effort.

The Axis threat facing the U.S. Army in World War II was formidable. Both Germany and Japan boasted armies with considerable combat experience and, more importantly, combat success. The eight million man German Army, incorporating the benefits of mechanization, radio communications and combined arms formations, swept across the European continent. The French and British forces were ill-prepared to counter German innovations in the opening campaigns of the war, despite enjoying a numerical superiority in tanks. This is not to say that the Germans were immediate masters of combined arms warfare. The increased tempo of battle and the challenge of finding the correct balance of infantry, armor and supporting arms were as difficult for the German Army, as it was for their adversaries. The leverage that the Germans exploited was their ability to embrace change before their adversaries; much like Britain and the 19th Century industrial revolution, and the United States with the computer revolution of the past thirty years.

With Japan, the United States faced a different kind of threat. While the Germans exploited the mechanical revolution, the Japanese Army was an army of infantry. Lacking the resources necessary for mechanization, Japan was forced to rely on "the one resource they had left: exceptional levels of endurance and moral commitment."[13] Despite the many pre-war feelings of Japanese inferiority, the United States received a sobering reminder of Japanese military prowess at Pearl Harbor and in the Philippines.

The United States Army was in poor shape at the outset of World War II. The regular army numbered a total of 210,000 soldiers, ranking it seventeenth in the world. Only three of its nine active divisions had enough soldiers to properly train above the battalion level.[14] The capacity of the United States to quickly build a large global fighting force, was significant. "The sheer speed and scale of American rearmament, which dwarfed anything that the Germans and Japanese, or even the British, had thought possible...."[15] However, as the famous dictum goes, "God does not always march with the big battalions."[16] Key to the United States success was not only in the number divisions it produced, but also in the fighting capabilities inherent in the design of its divisions.

The McNair division designs were based on four principles. First, it was to be an organization almost purely designed for offensive operations. Second, the structure needed to have minimal staffs and noncombatants at the tactical level. Third, it had to incorporate the concept of "pooling" scarce resources, such as tanks, artillery, engineers, etc., at higher headquarters. Finally, the division had to be modular -- so that the organization had utility anywhere in the world.

McNair's study of operations in North Africa convinced him that "combat forces there are too much concerned with their own security and too little concerned with striking the enemy....I maintain that our organization must be an offensive one, not cringingly defensive."[17] The problem McNair faced is that offensive organizations and the requisite firepower essential in mechanized environments, often lack the strategic mobility that he envisioned for global war.

Annex D depicts the organizational structures McNair adopted to achieve strategic mobility and offensive firepower (the infantry and armored divisions of WWII).

To achieve strategic mobility, McNair opted to keep divisions as small as possible. This meant of course that fighters comprised the bulk of the division. Flattening an organizational structure is never an easy task. Americans, in general, never seem to be content with "just enough." The "forlorn hope" is for the other guy -- Americans want more than enough, "just in case."

> There was the tendency, deeply rooted in American life, to encumber the military establishment with comforts and conveniences, machines and inventions, technicians and experts,...Effects were cumulative;.... General McNair resolutely set himself against such proliferation, which added nothing to the fighting strength of the Army.[18]

Integral to this reduction in overall table of organization numbers, was a desire to proportionally reduce the size of staffs to order to increase efficiency. McNair's policy was to "have a minimum of noncombat soldiers, to hold down nontactical overhead, and to make tactical staffs small and efficient."[19]

In order to achieve the overwhelming fire power, required for prosecuting the offensive battle he envisioned, McNair adopted the concept of pooling. Primarily, the pooling concept enabled the commander to quickly concentrate the effects of his supporting arms at the critical point of the battlefield.

> Combat units should be streamlined for quick, decisive action; they should have only such personnel and equipment as they require at all times. What a unit needed only occasionally should be held in a reserve pool under higher headquarters. Such pools not only kept personnel and equipment from idleness, but also permitted rapid massing for concentrated use.[20]

McNair achieved efficiency by not encumbering the divisions with added weight. By pooling these scarce resources (and associated soldiers), both divisional and nondivisional soldiers tended to remain busy. The cumulative effect was end strength efficiency which enabled fewer soldiers (in smaller divisions) to accomplish what was be expected of more soldiers (in larger divisions). Using less American manpower as soldiers aided the industrial base that supported the war effort. Though the U.S. Army would grow exponentially throughout the war, strategic leaders were always conscious of the impact a large army would have on America's "Arsenal of Democracy" -- its economy.[21]

The issue of modularity was also an important one. By concentrating on the triangular infantry division, McNair was able to give strategic planners more options in apportioning forces to the different theaters. At its zenith, the ninety-one division U.S. Army had 70 infantry divisions, 16 armored divisions and 5 airborne divisions.[22] Notwithstanding the failed experiments with specialty divisions (mountain, jungle, and cavalry), there were essentially two types (infantry and armored) of U.S. divisions (airborne divisions were essentially a small infantry division). Organizing (by use of a cadre system), training, transporting and supplying the divisions, thus, became more standardized and efficient.

The environment in which these divisions would operate was varied. In general, infantry forces dominated the fighting in the Pacific Theater, while armor forces were more dominant in the European Theater. Regardless of which theater a division would fight, it required strategic lift to move it there. The

difficulty of projecting combat power was a significant problem for McNair. He stubbornly clung to the suspicion that the armored division required too many transport assets. During the 1943 armored division reorganization, he pared down the division from 14,260 men, 232 medium tanks and 158 light tanks to 10,937 men, 186 medium tanks and 77 light tanks.[23] The reorganization's effect made the armored division a more effective member of the combined arms team, by increasing the number of infantryman and reducing the number of tanks.[24] This balance of infantry and armor proved essential to achieve the offensive firepower necessary for the armored division that attacked across France in 1944.

During World War II, the United States Army faced a varied threat on diverse terrain in theaters of operation that could not be more geographically distant. McNair's principles of offensive organizations, a flatter structure (small staffs), end strength efficiency (minimal support troops) at the tactical level, pooling, and unit modularity were quite effective. There were, of course, problems encountered along the way. First, separate armor battalions supporting infantry divisions failed to solve the major weakness of the infantry division -- inadequate direct firepower. In response to this weakness, infantry divisions in Europe were extremely reluctant to give up their "tanks" at change of mission. Second, tank destroyers lacked the necessary protection to be effective. These illustrations indicate that the correct balance of armor and infantry was not achieved in the infantry divisions.

Overall, the United States and its Army proved to be decisive in the outcome of the war. In war, no greater praise is better than that from a worthy adversary. Field Marshall Erwin Rommel wrote the following of the U. S. Army in World War II:

> The organization, training and equipment of the U.S. Army all bear witness to the great imagination and foresight, and above all, to the positive determination of the American people to act in unison and create a war machine with real striking power. Starting from scratch an army has been created in the very minimum of time, which, in equipment, armament and organization of all arms, surpasses anything the world has yet seen.[25]

The striking power of the U.S. Army, that Rommel refers to, was found in the McNair divisions. The ability of the commander to "pool" combat support units at the critical juncture was a success. The improved offensive capability of the armor division was achieved by a better organic balance of infantry and armor. The modularity of the infantry division allowed for its rapid constitution, increased strategic mobility, and enabled utility in multiple theaters.

Pentomic Reorganization

> **It seems doubtful that the USSR would initiate employment of nuclear weapons in the face of a preponderance of nuclear weapons possessed by the United States. On the other hand, should the West nations initiate their use, the USSR would have no choice but to respond in kind, in the hope that the resultant destruction to the West would circumscribe the ability of the United States to continue effective prosecution of the war. In light of this major possibility for the future, it is at least debatable whether the United States really has the freedom to rely preponderantly on nuclear weapons to exert its military power.[26]**

These are the frustrated words of General Matthew B. Ridgway, Chief of Staff of the U.S. Army, to the Secretary of Defense as he retired from active duty

in June of 1955. A soldier of even Ridgway's stature found it difficult to dissuade the country's leadership from adopting a policy so flawed as that of massive retaliation.

The policy of massive retaliation had immense repercussions for a Department of Defense (DOD), which in 1955, was less than 10 years old. The effect it had on the U.S. Army was profound: a hollow force and a division organizational structure known as the Pentomic division.

The development of the Pentomic division was in direct response to the growing conventional and nuclear threat by the Soviet Union. With the end of World War II and its consolidation of eastern Europe, the Soviets underwent a drastic force reduction. However, by dropping from over 550 to 180 divisions, the Soviets were able to mechanize/motorize their entire force structure (less airborne divisions).[27] This qualitative improvement in forces enabled the USSR to produce a credible conventional threat to the nuclear dependent NATO.

The Soviet Union grew rapidly as a nuclear threat throughout the 1950s. The Soviet's goal was to achieve parity with the West in both weapon lethality and delivery capabilities. After the introduction of nuclear weapons in 1949, the Soviet Union's arsenal grew to 7180 warheads with a combined yield of 8801 megatons of TNT.[28] This increase in weaponry presented western strategists with a totally new and uncharted strategic environment.

