

USAWC STRATEGY RESEARCH PROJECT

U.S. ARMY TRANSFORMATION: IMPLICATIONS FOR THE ARMOR FORCE

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## ABSTRACT

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The strategic environment has changed, the cold war is over and the bilateral balance that held the world in stalemate fragmented, but, the result is many smaller threats have surfaced. The U.S. Army must adapt to this new reality or face irrelevancy. To this end the Army Chief of Staff has laid out an impressive vision for transforming the Army. This purpose of this paper seeks to identify the implications for the armor force as a result of The Army Vision and the U.S. Army's Transformation Initiative. This paper seeks to determine if the armor force as we know it will cease to exist in the Objective Force or will armor-like missions be accomplished by the next generation armor team? To add some context to this analysis a review of the one of The Army's previous transformation experiences, specifically mechanization and the development of tanks from WWI to WWII, is included. If our experience with mechanization prior to WW II is any indication, the road to transformation will be bumpy and frequently side tracked.



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## **U.S. ARMY TRANSFORMATION: IMPLICATIONS FOR THE ARMOR FORCE**

The U.S. Army has embarked on an ambitious program to ensure it is postured to fight and win our nation's wars in the near and far terms. The strategic environment has changed, the Cold War is over and the bilateral balance that held the world in stalemate has fractured, but, the result is many smaller threats have surfaced. The Army must adapt to this new reality or possibly face irrelevancy. To this end the Army Chief of Staff laid out an impressive vision for transforming the Army. On October 12, 1999 General Eric Shinseki announced at the Association of the United States Army's annual conference his vision to transform the Army into a more strategically responsive force, possibly an all wheel force. This future Objective Force will allow the Army to deploy a combat capable brigade anywhere in the world in 96 hours, a division in 120 hours, and five divisions in 30 days. Future systems will be strategically deployable by C-17 airlift and fit into a C-130-like profile for intra-theater lift.<sup>1</sup> The Chief of Staff's vision to transform the Army proceeds along three axes: Legacy Force, Interim Force, and the future Objective Force. What are the implications for the armor force as a result of The Army Vision and the U.S. Army's Transformation initiative? Will the armor force as we know it cease to exist in the Interim and Objective Force or will armor-like missions be accomplished by the next generation armor team? To add some context to this analysis a review of the one of the Army's previous transformation experiences, specifically the development of tanks and mechanization from WW I to WW II, is instructive.

### **HISTORICAL CONTEXT**

Armor's initial tactical employment took place during World War I. While clearly showing value as a combat weapon, tanks were not produced in sufficient quantity nor were they mechanically reliable enough to make a significant operational impact. "Tanks frequently ran out of fuel or simply broke down, problems unfamiliar and troublesome to the existing logistical system."<sup>2</sup> During the interwar years all the major participating national armies began transitioning, at widely varying degrees, to motorized and mechanized forces. Arguably the Germans embraced mechanization and a combined arms doctrine more than their adversaries. In spite of the Versailles treaty's prohibition against tank development, the tank became a significant element in the German Army's doctrine developed during the interwar years.<sup>3</sup> "Moreover, German doctrinal conceptions, by emphasizing exploitation, speed, leadership from the front, and combined arms, provided a solid framework for thinking through not only how the



Reichswehr, if it possessed tanks, might employ them against an enemy, but how a potential enemy might utilize armor against German forces.”<sup>4</sup>

The United States on the other hand, in accordance with the National Defense Act of 1920, inactivated the Tank Corps formed during WWI and assigned all tank units to the Infantry. A 1922 War Department policy statement further stipulated the primary mission of tanks is to support the continuous advance of the infantryman in the attack.<sup>5</sup> The number of Regular Army tank units during the interwar years was never significant, in large part the tank force consisted of one tank company assigned to each Regular Army infantry and cavalry division and several separate tank battalions.<sup>6</sup>

The U.S Army’s first large scale attempt to mechanize after WWI, the Experimental Mechanized Force, was organized at Fort Meade, Maryland in July 1928, primarily using old obsolete WWI equipment. Just two months later the Experimental Mechanized Force was disbanded due to a lack of funds to either repair the old equipment or purchase replacements. In 1930, the outgoing Army Chief of Staff, General Summerall, in an effort to prevent the threatened closure of Fort Eustis, Virginia, directed the establishment of the Mechanized Force as a permanent army fixture and moved it to Fort Eustis.<sup>7</sup> Colonel Daniel Van Voorhis, Cavalry, was placed in command and Lieutenant Colonel Adna R. Chaffee, Cavalry, was second in command. They assembled a combined arms organization that was a remarkable forerunner of World War II armored divisions. The 1930 Mechanized Force consisted of an armored car troop, a tank company, motorized (machine gun) infantry company, motorized artillery battery, and special troops to include an engineer company, antiaircraft detachment, chemical warfare detachment, an ordnance company and two maintenance and supply detachments.<sup>8</sup>

Despite the statement of permanence, the Experimental Mechanized Force never became viable, primarily due to a lack of an influential constituency and resulting lack of funds. In 1931, General Douglas MacArthur, Army Chief of Staff, disbanded the Mechanized Force and assigned its remnants to the cavalry. MacArthur also issued a directive that each branch mechanize to the greatest degree possible, in effect dispersing any momentum or synergy gained by establishing a large test bed mechanized unit. Nevertheless, recognizing the potential of mechanization and the relatively diminishing capability of horse cavalry, MacArthur stated that “to enable cavalry to develop its ability under modern conditions to perform its mission...the Mechanized Force will be reorganized as a reinforced cavalry regiment.”<sup>9</sup> To avoid the Congressional limitation assigning tanks to Infantry in the National Defense Act of 1920, the Cavalry Branch’s tanks were referred to as “combat cars.”<sup>10</sup>

As a result of these developments both the Infantry and Cavalry Branches developed fledgling, under-funded mechanized units. Prior to 1939 there was not strong support for mechanization within the U.S. Army and much of the resistance to change can be blamed on the fact the Army was starved for funds and suffered from parochialism. Little concrete progress was made on tank development or tactics, techniques and procedures during the interwar period. In fact, as late as 1939 Army doctrine continued to state the role of the tank was to support the dismounted infantry assault.<sup>11</sup> However, after the stunning victory by the German Army in Poland in 1939 and in France in 1940, it was clear the Army needed to embrace mechanization in order to face this threat.

