STRATEGY RESEARCH PROJECT

IN SEARCH OF A NEW LOGISTICS PARADIGM: OPERATION JOINT ENDEAVOR AS AN OPERATIONAL AND STRATEGIC WATERSHED

BY

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UNITED STATES ARMY WAR COLLEGE

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AS AN OPERATIONAL AND STRATEGIC WATERSHED

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ABSTRACT

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In the face of its largest drawdown since 1945, the United States Army of the 1990s has deployed twenty-five times with a force that is the smallest it has been in nearly sixty years. The most recent deployment, code-named OPERATION JOINT ENDEAVOR, is an exemplar of the contemporary American Army, one that is far more likely to carry its arms yet never discharge them. Indeed, since the Gulf War of more than six years ago, it is peace operations sending the average soldier away from home almost half of every year that has punctuated the peace dividend that our armed forces were expected to reap from the implosion of the Soviet Union in 1989.

This study examines what it posits to be the new center of gravity of the United States Army, logistical operations, in light of the shift away from armed conflict. It seeks to determine if and how a new paradigm of logistics strategy and doctrine might be emerging in this Army. Further, it suggests that the Army not only has shifted toward logistically based operations as its core, but also that the center of that locus now has shifted from an active force supported by reservists to one where the responsibilities are shared almost equally. The research traces the role played by senior logistical headquarters, at the theater and corps levels, and the impact made by reserve forces toward mission accomplishment. Finally, the study looks to the future as it examines both the doctrine and the structure of the logistics community.

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FOREWORD

Liu Ji, a 14th century student of the great Chinese strategist Sun Tzu, once wrote that the essence of the principles of the warrior is to respond to change. Here at the University of Texas, there is a somewhat more contemporary comment about change. It simply goes, "If you don't like the weather around here, just wait five minutes and it will change."

While we Americans perhaps might respond to change a bit more rapidly than traditional Chinese thinking which measures time in centuries, not minutes or nano-seconds, perhaps no institution in the United States has changed more than the American military. And no component within this structure is evolving more rapidly than its logistical elements.

This study attempts to capture just a small slice of this evolution, and it does so primarily focused upon the kind of operation that has become the norm, one that calls for our armed forces to carry weapons even though it will be unlikely that they will use them. Such is a sign of change for our military strategically, but perhaps most important to this evolution is that our operations today are principally logistical undertakings.

OPERATION JOINT ENDEAVOR, the focal point of this work, was a signal by the United States and its NATO allies that even an overlooked corner of Europe, the Balkans, is important to global security. And, as this research will show, the center of gravity for the operation was along a line between Kaposvar, Hungary, and Slavonski Brod, Croatia. Here is where the logisticians did much of their work.

Like many infantry officers, I must confess having taken logisticians for granted for much of a long and extremely rewarding career. This effort attempts to acknowledge that even old colonels are not too old to learn the truth.

Dozens, if not hundreds, of people deserve thanks for helping to pull thousands of sources together. Without the support of the United States Army War College and the UT Center for Professional Development and Training, this product would still be in the starting blocks. With a few rare exceptions, the support rendered throughout Europe was incredible. Nowhere in Italy was there anything but a smiling face; American forces at Aviano and Vicenza along with the supporting civilian workforce simply tried to do even more than one might expect from a best friend. And one of the busiest soldiers in Europe, V Corps G-3 Mike Maples, simply gave up an entire December afternoon filled with previous commitments to not only meet with but also personally brief for more than two hours some guy from Texas by way of Aviano who claimed to be working on some fellowship project.

It had been more than 14 years since I was last ordered to duty in Europe. The Northern Army Group to which my corps belonged then no longer exists. Neither do more than half of the American Army's kasernes. A robust theater of 1982 has been replaced with a skeleton crew of only four maneuver brigades and an airborne task force at Vicenza. If anything, this paucity of remaining forces validates the Army's critical need for Reserve support, another evolving change that will be explored herein.

Finally, without the support of my dear wife, Priscilla, I might have needed a stomach pump. She provides the sanity in our family, particularly when research paper deadlines near.

As always, any errors within are the sole responsibility of the author.

James E. Swartz
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May 17, 1997

Introduction

Fleet Admiral Ernest King, a warfighter who had worn a uniform for more than three decades, once remarked during a war that would make him famous, "I don't know what the hell this logistics is that (Army Chief of Staff George C.) Marshall is always taking about, but I want some of it." [1] Incredible as it may seem, such a comment was and continues to be commonplace among both senior and junior warfighters, who, like those not in the military, simply assume that support will be waiting wherever and whenever needed, in sufficient quantity, with additional men and materiel available at the wink of an eye.

Such an attitude cannot endure. Global security challenges today and even more so tomorrow will demand a greater appreciation of and for those who are the operator's lifeblood.[2] While the Army faces today's challenges at a staggering operational pace that places the average soldier away from home almost half of each year, the future is envisioned through a series of documents that have begun with the release of *Joint Vision 2010*,[3] designed by The Joint Staff to speculate how our armed forces might be organized, equipped, deployed and employed early in the next century, a document that has been interpreted for the Army in *Army Vision 2010*.[4] Central to the interests of this essay is that a concept known as *Focused Logistics* plays a principal role in both, a part that continues to grow.

Nowhere is change more constant than in this underappreciated field of support, which has moved forward with lightning speed from stubby pencil procedures of not so distant memory to computerization and digitization of virtually everything imaginable today. Evolving logistics

doctrine and practice continues to project our armed forces into global locations quickly, to, as Confederate General Nathan Bedford Forrest might say, get somewhere "the fustest with the mostest."

It is in large part, for example, due to logistics capabilities that the United States Army has maintained worldwide commitments while shifting from a forward presence to a power projection Army, and just as clearly, as lines of communication have lengthened, so, too, have the demands upon the Army's logistical infrastructure. As Army Chief of Staff Dennis J. Reimer cautions, warfare cannot experience a revolutionary evolution—or a paradigmatic shift—without a revolution in the way the Army handles its logistics business.[5]

The Significance of This Study

This study will explore a piece of that transformation. It examines the most recent operation in which the Army has been stretched operationally and logistically, an undertaking that some have contended is not necessarily in America's strategic interests,[6] the incursion begun in late 1995 known as OPERATION JOINT ENDEAVOR (OJE).

The study intends to examine only that time from the signing of the Dayton Accords in November 1995 to the completion of OJE concluding late in 1996. This period coincides with the hand-off in the American zone of the 1st Armored Division (Task Force Eagle) to covering force elements of the 1st Infantry Division (Task Force Victory), and throughout the Balkans the standing down of the NATO Implementation Force (IFOR) and the standing up of its successor, the Stabilization Force (SFOR). Henceforth, and beyond the boundaries of this work, the

American element of SFOR and its supporting slice was to be known as OPERATION JOINT GUARD (OJG).

It is believed that such a study is significant to examine the following changes in the way the Army does its business: 1) the increasing reliance operationally toward missions other than war, which spans from purely humanitarian efforts both at home and abroad, to peacekeeping and even peacemaking/peace enforcement measures; 2) the explosion in the use of information technology, in part known in Army circles as digitization, that has allowed logisticians the ability to manage enormous information databases to support operators better than ever in history; and 3) the increasing role played by Reserve Component personnel—chiefly from the United States Army Reserve (USAR), to include those at the flag level—who have emerged most significantly in the area of logistics at the senior, policymaking echelon. The primary focus of this effort will be upon the final point, in part due to the fact that the previous two issues have been addressed in some detail elsewhere.

An Increasing Reliance Upon Reserve Components

It is significant to note, as a result of the dramatic standown of forces in the United States since 1989, the Department of Defense has employed the Reserve Components, mostly that of the USAR, to support this enormously complex operation in southeastern Europe that began several years earlier with the increase of hostilities among differing ethnic factions. The Army Reserve has assumed a primacy in the field of combat service support, a core competency that would be severely tested for the first time since the widely publicized Off-Site Agreement of

1993 when the USAR surrendered virtually all of its combat arms assets, an equivalent of almost two maneuver divisions, to include its three separate infantry brigades, the 157th, 187th, and 205th; two special forces groups, the 11th and 12th; two separate infantry and armor battalions, and most aviation assets, in order to concentrate its resources upon its dominant areas of logistics, medical, civil affairs, psychological operations, and other combat support (CS) and combat service support (CSS) units at corps and theater levels.

It is particularly noteworthy to compare the Army Reserve's contributions to OPERATION JOINT ENDEAVOR to that of OPERATION DESERT STORM, when in 1990-91 at least ten times as many reservists supported the operation both in theater and beyond,[7] yet no major multifunctional logistical headquarters were employed from the USAR. Although the mission was expected to be given to the 377th Theater Army Area Command (TAACOM) based in New Orleans, Louisiana, (since its real world mission and training was to serve as the theater logistical headquarters to United States Central Command [USCENTCOM]), the Army, upon the guidance of General H. Norman Schwarzkopf, USCENTCOM commander, chose to create Army Central Command Support Command (ARCENT SUPCOM) (Provisional), later known as 22d SUPCOM, under the command of Major General William G. Pagonis instead.[8]

As Pagonis himself admits, the 377th was "fully trained and equipped" to handle the mission, and for weeks during the early stages of OPERATION DESERT SHIELD Pagonis was working on the assumption that the deployment of the 377th including its Army Reserve commanding general, also a major general, was imminent.[9]

As has been noted by General Schwarzkopf, the performance of 22d SUPCOM was nothing short of outstanding in every way, though in his autobiography he fails to acknowledge

that some three quarters of this command was comprised of reserve and Guard personnel. The reservists, for the time being at least, would have to be satisfied that their active duty boss, Pagonis, would see the only battlefield promotion, to lieutenant general, during the war. It took approval by the President himself to make this happen.[10]

It is further noteworthy to remember that the Army Reserve in particular, and reservists from all services in general, were overlooked when it came time to call senior staffs and commands to the colors. The 335th Theater Signal Command, like the 377th TAACOM with a USCENTCOM war trace, never was deployed as a unit, and it was only after some foot-dragging did the 416th Engineer Command, complete with its two-star Army Reserve commander, appear as a unit in theater. Reserve Component flag officers and commands were extremely few and far between in such a mature theater as that during the Gulf War. There was much press about the non-deployment of the National Guard's combat roundout brigades, notably the 48th Infantry Brigade (Mechanized) from Georgia, but once again, almost nothing was said about the supporting cast of senior players from the Reserve Component CS and CSS communities.

Since that time, of course, the Army has stood down a substantial slice of its active headquarters, compelling it to use reserve units, and even logistical headquarters, more fully than ever before. As Pagonis admits,

> Reserve logisticians entering the (DESERT SHIELD/STORM) theater thoroughly understood pertinent military doctrine, and also possessed the intellectual flexibility to use doctrine as a jumping off point for innovation. They were fully confident in their abilities as leaders--and in fact many had been leaders in the private sector--and they accepted broad responsibilities eagerly.[11]

Paradigms continue to be reformed in light of the increasing reliance the Army has toward its reserve forces. Today, for example, the commander of 19th Theater Army Area Command is authorized for fill by an Army Reserve major general in Des Moines, Iowa. Upon mobilization, directions are given to an active duty brigadier general in South Korea, location of forward-deployed 19th TAACOM elements. Therefore, should widespread hostilities break out on the Korean peninsula, current plans call for Jerald N. Albrecht, an Army Reservist with extensive logistical experience, to serve as theater logistician, not a current generation Pagonis from the active rolls.

The Importance of History On Evolving Doctrine

Ultimately, this study begins with the evolution of the art and science of logistics. As Prussian theorist Carl von Clausewitz reminds us, military operations are influenced by their logistical linkages; operations and logistics are, in effect, inseparable.[12] It was not until two centuries before the ascendancy of Prussia and Clausewitz that detailed logistics planning as an art and science began to emerge. Although the brilliance of such battle captains as Hannibal and Ghengis Khan are due in large part to their logistical acumen, Martin Van Creveld suggests that it was not until the latter 16th century, with the rise of large standing armies tied to nation states rather than wealthy land barons with titles, that logistics doctrine of any scale was advanced.[13]

Perhaps the foremost battle captains of the 19th and 20th centuries, Napoleon Bonaparte and Erwin Rommel, had uncanny abilities in the field of logistics. Each personally planned supply, services, and transport elements of their armies in intricate detail,[14] leading one to

speculate that it is the ability to master the nuances of logistics that separates the brilliant battle captain that comes along perhaps once or twice in a century, or what the Germans might call the *Feldherr,* from the merely outstanding battlefield leader.