The 1950s were a decade of great change for the U.S. Army. "For the Army it was a time of isolation and prolonged adversity: of shrinking manpower ceilings, reduced budgets, and widespread doubts about its utility in future

wars."[29] The Korean War marked one of first indirect Cold War conflicts between the Soviet Union and the United States. The U.S. Army went into the Korean War as a hollow and unprepared force. Quick to correct failure in war, the Army responded and improved throughout the conflict. Historically, democracies adopt a force reduction policy after war termination. From the end of Korean War until 1960, the Army dropped from 1,500,000 soldiers and 20 combat divisions to 859,000 soldiers and 11 combat divisions.[30]

Another impetus for change was a troubling domestic economic trend articulated in National Security Policy (NSC) Policy 162/2. "NSC 162/2 implied that frugality in defense spending was needed to sustain the economy."[31] With the increased reliance on Air Force capabilities, the Army found its budget in extreme jeopardy. The Air Force and Army budgets, in 1953, were almost at parity. Within two years, however, the Air Force portion of the DOD budget had grown to nearly twice the size of the Army's budget. The Army budget fell from 16.2 billion dollars in 1953, to a decade low 8.7 billion in 1956.[32]

The Army was expected to operate in an environment that increasingly reflected the nuclear battlefield. According to planners, in this environment, tactical units would require the following traits:

- Be small enough in size to preclude nuclear targeting.
- Operate (defend) in isolation, which required a balance in combined arms.
- Self-supporting units without vulnerable logistic ties.
- Streamlined command and control structure -- to aid information processing in both directions. [33]

Considering these internal and external factors, the Army found itself forced to narrowly focus its structure to fight and survive a nuclear war.

> Army leaders decided that conventional war simply was a lesser included case of nuclear conflict. Nuclear war was the worst case -- though not necessarily the most probable. If the Army could develop techniques to fight a nuclear war successfully, other less-demanding conflicts would be manageable.[34]

This reductionist approach to the problem, of preparing for the most dangerous war scenario verses the most probable war scenario, had significant implications. Hampered by manpower and budget shortfalls, the U.S. Army created an organization incapable of performing well in either scenario (See Figure 1).

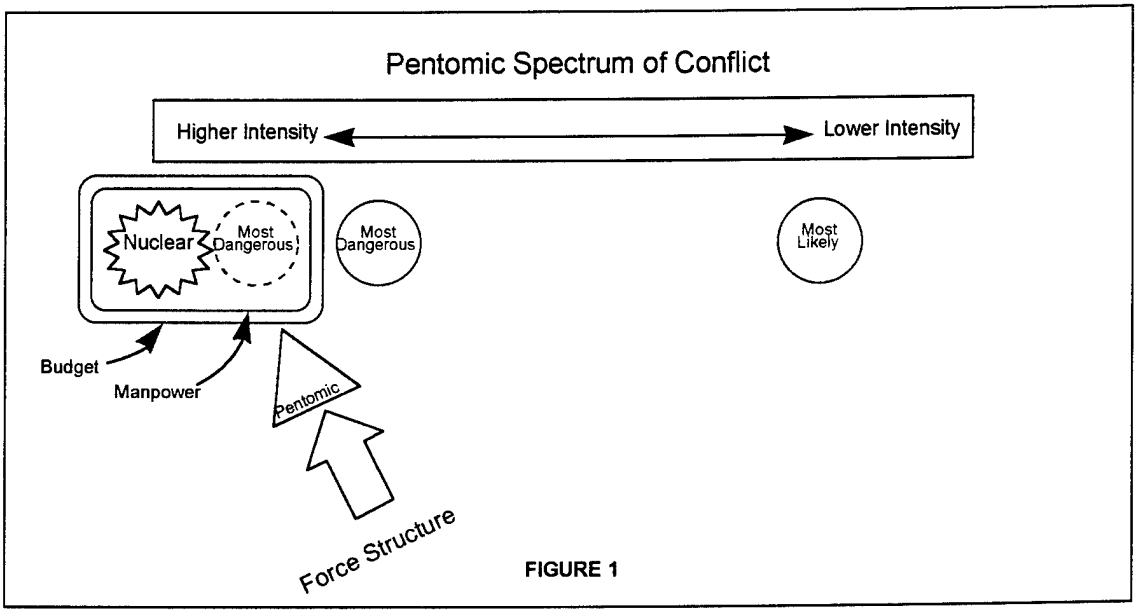

FIGURE 1

Despite considerable debate, the Army adopted the Pentomic division structure, which was built around five battle groups (Appendix E). Even though the Pentomic division only "fought" the Cold War, the structure proved to have a variety of weaknesses. Some of the more pronounced shortcomings were a lack

of organizational flexibility, inadequate command and control, poor tactical mobility, marginal conventional firepower, and an incompatibility with allied (NATO) armed forces.[35]

Organizational flexibility enables a commander to organize for the many situations that confront him on the battlefield. Greater flexibility implies a lesser degree of familiarity between organic and/or habitually associated units. The primary example of the Pentomic division inflexibility was the battlegroup's inability to incorporate tanks from the lone divisional tank battalion.[36]

Command and control were poor. By eliminating a level of command and control (battalion or brigade/regiment), and relying on a subordinate to higher level ratio of one to five (penta), the Pentomic division quickly found itself a prisoner of information.[37] "The division commander found himself directly concerned with the activities of as many as 16 different subordinate units."[38]

The foot-marching speed of the dismounted infantryman severely limited the tactical mobility of the Pentomic division. With only enough armored personnel carriers (centralized in a transportation battalion) for one battlegroup, the ability of the entire division to conduct high-speed mounted operations was negligible.[39]

The minimal number of tanks and marginal fire support were chief contributors to an overall lack of Pentomic division firepower. The single Pentomic tank battalion was reminiscent of the separate tank battalion that found itself permanently attached to the triangular McNair infantry division. Inadequate Pentomic fire support was originally built around five DS 105mm towed batteries.

An organizational correction offered five DS composite battalions (one battery of 105mm and one 155mm battery) to support the five battlegroups. This mixing of different firing systems in the artillery battalions created serious problems in training, supply, maintenance, and fire control.[40]

Allied interoperability posed a final problem for the Pentomic division. The North Atlantic Treaty Organization (NATO) was founded to counter the post WWII Soviet threat. As the Soviet threat grew, throughout the 1950s, the issue of allied interoperability grew in importance. The decision by the alliance to admit and rearm West Germany reflected the necessity, if not the desire, to increase interoperability among its members. "Most of the European forces remained organized on triangular lines, and coordinating the operations of allied divisions with American units [divisions] was complicated by the differing numbers of maneuver units...."[41]

In summary, the Pentomic division was a failure. It lacked proper problem definition at the highest political and military level. The decision to build for the most dangerous scenario versus the most likely scenario was a critical error. Shortcomings in flexibility, control, tactical mobility, firepower, and interoperability with allies merely compounded this problem. Coupled with significant manpower and budget reductions, the U.S. Army created a division labeled by Army Chief of Staff General George Decker as "a jack-of-all-trades-and-master-of-none."[42]

Army of Excellence Reorganization

The design and development of the Army of Excellence, popularly termed the AOE, was a major component of the Army's decade of modernization and reform. That period lasting from the later 1970s to the late 1980s saw significant physical and intellectual change in the tactical Army -- in material, organization, and doctrine.[43]

The current structure of the U.S. Army is the final iteration of the Army of Excellence (AOE). Like most peacetime changes, the inspiration for AOE was evolutionary. Generals Edward C. Meyer and John A. Wickham, Army Chiefs of Staff from 1979 to 1983 and 1983 to 1987 respectively, were responsible for the initial concepts and ultimate implementation of the AOE. Meyer felt that by expanding the Army's focus to scenarios other than just war in Central Europe, the Army could provide the nation with greater options in countering the USSR.[44] The 1982 edition of FM 100-5, Operations, illustrates this changing world view by asserting that the Army "must be ready to fight light, well-equipped forces such as Soviet supported insurgents or sophisticated terrorist groups."[45] Wickham had the vision to fully develop and adopt AOE in the face of considerable limitations and criticism.

The Army specifically adopted the AOE structure to counter a single threat with direct and indirect capabilities. The Soviet Union continued to serve as the principle threat to the United States. The Red Army ably demonstrated the direct capability of the USSR. It was a large, well-echeloned army built to conduct war against NATO forces in Europe. The early 1970s found the USSR making both quantitative and qualitative improvements in their conventional

forces facing NATO. Moreover, a westward repositioning postured these forces for a possible preemptive strike.[46]

The USSR also offered an indirect capability that influenced development of the AOE. Since the Second World War, the USSR had been reasonably successful in indirect conflicts with the United States. Conflicts in Korea, Vietnam, the Middle East, Africa and a growing presence in Latin America (Cuba Grenada, Nicaragua) showed the value of an indirect approach -- less overall risk in an environment where U.S. technology was less of a factor.

The U.S. Army emerged from the war in Vietnam in a weakened state. Overall readiness was certainly questionable. Units were undisciplined. Drug use was rampant. The NCO corps, weakened from losses in Vietnam, lacked experience. The Army also labored with the all volunteer force that replaced the draft. Simply put, the U.S. Army in 1970s was "in danger of losing its institutional identity and pride of purpose."[47]

In the midst of these problems, the Army of the 1970s struggled with its basic "how to fight" doctrine. The 1976 edition of FM 100-5, advocated the "active defense," which "ran counter to the Army's offensive traditions by muting the decisiveness of the offense and the importance of the counterattack in the defense."[48]

The development of AOE was a genesis of material (technology), doctrinal and structural improvements. AOE constituted more than just a structural improvement of the division. The Corps figured significantly into the AOE reorganization. John Romjue, Chief of Historical Studies and Publications

at TRADOC, states that AOE "encompassed a larger reexamination and design modification of almost the whole of the fighting Army."[49] Specific reasons for adopting AOE range from new weapon system developments (M1 Tank, M2 Infantry Fighting Vehicle (IFV), UH-60 Blackhawk, AH-64 Apache, Multiple Launched Rocket System (MLRS), Stinger and Patriot), Soviet conventional buildup in Central Europe, lessons from the 1973 Middle-East War, development of Airland Battle doctrine, to reformed training methods.[50]

In analyzing the environment in which the AOE would fight, senior leaders recognized the importance of the United States' commitment to NATO and Europe. They also recognized the significance and likelihood of lower intensity conflict in locations other than the central plains of Europe. While the AOE did not suffer the monetary constraints that were typical of past peacetime reorganizations, force developers were limited by the active duty manpower ceiling of 780,000 soldiers.