In 1940, at the conclusion of the Louisiana Maneuvers, Brigadier General Adna R. Chaffee, Commander of Cavalry's 7<sup>th</sup> Cavalry Brigade and Brigadier General Bruce Magruder, Commander of Infantry's Provisional Tank Brigade met with a group of officers (to include Colonel George Patton and the Army Assistant Chief of Staff, Brigadier General Frank Andrews) to discuss the formation of an autonomous Armored Force. Notably, the Chiefs of Cavalry and Infantry were not invited although they were in Louisiana to observe the maneuvers. Within two weeks General Marshall, Army Chief of Staff, approved the group's recommendation and established the independent Armored Force. The term armored was selected to avoid any association with the infantry's tank or cavalry's mechanized terminology. General Chaffee was named the first commander of the Armored Force. In forming an independent armored force, General Marshall recognized there was too much institutional inertia against mechanization within the Cavalry and Infantry branches. General Chaffee rapidly created two armored divisions using the two existing mechanized regiments as the foundation.<sup>12</sup> Unfortunately, during the course of this undertaking he contracted an illness and died on 22 August 1941, after Herculean efforts to manage the rapidly expanding Armored Force. Major General Chaffee, a long and tireless promoter of mechanization up through the crisis of mobilization for WW II, was largely credited with championing the need for increased mechanization in the United States Army.<sup>13</sup>

The last Chief of Cavalry, MG John K. Herr, although not opposed to mechanization per se, vigorously opposed mechanization if it resulted in the loss of any additional horse cavalry. MG Herr refused to accept that many of the traditional roles of cavalry could be filled by mechanized and armored forces. These views and his contention that horse cavalry should be employed in large units resulted in a bitter working relationship with the War Department General Staff. Nonetheless, beginning in 1942, non-divisional cavalry regiments retired their horses and were transformed into mechanized reconnaissance units, although, the two cavalry

divisions temporarily retained their horses. The 1<sup>st</sup> Cavalry Division eventually turned in their horses and deployed to the Pacific Theater, essentially operating as a light infantry division. The 2<sup>nd</sup> Cavalry Division deployed without horses to North Africa, inactivated in 1944 and transferred its personnel to service units. The 26<sup>th</sup> Cavalry of the Philippine Scouts represented the last U.S Army horse cavalry unit to fight mounted. Withdrawing under Japanese pressure to Bataan in early 1942, they were eventually forced to destroy their horses and fight dismounted.<sup>14</sup>

The establishment of the Armored Force forecasted the demise of the Cavalry Branch as a full partner among the combat arms. The Chief of Cavalry lost mechanization and the prestige that went with it.<sup>15</sup> At the time Cavalry, along with the Infantry and Field Artillery Branches, was one of the three dominant branches within the Army. Cavalry Branch was eventually renamed Armor Branch in 1950 and recognized as “a continuation of the cavalry.”<sup>16</sup> Today as the Army Chief of Staff pursues his vision for the Army, Armor Branch potentially approaches a similar crossroads, adapt or become irrelevant.

#### **TRANSFORMATION OVERVIEW:**

The Army’s nonnegotiable contract with the American people is, when called, to fight and win our nation’s wars – decisively. To ensure we are postured to meet that contract, the Army Chief of Staff and the Secretary of the Army published their Army Vision in October 1999. The Army Vision consists of three interdependent elements: people, readiness and transformation. Transformation seeks to create a revolutionary new force with strategic dominance across the spectrum of conflict. In order to accomplish this, the Army must achieve seven far-reaching goals: become more responsive, deployable, agile, versatile, lethal, survivable, and sustainable.<sup>17</sup>

The Transformation Campaign Plan proceeds along three vectors: the Objective Force, the Interim Force, and the Legacy Force. First, a portion of the existing Legacy Force will be modernized and maintained to provide a decisive offensive capability and strategic reserve while the Army transitions to the Objective Force. Second, the Army will field a medium weight Interim Force, which is more capable and tactically mobile than existing light forces, but, more deployable than heavy forces to fill an existing operational shortfall required by our Joint Force Combatant Commanders. The Interim Force will also serve as a bridge or test bed for development of Objective Force organizations and operating principles. Finally, the Army plans to field revolutionary new technologies and organizational structures to transform into the full spectrum Objective Force (the future Army), a force that is strategically responsive and able to

dominate at every level of the operational spectrum. It will be a combined arms, multi-dimensional maneuver force, intended to be highly agile, more deployable, lethal, sustainable, and survivable than existing forces.<sup>18</sup>

## **LEGACY FORCES:**

### **OVERVIEW:**

Existing Legacy Force armor formations support the readiness leg of the Army Vision and have the mission to remain trained and ready until phased out and replaced by the Objective Force. “Army transformation timelines clearly show elements of the Legacy Force remaining in the Army’s force structure for the next 25-30 years.”<sup>19</sup> In order to maintain readiness and dominance during that lengthy 25-30 year transition period to the Objective Force the Army recognizes that selective re-capitalization and modernization (to include digitization) of the Legacy Force must continue.

Limited re-capitalization and modernization will continue but the Army has no plans for a follow on main battle tank to replace the M1 Abrams series tank. The comments of General John Keane, the Army vice Chief of Staff, make that perfectly clear: “General Shinseki, as you know, is an armor officer, and three years ago he went to the Armor Center at Fort Knox, Kentucky. This is where they have Patton this and Creighton Abrams that all over the place. He walked in there and said that we have built our last main battle tank. We are not going to build any more main battle tanks. And we are dead serious about that. The 03 budget is the last budget that has a main battle tank in it. That is it. The 03 budget.”<sup>20</sup>

Currently the active component Armor Force M1 series tank fleet end strength is 1510 tanks assigned to Table of Organization and Equipment (TOE) armor battalions and cavalry squadrons stationed throughout the world. Another 703 M1 tanks are stored in Army Pre-positioned Stocks (APS) located in Europe, Qatar, Kuwait, Korea and on APS ships afloat.<sup>21</sup> As the Interim and Objective Forces are fielded, TOE Legacy Force armor units will inactivate and transition to the new organizations. The Abrams tanks displaced by transformation will either cascade to Army National Guard units until they also convert to Objective Force design or will be disposed of.