A member of Napoleon's staff of the *Grande Armee*, Swiss Baron Antoine Henry de Jomini in his classic *Precis de l'Art de la Guerre*, is credited with the first use of the word logistics, which was published in 1838 as one of five basic tools for advancing war.[15]

There is no wonder why the art and science of logistics have not progressed with equal rapidity as that of strategy and tactics. As the ranking theater logistician from the Gulf War suggests, "Logistics is traditionally an unglamorous and underappreciated activity...when the battle is going well, the strategist and tactician are lionized...when the tanks run out of gas...people go headhunting for the logisticians."[16]

In the classic work on the subject written during World War I, George C. Thorpe agrees. Much like the stage hands of a Broadway drama are ignored by the audience for the performers, so, too, have the supporting casts of armies been overlooked, underappreciated, and rarely examined in any depth.[17] It therefore follows that preciously little at all has been written about this subject, even by the trinity of grand strategists, Chinese scholar Sun Tzu,[18] Jomini, and Clausewitz.

The United States Army War College, led by its commandant, Major General Richard A. Chilcoat, teaches that the great strategist of the future must have a "simultaneous awareness" of both the strategic and operational environments facing him or her. Chilcoat has postulated further that the study of warfare and related security issues eventually can be reduced to the careful review of three areas: ends, ways and means.[19]

While strategy provides the blueprint, or the way to conduct operations, and politicians provide the ends to achieve their strategic objectives, it is the logistician who must first calculate and then provide the means. Twentieth century military operations increasingly are becoming more like business undertakings from the civilian sector, and it is the sharp-minded, analytical logistician who must lead the way.[20]

Thorpe suggests there are two major branches of logistics. The first is Pure Logistics, or the theory that underpins military operations from a logistical perspective. The second is Applied Logistics, or the way, for example, a logistician might predict how many short tons (STONS) of Class I supplies might be needed for support to a mechanized division for a week.[21] Of the two, there is a need for a greater understanding and advancement of the former and a better appreciation by warfighters for the latter.

While the brilliance of Napoleon's understanding of logistics has been noted above, it should be pointed out that his failures, particularly in the 1811-12 Russian campaign, can be traced to mistakes more at his rear than at the head of his columns. He failed to delegate key logistics planning functions, and he failed to develop sufficient strategic and operational level G-4's.[22]

The American Civil War, for all its lore of the brilliant tactics of Jackson and the resolve of Grant and Sherman, is perhaps foremost a lesson in logistics. The Atlanta Campaign, for example, is nothing more than the attempts by Johnston and later Hood to keep Confederate supply lines, particularly the railheads, uninterrupted. It was the logistical might of the North that kept Grant armed and sustained, freezing Lee from the mobility that the South enjoyed from 1861 until after the Battle of Gettysburg.[23]

Among those modern armies credited with the greatest skill in logistics have been the Prussians and their German cousins. Moltke the Elder personally calculated both friendly and enemy rail movements to meticulous detail in the mid-nineteenth century,[24] and Ludendorff, Hindenberg's chief of staff a half century later, was Germany's first quartermaster general, a post that translates to the American Army's deputy chief of staff for *operations,* not logistics.[25]

Much has been written of more contemporary military operations as well. MacArthur, for example, used his sea flanks to shorten vital lines of communication and supply in Korea in 1950, first landing behind enemy lines at Inchon, just south of Seoul, and later at Wonsan, on Korea's eastern coast, turning a desperate perimeter defense into a near rout.[26] Four years later, the French surrendered their interests in Vietnam at Dien Bien Phu, where Giap and his followers used interior lines to resupply using porterage mostly via bicycle and foot while Vietnam's adversary failed to keep its airheads secure and unencumbered.[27]

Even more recently, who can forget the famous "Hail Mary" maneuvering of United States Central Command that crushed the vaunted Iraqi Republican Guard? Arrayed on the battlefield in early 1991 was the largest collection of military equipment ever assembled in one location in world history,[28] and one that logisticians had moved into the right place at the right time in order to achieve decisive victory. Such an effort was equivalent to moving the entire city of Atlanta halfway around the world, leaving the congested Georgia Interstate 20-75-85 confluence as barren as the most desolate stretches of the Sahara for thirty miles in any direction.[29]

Toward A Future Theory and Doctrine of Logistics

At the highest levels of logistics planning and doctrine rests the Office of Under Secretary of Defense (Acquisition and Technology), and the Deputy Under Secretary of Defense for Logistics, stewards of the Department of Defense Logistics Strategic Plan. This is the military's road map to improve logistics performance while reducing infrastructure, simultaneously shortening lead times and improving customer confidence.[30]

Three principles underpin this charter: 1) that process reengineering, using metrics such as benchmarking, assures delivery of a quality product; 2) investments need to be made in technology and training; and 3) defense planners must identify strategically critical logistics functions, leaving the remainder for outsourcing, or privatization of support. Recent measures toward austerity in spending defense dollars make these principles paramount to the logistician. Indeed, defense planners expect both the cost and "footprint" of the warfighter's tail be reduced significantly without a reduction in readiness, allowing military commanders near real-time information concerning support capabilities in order to prevail in any contingency presented.[31]

The Department of Defense additionally has established its own measurable criteria for success. An example, which will tax the resources of United States Transportation Command (USTRANSCOM), is the requirement that all non-bulk materiel be delivered either within the Continental United States (CONUS) or a Point of Embarkation (POE) within 72 hours, with a maximum allowable time for supply processing of 24 hours and for transportation delivery of 48 hours. This requirement must be met by September of 1998.[32]

Such a goal is intended to evoke a cultural change among all armed forces of the United

States. Historically, soldiers, sailors, airmen and marines have tended to hoard all supplies. Taking a page from private industry, which advanced Just In Time (JIT) inventory control, the military intends to improve end user confidence in the ability of logisticians to deliver required assets when needed.

Another metric defense planners seek, therefore, is a drastic reduction in stockages. Indeed, the Department of Defense intends to cut more than 150 million cubic feet of on-hand stocks by December 2000, and to trim total inventory by more than $20 billion by October 2001.[33] Clearly, it is the transporter who must bear a considerable burden under new logistics doctrine and practice, and it is the quartermaster who must shift his angle of vision more toward inventory tracking and less at inventory stocking.

As suggested above, central to this effort will be a concerted move by logisticians to move into the private sector for support efforts not central to military operations. In 1985, the Army formalized a program known as the Logistics Civil Augmentation Program (LOGCAP), wherein civilian firms provide a wide variety of logistical supplies, storage, transport, and services not performed by those in uniform.[34] What has followed is a five-year contract between the Army Corps of Engineers and the Brown and Root Service Corporation of Houston, Texas, that first emerged for OPERATION RESTORE HOPE in Somalia in 1992, then matured for OPERATION SUPPORT HOPE in Rwanda in 1994 and OPERATION UPHOLD DEMOCRACY in Haiti a year later.[35]

The Army Charts Its Future

The Army's future is encapsulated within the publication of *Army Vision 2010*, the blueprint for its requirements as the new century emerges. Critical to the thesis of this document is the attainment of full spectrum dominance, and the ability to sustain such a position through time.[36]

In order that the Army achieve dominance operationally, it must first dominate maneuver. Central to this objective is the ability to rapidly deploy forces, preposition equipment, employ strategic lift, and manage information better than ever before.[37] It should come as no surprise that the logistician plays a key role toward this end.

Yet the heart and soul of what the Army asks of the logistician is force sustainment. Here, the Army concentrates its efforts upon the ability to concentrate its efforts using Focused Logistics:

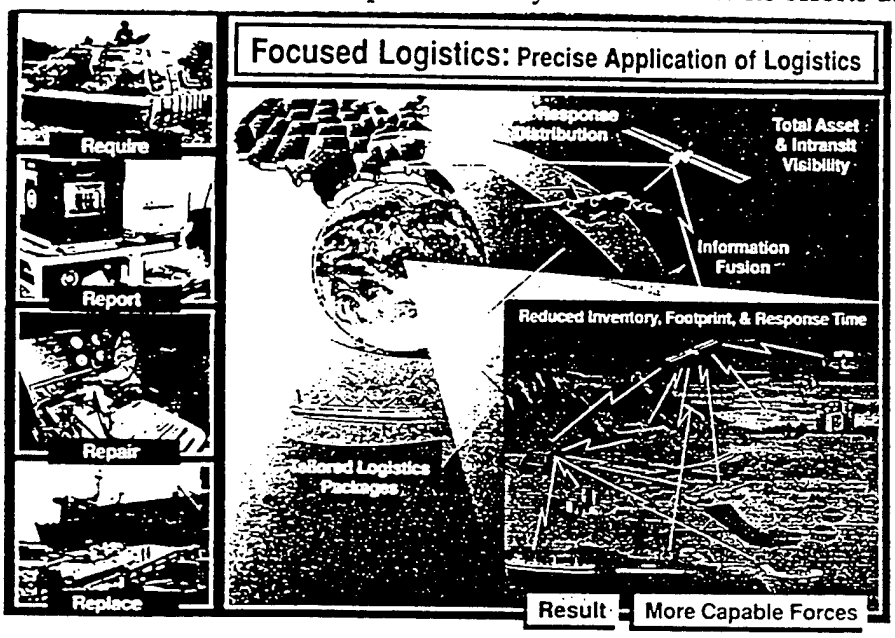


Fig. 1. Focused logistics. Focused Logistics will be the fusion of information, logistics, and transportation technologies to provide rapid crisis response, to track and shift assets even while en route, and to deliver tailored logistics packages and sustainment directly at the strategic, operational and tactical levels of operations (source: Joint Vision 2010, p. 25). [38]

Among all concepts within *Army Vision 2010*, it is Focused Logistics that is most versatile. No other concept can operate without it, yet it can stand alone. For example, the logistician would be particularly well-suited to work without warfighters in humanitarian missions,[39] such as that during 1994's OPERATION SUPPORT HOPE in central Africa.

The cornerstone to Army logistics planning today is the Army Strategic Logistics Plan (ASLP), which serves as the logistics annex to the Force XXI Campaign Plan as well as the primary source of logistics input to the Planning, Programming, Budgeting, and Execution System (PPBES).[40]

Elementary to the success of the ASLP is how it supports Force XXI, which was first envisioned by former Army Chief of Staff Gordon Sullivan in 1994. Speaking to an Association of the United States Army (AUSA) audience, Sullivan said that the Army increasingly would focus upon in-transit visibility, allowing logisticians to track supplies at any given point and time in the logistics pipeline; demand-based, rather than inventory-based, distribution systems, reducing the need for vast stockages in depots and warehouses; and split-based operations, which would allow logisticians to manage Logistics Operations Centers (LOCs) in a forward location of operations while maintaining Base Operations (BASEOPS) in a more permanent setting such as at a headquarters.[41]

Diminishing from the logistician's lexicon, therefore, are functionally oriented areas, such as supply, maintenance and transportation, which are being replaced by multifunctional logistical teams and doctrine, stovepiping of efforts, and maintenance of vast stockages. The logistician of the future must be versatile, computer literate, and prudent in the employment of manpower, money and materiel.

As the logistician continues to validate the successes of the Army's Experimental Force (EXFOR), (the 1st Brigade, 4th Infantry Division (Mechanized), via the support of the digitization of its military equipment such as that tested at the National Training Center (NTC) at Ft. Irwin, California, early in 1997),[42] he also must keep an eye on the longer term future envisioned by Army After Next (AAN) literature that scans several decades into the future. Simply put, the logistician must be as quick in his mind as he is on his feet.

Most warfighters relate best to tactical logistics, that combination of manning, arming, fueling, fixing, moving and sustaining those deployed forward. Less is known of the operational and strategic levels, where this study is directed.

At the strategic level, planners must determine global requirements, manage the acquisition of both personnel and materiel, plan for strategic lift, consider the advantages and disadvantages of prepositioning and stockpiling on land and at sea throughout the world, and forecast and complete redeployment and demobilization efforts.

At the operational level, the primary focus of the logistician is the reception, staging, onward movement, and integration (RSOI) of forces—in the instance for reservists of this study magnificently handled by the 7th Army Reserve Command (ARCOM) near United States Army Europe (USAEUR) headquarters in Germany—but operational level planners also must address movement control, theater maintenance, distribution, reconstitution, facilities positioning, materiel management, and redeployment issues as well.