Unlike the Pentomic reorganization, the AOE struck a better balance between the most likely and most dangerous scenarios. At the division level, AOE achieved this balance by "leaning down" the heavy division (armored and mechanized) and introducing the 10,000 soldier light division to the force structure (See Appendix F). The end strength of the Division 86 armored and mechanized divisions were 19,200 and 19,400 soldiers respectively. With reductions of approximately 2,200 soldiers, the AOE armored and mechanized divisions numbered 16,924 and 17,203 respectively.[51] These decrements in manpower reflected the McNair principle of end strength efficiency. Most of the

reductions were in service support positions. The increase in the tooth-to-tail ratio created a more tactically mobile heavy division because many sustainment functions were shifted to the Corps.

The introduction of the light infantry division provided the Army with the ability to rapidly deploy and confront the many less intensive, but nevertheless, most likely scenarios confronting the United States. In addition, the light division had, despite criticism to the contrary, utility on the high intensity battlefield of an urbanized Europe. While operating as part of a heavy/light team, light infantry units served to extend the heavy force battlefield by allowing the heavy forces to dominate more terrain.

In essence, Army leaders and force developers built a more multi-functional force structure capable of performing both the most dangerous (a Red Army attack of NATO) and most likely (a low intensity conflict against a Soviet surrogate) scenarios. The Army did this by focusing its efforts somewhere short of the most dangerous scenario (smaller heavy divisions and the shift to light infantry divisions). The light divisions countered the more likely scenarios because of their strategic mobility.

How then was it possible for AOE to cover the most dangerous scenarios? In the late 1960s, the Active Army numbered 18 divisions with an overall force of 1.5 million soldiers. In 1986, with a total active force of 780,000 soldiers, the Army again fielded 18 divisions.[52] The AOE divisions were clearly less powerful (in terms of manpower) than their Division 86 predecessors. The leverage of doctrine and technology is what enabled the AOE force structure to

cover the gap created by the apparent loss of divisional combat power (See Figure 2).

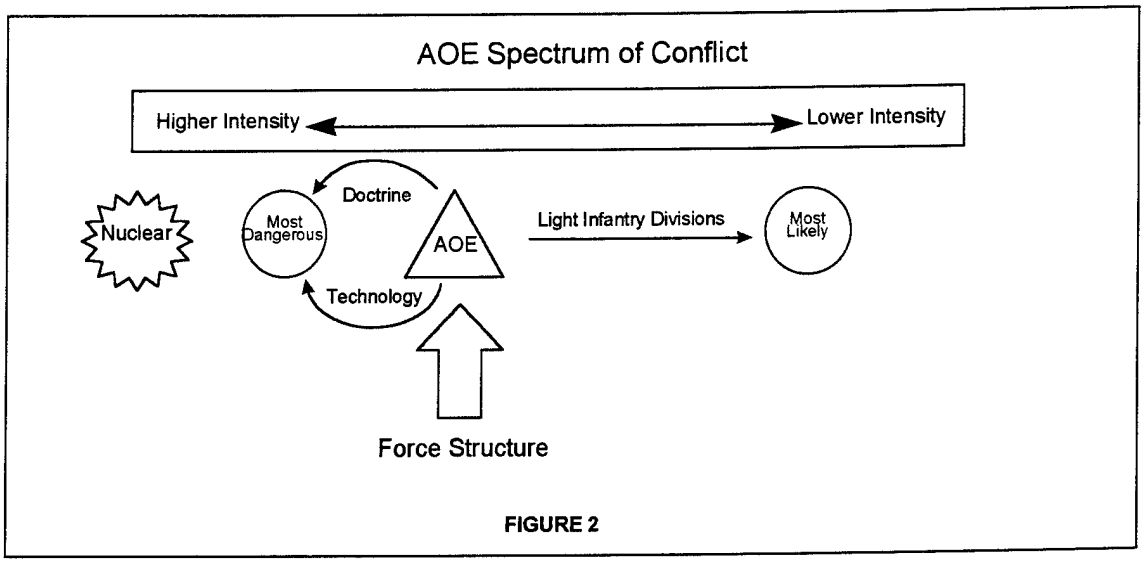

FIGURE 2

The leverage in doctrine that preceded and chaperoned the development of the AOE in the 1980s was at least as significant, if not more so, than the leveraging of technology. Airland Battle doctrine shifted the primacy from division to corps. Supplemented with the adoption of operational art, this shift helped the seemingly less capable divisions appear to be more than they were. The Combined Arms Center Commander, Lieutenant General Carl Vuono stated, "the Army of Excellence supports the operational level of war and Airland Battle. That is the key."[53]

> The adoption of Airland Battle doctrine early in that [1980s] decade by the U.S. Army forced the Soviet political and military leadership to the direct realization that their powerful battle echelons could and would be attacked at great depth by U.S. Army and Air Force systems.[54]

The leverage in technology was an important part of AOE's success. Technology advanced the many options required to conduct operational art and the Airland Battle doctrine. In particular, the greater survivability, firepower and mobility of the M1 Tank and M2 IFV, as well as the deep strike capabilities of the MLRS and AH-64 Apache Helicopter, provided these options to the corps and division commanders.

To summarize, the AOE reorganization was successful in balancing the most dangerous with the most likely requirements. Though moderately constrained by manpower limitations, the AOE reorganization did not suffer the budgetary constrictions of the Pentomic reorganization. The light infantry divisions provided the Army with the strategic mobility it lacked. Airland battle doctrine instilled the joint requirements of warfighting. The AOE improved end-strength efficiency within the divisions, and shifted the primary warfighting focus from the division to the Corps. While the division appeared less powerful, the leverage of technology and doctrine enhanced the corps and allowed the Army to meet challenges across the full spectrum of conflict.

Future

> **It's ironic that during the Cold War we had the time to rebuild the Army; yet during the following peace, we don't seem to have the time.**[55]

The future remains a vexing problem for present day action. TRADOC Pamphlet 525-5, Force XXI Operations, the emerging doctrine that will help shape the future force structure, states that the future defies prediction. "In the

absence of a relatively fixed, strategic environment, we are faced with a far more complex world that defies authoritative forecasts of the future."[56] The Army intends to engage this more complex world by exercising its four pronged purposes: compel, deter, reassure and support.[57]

United States' threats remain thinking and breathing foes. Studies indicate that Iran or Iraq pose a continuing threat in Southwest Asia. The Korea peninsula is another theater that concerns strategic planners. These two areas represent the likely high intensity threats facing the United States.[58] Less intensive threats that may evolve into operational missions form a long and growing list. As in the past, the tension between preparing for a most dangerous (high intensity) scenario, verses a most likely (low-mid intensity) scenario remains.

> Most of the conflicts involving the U.S. Army will be OOTW or low-intensity conflicts, as few nations will risk open war with the U.S. However, the specter of open war against foes fielding advanced, armor-mech-based armies must be considered.[59]

To what extent these mechanized threats must be considered, is a point of considerable contention. What is almost certain is that these armor-mech-based forces do not pose the numerical and organizational (well-echeloned) threat posed by the Red Army.

The most dangerous conventional threat is lower on the spectrum of conflict than the Red Army of the past five decades. It is hard to determine a specific location along the spectrum. It is, however, safe to say that the most dangerous conventional threat resides at a point less than where the AOE

positioned itself in the 1980s. What the Army should do is build a force that again positions itself between the most dangerous and most likely scenarios. The Army must then leverage structure, technology, and perhaps doctrine to cover the different scenarios (See Figure 3).

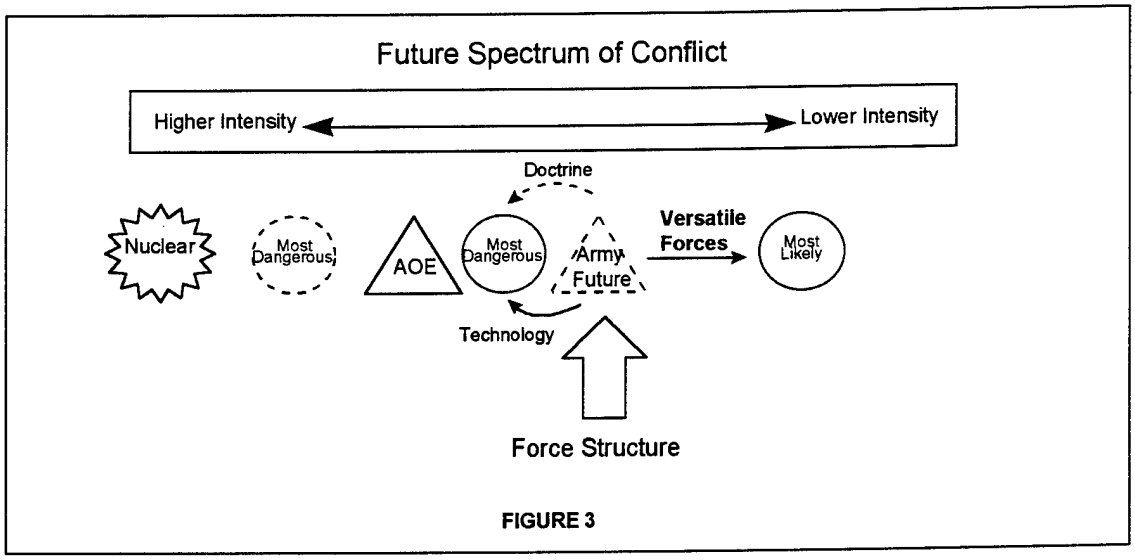

FIGURE 3

Despite the changing threats, the Army's performance over the last decade has been excellent. Military operations across the spectrum of conflict in Panama, Southwest Asia, Rwanda, Somalia, Haiti, Bosnia, as well as domestic support missions in the United States, indicate an organization with boundless capabilities. The active Army conducted a most humane and efficient force reduction. With its Force XXI campaign, the Army is correctly trying to leverage information and technology as it moves towards an uncertain future. If this information enhancement program is successful, corresponding changes (flattening) in the force structure would be an essential part of any future military.