### **COUNTER ATTACK CORPS:**

A key element of the Legacy Force is a strategic offensive or counteroffensive capability consisting of three heavy divisions and an armored cavalry regiment. The III Corps (Phantom Corps) has been designated as the Counter Attack Corps and “will receive priority of

modernization and recapitalization within the Legacy Force to ensure a bridge to the Objective Force. This modernized and digitized Corps meets the Defense Strategy's force sizing requirements by providing a decisive defeat capability and a strategic hedge against uncertainty throughout the period of Army Transformation.<sup>22</sup> The Counter Attack Corps consists of the 1<sup>st</sup> Cavalry Division (1CD), 4<sup>th</sup> Infantry Division (4ID), 3<sup>rd</sup> Infantry Division (3ID), the 3<sup>rd</sup> Armored Cavalry Regiment (3ACR), and those echelon above division units assigned to the Corps, including reserve component units.<sup>23</sup> Current plans reflect the Counter Attack Corps drawing down and converting to Objective Force units by FY26. The remainder of the active component Legacy Force will draw down and convert by FY21; reserve component Legacy Force will convert by FY30.<sup>24</sup>

To date some elements of III Corps have digitized, including all 4ID units stationed at Fort Hood, but not 4ID units at Fort Carson, and the majority of 1CD. Current plans call for 1<sup>st</sup> Cavalry Division to complete fielding the M1A2 System Enhancement Program (SEP) model in FY03, 4ID to complete fielding the M1A2 SEP in FY05, and 3ACR to field the M1A1D + in FY06. M1A1D+s are older M1s that have been rebuilt under the Abrams Integrated Management (AIM) program and upgraded with FBCB2 and the 2<sup>nd</sup> Gen FLIR (2<sup>nd</sup> Generation Forward Looking Infrared) imaging device. Based on current budget proposals there are no plans to modernize 3ID's current fleet of M1A1s.<sup>25</sup>

#### MODERNIZATION STRATEGY:

The 2002 Army Modernization Plan for recapitalizing the Legacy Force Abrams fleet included funding for 3 1/3 divisions of M1A2 SEPs (Systems Enhancement Program) to equip the Counter Attack Corps, the rebuilding of 790 M1A1s through the Abrams Integrated Management (AIM) program, and several operational and support cost reduction improvements (e.g., LV100 engine program, pulse jet system, auxiliary power unit, and electronic obsolescence). Furthermore, a decision to digitize the remainder of the Legacy Armor Force (the Containment Force) was postponed until FY03.<sup>26</sup> However, budget realities have forced a cut in that plan. The FY 04-09 Budget Estimate Submission (BES) reduced the M1A2 SEP acquisition from 3 1/3 divisions (966) to 2 divisions (588), reduced funding for the AIM program, and reduced the planned procurement of the LV100 engine to the M1A2 SEP fleet only (leaving 2000 worn and obsolete AGT1500 power packs in the active force).<sup>27</sup> The funding reductions to the Abrams recapitalization plan were some of the many program adjustments needed to free up funds for transformation.

In order to provide funds for the Stryker brigades and Objective Force research and development, the Army's 2004 BES and associated Five-Year Defense Plan (FYDP) terminated 24 systems and restructured or reduced 24 more programs, generating an additional \$22B in saving. These cuts are on top of actions taken between 1999-2003 when the Army cancelled an additional 29 programs and restructured 20 others, for a savings of \$12.8B. The intent is to apply these savings to transformational programs.<sup>28</sup>

Force structure within the heavy force has already been cut deeply in the past ten years in expectation of the increased combat effectiveness resulting from digitization and to release funds for transformation.<sup>29</sup> For example, one maneuver company per tank battalion was eliminated, reducing the number of tanks per battalion from 58 to 44. However, due to funding pressures for transformation the Army's FY03 Digitization Decision resources digitization for only portions of the Counter Attack Corps. The 4ID and 1CD will completely digitize and the 3ACR will be equipped with M1A1D tanks. Digitization for tanks in the 3ID and remainder of the heavy units in the Legacy Force was cut. Despite that decision, a proposal to partially field FBCB2 to key leader tanks such as the company commander and platoon leaders ("The Leader Option") has been proposed and is competing for funding.<sup>30</sup>

#### SUMMARY:

The M1 Abrams is the Army's last main battle tank. The impact to date of transformation on active component armor end strength is the inactivation of two M1A1 tank battalions at Fort Lewis, Washington and their conversion to Interim Force battalions. Recapitalization of some M1 tanks will continue in order to ensure the Army maintains a capable corps size contingency unit as a strategic hedge against uncertainty throughout the period of Army transformation. However, current funding provides only partial fielding of the M1A2 SEP (2 divisions) and partial digitization (2 1/3 division) in the Counter Attack Corps. 3ID armor units will not recapitalize with either M1A1 AIM tanks or digitize. The rest of the Legacy Force, referred to as the Containment Force, will not digitize and recapitalization via the AIM program has been extended. Failure to update aging systems could have long term operational and sustainment implications. Furthermore, the force structure savings harvested in anticipation of digitization will not be followed up by actual fielding of FBCB2 too much of the Legacy Force. As a result, the non-digitized armor battalions (44 tanks/battalion) remaining in the Legacy Force for the next 20 years are less capable now than their 1991 Desert Storm predecessors (58 tanks/battalion). In addition, you have a less than ideal mixed fleet of M1A2 SEPs, M1A1Ds, M1A2s and M1A1s and a reduction in funding for operational and support cost reduction improvements such as the

new tank engine and under armor APU. The mixed fleet will exist until phased out by Objective Force fielding.

## **INTERIM FORCE:**

### **OVERVIEW:**

The Interim Force – Stryker Brigade Combat Teams (SBCTs) - is designed to fill the void between light and heavy forces and bridge the operational shortfall in capability between the existing Legacy Force and the future Objective Force. The Interim Force will also serve as a catalyst for change inside the Army for development of Objective Force doctrine, leader training, organizations, material and operating principles. The Army Chief of Staff recognized our heavy forces possess tremendous lethality and survivability but are slow to deploy and require a large sustainment base. Our light forces are highly deployable but lack mobility, firepower, and survivability. The Interim Force will combine the best characteristics from the heavy and light forces.<sup>31</sup>

The Interim Force will provide Combatant Commanders with a strategically responsive force that is more survivable and mobile than traditional light infantry units. The Army's experience in Desert Shield highlighted the lack of this capability in our current force structure. Within a matter of days after the Iraqi invasion of Kuwait, the 82<sup>nd</sup> Airborne Division deployed to Saudi Arabia; however, they were severely overmatched by the Iraqi armor threat they faced across the Saudi Arabia-Kuwait border. While rapidly deployable, the 82<sup>nd</sup> is a light infantry unit with inherent limited firepower, tactical mobility and logistics capability. Fortunately the Iraqis did not attack and thirty days later a heavy division, the 24<sup>th</sup> Infantry Division (Mechanized), arrived with three brigade combat teams equipped with armor and mechanized infantry units.