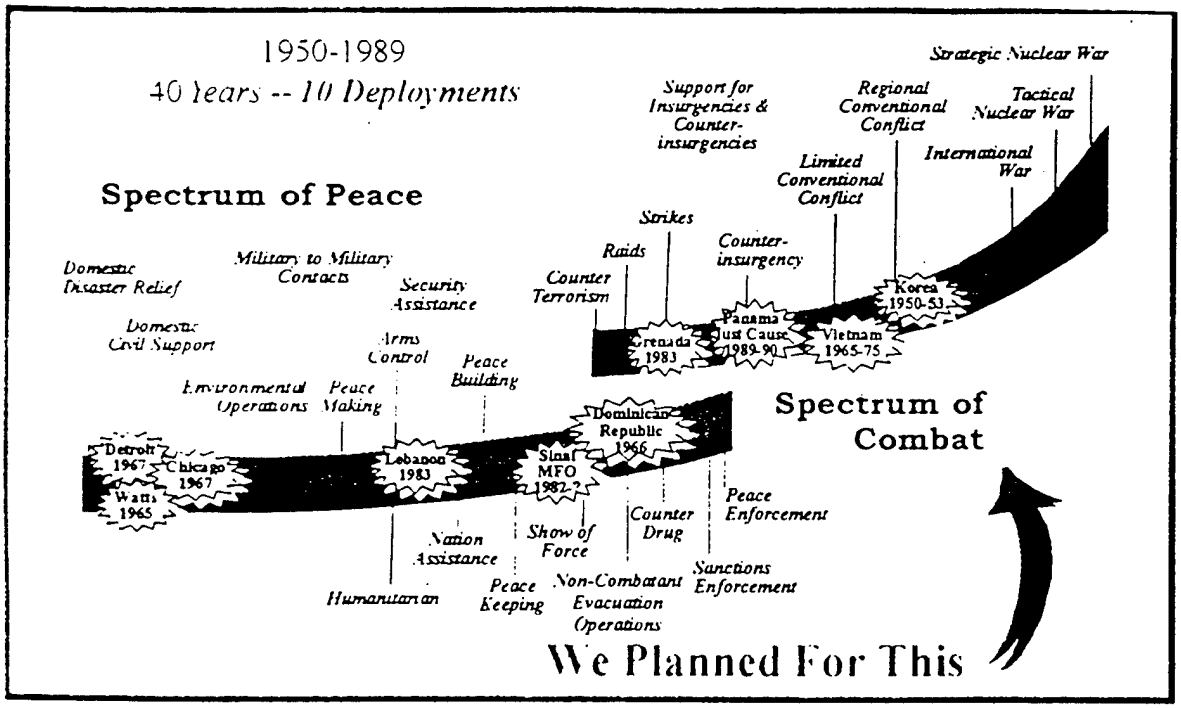
Limitations and Focus of This Study

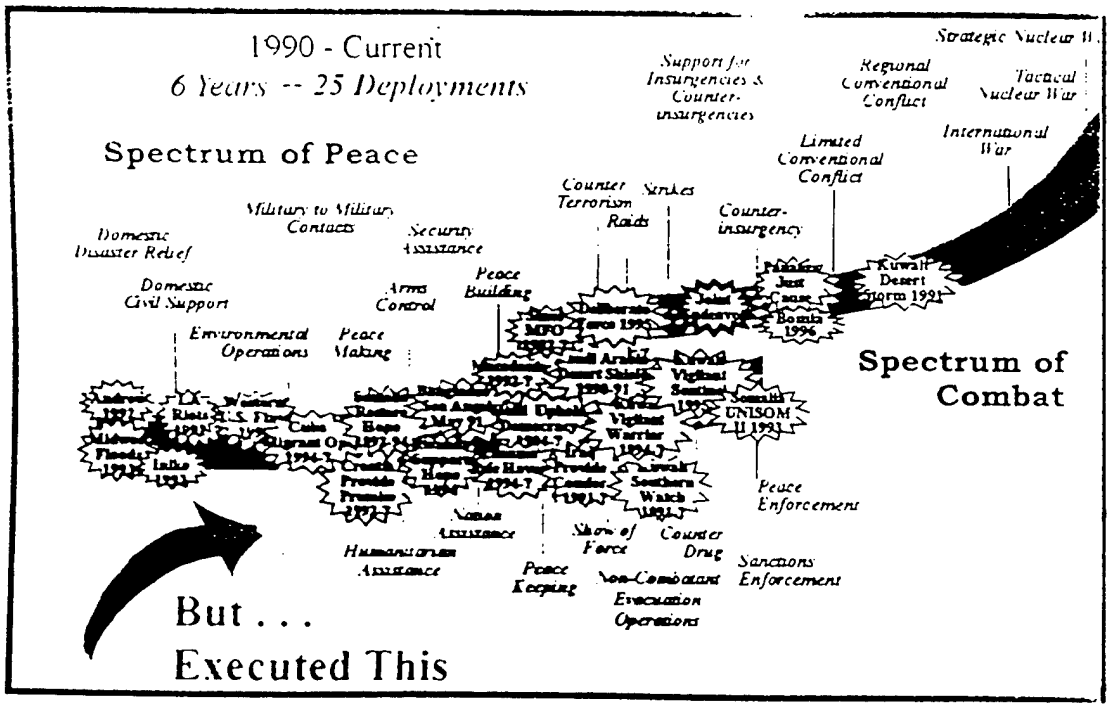
As suggested earlier, this study is limited to the strategic and operational levels of logistics support during OPERATION JOINT ENDEAVOR. The study is further defined by an examination of the role that senior reserve logistics headquarters played toward overall mission accomplishment, the premise being that such units continue to stretch the limits of operational art and strategy for logisticians.

The study further is limited in that it will not direct itself toward logistics functions of health related professionals; rather, it will focus upon the traditional triad of supply, maintenance, and transport, with some treatment of services and general engineering support. Finally, the study will attempt to validate the ability of reserve corps and theater assets, notably corps support commands (COSCOMs) and theater army area commands (TAACOMs), to perform any missions required across the full spectrum of military operations.

The Presidential Callup: The European Theater Grows

Logisticians, like the Army as a whole, have been challenged. From 1990 to 1996 the Army was called to 25 deployments, two and one-half times as many as it had undertaken in the previous four decades since 1950. Apart from OPERATION DESERT SHIELD/STORM and a brief incursion into Panama for OPERATION JUST CAUSE, the Army has answered to missions along a spectrum of peace that has ranged from domestic disaster relief, such as during floods and hurricanes, to peace enforcement, such as that experienced in Somalia in 1993. Figures 2 and 3 dramatically illustrate the growth in Army operations during this decade:





Figures 2 and 3. Army deployments 1950-1989 and 1990-current (source: Army Vision 2010, p. 5).

After considerable intervention by the United States and other outside nations, the warring factions of Serbs, Croats, and Muslims in the Balkans reached a peace agreement in Dayton, Ohio, late in 1995 that triggered the need for President Bill Clinton to declare on November 27 that American troops would deploy into southeastern Europe:

> As I speak to you, NATO is completing its planning for I-FOR, an international force for peace in Bosnia of about 60,000 troops. Already, more than 25 other nations, including our major NATO allies, have pledged to take part. They will contribute about two-thirds of the implementation force, some 40,000 troops. The United States will contribute the rest, about 20,000 soldiers...In Bosnia, we can and will succeed, because our mission is clear and limited.[43]

With those words, United States European Command (USEUCOM) and its Army component, USAEUR, began to execute AFSOUTH OPLAN 40105, the plan designed to support the President's commitment. The largest number of forces would come from 1st Armored Division with its two maneuver brigades forward deployed in Germany, which would form the base of Task Force Eagle to be deployed to the area around Tuzla, Bosnia-Herzegovina.

Apart from the 1st Armored Division's own organic DISCOM, the supporting slice would rest primarily upon the shoulders of Major General James M. Wright, commander of 21st Theater Army Area Command (TAACOM), and V Corps' 3d Corps Support Command (COSCOM), also both based in Germany. But the challenges facing the 21st and 3d would be more complex than that of 1st Armored Division, for a significant portion of both headquarters were located in the USAR back in the United States. It would take some sort of callup to authorize General Wright and his subordinates to bring the remainder of their forces onto active duty.

In the meantime, General Wright had his marching orders. His superior, USAEUR commander General William W. Crouch, had alerted 21st TAACOM with a be prepared mission to provide support into the Balkans. Wright immediately assembled his commanders and staff to include USAR representation, at the Grafenwoehr Training Area in October to develop the logistics support concept and plan. TAACOM planners concluded that the best way to support

operations, per evolving logistics doctrine, would be to keep a small footprint in the former Yugoslav states where tensions continued to run high, to seek an intermediate staging base (ISB) in between the Balkans and Germany, with Hungary, a NATO aspirant, being a first choice, to plan for application of the new velocity management concepts of materiel distribution, and to continue to support the remainder of the European theater using split-based operations.[44] Fig. 4 details the theater support plan:

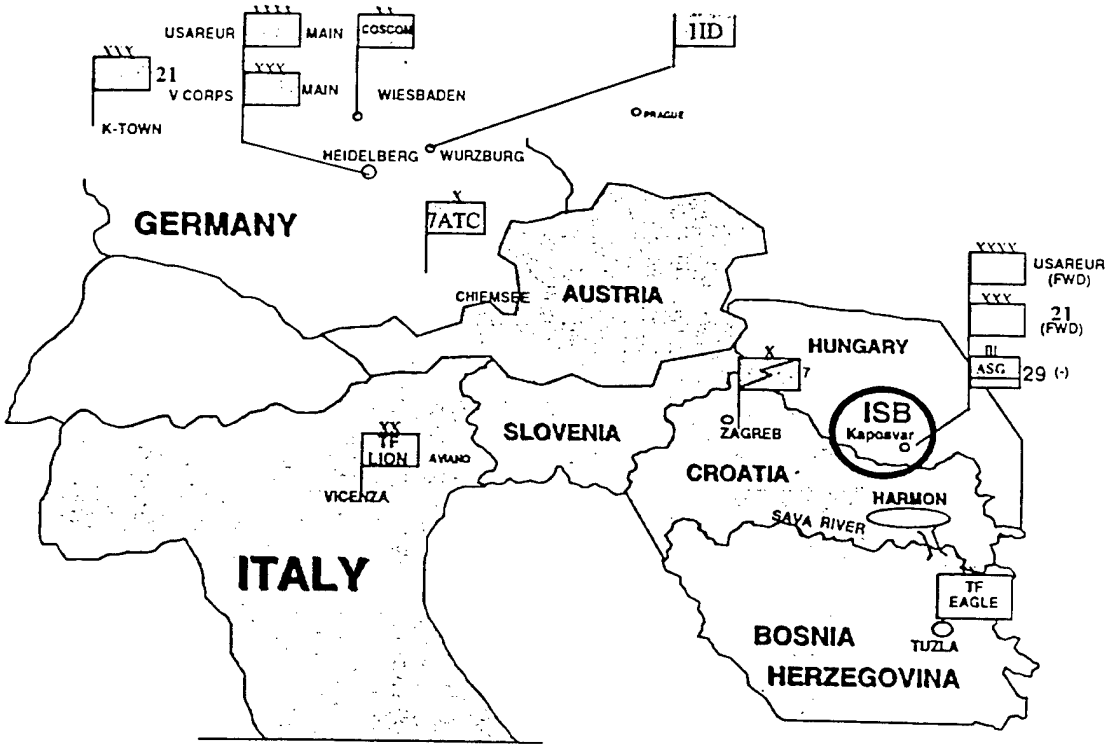


Fig. 4. Theater support plan (source: 21th TAACOM).

Foresight and initiative by Army logisticians years earlier had helped to create CONUS augmentation cells in the Army Reserve for forward deployed logistical headquarters.

Essentially, the manpower and limited materiel offered by the augmentation cells are an acknowledgment of the disparity between the line items marked "required," often a mere fraction of the total manpower and materiel listed as "authorized" in a given unit's Modified Tables of Organization and Equipment (MTOE). More than 200 slots are not filled in the 21st's headquarters at Kaiserslautern in peacetime. Its augmentation component fills in the blanks, and at a far lower cost.[45]

The 21st TAACOM (CONUS Augmentation) is located in Indianapolis, Indiana. It was the first reserve unit to become an augmentation cell to a forward deployed headquarters when it became assigned to 21st TAACOM in 1986—thus reportedly becoming the first reserve unit to wear an active duty shoulder patch—and some veterans of the unit deployed to support 22d SUPCOM during DESERT SHIELD/STORM.[46] But the concept, and the responsibilities of augmentation cells, have grown and matured since the early 1990s. OPERATION JOINT ENDEAVOR would put that growth to the test.