Admiral William Owens, the former Vice Chairman of the Joint Chiefs of Staff, reflected this line of reasoning with the following point:

> Most of us inside the Pentagon believe our institutions will change, perhaps dramatically. But we have come to this deductively, not from empirical, detailed assessments and experiments that must be done. Still the kind of information-empowered, dominantly knowledgeable forces in our common vision call for flattened, less hierarchical organizations.[60]

The Army currently finds itself in a precarious position. Since the end of the Cold War, army personnel and budget have declined 35% and 38% respectively, while operational missions have increased 300%.[61] In the active force, this equates to a reduction of 280,000 soldiers and the loss of eight divisions (18 to 10) from the structure.[62]

The Army of today is also in search of an identity within the Department of Defense. While many acknowledge the utility of a land force with staying power, the Army has a difficulty stating its purpose. The Goldwater-Nichols Department of Defense Reorganization Act of 1986 (GNA) marked two significant points. First, the act solidified the position and responsibilities of the warfighting Commanders in Chiefs (CINCs). Secondly, it required the enhancement of joint doctrine as a means of forging a common service understanding.[63] In an apparent contradiction to the Chairman of the Joint Chiefs of Staff's (CJCS) Joint Vision 2010, the Army currently lists its primary mission as "to fight and win our nation's wars."[64] Since 1986 and the GNA, it is clear that the CINCs have the mission to fight and win our nation's wars. In conjunction with the maritime and air services, the Army's mission is to provide land forces which are properly equipped, trained, led and organized to the CINCs.

The operational environment, that is inextricably linked to the threat, will vary. Regions that reflect our security agreements represent a finite set of locations in which we expect to operate. However, the many unforeseen requirements around the world dictate a force balanced to operate in almost any type of terrain. The concept of a capabilities based force, able to perform a varying number of major regional conflicts (MRCs), is a favored means of determining force requirements. In reality, the MRCs have a threat based foundation that drives their very existence. The one constant is that the Army will have to rapidly move from the continental United States (CONUS) to get there. The power projection nature of the CONUS based Army underscores the need for strategic mobility in the overall force structure.

In addition to the requirement to fight jointly, the Army will be required to fight as part of a coalition. Despite a single (superpower) pole world, combined operations are becoming the norm today (vice unilateral U.S. action). The American cultural trend of isolation notwithstanding, Joint Vision 2010 states "our history, strategy, and recent experience suggest we will usually work in concert with our friends and allies in almost all operations."[65]

Despite its recent successes, the Army must change. While this monograph has addressed some of the factors that drive the need for change, the most important factors are fiscal. The peace dividend is like a siren's song compelling lawmakers to reduce DOD appropriations in favor of other domestic priorities. In light of the increase in operational tempo, the challenge is now!

Reduce in size, and subsequently in cost, while simultaneously increasing our capability to operate in a variety of scenarios.[66]

As the Army reduces in size, it "must prepare to face a wider range of threats, emerging unpredictability, employing varying combinations of technology, and challenging us at varying levels of intensity."[67] Any smaller force structure must adequately achieve the proper scenario balance and achieve a better end-strength efficiency. With the benefits envisioned by the Force XXI initiative, a leveling of the organizational structure appears prudent. This versatile and modular force of the future must have the capacity to quickly project itself from CONUS, and fight as part of a joint and often combined effort.

Analysis

The Army needs to think its way through the proper size of the future division.[68]

Substantive division redesign efforts began in 1994. Initial guidance from General Gordon Sullivan, the Army Chief of Staff, and General Frederick Franks, the TRADOC Commander, included the following six points:

1. Focus initial efforts around the division. Later derive higher and lower echelons.
2. The core competency of the division as an echelon is command and control.
3. The division is about Battle Command. Disencumber the division echelon of tasks that inhibit this core function.
4. Division HHC is a command element capable of exercising control over a variety of forces in a range of situations.
5. Must be able to mix and match units with ease.

6. Must dominate information; set the conditions; get involved in the close fight only to be decisive. [69]

Points two, three, four, and five are most important in that they require units to be both versatile and modular. Versatile and modular units are essential because they enhance the power projection capacity of CONUS-based forces required to meet contingencies across the spectrum of conflict, anywhere in the world. The first point is simply procedural. The last point is wholly dependent upon technology. The force we design today will have to function in varied operations over the next five to seven years -- not fifteen years from now.

TRADOC's Force Design Directorate took this initial guidance, The Army Plan (TAP), FM100-5 (capstone doctrine), TRADOC PAM 525-5 (emerging doctrine), and in no particular order of importance, advanced the following nine design criteria:

1. Agile
2. Deployable
3. Versatile
4. Lethal
5. Efficient
6. Survivable
7. Sustainable
8. Tailorable
9. Digitized[70]

TRADOC's original efforts produced eleven conceptual design alternatives in 1994. These options were ultimately pared down to three: Modernized Heavy, Modular Small-Base, and Brigade Based. In December 1995, General Dennis Reimer, the Army Chief of Staff, selected the Modernized Heavy Division alternative for field testing. Testing currently scheduled for 1997, will comprise a Brigade Task Force rotation at the National Training Center and a division size Battle Command Training Program (BCTP) computer simulated exercise.[71]

From our previous discussion and analysis, we have identified the following seven significant reorganization criteria:

1. Strategic mobility. (McNair)(AOE)(Future)
2. Versatility/Modularity. (McNair)(Future)
3. Allied interoperability. (Pentomic)(Future)
4. Joint interoperability. (AOE)(Future)
5. Achieve scenario balance. (Pentomic)(AOE)(Future)
6. End-strength efficiency. (McNair) (AOE) (Future)
7. Flattening of the organization. (McNair)(Future)

Of these seven points, three overarching criteria emerge: Versatility/modularity, balance force structure between most dangerous and most likely scenarios (scenario balance), and end-strength efficiency.

Versatility and modularity are crucial because they pervade the initial guidance, and reflect changes in both the world situation and doctrine. Scenario balance is critical due to the changing world and the realities of budgetary and manpower limitations. End-strength efficiency (which includes organizational flattening) is significant because of the increases in operational tempo of the force. If we can spread this increase across more of the force, its impact on overall readiness would diminish.

The first design alternative is the Modernized Heavy Division (Appendix A). It is similar to the AOE heavy division in that it maintains a tremendous degree of tactical flexibility by retaining a typical triangular division structure. The division commander has enormous flexibility because he can rapidly move a

battalion from one brigade to another. This flexibility was essential to counter the echeloned Red Army. However, this structure fails to achieve a scenario balance because it exceeds the most dangerous conventional scenarios facing the United States. The tactical flexibility required during the Cold War, is not required for most post Cold War scenarios.

The Modernized Heavy Division retains the headquarters of all of the different battlefield operating systems, as well as the three maneuver brigades. As a result, there is almost no flattening of the organization. Artillery, aviation, and engineers all maintain a brigade level command structure, even though the overall size of these organizations is smaller than the AOE division.

The one brigade level command that will grow in size (manpower) is the support command. By consolidating most of the service support positions (that are now organic to the maneuver battalions) into the forward support battalions, the support command increases in size (from AOE) by over 1000 soldiers.[72] The shift in combat service support functions is not clearly defined. What is clear in this alternative, is that it marks a continuing trend towards centralization along functional lines. The AOE redesign shifted maintenance and mess functions from the maneuver company level to its battalion headquarters. The Modernized Heavy Division will move these functions to the brigade level, under the control of the DS forward support battalion.

The division artillery retains its three direct support 155mm battalions, even though the battalions change from a 3x8 to a 3x6 configuration. This reduction in tube artillery can be justified by improvements of the Paladin

system, and the increase in MLRS in the division. The MLRS battery in the AOE Heavy Division is replaced by a two battery battalion. The utility of additional firepower, provided by a second MLRS battery, may be offset by the reduction in both tube artillery and attack aviation.

The reduction of attack aviation battalions (from two to one) in this structure is puzzling. While the cost savings are easily apparent, this decrement creates significant problems for the division. It is more than just a loss of combat power (which may or may not be made up by the increase in MLRS batteries). A single attack battalion is limited in its ability to conduct concurrent close and deep operations, as well as, 24 hour a day operations.

The three battalion engineer brigade in the AOE Heavy Division is reduced to a two battalion regiment. This reduction in engineering structure will either require already smaller engineer battalions to support more than one maneuver brigade, or leave one of the brigades without engineer support. This radical reduction is questionable for two reasons. First, mobility is essential for an offensive orientated army. The reduction in engineer structure will hamper the division's ability to maneuver on the battlefield. Second, more information (promised by improved information technology) about terrain will not change its aspects or necessarily improve our mobility across it.[73] Certain terrain will remain an impediment to our maneuverability as long as vehicles are required to move over it.