The SBCTs will fill this operational gap between our light and heavy forces. These units are expected to operate as part of a Joint Task Force or a Corps, not necessarily under a Division Headquarters, and will be able to deploy in 96 hours and sustain itself for three days without external support. Every piece of equipment in a SBCT is supposed to fit in a C-130 aircraft and require little, if any, reception and onward movement support when it arrives.<sup>32</sup>

By equipping light forces with mounted systems, the Interim Force improves mobility, lethality and survivability until more capable forces can deploy. The two core capabilities of the Interim Force are increased mobility (strategic through tactical) and the ability "to achieve decisive action through dismounted Infantry assault."<sup>33</sup> Decisive Infantry operations in urban areas and complex terrain are a major Interim Force capability. The Interim brigades are designed to operate throughout the entire spectrum of conflict, from stability and support

operations, through small scale contingencies, to major theater war. However, the Interim Force is optimized for operations in small scale contingencies. It is capable of operating in a major theater war but most likely would need to be augmented with additional combat power such as armor, additional artillery, and logistics.<sup>34</sup> In addition, the Interim Brigades are fully digital, equipped with Army Battle Command Systems (ABCS) and Force XXI Battle Command Brigade and Below (FBCB2) command and control systems to provide a common operating picture and situational dominance over any adversaries.

#### STRYKER BRIGADE COMBAT TEAMS:

Army plans call for an Interim Force of 6 Stryker Brigade Combat Teams (SBCTs), essentially mounted infantry brigades, equipped with the wheeled Interim Armored Vehicle named the Stryker. The six (5 active and 1 Army National Guard) brigades identified for transition to SBCTs are: 3<sup>rd</sup> Brigade, 2<sup>nd</sup> Infantry Division (Fort Lewis) initial operational capability (IOC) in Fiscal Year 2003 (FY03); 1<sup>st</sup> Brigade, 25<sup>th</sup> Infantry Division (Fort Lewis) IOC FY04; 172<sup>nd</sup> Infantry Brigade (Alaska) IOC FY05; 2<sup>nd</sup> Armored Cavalry Regiment (Light) (Fort Polk), IOC FY05; 2<sup>nd</sup> Brigade, 25<sup>th</sup> Infantry Division (Schofield Barracks), IOC FY07; and 56<sup>th</sup> Brigade, 28<sup>th</sup> Infantry Division (Pennsylvania Army National Guard) IOC FY08.<sup>35</sup> The 2<sup>nd</sup> Armored Cavalry Regiment (Light) will be a Stryker-equipped cavalry regiment supporting the XVIII Airborne Corps and as such will be organized differently than the 5 other SBCTs, which are infantry brigades. The SBCTs are scheduled to remain in the inventory until 2032 and are the last units to convert to Objective Force design.<sup>36</sup> In total, the Army programmed \$6.4B through FY07 to field six SBCTs.<sup>37</sup> The Army intends to buy over 2000 Stryker vehicles for approximately \$4B to equip the six SBCTs. In addition to the \$4B required for the Stryker vehicles, an additional \$2.4B is needed for support vehicles, ammunition, and military construction. While the Army's Program Objective Memorandum (POM) for 2004-2009 funds six SBCTs, the Office of the Secretary of Defense (OSD) has not agreed to support funding for all six interim brigades.<sup>38</sup> On 10 December 2002 OSD announced they would support funding for the fourth SBCT, the 2<sup>nd</sup> Armored Cavalry Regiment (Light), Fort Polk, Louisiana. However, no commitment for funding for the fifth and sixth SBCTs will be made by OSD until the summer of 2003 when the Army updates OSD on plans to modify the Stryker brigades with additional systems. The Army is considering adding systems to the SBCT to broaden its capabilities. Additional systems under consideration include the High Mobility Artillery Rocket System (HIMARS), the Excalibur precision-guided 155 mm artillery round, the lightweight 155 mm towed howitzer, attack and reconnaissance helicopters, and additional unmanned aerial vehicles.<sup>39</sup>



The centerpiece of the SBCT is its 3 combined arms mounted infantry battalions which are supported by a Reconnaissance, Surveillance, and Target Acquisition (RSTA) cavalry squadron; an antitank company; a towed artillery battalion; an engineer company; a signal company; a military intelligence company; a brigade support battalion; and the brigade headquarters and headquarters company.<sup>40</sup> Significantly, “the Stryker Brigades actually possess more dismounted infantry than an airborne brigade, light infantry brigade, or mechanized infantry brigade.”<sup>41</sup> Equally important is the information dominance expected of the SBCTs as a result of their use of ABCS and FBCB2 digital command and control systems, the assets in the cavalry squadron and the brigade’s military intelligence company. The brigade’s capabilities rest upon enhanced mobility, high infantry strengths for dismounted operations in urban and complex terrain, enhanced situational awareness, and combined arms integration down to the company/troop level.

Stryker Infantry Battalions are combined arms organizations and are the principal fighting organization in the brigade. Each battalion has a headquarters and headquarters company (HHC) and three combined arms infantry companies. Each infantry company contains three Infantry platoons, a mobile gun system (MGS) platoon (an armor organization), mortar section, sniper section, forward observer section, and medics. HHC has command and staff sections, a reconnaissance platoon, mortar platoon, medical platoon, sniper squad, and a fire support element. The battalion’s “core competence is their ability to achieve tactical decision through dismounted infantry assault.”<sup>42</sup>

The 1<sup>st</sup> Battalion 14<sup>th</sup> Cavalry Squadron, Fort Lewis, Washington is the Army’s first Stryker RSTA cavalry squadron. The mission of the squadron is to develop situational awareness for the brigade (i.e., see first) so the brigade can understand first and act first at a time and place of its choosing. A cavalry organization commanded by an Armor Branch Lieutenant Colonel, the squadron consists of a headquarters and headquarters troop (HHT), 3 combined arms reconnaissance troops and a surveillance troop. The squadron is authorized 414 personnel (39 officers, 2 warrant officer and 373 enlisted). The HHT consists of headquarters and staff personnel, a medical platoon, and a unit ministry team. The HHT is commanded by an armor officer. Each reconnaissance troop consists of a headquarters detachment and three reconnaissance platoons of 4 Stryker Reconnaissance Vehicles (RVs) and a mortar section. The reconnaissance troop and platoons are all led by armor officers. The surveillance troop consists of a headquarters detachment, an unmanned aerial vehicle (UAV) platoon with 4 UAVs, a sensor platoon, and an NBC-reconnaissance platoon. The surveillance troop is commanded by a Military Intelligence officer.<sup>43</sup>