The 3d COSCOM (CONUS Augmentation) is headquartered in Des Moines, Iowa. Both units, along with most Reserve Component deployable units Armywide—and particularly those in what was then known as the early deploying Contingency Force Pool (CFP)—were aware by late November that they might be called. As standard operating procedure, all of the USAR's augmentation cells aggressively conduct Overseas Deployment Training (ODT) schedules that closely integrate the reservists into all elements of planning. Each unit's Mission Essential Task List (METL) assures this.[47] For example, elements from both the 21st and 3d's augmentation elements had been in Germany earlier in 1995, planning for both strategic and operational levels of support should OJE be realized.

For the majority of missions during the 1990s the Army has relied upon a combination of individual RC volunteers and a small number of specialized units, such as those found in postal, water purification, civil affairs, and public affairs areas, to fill the needs of an operation. Most such operations were relatively short in duration. Now, in the case of OPERATION JOINT ENDEAVOR, the President had announced that America's commitment of armed forces into the Balkans would take one full year, until December of 1996, a timetable that later would be extended.

Largely due to the massive drawdown of active forces, the Army determined that it could not meet the requirements for the quickly forming Implementation Force (IFOR) without support from the reserves. And it soon became clear that the piecemeal, composite unit-building approach of previous missions would not work given stated requirements and timetables, and just as clear that a full-blown mobilization would be operationally unnecessary and politically unwise, particularly given the growing criticisms of OJE by the Republican majority in both houses of Congress.

On December 8, President Clinton reached a compromise position by stating:

> I hereby determine that it is necessary to augment the active armed forces of the United States for the effective conduct of operations around former Yugoslavia....I hereby authorize the Secretary of Defense...to order to active duty any units, and any individual members not assigned to a unit organized to serve as a unit in the Selected Reserve.[48]

With the President's signature on Executive Order 12982, he established a new method for mobilizing reservists, the Presidential Selective Reserve Callup (PSRC). Initially, the

manpower ceiling for the 1995 PSRC was set at 3,800 reservists, 3,388 of whom would come from the Army, but was raised to 8,181 by April 26, 1996, the majority of the Army's 7,800 RC billets still coming from the USAR.

Since the ceiling for continuous active duty was established at 270 days in order to reduce turbulence in the reservist's civilian life that might be created for longer term deployments, it became immediately apparent to Army planners that there would need to be at least two rotations of soldiers activated in order to achieve the President's goal of full mission accomplishment by the end of 1996, with an overlapping period necessary of perhaps several weeks when critical backbriefing could take place.

On December 4, Secretary of Defense William J. Perry had released a preliminary list of units of the armed forces, the majority of which were from the Army Reserve, that might be called to support OJE. Within two weeks, reservists had begun to report to their home stations in anticipation for onward movement into Europe. Forty-one units formed the initial wave, with all dispatched to either Ft. Dix, New Jersey, or Ft. Benning, Georgia, for mobilization training and validation by Army Readiness Groups prior to being sent overseas.[49]

Simultaneously, an Army task force (Task Force Lion) built around 3d Battalion, 325th Infantry (Airborne), had flown eastward across the Adriatic Sea from Vicenza, Italy, as the forward elements moving into Tuzla. With the Hungarian government approving the rights for logisticians to conduct staging operations within its borders on December 12, the avenue was clear for 21st TAACOM to move a forward element into Taszar Air Base, home to a Hungarian MIG fighter wing, and then to nearby Kaposvar, Hungary.[50]

General Wright's CONUS augmentation cell, based in Indianapolis, was mobilized on

December 14. Led by Brigadier General David J. Kaucheck, the unit commander, the Indiana-based reservists departed for additional training at Ft. Dix on December 18, followed by OJE specific schooling (STX training) at Hohenfels, Germany, later that month.[51] By then, however, Task Force 21 Forward, led by Brigadier General Samuel L. Kindred, 3d COSCOM commander, had deployed forward into Hungary, leaving precious few assets in the 21st TAACOM's area of operations around Kaiserslautern and Wiesbaden, Germany, until the arrival of the augmentation backfill from the United States.

Prior to General Kindred's departure forward into the OJE theater, he had anticipated the likelihood of a need to dispatch his augmentation forces forward on short notice. On September 5, he urged the V Corps commander, Lieutenant General John N. Abrams, to approve an improvement in the Latest Arrival Date (LAD) of his augmentation forces to less than ten days.[52] Even with General Kindred's foresight, events were to unfold too quickly for a smooth expansion of the 3d's headquarters in Wiesbaden, as most of its active forces began to move forward toward southeastern Europe long before the arrival of reinforcements from the United States.

A similar progression was evolving in Des Moines, Iowa, where the 3d's augmentation cell was preparing for deployment. Based upon a November 30 tasker from USEUCOM for OJE reserve component requirements that had included a COSCOM augmentation cell of 75 personnel, Brigadier General Thomas J. Bruner was rather certain his Midwesterners would be mobilized soon. Although penalized by only 36 hours of official lead time before moving out, the COSCOM augmentation element led by Bruner reported to Ft. Dix for additional validation training before heading to Germany.[53] However, it should be noted that unlike the 21st

TAACOM which has responsibilities throughout Europe and therefore maintained a sizable portion of its command and control at its headquarters in Kaiserslautern, General Kindred's 3d COSCOM deployed 200 of its 251 soldiers including its commanding general—fully 80 per cent of its structure—to Hungary early in December to help staff the growing 21st TAACOM (Forward) cell within the National Support Element.[54]

Thus, when 3d COSCOM's contingent of reservists arrived in Wiesbaden on Christmas Day with 76 soldiers, there was a virtually non-existent welcoming party and a nearly vacant headquarters waiting. After 20 members of the Des Moines contingent had moved forward to Hungary, a mere 106 total soldiers were left in the rear attempting to manage corps level logistics at the same level of intensity and quality where 251 had been earlier in the month. Such is the intent of the newly evolving doctrine of split-based operations, but it clearly taxed the two elements in Germany and Hungary.[55]

Italy: The Forgotten Subtheater

As noted earlier, it was from Brigadier General Edwin P. Smith's Southern European Task Force (SETAF) that the lead elements of Americans, primarily from 3d Battalion, 325th Infantry (Airborne), had closed into the Balkan theater, well in advance of the slower moving columns of 1st Armored Division, which did not cross the Sava River from Croatia into Bosnia until early January 1996.

Here, too, Army logisticians were at work. Led by 22d Area Support Group, largely from its SETAF headquarters at Vicenza, a significant amount of logistical support was realized

from south of the Alps and strategically far closer to the theater of operations than the bulk of forces in Central Region. Fig. 5 shows the proximity of Italy to the Balkan states. Key locations are marked with a black triangle:

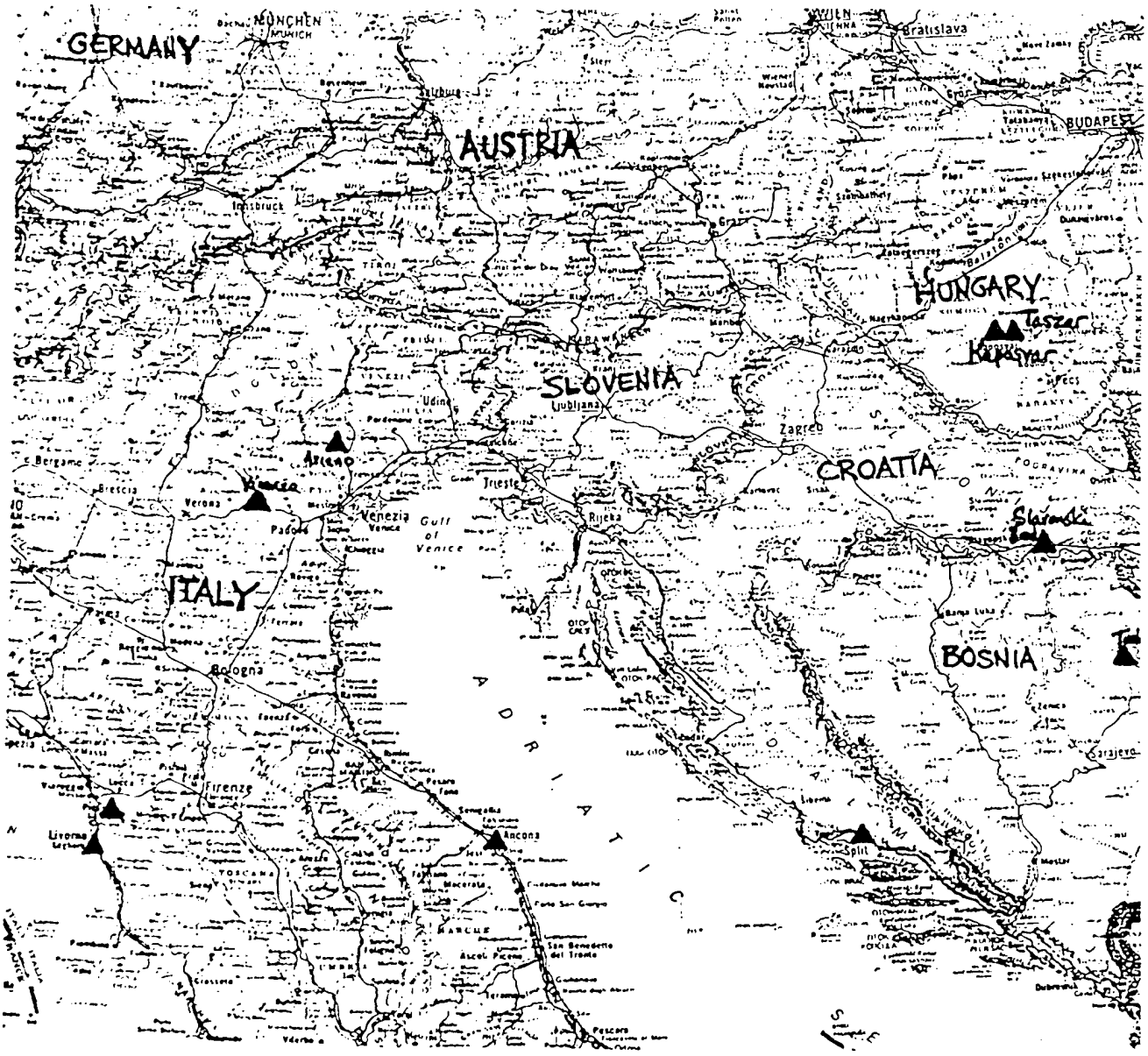


Fig. 5. Italy and the Balkan states (source: Rand McNally World Atlas of Nations, 1993).

Blessed with ample Italian ports along the Adriatic Sea separating Italy from the Balkans such as those at Ancona and Brindisi, NATO nations contributing to the supporting effort could transport considerable bulk, principally into the Balkan port of Split, which also served as the forward communications zone movement control center, but also at Pula, Rejika, Zadar, and Ploce, Croatia. The commander of Allied Forces Southern Europe, a United States Navy admiral based in Naples, helped to coordinate sealift requirements for the theater.[56]

As planners would soon learn, Italian port costs and the price of unionized civilian labor throughout the country were higher than expected, yet this did not deter most air movement. Operations supporting the Balkan theater had begun at Aviano Air Base, in northern Italy near Vicenza, early in 1993 in what was to become known as OPERATION DENY FLIGHT. Here, the United States Air Force's 16th Air Force and its 31st Tactical Fighter Wing, both based at Aviano, provided considerable support in "no fly zones" over Bosnia.[57]

It was from the Aviano airhead as well that Army Reservists were at work, coordinating movement control management from Italy into the multinational theater movements operations center at Kiseljak, Bosnia-Herzegovina, and elsewhere. Supporting Army Reserve movement control teams (MCTs) also were located at Vicenza and near Military Traffic Management Command's base for Italian operations, at the Ligurian Sea port of Livorno, on the western coast of Italy, near the location of the air refueling center at Pisa.