An obvious improvement with this design, is that each of the three maneuver brigades will gain an essential asset. A reconnaissance company will

provide the brigade with its own organic eyes and ears, thus resolving a key weakness of the current structure.[74] Brigades must now rely on information from division and battalion reconnaissance assets, which may not be able to support the brigades' scheme of maneuver. A brigade reconnaissance company will go a long way towards addressing this key weakness.

The proposed Modernized Heavy Division constitutes minimal change while retaining the tactical flexibility of its AOE predecessor. It is a force with capabilities that exceed a most dangerous conventional scenario. Decrements in aviation and engineer units reduce the division's ability to conduct both the deep and close fights respectively. The addition of the reconnaissance company to the brigade structure is a welcome improvement. The sum and substance of the Modernized Heavy Division is that it will have less fighters (doers), but achieves no real flattening of the organizational structures (battlefield operating systems) because it retains all of the subordinate headquarters in the division.

The Modular Small-Based (Appendix B) Division obtains its triangular structure by combining an armored brigade, a mechanized infantry brigade, and a light infantry brigade within the division. This gives each division the capability to accomplish a variety of missions and achieves a better balance between most dangerous and most likely scenarios. Each heavy brigade has the normal mix of armor and mechanized infantry battalions. The original concept of the light brigade had two light infantry battalions and an Armored Gun System (AGS)

battalion (before this system was deleted from the acquisition program) in the structure.

Integral to each of the maneuver brigades is the addition of a cavalry squadron. The heavy brigades will have an armored cavalry squadron, while the light brigade would have a wheeled configured squadron. The need for a threefold increase in divisional cavalry squadrons seems questionable. With the situational awareness promised by Force XXI, and the lethality of precision guided munitions, the necessity for typical cavalry missions (security and reconnaissance) would appear to lessen.

The division support command structure is retained, despite the loss of the main support battalion. The main support battalion was eliminated and most of its functions were transferred to the Corps level. This is in keeping with the idea that "the Force XXI division will always operate as part of a Corps or Joint Task Force."[75] What role does the support command fill, with the elimination of the main support battalion along with each of the forward support battalions providing direct support to the maneuver brigades?

Aviation and artillery structures in the Modular Small-Base Division are similar to the Modernized Heavy Division alternative. The elimination of the second attack helicopter battalion poses the same problems as previously discussed. The only real difference in artillery is that a towed battalion of 105mm would support the light brigade, thus creating a composite division artillery with possible supply, maintenance and training problems.[76]

The engineers retain a three battalion brigade, with two mechanized battalions to support the heavy brigades, and one wheeled battalion to support the light brigade. Given that light infantry brigades in the current AOE structure are supported by only a light engineer company, this proposed structure would seem to provide a greater engineer capability to the division.

The Modular Small-Based Division provides a modular force built around semi-autonomous maneuver brigades. The division combines both light and heavy capabilities that allow it the versatility to operate in different environments. Because it is a more composite organization than the Modernized Heavy Division, it obtains a better scenario balance. The cavalry squadron in each brigade provides more information gathering capability than the Force XXI division may require. Attack helicopter and fire support capacities are similar to that of the Modernized Heavy Division. Engineers, who retain their three battalion structure, are able to provide increased force mobility and protection. The support command structure is retained despite the loss of the main support battalion. This reduction echoes the overall trend in this structure: it is a more modular force (and thus perhaps more versatile) although it still clings to a strong and deep hierarchical structure.

The Brigade Based Division (Appendix C) offers the most radical change in force structure design. The only organic units is this division are its "standard division base." This base consists of special company sized units (headquarters company, military intelligence, military police, signal, and the band). Additional units (standardized and task organized brigades, battalions, and companies

from a force pool) would come under division control as the factors of mission, enemy, terrain, troops and time (METT-T) dictate. As shown in Appendix C, the division could organize for a variety of missions (e.g., peace keeping, heavy maneuver, and deep strike). If the Army retains a sufficient number and type of standard brigades, it could more easily adjust to achieve the scenario balance of an ever changing world.

The Brigade Based Division would serve as more of a command and control headquarters than the other two alternatives. Because of the enhanced fighting capabilities of the brigade, divisions would not be the resource dispenser that they are today. In essence, divisions would serve the same function as corps did during WWII, where the corps served as a command and control headquarters. Sustainment operations were conducted at the field army level. Brigades would now be the modular building blocks, while the corps would serve as the echelon with real sustainment capabilities.

This concept of the division serving only as a command and control headquarters could have a positive impact on the overall Army force structure. With the elimination of the field armies in the early 1970s, the corps grew in size and function.[77] Since the 1970s, the heavy divisions have retained their typical 16,000-20,000 soldier structure. Large structures at every echelon of command tend to cause a duplication of effort (and hence less end-strength efficiency) at the various echelons. With this alternative, the leaner division structure creates the opportunity for less duplication of effort and ultimately, improved end-strength efficiency.

Because of the fixed structure of the standard brigade, the Brigade Based Division lacks the tactical flexibility of the Modernized Heavy and Modular Small-Based Divisions. Tactical planners at the division level would have fewer options in weighting the main effort. It does, however, provide greater operational and strategic flexibility than the other alternatives. Operational and strategic planners would have more options because the building block (the brigade) is now smaller and easier to move anywhere in the world.

It is difficult to fully evaluate this alternative because it lack specifics regarding the size and content of the standard (maneuver) brigades. Logistical support in the brigades would likely challenge today's paradigms of having enough "just in case." If one assumes that maneuver battalions would retain 80-90% of their current size, and that slice additions to the brigade were in line with McNair's principle of having "only what you need all of the time," the brigades would have to be larger (in terms of personnel and equipment) than they are today.

The Brigade Based Division facilitates the ever growing trend of coalition warfare. Most countries in the world lack the economic means to form a division based army. "The United States' closest NATO allies are moving in force design directions that are consistent with the Group [Bde] approach."[78] Like size unit structures ease some of the many interoperability problems that hamper combined operations.

In summary, the Brigade Based Division shows a METT-T driven structure that is radically different from the other two proposals. With this structure, the

United States could quickly build versatile/modular forces, with cohesive base units, better postured to meet future military requirements. This structure can more easily adjust to varying threats. This alternative achieves better end-strength efficiency because the division echelon serves as a pure command and control headquarters with a flatter organizational structure. While it provides less tactical flexibility, the Brigade Based Division affords operational and strategic planners more options. Many specifics regarding unit's size and content are currently unanswered.

Conclusion and Recommendation

Within the constraints of economy and technological change, none of America's traditional military partners can avoid moving to a fixed all-arms structure smaller than the current division.[79]

Worldwide instability has grown substantially following the demise of the Soviet Union. Changes in Army doctrine, incorporating concepts like OOTW and versatility, are a reaction to this increased global instability. The shift in doctrine is driving the need for change in the U.S. Army force structure. "The force projection strategy requires an Army reconfigured for rapid mobility, not the static forces designed to counter the land forces deployed by the Warsaw Pact in Central Europe."[80] In an effort to meet these changes in force structure, the leadership of the Army is considering three different alternatives for a future division structure. The purpose of this monograph was to determine which alternative best meets future joint warfighting requirements. Historical analysis

of three previous division reorganizations and an abbreviated probe into the future served as mechanisms to help answer this question.

The McNair division reorganizations of the early 1940s produced two different divisions with similar traits. Both the infantry and armored divisions were stripped of men and equipment that did not contribute to their offensive potential. Assets utilized only part of the time were pooled at a higher level of command. The results were modular units capable of operating in different theaters and an end-strength efficiency that achieved a favorable tooth-to-tail ratio.

The Pentomic division of the 1950s was a marked failure. A national preoccupation with nuclear war coupled with monetary and manpower limitations, forced the Army to build a structure to fight a misconstrued "most dangerous" scenario. Deficiencies in command and control, tactical mobility, firepower, and allied interoperability helped make this division incapable of operating in almost any scenario.

The AOE reorganization of the 1980s assembled a very capable force. AOE improved end-strength efficiency by reducing the size of the heavy divisions, and introducing the strategically mobile light infantry divisions. AOE achieved scenario balance and leveraged doctrine and technology in order to produce a more credible, corps focused, heavy force structure.

The future is synonymous with uncertainty. Accurate predictions confound most pundits. The Army faces this dramatically new environment with deep manpower and budget decrements, along with a steep increase in

operational tempo. OOTW require a more modular and versatile force structure that can be projected rapidly around the globe. Joint and allied interoperability are also essential attributes of any future force structure.

Based on an analysis of three historical redesign efforts and initial force design guidance, three overarching criteria emerged: versatility/modularity, scenario balance, and end-strength efficiency. An examination of the attributes of each division design alternative produced a better understanding of alternative strengths and weaknesses.

The Modernized Heavy Division (Appendix A) structure reflects significant tactically flexibility. Similar to the AOE Heavy Division, this alternative offers versatility, because it has enough depth to accomplish a wide range of missions. The Modernized Heavy Division exceeds the requirements of the most dangerous conventional threat, but it fails to obtain scenario balance. Improvements in end-strength efficiency were not apparent. No real flattening of the organization can be found in this alternative.

The Modular Small-Based Division (Appendix B), with both heavy and light maneuver brigades, achieves greater versatility and modularity than the previous alternative. Despite less combat power, the heavy-light configuration obtains a better scenario balance. In spite of attempts to reach better end-strength efficiency, this alternative still retains the typical division hierarchical structure.