A serving RSTA cavalry squadron commander relayed that he manages assignments of all armor officers in his SBCT. New lieutenants are initially assigned as either reconnaissance platoon leaders in the cavalry squadron or to one of the MGS platoons in the infantry battalions. Professional development moves are then made between the MGS platoon leader positions and the cavalry squadron. The goal is to ensure each armor lieutenant has served as either an MGS platoon leader or a reconnaissance platoon leader, sometimes both, and a reconnaissance troop executive officer, and possibly as a squadron staff officer.<sup>44</sup> This is similar to a traditional armor officer development path except for the facts that the vehicle platform has dramatically changed and an infantry officer (vice an armor officer) is now responsible for the training, care, and evaluation of armor personnel in a MGS platoon.

#### THE STRYKER:

The Stryker vehicle, named in honor of two Medal of Honor winners by that name, is an eight wheeled lightly armored vehicle designed by a joint venture of General Motors and General Dynamics Land Systems. The base Stryker weighs 19 tons and all variants are required to be C-130 deployable, combat loaded. The first 366 Strykers are scheduled for fielding to one of the two Fort Lewis SBCTs in January 2003. The Stryker vehicle family will contain 10 different models to include the centerpiece Infantry Carrier Vehicle (ICV). The other Stryker variants are the Mobile Gun System (MGS), Reconnaissance Vehicle (RV), Mortar Carrier (MC), Command Vehicle (CV), Fire Support Vehicle (FSV), Engineer Squad Vehicle (ESV), Medical Evacuation Vehicle (MEV), Anti-Tank Guided Missile (ATGM) Vehicle, and NBC Reconnaissance Vehicle (NBC RV). The ICV carries nine infantrymen, has a two man crew, and a remote weapons system armed with either a M2 .50 caliber machine gun or Mk19 grenade launcher.<sup>45</sup> Embedded in each Stryker is FBCB2 digital command and control equipment. As of December 2002, the Army's first SBCT had received four of the ten Stryker variants: infantry, mortar, command, and reconnaissance vehicles.<sup>46</sup>

Of primary interest to the armor community are the Mobile Gun System (MGS) and the Reconnaissance Vehicle (RV), which will be manned by armor branch soldiers. The MGS is significantly different from the other 9 Stryker models which are all variants of the base Infantry Carrier Vehicle (ICV). The MGS is currently entering production qualification testing with limited fielding to begin in Fiscal Year 2004. To equip 6 SBCTs the Army currently plans to buy 204 Mobile Gun Systems, but that number will increase based on the final organization of the 2nd Armored Cavalry Regiment (Light).<sup>47</sup> Until the system is fielded, MGS platoons will train on substitute vehicles. The variety of substitutes used includes M113A3s, Centauros, and

HMWWWs mounted with the improved tube-launched, optically tracked, wire-guided (TOW) acquisition system. The current strategy is to equip the MGS platoons with the ATGM Stryker variant until the platoons receive the fielded MGS in FY05.<sup>48</sup>

The primary weapon system on the MGS is the M68A1E1 105mm cannon with autoloader. The MGS is intended to provide bunker buster and anti-tank firepower in support of assaulting infantrymen. "The MGS is the key weapons overmatch platform to ensure mission success and survivability of the BCT."<sup>49</sup> Secondary weapons include two 7.62mm machine guns, one coaxial and one the commander's weapon. The MGS requires a three man crew, consisting of a driver, gunner, and vehicle commander. Commander and gunner have thermal and day fire control sights. Command and control is supported by SINCGARS radios and FBCB2. Armor crewmen (Military Occupational Specialty 19K) and an armor officer will man the MGS platoons. Each Stryker brigade has nine MGS platoons, one platoon per infantry company. Each brigade will field 31 vehicles, 27 assigned to the nine platoons and 4 operationally ready floats (ORFs).<sup>50</sup>

The Stryker - Reconnaissance Vehicle (RV) is the primary reconnaissance and surveillance platform for scouts in the RSTA Cavalry Squadrons and for scouts in the infantry battalions. The RV accommodates six personnel and one augmentee for a total capacity of seven personnel. It is equipped with the Long Range Advanced Scout Surveillance System (LRAS3) and for defense, both anti-tank 4 (AT-4) missiles and the javelin anti-armor system.<sup>51</sup>

#### SUMMARY:

Army plans call for full fielding of the six SBCTs by 2008. To date The Army has partially equipped the first two SBCTs and OSD has committed to funding the first four SBCTs; however, funding decisions for the final two SBCTs are contingent on OSD evaluation in the summer of 2003. Despite the loss of two M1 tank battalions to date, armor force opportunities will actually increase with the fielding of the SBCTs. Armor officers and enlisted personnel will have the opportunity to serve in RSTA cavalry squadrons (one per SBCT) or in the 9 MGS platoons in each SBCT. Furthermore, the transition of the 2ACR (light) into a Stryker equipped cavalry regiment will enhance that unit's current capabilities. Finally, Interim Force units will be among the last to convert to Objective Force design.