The 793d MCT, commanded by Captain Javier A. Rivera, formed an air terminal movements team and remained at Aviano for an entire PSRC rotation. Later, a detachment of the 793d was dispatched by bus through Austria to form a ground control element at the rapidly developing railhead at Taszar, Hungary, and it extended itself even further by providing

movement control at Slavonski-Brod, Croatia, at the bridging sites over the Sava as the unit cloned itself and formed the 8th MCT.[58]

Rivera's tiny MCT seemed to be everywhere, because it was needed everywhere. There simply were not enough movements teams to control the multitude of soldiers and materiel across a zone spanning from MTMC's European headquarters in Rotterdam, the Netherlands some 2,000 kilometers south and eastward to the Macedonian frontier. And Army Reserve movements teams in Italy were closest to the action.

At Vicenza, the 663d Movement Control Team, commanded by Major Balthasar A. Giacalone, provided rear operations support for 14th Transportation Battalion headquartered at Caserme Ederle, Vicenza. Later, elements of the 663d went forward as well, as they were dispatched by bus to Taszar, Hungary, to manage overland movements of the thousands of military and supporting civilian vehicles moving into Croatia and beyond. Demands placed upon USAR movement control teams proved that far more movements teams would be warranted as force structure changes were to be made.[59]

The Role of 7th ARCOM as USAEUR Mobilization Support Center

Vital to the success of the OJE effort was the nearly 1,000 soldiers of 7th United States Army Reserve Command (ARCOM), forward based at Schwetzingen, Germany, just ten kilometers from USAEUR headquarters at Heidelberg. Under command of Brigadier General Roger L. Brautigan, the 7th assumed the dual mission of readying and deploying almost all of its 22 subordinate units as well as operating the theater's mobilization support center from its

headquarters at Tompkins Barracks, at its transfer points at Rhein Main and Ramstein Air Bases, and its reception, staging, onward movement and integration (RSOI) site at Giessen.[60] Fig. 6 outlines 7th ARCOM's role in mobilization support:

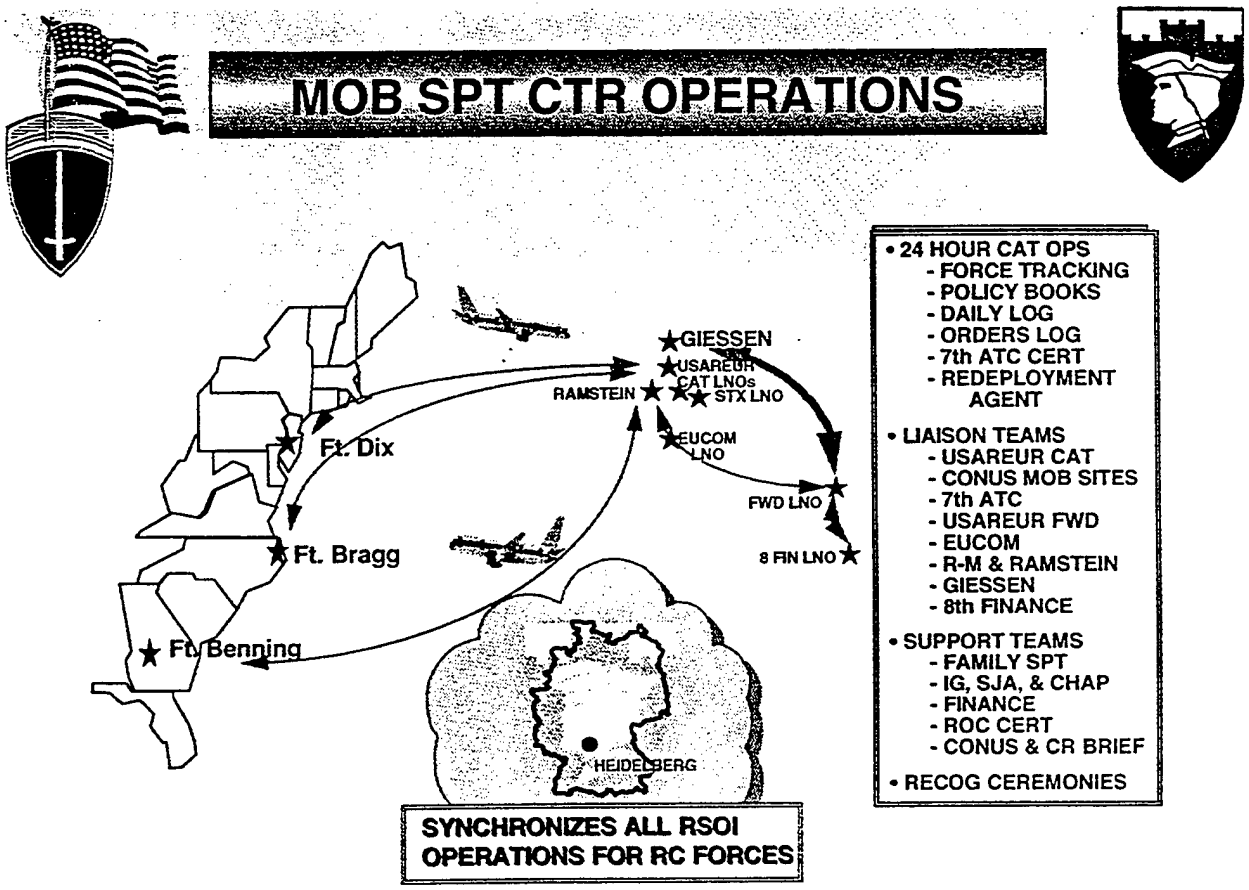


Fig. 6. MOB SPT CTR Operations (source: 7th ARCOM).

General Brautigan's command served as USAEUR's primary interface for all mobilization issues. It served as hosts and sponsors for the multitude of units and individuals who would move onward throughout the Central Region, primarily Germany, as well as those who would go forward to Hungary, Italy, and the Balkan states. But it served additional duties as

well, among them assistance on family support matters, financial concerns, inspector general, chaplain and staff judge advocate support, recognition ceremonies, and force tracking throughout the theater.[61]

Tracking forces was a particular challenge, given that most units and individuals mobilized were on PSRC orders of 270 days. Yet reserve medical personnel were ordered for only 140 days, and special operations forces, notably civil affairs and psychological operations assets, were ordered for rotations of 179 days. This, along with a steady stream of individual fillers from the Army Reserve's Individual Mobilization Augmentee (IMA) and Individual Ready Reserve (IRR) programs, kept 7th ARCOM manpower mangers overseeing a constantly fluctuating end strength. For the first PSRC regular 270-day rotation the peak density was 3,374 soldiers—all but 982 from the USAR—and the second rotation beginning in mid-1996, 3,415 soldiers, with all but 848 Army Reservists. OPERATION JOINT GUARD commenced at approximately the launch of the third, and considerably smaller rotation.[62]

The Total Integration of RC Support Personnel

Given that the majority of 3d COSCOM personnel had moved into Hungary early in December to form USAEUR and Task Force 21 forward cells, to include General Kindred, the moment Brigadier General Bruner arrived at Wiesbaden he was commanding general of the COSCOM. Bruner was faced with a myriad of challenges with a staff that was, even after the augmentation of his own soldiers from Des Moines, depleted to less than half of what had existed in Germany just weeks earlier. Moreover, a significant number of Bruner's element moved

forward to Kaposvar, leaving both his command at Wiesbaden and General Kindred's element forward mixed among AC and RC personnel. Simply put, the leaders put people into jobs based upon expertise, not affiliation.[63]

While General Bruner managed support for all of V Corps throughout Germany, Brigadier General David J. Kaucheck, commander of the 21st TAACOM CONUS Augmentation cell, remained at 21st headquarters at Kaiserslautern, serving as deputy commanding general for theater operations and director of the theater's logistics operations center (LOC). Unlike General Bruner, who chose to leave his forces primarily either downrange in Hungary or back in Germany, Kaucheck chose to rotate his soldiers between both locations. The training value realized, he reasoned, outweighed the relationships forged with the familiarity of working with the same person continuously.[64]

But Kaucheck made one exception. In large part due to his extensive civilian experience but also due to outstanding early performance in theater, USAR Colonel Michael Symanski remained in Hungary throughout the first rotation, serving as 21st TAACOM's deputy commander and chief of staff for the forward slice. Not only was split-based operations being validated, but so, too, was the notion of seamlessness between Active and Reserve Component personnel. The TAACOM's commanding general, Major General James M. Wright, was unable to distinguish his regular forces from his reservists by appearance or accomplishments, either in Kaiserslautern or downrange, throughout the entire operation.[65]

By mid-February, or some two months into OJE, active and reserve logisticians had logged some impressive numbers in the first major overland deployment on the European continent since 1945, moving almost 25,000 troops, 12,000 pieces of equipment such as tanks

and artillery pieces, and more than 200,000 short tons (STONS) of cargo. Included were 7,340 rail missions for materiel, 409 rail missions for personnel, 507 commercial and military bus missions for personnel, 1,770 missions for trucks, and 1,358 sorties, with the reliable C-17 emerging as the requested lift of choice either from Germany or Italy.[66]

The Second Rotation Deploys From CONUS

Since it was a foregone conclusion that at least two rotations of reservists would be necessary to support OJE, Army Forces Command (FORSCOM) needed to determine which RC units to alert for deployment by the spring of 1996 to replace those units that would be returning home during the summer. With the bulk of the units having a direct trace to USAEUR employed during the first rotation, creative measures had to be used for subsequent rotations. Such certainly was the case for the continuing requirement for logisticians.

In consultation with United States Army Reserve Command (USARC) co-located in Atlanta, FORSCOM decided that the most prudent way to backfill the CONUS augmentations for 21st TAACOM and 3d COSCOM would be via employment of composite units. This approach, it was reasoned, allowed other major USAR commands such as the 377th TAACOM, with a trace to USCENTCOM, and 19th TAACOM (CONUS Augmentation), with its trace to Eighth Army and United Nations Command in South Korea, to continue their primary missions.

The majority of logisticians for the second rotation came from the 311th COSCOM based in Los Angeles, a second wave of 21st TAACOM (CONUS Augmentation) troops from Indianapolis, and a smaller number of soldiers from the 310th TAACOM, based at Ft. Belvoir,

Virginia. This composite group was led by Brigadier General James J. Sullivan, deputy commander of the 310th, and Colonel James W. Comstock, deputy commander of the 311th.[67]

Because the 311th is the only COSCOM in the Army almost entirely comprised of reservists to serve as sole support for an active corps, I Corps at Ft. Lewis, Washington, those 311th troops who did not deploy for OJE were particularly taxed. Corps missions continued throughout the Pacific theater. The only difference is that where a colonel or a warrant officer might have been working an action prior, a major, captain, or even a sergeant first class might be pinch hitting. Split-based operations, from the perspective of the 311th at least, spanned around the world, from Hungary, to the United States, to Japan, and to South Korea. The commander of the 311th, Major General John T. Crowe, realized an enormous training opportunity for his junior subordinates, and he capitalized on it with great vigor.[68]

Fortunately, unlike what faced Generals Kaucheck and Bruner the previous December when most of their colleagues had departed before their arrivals in Germany, there was adequate overlap time, from July 18 to 27, between the arrival of the second rotation and the departure of the first for adequate backbriefing to take place. And there was one major change facing the new forces. Much of 3d COSCOM's elements forward were returning home to Wiesbaden, allowing a sharp-eyed and aggressive former Army Ranger School instructor like Comstock to seize the opportunity to pick up a major portion of the Task Force 21 mission at Kaposvar. While Comstock assumed command of the task force that included a forward element at Slavonski Brod, Croatia, General Sullivan assumed responsibility for 21st TAACOM's incredibly efficient better business practices program at Kaiserslautern.[69]

Comstock's mission was daunting as he faced a mature theater. His element was

responsible for the throughput and overall management of 72,000 meals, 141,000 gallons of water, 204,000 gallons of fuel, and 133 STONS of supplies every day of the week.[70] Making the job all the more difficult was the fact that Task Force 21 had no command and control over its subordinate elements, forcing his staffers to rely on their negotiation skills to substitute for normal command relationships.[71]

The better business program was one of the TAACOM's great success stories. Through effective use of dealings with civilian contractors across Europe for supplies and services, Generals Kaucheck and then Sullivan saved more than $100 million federal tax dollars.[72] This is particularly noteworthy given the fact that federal acquisition regulations prohibit counterbidding measures. Thus, even though they managed the bidding process as well as the work supervision over European and American contractors, the two brigadier generals were hamstrung by being able to accept only one bid from each without counteroffers.[73]