The Brigade Based Division (Appendix C) structure is METT-T driven. Brigades are the force building blocks vice the division. With this design, the

division becomes more of a command and control echelon, more in line with the British Army who "have long regarded the division structure as an echelon of command and control rather than as a fixed formation."[81] This structure provides a greater degree of versatility and modularity. It is less flexible tactically, than the Modernized Heavy Division, yet achieves the best scenario balance of the three alternatives. End-strength efficiency is enhanced in terms of flattening the organization structure. If the standard brigades are designed with combined arms assets that they need all the time, versus the just in case approach, an even greater degree of end-strength efficiency is possible.

In light of the previous analysis, the Army should adopt the Brigade Based Division in order to best meet the joint warfighting requirements that lay ahead. The Brigade Based Division provides a more versatile/modular force that is better capable of meeting the varied missions required of the Army. This structure provides greater strategic and operational flexibility in terms of force size and mobility. It achieves prudent end-strength efficiency which ultimately addresses the realities of pending monetary and manpower limitations.

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[35] John J. Midgley, Deadly Illusions (Boulder, CO: Westview Press, 1986), p. 88.

[36] Midgley, p. 88.

[37] The level eliminated, depends on what size one views the Pentomic division's battlegroup. Though commanded by a full colonel, some studies [Bacevich] view the battlegroup as merely a large battalion. Midgley looks at the battlegroup as a small regiment.

[38] Midgley, p. 91.

[39] House, p. 157 and Midgley, p. 89.

[40] House, p. 155.

[41] Midgley, p. 95.

[42] Bacevich, p. 135.

[43] John L. Romjue, The Army Of Excellence: The Development of the 1980s Army (Fort Monroe, VA: TRADOC Historical Monograph Series, 1993), p. 2.

[44] Richard M. Swain, Filling The Void: The Operational Art and The U.S. Army (Fort Leavenworth, KS: U.S. Army Command and General Staff College, 1995), p 21.

[45] U.S. Army, Field Manual 100-5, Operations (Washington D.C.: U.S. Government Printing Office, 1982), p. 1-1.

[46] Paul H. Herbert, Deciding What Has to Be Done: General William E. DePuy and the 1976 Edition of FM100-5, Operations (Fort Leavenworth, KS: U.S. Army Command and General Staff College, 1988), pp. 5-6.

[47] Herbert, p. 5.

[48] Herbert, p. 105.

[49] Romjue, p. 23.

[50] Romjue, pp. 2-4.

[51] Romjue, pp. 49 & 90.

[52] Romjue, p. 126.

[53] Romjue, p. 126.

[54] Romjue, pp. 126-127.

[55] Gordon M. Sullivan, Speech to the Advanced Military Studies Program, Fort Leavenworth, Kansas, 23 October 1996.

[56] TRADOC Pamphlet 525-5, Force XXI Operations (Fort Monroe, VA: U.S. Army Training and Doctrine Command, 1994), p. 1-1.

[57] Dennis J. Reimer, and Togo D. West, Jr., Force of Decision...Capabilities for the 21st Century (Washington D.C.: U.S. Government Printing Office, 1996), p. 7.

[58] Steven Metz, William T. Johnsen, Douglas V. Johnson II, James O. Kievit, and Douglas C. Lovelace, Jr. The Future of American Landpower: Strategic Challenges for the 21st Century Army (Carlisle Barracks, PA: Strategic Studies Institute, 1996), pp. 15-16 .

[59] TRADOC Pamphlet 525-5, p. 2-10.

[60] William A. Owens, "The American Revolution in Military Affairs," Joint Force Quarterly, Winter 1995-96, p. 38.

[61] Reimer, p. 13.

[62] Gordon M. Sullivan, and Anthony M. Coroalles, Seeing the Elephant: Leading the America's Army into the 21st Century (Cambridge, Massachusetts: Institute for Foreign Policy Analysis, 1995), p. 25.

[63] Bruce W. Menning, "An Operator/Planner's Introduction to Operational Art," C510 Course Syllabus: Strategic,Operational, and Joint Environments (Fort Leavenworth, KS: U.S. Army Command and General Staff College, 1995), p. 341.

[64] Reimer, p. 6.

[65] John M. Shalikashvili, Joint Vision 2010 (Washington D.C.: U.S. Government Printing Office, 1996), p. 4.

[66] Sullivan, p.26.

[67] Shalikashvili, p. 11.

[68] Gordon M. Sullivan, Speech to the Advanced Military Studies Program, Fort Leavenworth, Kansas, 23 October 1996.

[69] Training and Doctrine Command, Force XXI Joint Venture Phase I Briefing, Fort Leavenworth, KS: Force Design Directorate, 11 December 1995.

[70] Ibid.

[71] Phone conversation with LTC J.A. Simpson, TRADOC's Joint Venture Office, 22 November 1996.

[72]Force XXI Joint Venture Phase I Briefing (11 December 1995) and Romjue, p. 195.

[73] Conversation with LTC David Fastabend, FM 100-5 Office, School of Advanced Military Studies, October 1996.

[74] Numerous brigade level exercises (computer simulated by the Janus System) have underscored this weakness. The brigade staff is virtually blind in the current division configuration.

[75] TRADOC Pamphlet 525-71 (Draft), Force XXI Division Operations Concept (Fort Monroe, VA: U.S. Army Training and Doctrine Command, 18 January 1996), p. 6.

[76] This situation may be reminiscent of the composite artillery battalion in the Pentomic Division after 1959 (See Appendix E). This is not a foregone conclusion. The shear size of battalions tend to make them more self sufficient than company size units.

[77] Field Manual 100-15, Corps Operations (Washington D.C.: U.S. Government Printing Office, 1996), p. xiii.

[78] Douglas A. Macgregor, Breaking the Phalanx: A New Design for Landpower in the 21st Century (Washington D.C.: Center For Strategic & International Studies, 1996), p. 79.

[79] Richard L. Kugler, US West European Cooperation in Out-of-Area Military Operations: Problems and Prospects (Santa Monica, CA: RAND National Defense Research Institute, 1994), pp. 121, 130-131: quoted in Douglas A. Macgregor, Breaking the Phalanx: A New Design for Landpower in the 21st Century (Washington D.C.: Center For Strategic & International Studies, 1996), p. 79.

[80] Kim R. Holmes and Thomas G. Moore, editors, Restoring American Leadership: A U.S. Foreign and Defense Policy Blueprint (Washington D.C.: The Heritage Foundation, 1996), p. 212.

[81] Macgregor, p. 79.