## **OBJECTIVE FORCE:**

### **OVERVIEW:**

The Army intends to take advantage of the power of revolutionary new technologies, harness the ongoing revolution in information technology to network the force, and design new organizational structures to transform the way we fight. By taking advantage of these new technologies and capabilities the Army plans to reduce the weight of heavy combat systems (gaining strategic mobility) while retaining their firepower, mobility and shock effect. The full spectrum Objective Force will be capable of operating across the entire spectrum of military operations, from homeland defense, humanitarian assistance, small scale contingencies, to major theater war. It will be a networked, combined arms force, highly agile, more deployable, lethal, sustainable, and survivable than existing forces. It is a force designed for rapid, precise maneuver, capable of decisive action at a time and place of our choosing. It is a new and revolutionary path, designed to meet the Army's requirement to defend the nation and to enhance the Army's unique contribution to the joint fight – sustained land dominance across the range of military options.<sup>52</sup>

Existing heavy forces and light forces will merge into a medium weight force operating from the Future Combat System (FCS). The medium weight Objective Force is expected to seamlessly transition between tactical vertical envelopment, mounted operations, and dismounted operations. These units will provide the Joint Force Commander the capabilities of forced entry, vertical envelopment, prompt response, special operations, and sustained land dominance.<sup>53</sup> The Army intends to merge what is best from heavy, light and special operations cultures into a new Objective Force warrior culture. From the heavy forces we have speed, survivability, firepower and combined arms; from the light soldier agility and deployability; and from special operations we have soldiers highly trained in night operations in urban, complex terrain.<sup>54</sup> The Objective Force framework has been laid out in several key documents: The Army's Transformation Campaign Plan, Objective Force White Paper, Army Modernization Plan 2002, the Operational and Organizational plans for the Objective Force Unit of Action and the Operational Requirement Document for the Future Combat System.<sup>55</sup>

The Army plans on fielding the first Objective Force brigade in FY08 in order to attain initial operational capability of that first brigade equipped in FY10. Then beginning in FY10 the Army will annually field three Objective Force brigades with a goal of establishing five Objective Force divisions by FY16. At that point, FY16, the Objective Force will assume the first-to-fight mission from the Legacy Force. However, portions of the Legacy Force will remain in the

inventory to supplement Objective Force units until full conversion to the Objective Force in FY32.<sup>56</sup>

#### DRAFT ORGANIZATION:

The new constructs to describe the Objective Force organizational structure are the Unit of Employment and Unit of Action. Units of Employment are division and corps sized units which integrate and synchronize operations and whose headquarters can function as a Joint Task Force (JTF) headquarters, Joint Force Land Component Commander (JFLCC), or as Army Forces (ARFOR) command headquarters. The principal tactical organization, Units of Action, will fill the same roles as today's brigade and below combined arms organizations and have the mission to close with and destroy enemy forces. The Units of Action will enable the joint force to achieve sustained land dominance through various capabilities to include forced entry, vertical envelopment, and special operations.<sup>57</sup> The major subordinate units in the pre-decisional draft UA design (Bravo) includes three Combined Arms Battalions (the centerpiece of the UA), an Aviation Detachment, a Non-Line of Sight (i.e., artillery) battalion, a forward support battalion, a signal company, a military intelligence company, and a brigade headquarters and headquarters company.<sup>58</sup>

#### COMBINED ARMS (CA) BATTALION:

The centerpiece of the Unit of Action is their three combined arms (CA) battalions. Of the 2245 personnel authorized in a UA, 72% or 1620 personnel are assigned to the CA battalions. The combined arms battalion is authorized 540 personnel (pre-decisional draft UA design Bravo). Organic to each battalion is a Headquarters and Headquarters Company, a Reconnaissance Company, two FCS - Mobile Gun System (MGS) companies (the future armor-like force), two Combined Arms Infantry Companies and a NLOS/Area Effects Company. Major pieces of equipment in the battalion include 20 FCS Infantry Carrier Vehicles (ICV), 18 FCS-Mobile Gun Systems (MGS), 22 Command and Control Vehicles (C2V), 10 Command vehicles (CV), 8 Non-Line of Sight (NLOS) Mortars, 9 FCS Reconnaissance and Surveillance Vehicles (R&SV), 16 Armed Robotic Vehicles - Assault (ARV-Assault), 9 ARV-Reconnaissance, 18 Multifunctional Utility/Logistics Equipment (MULE) vehicles, 3 UAVs, and 17 Future Tactical Truck Systems (FTTS).<sup>59</sup>

The battalion's HHC is authorized 110 personnel organized in the following sections: the battalion commander's command group (11 personnel), staff cells in a mobile command post

(64 personnel), medical platoon (22 personnel), headquarters section (7 personnel), and a support section (6 personnel).<sup>60</sup>

The combined arms (CA) infantry companies are authorized 125 personnel of which the majority, 81, are dismounted infantry. The infantry company is organized into a company command cell and three CA infantry platoons. The company command cell consists of 16 personnel and 2 C2Vs, 2 Future Tactical Truck System (FTTS), 1 command vehicle, and 1 ARV-Assault (medium caliber cannon and missiles). Each of the three infantry platoons has 37 personnel of which 27 are dismounts. Major platoon equipment includes 1 CV, 3 ICV, 3 MULEs, and 2 ARV – Assault (LOS/BLOS) vehicles. The three infantry platoons include three 9 man squads, of which one is a weapons squad.<sup>61</sup>

Of primary interest to the armor community, the FCS-Mobile Gun System Companies are small in comparison, authorized only 40 TOE personnel, 13 in the headquarters and 27 in the platoons. The company is organized into a company command cell and three mobile gun system platoons. The company command cell consists of 13 personnel and 2 C2Vs, 2 Future Tactical Truck System (FTTS), 1 CV, 1 ARV-Assault (medium caliber cannon and missiles), and 1 MADS. Each of the three FCS-Mobile Gun System platoons consists of 9 personnel and 3 FCS-MGS vehicles.<sup>62</sup>

Also of interest to the armor/cavalry community, the battalion's Reconnaissance Company is authorized 60 personnel and is organized into a company headquarters / UAV detachment and three reconnaissance platoons. The company headquarters/UAV detachment consists of 12 personnel, 1 C2Vs and 3 SUAV carriers. Each of the three reconnaissance platoons consists of 16 personnel (includes 9 dismounts capable of sniper, sapper, or surveillance), 3 reconnaissance and surveillance vehicles (R&SVs), and 3 ARV-Recon, 3 Organic Air Vehicles (Light) and 3 Soldier-Robot unmanned ground vehicles.<sup>63</sup>

The battalion's NLOS Precision/Area Effects Company (Mortar) is authorized 40 TOE personnel and is organized into a company headquarters, two NLOS mortar platoons, and a NETFIRES platoon. The company headquarters is authorized 6 personnel and 3 FTTS. The NETFIRES platoon has 18 personnel and 9 NETFIRES. Each mortar platoon has 8 personnel and 4 mortars.<sup>64</sup>

#### FUTURE COMBAT SYSTEM:

The centerpiece, pacing system of the objective force is the Future Combat System (FCS), a system-of-systems combat vehicle. The FCS represents "the largest single investment and perhaps the most technically challenging science and technology program"<sup>65</sup>

needed to achieve full-spectrum Objective Force capabilities. "It will be a Joint and combined arms interoperable, 20 ton-class, rapidly deployable, networked system-of-systems with manned and unmanned ground platforms, direct and indirect fires, air defense, intelligence, reconnaissance, surveillance, and embedded battle command on the move."<sup>66</sup> The FCS will have all those capabilities and a reduced logistics footprint.