Had Army Reserve logisticians not been in place to manage this important process it is doubtful that it had been managed as efficiently and almost certain that far more American tax dollars might have been lost in the process.[74] Given that the Logistics Civil Augmentation Program (LOGCAP) had employed more than 6,500 personnel from an array of companies and nation states vying for American cash, Kaucheck and Sullivan assumed both important and complex responsibilities on behalf of the Army and the United States of America.[75] They complemented the work of Army contractor Brown and Root, which built Army base camps throughout the theater, then managed meals, laundry, sanitation, and other important tasks to assure soldier comfort.[76]

Equally impressive was Task Force 21's property recovery program, which was managed following two objectives: to establish an accountable and auditable system, and to maximize readiness of forces and return on investment made by American taxpayers. Task Force managers were careful to review units as they returned to Central Region through Slavonski Brod to Taszar. They took every precaution to assure that the following was the standard:

1. No unit was to carry MTOE or CTA equipment in excess of authorization documents.
2. No excess unit property, assets or materiel was authorized.
3. No non-unit equipment was allowed.
4. All equipment was returned at 10/20 or equivalent civilian maintenance standards.
5. Unserviceable excess was to be turned in as soon and as far forward as possible.
6. All recyclable base camp materials was to be recaptured.[77]

The results of this program speak for themselves. Figure 7 shows the recovered base camp scorecard at Slavonski Brod, Croatia, as of mid-November:

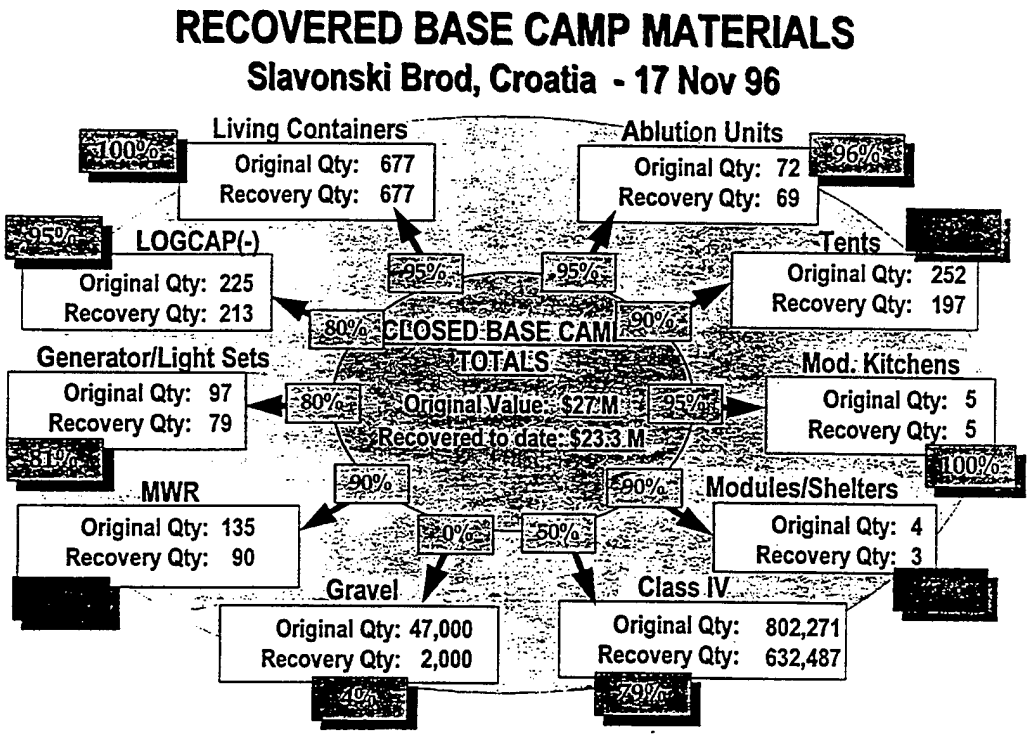


Fig. 7. Recovered base camp materials (source: 311th COSCOM).

From the $27 million of value used to construct base camps throughout the American sector of Bosnia, some $23.3 million was recovered, to include all 677 living containers, all five modular kitchens, and some 80 per cent of the tents, generators and light sets, and Class IV. More than 1,500 items were redistributed to V Corps units, 148 of which improved the readiness ratings of its subordinate units. Materiel not needed within USAEUR eventually was shipped to the strategic reserve of Army Materiel Command (AMC). And, as shown in Fig. 8, by the dawning of the new year, the total excess materiel recovered had increased into the nine-figure range, with Class VII and IX providing the majority:

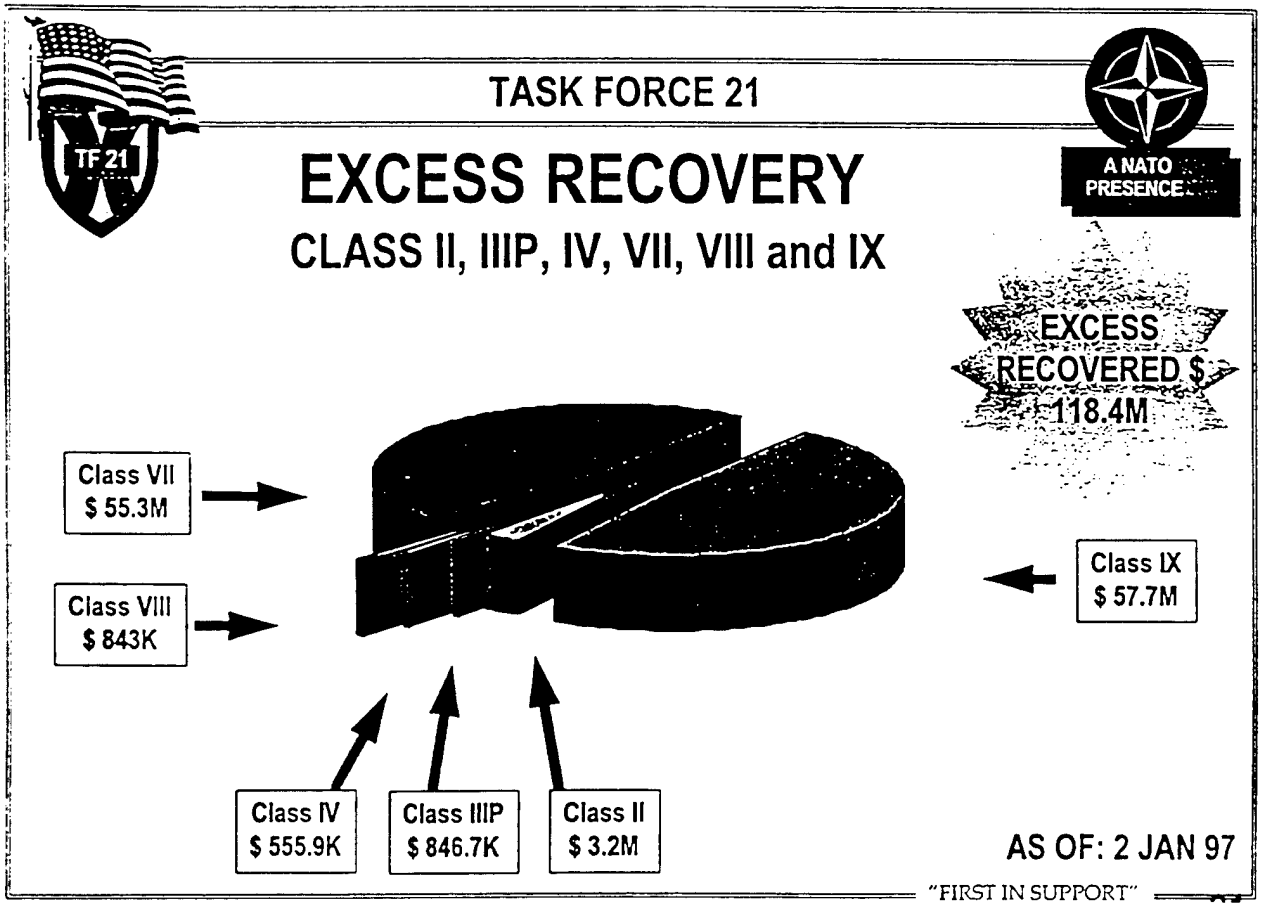


Fig. 8. Excess recovery (source: 21st TAACOM).

Clearly, 21st TAACOM's stewardship program was working congruent to doctrine. Limiting each unit's prescribed load list (PLL) to 150 line items was one example.[78] The warfighters were prohibited from hoarding stocks as in times earlier; a new logistics doctrine was being imposed and was being followed in spades.[79]

By the autumn of 1996 General Wright's logisticians faced another monumental challenge. Based upon the political decision that NATO forces would not be released from Bosnia by the end of 1996 as had been hoped, USAEUR identified a brigade-sized task force, code-named Task Force Victory, comprised of 5,422 soldiers from 1st Infantry Division, based in Wurzburg, to provide both the covering force for the withdrawal of Major General William L. Nash's Task Force Eagle built around the 1st Armored Division. This force from the Big Red One eventually would form the nucleus of the Stabilization Force (SFOR) that would comprise the American slice for OPERATION JOINT GUARD (OJG), and once again, the logisticians at Kaposvar and Slavonski Brod would bear the brunt of such a massive transfer.[80] And, once again, the supporting cast met the marks, assisting the SFOR forward in time for its November 5 deadline while managing the exodus of the IFOR shortly more than one month later.[81]

Lieutenant General Abrams had remembered that during OPERATION DESERT STORM where he served as assistant division commander of the 1st Cavalry Division, it took what he believed far too long to redeploy from the Gulf, close at its headquarters at Ft. Hood, Texas, and then be prepared for future missions. As a commitment to this lesson, for example, he decided that every tank crew deployed as part of IFOR would qualify on Tank Table VIII, one of the standards for tankers to check off as being ready for war. The trick was that they would do so on ranges they had never seen before, on the way home, in Hungary. This challenge made the

logistical support for such an undertaking, while a force in excess of a heavy division was criss-crossing all over a major piece of Europe, all the more imposing.[82]

As a means to answer these and a myriad of other demands, Task Force 21 and its USAEUR Forward elements employed two key executive agencies, the joint transportation board and the capacity management board. The former was stood up to plan, direct and deconflict all issues revolving around movements issues, the latter was formed to optimize the capacity of mission and life support facilities. From a strategic standpoint, these organizations were established as vehicles to follow the evolving doctrine of generating logistics velocity, or pushing needed manpower and materiel into the right place at the right time.[83]

The Army's Velocity Management program, like its Just In Time inventory efforts, is part of the overall doctrine of Focused Logistics, that of pinpointing requirements, fusing resources, and delivering as promised. The Director of Logistics for The Joint Staff, Army Lieutenant General John J. Cusick explains:

> The Air Force's Lean Logistics Program and the Army's Velocity Management program are literal springboards for making quantum improvements in logistics support. Through accelerated movement of assets through transportation and repair cycles, support has improved at less cost, and confidence is building that the "system" will work when needed.[84]

Task Force Eagle, led by General Nash, returned to Bad Kreuznach, Kirchgoens, Baumholder, and its other German kasernes shortly before Christmas 1996. For the reservists from the second PSRC rotation, Christmas would have to be away from home. But by January, with the IFOR no more, orders were published to cut the length of the rotation. The second rotation had done its job. For the men and women supporting 21st TAACOM from America,

from the perspective of its leader at least, they could not possibly have done it much better.[85] It was time to pack up, clear 7th ARCOM outprocessing points, and go home. The mission was accomplished.

Lessons Learned From OPERATION JOINT ENDEAVOR

At least six lessons for logisticians might be drawn from the OJE experience, not particularly in order of priority:

1. *Validation of the CONUS Augmentation Concept*: Paramount among the lessons drawn from the JOINT ENDEAVOR experience is that the CONUS augmentation structure, for the 21st at least, was overwhelmingly validated as viable. When he emerged as Chief, Army Reserve, and commander, United States Army Reserve Command (USARC) in 1994, Major General Max Baratz vowed that the USAR would be "relevant" to the Army and the nation. As combat brigades and battalions and training divisions with Cold War missions stood down and more units now filling the Army's go-to-war-first Force Support Package (FSP), formerly the CFP, were created, Baratz kept his promise. The evolution of units such as the augmentation cells of the 3d COSCOM and 21st TAACOM, tested in an operational environment with countless challenges, are testament to this change.[86]

2. *Identification of Critical Shortages in Units and Equipment*: It became clear early on that transportation was the "long pole" in the logistician's tent during OJE. The critical shortage of movement control teams strained the limited assets available, enough to warrant the authorization for five additional teams just within 7th ARCOM alone.[87] It is safe to assume that

similar shortages could be found within, for example, Pacific Command or Central Command.