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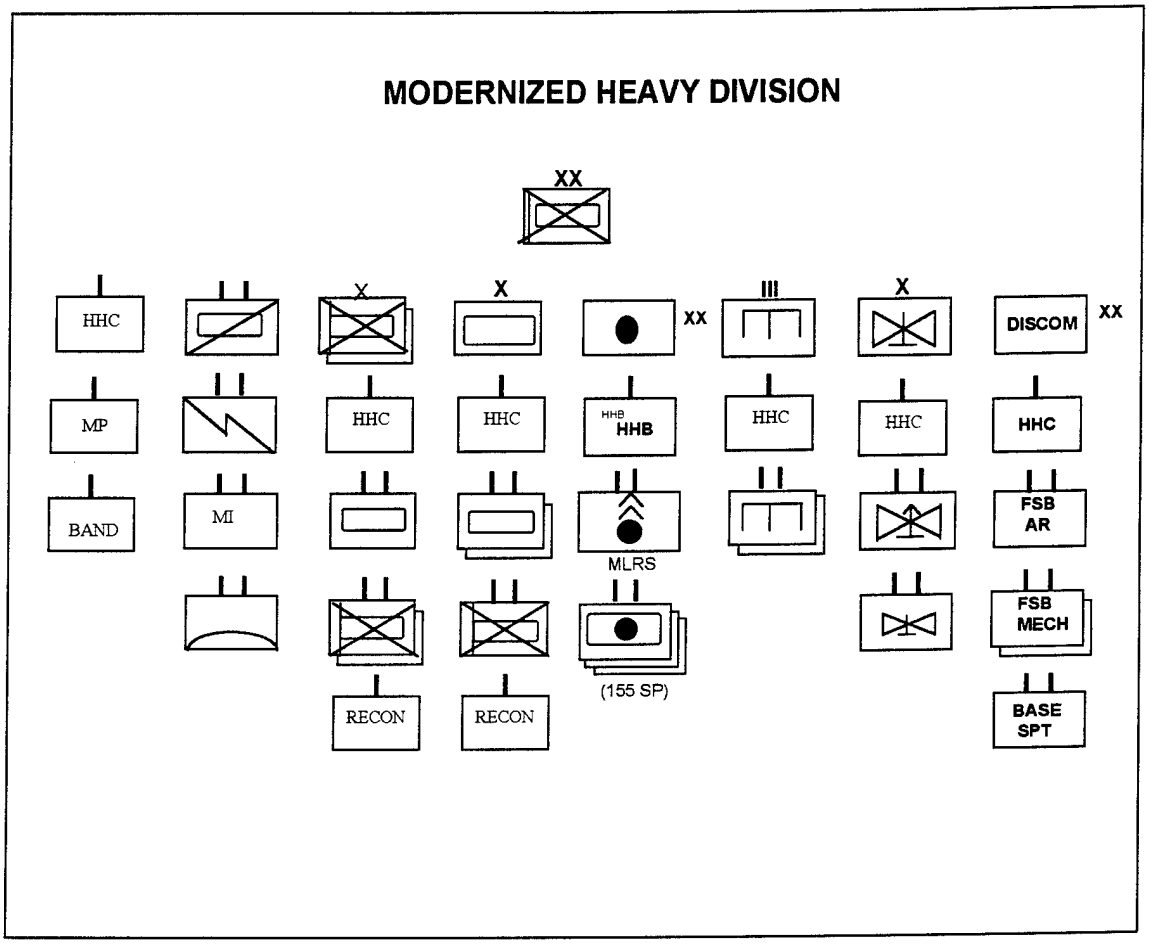
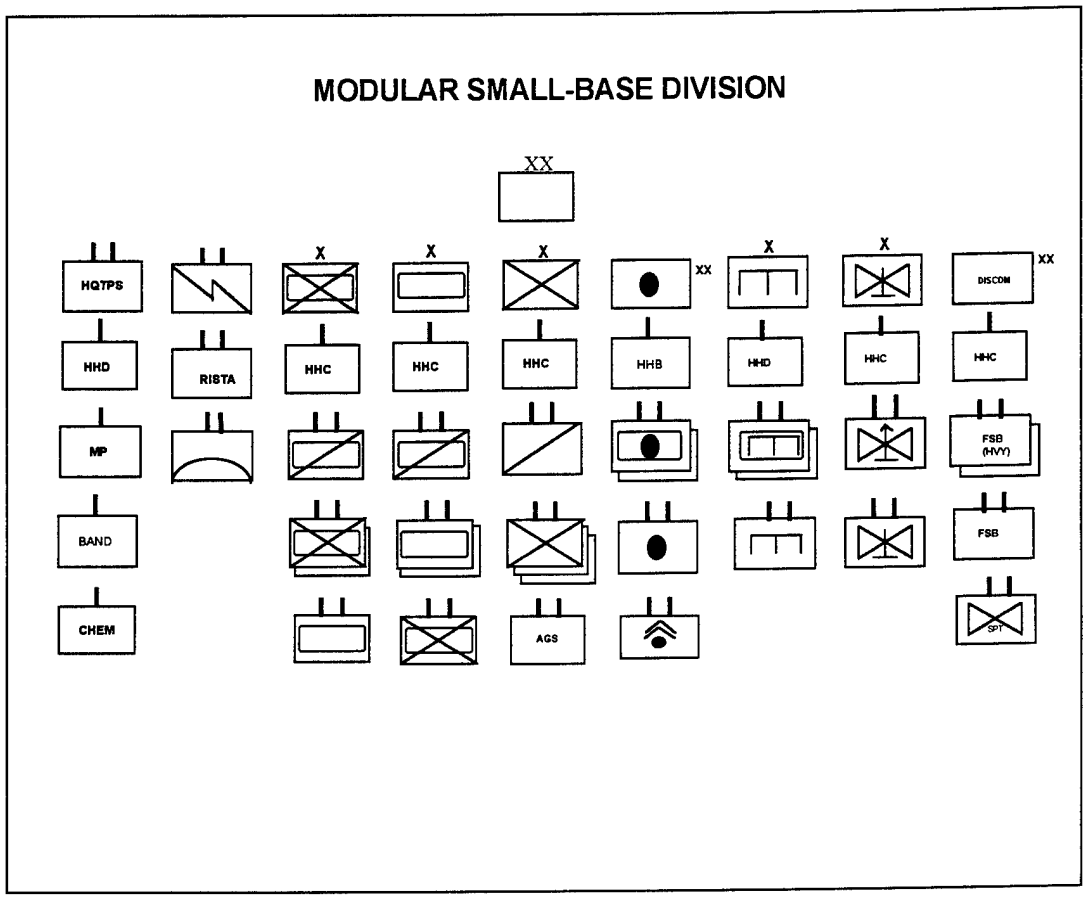
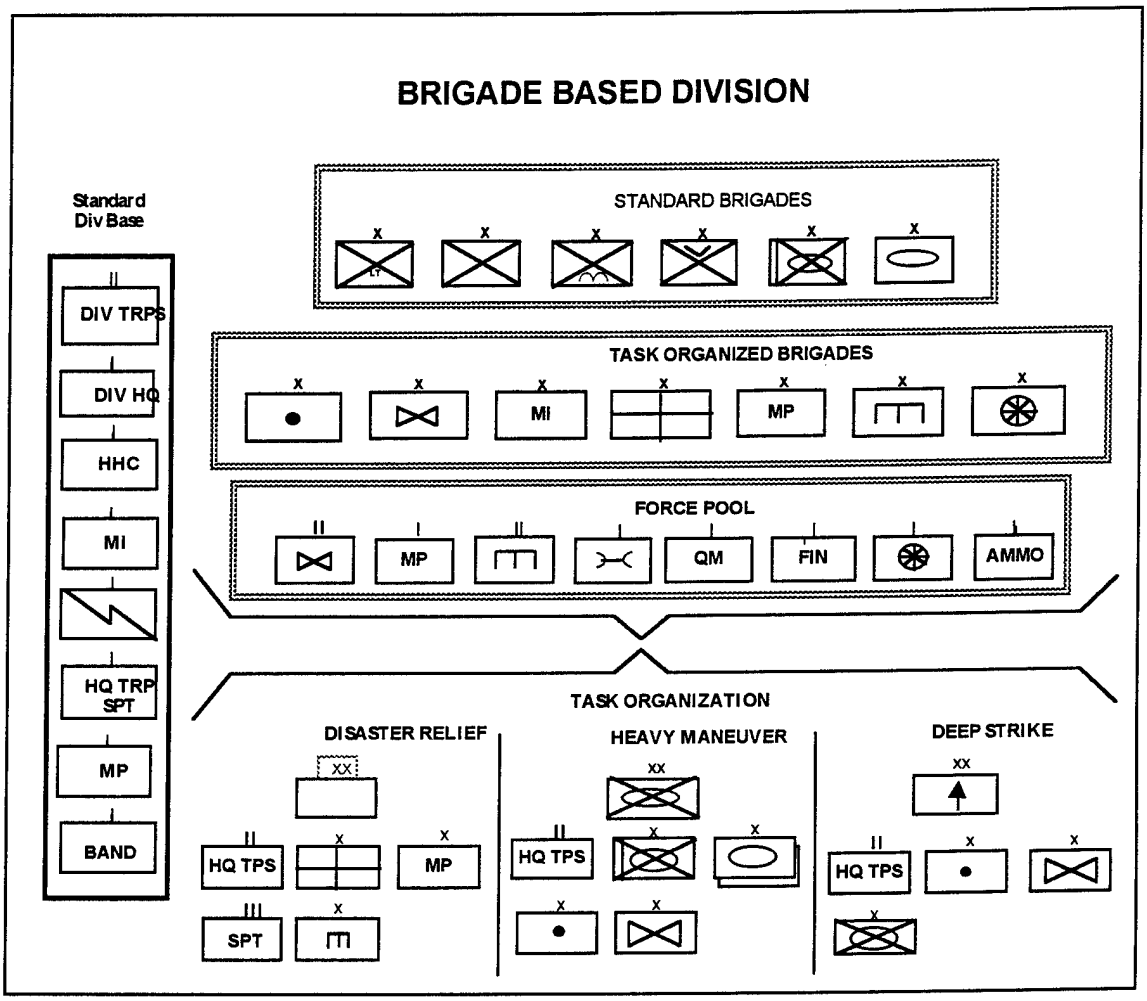
APPENDIX A: Modernized Heavy Division.



APPENDIX B: Modular Small-Base Division.

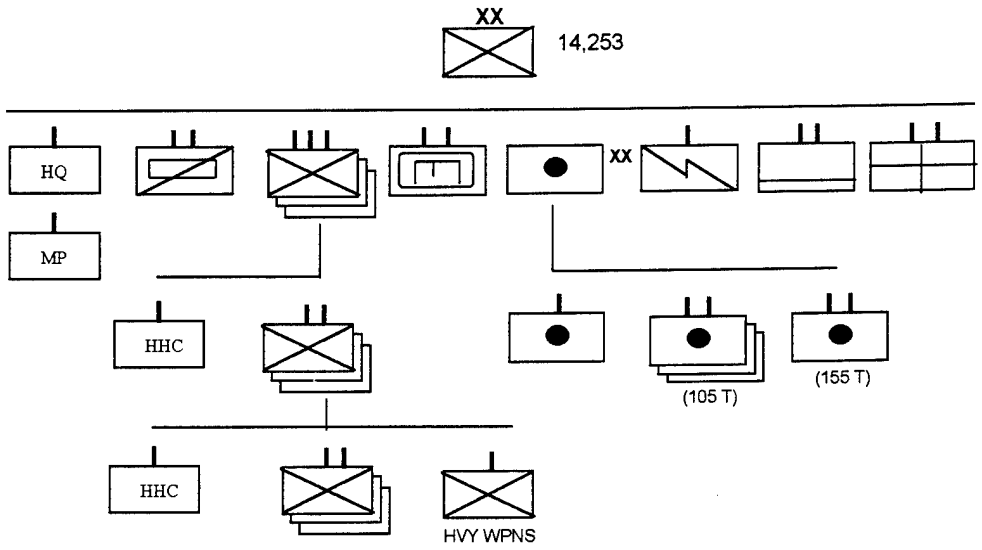


APPENDIX C: Brigade Based Division.