Army plans call for initial delivery of the systems in 2008 in order to attain initial operational capability of the first Objective Force brigade in 2010. A very aggressive schedule, Major General Joseph Yakovac Jr., Program Executive Officer for Ground Combat Support Systems commented in February 2003, "The jury is still out on whether those timelines can be met." Adding, "To say it's a challenge would be an understatement."<sup>67</sup> In May 2003, the Army faces a Milestone B decision for the FCS, a decision to proceed with a demonstration program. Some degree of maturity is needed in six basic technologies in order to proceed with fielding the FCS: sensors, networking, robotics, armor, munitions, and hybrid power.<sup>68</sup> In order to field the first unit this decade, the FCS program has three integrated phases it must complete: Concept and Technology Development (CTD), System Design and Demonstration (SDD), and Production.<sup>69</sup> The proposed Department of Defense FY04 budget contains \$1.7 billion to continue development of the FCS. The budget maintains FY2010 as the accelerated target date for initial operational capability for the first FCS equipped Objective Force unit.<sup>70</sup>

#### **SUMMARY:**

Existing heavy forces and light forces will merge into a medium weight force operating from the Future Combat System (FCS) beginning no earlier than 2008. This assumes success in maturing the basic technologies needed to proceed with fielding the FCS: sensors, networking, robotics, armor, munitions, and hybrid power. The future generation armor force will most likely operate in FCS-Mobile Gun System Companies and the Reconnaissance Companies in Unit of Action combined arms battalions. Unlike the SBCTS, the current draft UA design does not combine infantry and mobile gun system platoons at the company level; the CA battalions are combined arms at the battalion level with mix of two CA companies, two FCS-MGS companies, a reconnaissance company, and a NLOS company.

#### **ANALYSIS:**

If our experience with mechanization prior to WW II is any indication, the road to transformation will be bumpy and frequently side tracked. Lack of funds, institutional inertia and resistance to change (e.g., the Chief of Cavalry's attempt to save horse cavalry in 1939) stymied

mechanization in the interwar years. The Army faces similar obstacles today. It is likely the next several Army Chiefs of Staff will have to overcome resistance on all three axes of transformation. Will the Objective Force fail due to a lack of funds or an influential constituency the same way the embryonic Mechanized Force failed in 1930? The Army's rapid transformation in the 1940s was eventually highly successful but it took a world war to force the change. Do we have the will and vision to support this latest attempt to transform during our war on terrorism, a war with high requirements for special operations soldiers, light infantry soldiers, and precision strike capability? Is it wise to support moving to a medium weight force when initial reports from Gulf War II "have showcased the old-fashioned virtues of tanks that will survive a rocket-propelled grenade, and of labor-intensive warfare in tight places."<sup>71</sup>

Balancing risk is probably the Army's biggest challenge as it transforms. Maintaining readiness and overmatch in an aging Legacy Force will be a daunting challenge. The Army position is if we field the SBCTs and keep transformation on its accelerated schedule, then the risk is acceptable.<sup>72</sup> Even if we keep transformation on schedule we will have heavy armor in the Army for many more years. An armor Lieutenant commissioned in 2003 could retire in 2025 having served his entire career in heavy Abrams tank equipped tank battalions. The question that remains to be seen is will the Legacy Force be funded sufficiently to support its capability until 2025 or 2030? The current funding decrements do not bode well for the long term viability of the Legacy Force. Procurement for Legacy Force weapons systems and platforms suffered a 16 percent drop, to \$10.8 billion, in the proposed FY04 Department of Defense budget. Defense officials intend to kill several systems and downsize others to free up money for transformation programs. The budget terminates upgrades to M1 Abrams tanks and Bradley fighting vehicles to reprogram more than \$2 billion in research and development assets for the Future Combat System.<sup>73</sup>

Current Abrams upgrade plans would result in a Counter Attack Corps consisting of units with 3 different models on the Abrams tank. The 1<sup>st</sup> Cavalry and 4<sup>th</sup> Infantry Divisions equipped with the most advanced model, the M1A2 SEP; 3<sup>d</sup> ACR with M1A1D+; and the 3<sup>d</sup> Infantry Division with the oldest model, the M1A1. The M1A2 SEP and M1A1D+ have limited commonality, even the engines are different and not compatible. Therefore, within the Counter Attack Corps the logistics footprint will increase. The logistics of maintaining parts for 3 different models of M1s will be challenging. However, the situation for armor personnel in the Interim Force is more encouraging.

Army plans call for full fielding of the Interim Force by 2008. To date The Army has partially equipped the first two SBCTs and OSD has committed to funding the first four SBCTs;



however, funding decisions for the final two SBCTs are contingent on OSD evaluation in the summer of 2003. Despite the loss of two M1 tank battalions to date for transformation, armor force opportunities will actually increase with the fielding of the SBCTs. Armor officers and enlisted personnel will have the opportunity to serve in the RSTA cavalry squadron or in the 9 MGS platoons found in each SBCT. Furthermore, the transition of the 2ACR (light) into a Stryker equipped cavalry regiment will enhance that unit's current limited capabilities. Of concern is upward mobility of armor field grades, senior captains, and senior noncommissioned officers in the infantry-centric SBCTs. Also of note, the role for the Stryker-MGS, supporting decisive dismounted infantry operations, appears very similar to pre-WW II tank doctrine ("as late as 1939 Army doctrine continued to state the role of the tank was to support the dismounted infantry assault") which was proven greatly flawed. The design for the Objective Force combined arms (CA) battalion, with two CA companies and two FCS-MGS companies, appears more balanced.