Additionally, Task Force Eagle was extremely constrained by the shortages of heavy equipment trailers (HETs), qualified drivers and handlers of heavy equipment and supplies. Any heavy force obviously can move overland either with HETs or by rail, and the former can reach far more places and are far more versatile than the latter. Force structure analysts would be wise to add considerably more heavy haulers and heavy materiel handlers to the inventory, to include units able to carry other bulk such as petroleum and ammunition.

3. *Stronger Ties Are Crucial Between Strategic and Operational Nodes*: With the landmark Goldwater-Nichols legislation of 1986 serving as a watershed, the Army must become more proactive in turning its activities into more fully integrated "purple" ones. The Army Reserve's IMA program, particularly its drilling IMAs who perform 24 to 48 assemblies per year in addition to active duty periods, provides a potential vehicle. In future operations, USAR IMAs could more effectively translate the needs of the operators at TAACOM level to the strategic supporting structure, such as that at USEUCOM and other joint commands with regional responsibilities; USTRANSCOM to include Military Traffic Management Command, Military Sealift Command and Air Mobility Command; Army Materiel Command (AMC); the Defense Logistics Agency (DLA); The Joint Staff, and the Office of Secretary of Defense (OSD). The visibility of DLA in theater,[88] for example, is a step in the right direction, as is the AMC logistics assistance office (LAO) at Wiesbaden[89] in addition to the liaison offices for both agencies in Hungary. The USAR, with its high level of applied expertise and its cost efficiencies in austere cost-cutting times, could be a force multiplier.

Another program that must be expanded is that of forming augmentation cells into both

major Army commands (MACOMs) and joint commands. United States Atlantic Command (USACOM), for example, has a Joint Reserve Unit (JRU) comprised of reservists from all services, with an Army component commander, a USAR colonel. This model must be expanded not merely to all unified and specified joint commands, but also at MACOMs. These reservists could provide an invaluable interface with theater level units such as TAACOMs.

4. *Mobilization and Demobilization Issues Must Be Improved*: Too much precious training time was wasted during OJE as certain reserve units awaited to be recertified at their mobilization stations. Additional time was wasted during RSOI procedures and STX training at Hohenfels. In the case of both augmentation cells, for example, the 3d and 21st previously were certified as deployable to their mobilization trace commands, yet they were held up at Ft. Dix to be recertified by Readiness Group personnel, sometimes with somewhat different standards. This was a waste of time, effort, and resources. Similar frustrations were experienced during outbound processing.[90] The process was improved for second rotation, and 7th ARCOM similarly streamlined its Giessen and other transfer point operations in mid-1996. This correction of azimuth must continue.

Additionally, the Army Reserve must get inside the mobilization decision cycles at all levels, from The Joint Staff down to the operational levels. Active Guard and Reserve (AGR) representatives must be a part of the plans sections—influencing decisionmaking—at all joint and major Army commands in order to be part of the policymaking process from the ground up, not merely as respondents to what previously has been determined.

5. *A Larger Full-Time Element Is Critical to Senior Reserve Headquarters:* While USAR TAACOMs, COSCOMs and their augmentation counterparts have increased the number

of full-time personnel in small ways, it is clear that such change is not enough. Probably the best known logistician of this decade, Lieutenant General Pagonis, believes a USAR TAACOM such as the 377th should have a force of 100 active duty soldiers in order to accomplish its USCENTCOM mission.[91] While this figure is unlikely to materialize at a time when the Army is threatened to keep its 495,000 end strength in the face of the Quadrennial Defense Review (QDR) process this year, a compromise might be possible. For example, Ground Force Readiness Enhancement (GFRE) soldiers from the active rolls could be blended with additional AGR personnel, particularly in the materiel management centers (MMCs) where a daily expertise in the commodities business is crucial, of perhaps three or four dozen more soldiers per command to dramatically improve the readiness and performance of reserve commands toward short fuse missions, such as during OJE when little more than 24 hours advance notice was realized. The complexity of the Army's new retail supply system-objective[92] (SARSS-O) and its fielding into reserve MMCs in itself warrants additional expertise, and many other similar systems and software challenges continue to emerge on the logistician's radar screen.

6. *Split Based Operations as Doctrine Warrants Additional End Strength*: Had OJE continued on for two or three years, the Army would have: 1) run out of logisticians to support the operation; 2) called on the same units to redeploy for a second time mere months after returning home, thus risking the wrath of civilian employer backlash; or 3) faced the difficult political decision of extending the PSRC cycles to partial mobilization when no armed conflict was ongoing.

None of these three courses of action would seem to be practicable. A better solution would be to expand the troop program unit (TPU) manpower levels of reserve logistical

commands to better allow for two rotations of support. There was considerable criticism of the 270-day rotations, for example, particularly when Special Operations Command (USSOCOM) soldiers served only 179 days and those from the health services were ordered to 140-day rotations. Had each logistical command been staffed more fully, a rotation could be trimmed to perhaps 200 days, allowing for adequate overlap and leave time to fill a mission of a full year in duration such as during OJE. The odd length of 270 days resulted in elements of the second rotation to return home early as the IFOR stood down.

Such a plan is particularly important should, as was the case of 311th COSCOM, a command be directed into multiple theaters. Had I Corps been alerted to move forward into a Pacific location while almost half of its support command was in Hungary and Croatia, it is doubtful it could meet the requirement quickly.

A Look to the Future: Working Smarter and More Efficiently

Unquestionably, the results of the impending QDR process and its review by the National Defense Panel (NDP) will help to determine the strategy from which our armed forces will operate. For example, the decision to maintain forces and readiness for two nearly simultaneous major regional contingencies (MRCs) (such as during the Gulf War) as opposed to, for example, a strategy of one MRC and one lesser regional contingency (LRC) will help to determine virtually every issue from doctrine to execution.

Yet one point appears to be clear: Tomorrow's Army, like today's, is considerably more likely to be involved in operations not involved in the extensive firing of its arms, such as

peacekeeping and peace enforcement missions of recent vintage, than those during World War II or even the Gulf War. As a result, to borrow from Clausewitz, *the center of gravity of the Army of the future would appear to be shifting from the operator, the G-3; to the logistician, the G-4.* The logistician serves as arguably the largest information manager of a force, and, contrary to when Napoleon postulated that the army with the most battalions wins, it likely will be the force with the most accurate and complete information that will prevail. Information management easily may be the most valuable asset of the 21st Century.[93] As the Army's Deputy Chief of Staff for Logistics, Lieutenant General John G. Coburn, puts it in regard to the explosion of information management technologies as evidenced by his own velocity management initiatives recently validated at NTC in Force XXI efforts, "Information is knowledge, knowledge is power, and that's what we're seeing here."[94] Increasingly, what the Army is seeing is a warp-speed movement toward real time information, or ground truth. The so-called "fog of war" is vaporizing, at least partly so.

A second point is equally clear. Given that peace operations are more likely to occur than those involving extensive armed conflict, the Army's Reserve Components, and notably Army Reserve units such as those involving logistics and civil affairs, will and must be employed.[95] *For peace operations at least, the center of gravity of the Army of the future would appear to be shifting from the AC in the lead to a shared AC/RC locus*. It would be impossible, for example, for General Wright to have supported all of Europe during OJE without extensive help from CONUS. As noted by former Secretary of Defense William J. Perry, the RC has progressed from a prepare-to-mobilize force of Cold War vintage to a peacetime-engagement and mission-support asset.[96] As far as the RC is concerned, like the themeline in an American Express commercial,

the Army simply can't leave home without it.

Third, regardless of interservice rivalries that will continue as long as there are such entities as separate armies, navies, marines and air forces, *the direction of all future operations will continue to move toward a purple, or joint, orientation.* For example, at USEUCOM General George A. Joulwan, its commander, has established a Directorate for Mobilization and Reserve Component Affairs as well as a Reserve Component Campaign Plan which places RC forces squarely at the heart of European Command business.[97]

Other unified and specified commanders in chiefs worldwide have similar plans, and the mobilization assistant to The Joint Staff, Major General Michael Davidson, is an Army Guard officer with extensive service in all three of the Army's components. The director of operations for The Joint Staff's Logistics Readiness Center is Army Reserve Major General Howard T. Mooney, who previously served as mobilization assistant to the commander, Military Traffic Management Command. Both have important input into the Joint Warfighting Capabilities Assessment (JWCA), the Joint Monthly Readiness Review (JMRR), the Joint Strategy Review (JSR) and other strategic level work.[98] Davidson, Mooney, and other flag level mobilization assistants now are present at virtually every joint command within DOD, and each has growing influence at the highest levels of power.

There has been considerable discussion of late as well regarding the chance that more and more flag commands will become jointly staffed. Douglas MacGregor, for example, contends that army divisions and corps have become obsolete and that a joint task force leading swift, mobile and deadly light battle groups commanded by colonels or perhaps brigadier generals will become the model for operations in the future.[99] Regardless of whether any of MacGregor's

ideas are adopted or merely remain the topic of choice in seminar rooms at Carlisle or Leavenworth, it is clear that our Army increasingly will deal within both the joint and the combined arenas. More frequently, as well, the Army will work with civilians, as evidenced by not merely the LOGCAP program but a large array of individual consultants and private firms who interact with soldiers regularly. This perhaps is best and most visibly noted within the logistics community such as that at AMC and DLA.

Finally, *the entire paradigm of theater support will continue to change and evolve*. MMCs will continue to develop increasingly sophisticated automated tracking architecture, and steady state sustainment from multiple locations will become standard operating procedure throughout the Army.[100]

As strategies and procedures change, so, too, will forces. There is some question, for example, whether the TAACOM is the best structure to support the Army of the future. The 310th TAACOM is in the process of testing a new Theater Support Command (TSC) concept that would, in effect, put most functional commands, to include a theater personnel, finance, transportation, engineer and medical command, under the TSC. This concept has been validated at PRAIRIE WARRIOR, ULCHI FOCUS LENS and ROVING SANDS exercises in the United States and overseas. Yet it is doubtful that an engineer or medical two-star general would prefer to work for an officer of equal rank who is likely to be a logistician and not among the CS community. It therefore probably will rest upon the Army component commander in a mature theater to determine command and control structures.[101]

There additionally is some doubt whether all theater support commands will survive current and future reviews. One proposal being advanced within Army deputy chief of staff for

operations circles, for example, calls for the elimination of the 21st TAACOM in Europe entirely and the combination of the 9th and 19th TAACOMs in Japan and South Korea respectively. This proposal would trim the number of theater support commands regardless of nomenclature to three.[102]

Regardless of what units might fall under a TSC, some initiatives within that concept appear to be gaining favor. A proposed flag officer added to the TSC structure from AMC, for example, would provide a critically needed strategic, supplier-based, interface to operational level requirements. The addition of a distribution management center (DMC) would synchronize better materiel and movement management so critical in any large operation. The TSC concept further increases the theater logistician's contracting capabilities, another vital function that continues to grow.[103]

Perhaps the most important change envisioned by the theater support command idea is the notion of phased, or modularized, entry points forward. Fig. 9 explains this point:

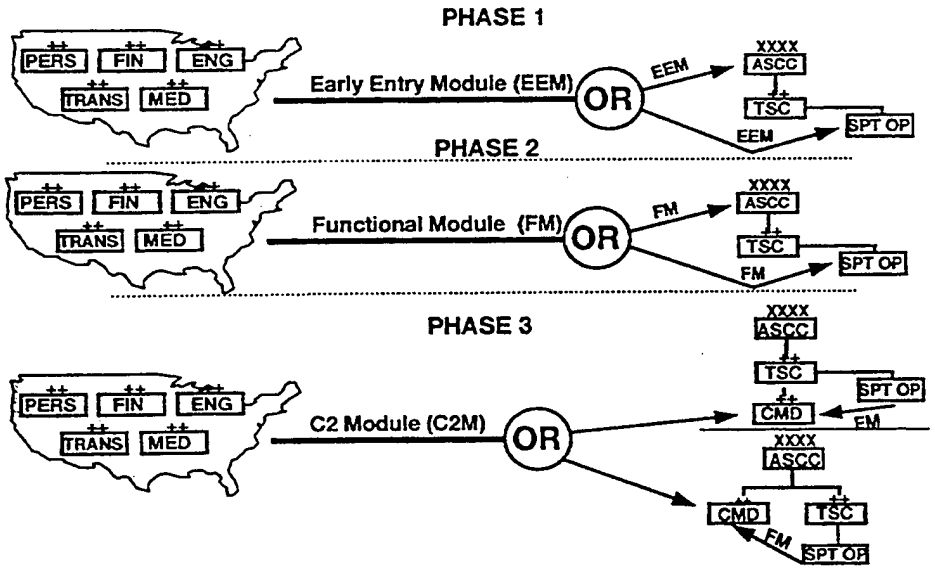


Fig. 9. Theater support command (source: TRADOC).