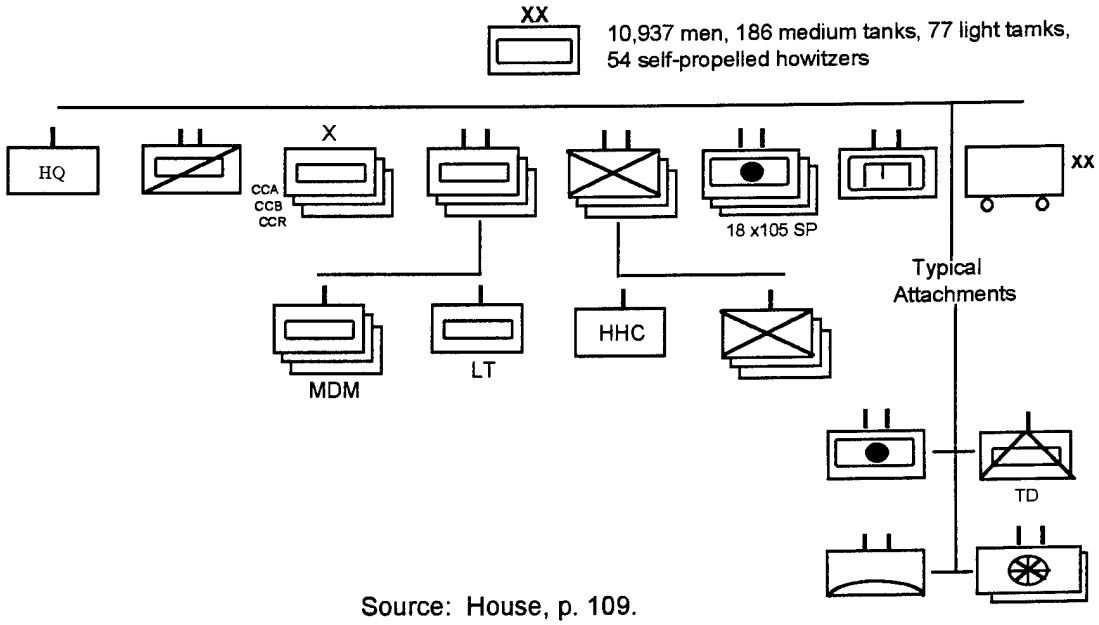
APPENDIX D: McNair Divisions Organizational Structure.

McNair INFANTRY DIVISION (1943)



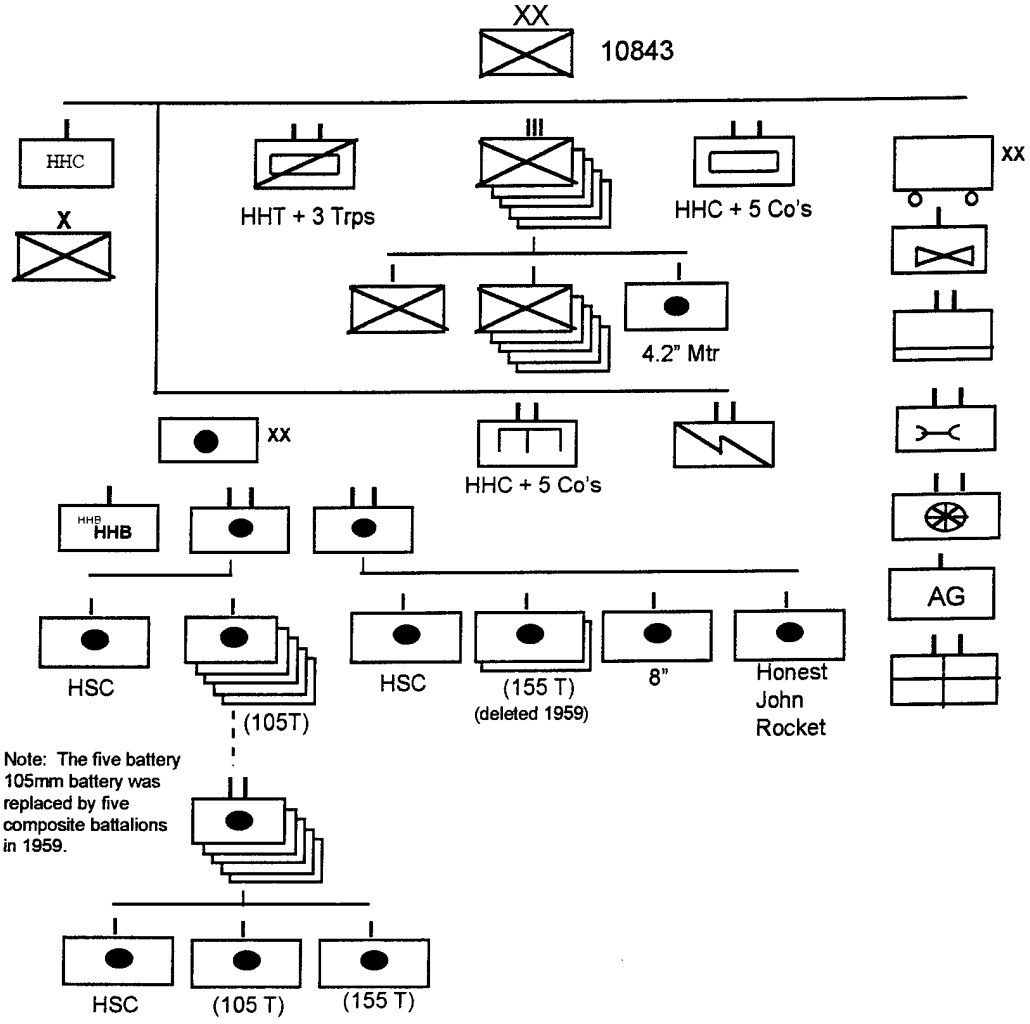
Source: Greenfield, p. 306.

McNair ARMORED DIVISION (1943)



Source: House, p. 109.

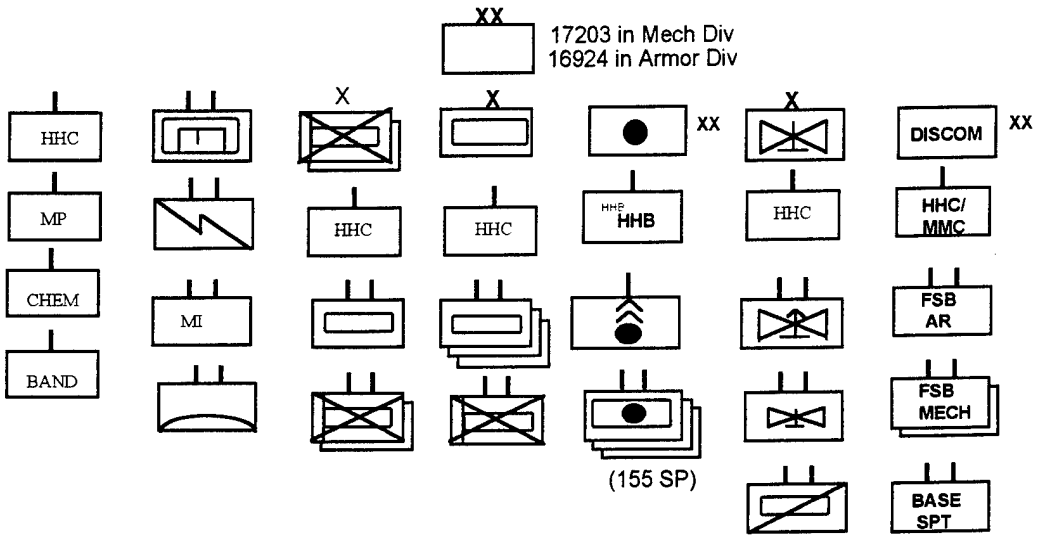
APPENDIX E: Pentomic Division Organizational Structure.



Source: House, p. 156.

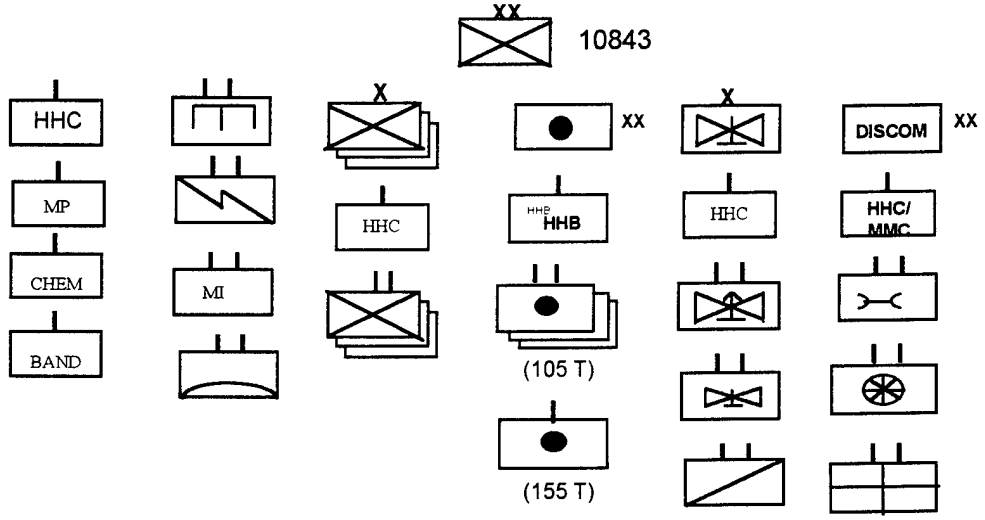
APPENDIX F: AOE Heavy and Light Division Organizational Structure.

AOE HEAVY DIVISION (1986)



Source: Romjue, pp. 195-196.

AOE LIGHT INFANTRY DIVISION (1986)



Source: Romjue, p. 175.