SBCTs and Objective Force Units of Action are structurally permanent combined arms organizations. This requires an expansion in the breadth and depth of the transformation unit commander. Our training doctrine states a unit commander trains one level down and evaluates two levels down. This requires a Stryker Infantry Company Commander to train MGS platoons and evaluate MGS crew level tasks (armor tasks). As this phenomenon potentially expands in the Objective Force we may lose armor or infantry branch insularity or specificity and potentially face a merger of branches into a maneuver or combat arms branch. A Stryker infantry battalion commander had these words to say to any Captain preparing to lead a transformation unit: "Do your homework. Your new company is designed as a combined arms company and requires more from the company commander than potentially any other company in the Army's inventory. You will be responsible for the development of soldiers with an MOS with which you may not be familiar. You will have armor crewmen, forward observers, mortar crewmen, and other fire supporters assigned to your company."<sup>74</sup>

A serving RSTA cavalry squadron commander, when questioned about the challenge of embedded combined arms at the troop/company level and what that implies for a future maneuver branch in lieu of the traditional armor and infantry branches, responded: "Strongly agree with that proposal -- I think we should head that way. Cavalry officers in this unit must understand and employ ground recce, UAV, MI Collections assets, Mortar/indirect fire, precision guided munitions strikes with close air support, etc etc – a combat leader approach under a joint umbrella is where we need to head."<sup>75</sup>

The blueprint for the Objective Force has not been developed sufficiently at this date to predict with any precision what the future force has in store for armor-like forces. However, with some speculation it appears the future generation armor force will most likely operate in FCS-Mobile Gun System Companies and Reconnaissance Companies. While the FCS platform will be dramatically different from existing platforms, the UA combined arms battalion is structurally similar to a Legacy Armor or Infantry battalion which has task organized to form a balanced task force. The next generation combat organization also has units conducting similar missions e.g., reconnaissance, surveillance, fire and maneuver. The pre-decisional draft UA design integrates infantry and armor-like elements at the battalion level. This further increases the possibility of combining of armor and infantry branches into a maneuver or combat arms branch.

## **CONCLUSIONS**

So what are the implications for the armor force as a result of The Army Vision and the U.S. Army's Transformation initiative? If our pre-WW II transformation experience is any indication the current transformation timelines and objectives will be greatly modified over the coming years. Variables as disparate as budget pressures, to the maturity of FCS technology, to politics will force modifications and adjustments to the plan. In fact, plans written as recently as 2002 are already being adjusted, with funding for transformation coming at the expense of Legacy Force modernization and recapitalization.

The most striking implication of transformation for the armor corps is the U.S. Army has built its last heavy main battle tank - the M1 series Abrams. Nevertheless, given current transformation timelines the numbers of Abrams units will remain relatively constant until 2010 when 3 brigades per year of Objective Force brigades are scheduled to be fielded annually. In the interim period, armor opportunities will actually increase with the fielding of 5 active (to include one ACR) and 1 reserve SBCTs. With the exception of the first SBCT, formerly a heavy brigade, the rest of the units scheduled for conversion to SBCTs are light units. Mid-grade armor officers and NCOs can expect to spend the next 10 years serving in Abrams Legacy units or Stryker Interim units. Of more of a concern to the armor force is the mid to long term readiness of the Legacy Force.

The Army and the Department of Defense are accepting risk in the Legacy Force to support acquisition of the Interim Force and research and development for the Objective Force. Reductions to Legacy Force modernization and recapitalization plans are extensive: The reduction in acquisition of the M1A2 SEP for the counter attack corps from 3 1/3 divisions to 2 divisions, the decision to digitize only 2 1/3 divisions of the Counter Attack Corps, funding

reductions to the AIM program, and cuts in operational and support cost reduction improvements (e.g., reduced procurement of the LV100 engine). The mid and long term implications are significant and include: increase in operating and support costs with resulting long term operational and readiness implications, increase in the logistics footprint of the Counter Attack Corps due to mixed fleet of M1A2 SEP, M1A1D+, and M1A1 (even the SEP engine is not compatible with the other models), lack of digital connectivity between the digital and non-digital Legacy Force (even within the Counter Attack Corps), and between the Interim Force and non-digital Legacy Force.

Theoretically an armor officer commissioned in FY03 could spend his entire career serving in Abrams tank battalions. A more likely scenario over the next 20-25 years is armor crewmen and officers will move between Legacy, Interim, and Objective Force assignments until full conversion to the Objective Force in FY32. This will require great flexibility and agility of our armor personnel but may not be all that different from today's soldiers who move back and forth between HMMWV scout and armored cavalry assignments, or light infantry and mechanized infantry assignments.

Future armor-like platforms will be lighter and probably all wheeled. What the Armor Force must do is adapt to new platforms and new organizations. While the FCS platform will be dramatically different from existing platforms, the UA combined arms battalion is structurally similar to a Legacy Armor or Infantry battalion which has task organized to form a balanced task force. The next generation combat organization also has units conducting similar missions e.g., reconnaissance, surveillance, fire and maneuver. The armor force must adapt to the Stryker MGS, Stryker RV, the FCS-MGS, the FCS-RV; the armor force must adapt to new combined arms organizations, RSTA cavalry squadrons, and UA reconnaissance companies.

Transformation also brings into question the long term necessity of maintaining separate infantry and armor branches. SBCTs and Objective Force Units of Action are structurally permanent combined arms organizations. This requires Interim and Objective Force commanders to expand their combined arms knowledge. As this phenomenon develops with the formation of the SBCTs we may learn that separate branches are no longer needed. Experience will determine if Objective Force leaders can handle the expanded requirement.

In the final analysis it does not appear Army transformation signals the demise of the armor force. Current UA design shows armor-like organizations doing similar missions as today's armor soldiers. The platforms will change and the organizations will change but armor-like missions will remain. The armor force must adapt to ensure it does not suffer the same fate as the horse cavalry of 1939.

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<sup>71</sup> Bill Keller, "Rumsfeld and The Generals," New York Times; available from <[https://ca.dtic.mil/cgi-bin/ebird.cgi?doc\\_url=/Apr2003/e20030405172171.htm](https://ca.dtic.mil/cgi-bin/ebird.cgi?doc_url=/Apr2003/e20030405172171.htm)>; Internet; accessed 5 April 2003.

<sup>72</sup> The U.S. Army Posture Statement 2003, page 23.

<sup>73</sup> Matthew Cox, "Extra \$3B for Army, But That Won't Be Enough, Officials Say," Army Times, 10 Feb 2003, p. 30.

<sup>74</sup> Len McWherter, "Battalion Commander on Preparing for Stryker Command," available from <<http://www.companycommand.com/htdocs/dcforum/DCForumID54/3.html>>; Internet; accessed 31 March 2003.

<sup>75</sup> Cashwell, "Hello."



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