The first, or Early Entry Module (EEM), would allow an Army component commander to deploy a streamlined TSC cell into an area of operations. Given the requirements on the ground, this lean structure might be all the commander needs. Should a theater mature, however, a second, or Functional Module (FM), could be added that would include function slices of elements in transportation, engineers, finance, personnel, or other areas. Finally, a full theater of operations might warrant a Command and Control Module (C2M) that would include the complete package of specialized theater commands. It then would be the Army commander's decision to determine the wire diagram.[104]

Yet to be resolved, however, is how a TSC or even TAACOM might be structured in light of an increasingly joint environment. It certainly is conceivable to envision such an element with an Army commander, an Air Force deputy, and a Marine Corps or Navy chief of staff. Much like those CINCs who always wear the same colored suit—the commander in chief of USPACOM always has been a Navy admiral, for example—it is clear that the ground-based theater support command almost certainly must be commanded by an Army general officer. But given the criticality of both airlift and sealift, not to mention the growing program of Army pre-positioning of stocks afloat, the need to employ Air Force satellites and other joint flavored information gathering capabilities, it only makes sense to assume that the Army take the lead in expanding TAACOM/TSC structures into its sister services.

The Army has much to gain by being proactive in the move toward jointness at the theater level. No better place can be found than within theater level support commands, which link strategic and operational support nodes. With the JRU concept as a model, the United States Army Reserve could continue to lead the armed services in pushing the envelope toward the

future. As its own strategic plan anticipates, the USAR intends to continue to streamline command and control, reduce overhead and support, flatten organizational structure with greater agility and responsiveness, mobilize asymmetrically, maximize the employment of technology and information, and improve business practices.[105] A jointly manned TSC structure would follow that philosophy.

As a first step, reserve force planners should identify and then fill positions that would be appropriate to personnel in the sister services. Just as the CONUS augmentation concept was tested under the fire of OPERATION JOINT ENDEAVOR, so, too, could the jointly staffed theater support command structure be validated in a future mission, which likely will mirror those of recent memory. The use of tailored units using derivative unit identification codes (UICs), as was employed during OJE,[106] could be extended into the joint arena, such as for peace operations. As President Clinton explains, "In Rwanda and Somalia, only the American military could have accomplished what it did in these humanitarian missions, saving hundreds of thousands of lives."[107]

Such might be reported in President Clinton's next national security strategy document about the contributions of the American military in general, and Army logisticians in particular, in the Balkans. As pacesetters toward jointness, the Army's logisticians—with the Army Reserve continuing to grow as a principal player—likely will continue to be America's unsung heroes. And for a multitude of humble, misunderstood, sometimes unrecognized members of the supporting cast of characters on the global security stage, they accept that role with great satisfaction and pride.

BIBLIOGRAPHY

Books

Clausewitz, Carl Von, *On War.* Princeton, N.J.: Princeton University Press, 1976.

Galway, Lionel A. and Christopher H. Hanks, *Data Quality Problems in Army Logistics.* Santa Monica, Calif.: Rand, 1996.

de Jomini, Antoine Henry, *The Art of War.* Oxford, United Kingdom: Oxford University Press, 1963.

MacGregor, Douglas A., *Breaking the Phalanx: A New Design for Landpower in the 21st Century.* Westport, Connecticut: Greenwood Publishing Company, 1997.

Matthews, James K. and Cora J. Holt, *So Many, So Much, So Fast, So Far.* Washington: Office of the Chairman, Joint Chiefs of Staff, 1995.

Pagonis, William G. with Jeffrey L. Cruikshank, *Moving Mountains.* Boston: Harvard Business School Press, 1992.

Schwarzkopf, H. Norman with Peter Petre, *It Doesn't Take a Hero.* New York: Bantam, 1992.

Thompson, Julian, *The Lifeblood of War: Logistics in Armed Conflict.* London: Brassey's, 1991.

Thorpe, George C., *Pure Logistics: The Science of War Preparation.* Washington, D.C.: National Defense University Press, 1986.

Tzu, Sun. *The Art of War.* Oxford, United Kingdom: Oxford University Press, 1963.

Van Creveld, *Supplying War.* Cambridge: Cambridge University Press, 1977.

Government Publications

Clinton, William J., *A National Security Strategy of Engagement and Enlargement.* Washington, D.C.: U.S. Government Printing Office, February 1996.

U.S. Army, Army Regulation 700-137, *Logistics Civil Augmentation Program.* Washington, D.C.: Headquarters, Department of the Army, 1985.

U.S. Army, Field Manual 100-16, *Support Operations: Echelons Above Corps* Washington, D.C.: Headquarters, Department of the Army, 1985.

U.S. Army, *Army Strategic Logistics Plan.* Washington, D.C.: Department of the Army, undated.

U.S. Army, *Army Vision 2010.* Washington, D.C.: Department of the Army, undated.

U.S. Army Europe and 7th Army 1997. Offenbach, Germany: LaserSatz, 1996.

U.S. Department of Defense, *DOD Logistics Strategic Plan 1996-97.* Washington, D.C.: Department of Defense, undated.

U.S. Department of Defense, *DODD 4151.18, Maintenance of Military Materiel.* Washington, D.C.: Department of Defense, August 12, 1992.

U.S. Joint Chiefs of Staff, *Joint Vision 2010.* Washington, D.C.: Office of the Chairman, undated.

Articles

Anderson, Nicholas J., "Multinational Deployments in Operation Joint Endeavor." *Army Logistician*, November/December 1996, 21-23.

Atkeson, Edward B., "The Army's Role in Bosnia: the Right Step at the Right Time." Association of the United States Army, Landpower Essay Series 96-1, January 1996.

Baratz, Max, "A Restructured Army Reserve." *Army,* October 1996, 97-107.

Chilcoat, Richard A., "The Fourth Army War College: Preparing Strategic Leaders for the Next Century." *Parameters*, Winter 1995-96, 3-17.

Coburn, John G., "Focused Logistics—Projecting and Sustaining Army XXI." *Army,* October 1996, 127-132.

Collins, John W. Jr. and J. Stephen Koons, "Deploying for Joint Endeavor." *Army Logistician*, May/June 1997, 38-40.

Crouch, William W., "Forward Deployed and Projecting Power." *Army*, October 1996, 69-77.

Cusick, John J. and Donald C. Pipp, "In Search of Focused Logistics." *Army Logistician*, May/June 1997, 2-5.

Glass, Scott T., "Intermediate Staging Base Operations in Italy." *Army Logistician*, May/June 1997, 34-37.

Herrera, Nicolas, "Up Front: DLA in Bosnia." *Army Logistician*, November/December 1996, 29-33.

Herson Jr., James P., "Road Warriors in the Balkans." *Army Logistician*, March/April 1997, 23-28.

Joulwan, George A., "Active and Reserve Forces: One Team—One Mission." *The Officer*, September 1996, 14-18.

_____, "Reserve Component Campaign Plan." *The Officer*, October 1996, 23-32.

Keener, Kenneth C., "An Extra Christmas Present." *Army Logistician*, January/February 1997, 21-23.

Kozaryn, Linda D., "Bosnia—A Look Back." *Soldiers*, March 1997, 14-15.

Kral, Anthony H. and Drefus Lane, "Food for Operation Joint Endeavor." *Army Logistician*, November/December 1996, 36-40.

Lindsay, Tim, James J. McLaughlin and Norm Bruneau, "Force Provider Deploys to Bosnia." *Army Logistician*, May/June 1997, 18-23.

"Logistics: Spearhead for Operation Joint Endeavor." *Army Logistician*, March/April 1997, 2.

Lucius, Philip D., "Supply Pipeline to Bosnia." *Army Logistician*, November/December 1996, 24-28.

Nash, Dean C., "SACEUR Sees Aviano Mission Growing in Southern Region." Aviano Air Base *Vigileer*, March 14, 1997.

Neely, Dan, "Secretary Cohen Visits Aviano AB." Aviano Air Base *Vigileer*, March 14, 1997.

Nichols, Camille M., "The Logistics Civil Augmentation Program." *Military Review*, March/April 1996, 65.

"Operation Joint Endeavor." *The Officer*, April 1996, 14-17.

"SARSS-O Extended to Bosnia." *Army Logistician*, November/December 1996, 44.

Shapiro, Steven A., "Task Organization for Bosnia." *Army Logistician*, November/December 1996, 34-35.

Strader, George, "Aviano's Peacekeeping Efforts Continue." Aviano Air Base *Vigileer*, February 28, 1997.

Willis, G.E., "The 'Covering Force' Heads for Bosnia." *Army Times*, October 21, 1996, 22.

Interviews

Bertinetti, Joseph F., Chief of Staff, 3d Corps Support Command (CONUS Augmentation), Wiesbaden, Germany, February 23, 1996.

Bruner, Thomas J., Commander, 3d Corps Support Command (CONUS Augmentation), Wiesbaden, Germany, June 12, 1996.

_____, Crescent, Iowa, March 21, 1997.

Collier, Dennis, G-3, 3d Corps Support Command (CONUS Augmentation), Wiesbaden, Germany, February 29, 1996.

Comstock, James C., Commander, Task Force 21 (Forward), Frankfurt, Germany, December 4, 1996.

Crowe, John, Commander, 311th Support Command (Corps), Los Angeles, California, November 21, 1996.

DeGroat, Michael P., 3d Corps Support Command (CONUS Augmentation), Wiesbaden, Germany, February 6, 1996.

Evans, Gerald T., Deputy Commander, 7th United States Army Reserve Command, Schwetzegen, Germany, December 10, 1996.

Flynn, James, 3d Corps Support Command (CONUS Augmentation), Weisbaden, Germany, February 29, 1996.

Gerhardt, John, 3d Corps Support Command (CONUS Augmentation), Wiesbaden, Germany, May 8, 1996.

Giacalone, Balthasar A., Commander, 663d Movement Control Team, Aviano, Italy, December 8, 1996.

Greer, John F., 3d Corps Support Command (CONUS Augmentation), Weisbaden, Germany, February 27, 1996.

Harper, Jacqueline E., 3d Corps Support Command (CONUS Augmentation), Weisbaden, Germany, June 4, 1996.

Hubbard, Arthur A., Commander, 19th Corps MMC (CONUS Augmentation), Weisbaden, Germany, May 20, 1996.

James, Clyde E., 3d Corps Support Command (CONUS Augmentation), Weisbaden, Germany, May 14, 1996.

Janovec, Lloyd Dean, Command Sergeant Major, 3d Corps Support Command (CONUS Augmentation), Weisbaden, Germany, February 29, 1996.

Kaucheck, David J., Commander, 21st Theater Army Area Command (CONUS Augmentation), Columbus, Ohio, April 19, 1997.

Light, Larry James, 3d Corps Support Command (CONUS Augmentation), Wiesbaden, Germany, June 4, 1996.

Maples, Michael, G-3, V Corps, Heidelberg, Germany, December 10, 1996.

McDonough, James, 3d Corps Support Command (CONUS Augmentation), Weisbaden, Germany, February 27, 1996.

Perusse, Thomas J., 3d Corps Support Command (CONUS Augmentation), Weisbaden, Germany, February 29, 1996.

Reed. Timothy J., HHC Commander, 3d Corps Support Command (CONUS Augmentation), Weisbaden, Germany, May 20, 1996.

Rivera, Javier A., Commander, 793d Movement Control Team, Aviano, Italy, December 8, 1996.

Sackett, Richard, Senior Army Reserve Advisor, 21st Theater Army Area Command, Kaiserslautern, Germany, December 9, 1996.

Symanski, Michael, Chief of Staff/Deputy Commander, Task Force 21 Forward, Kansas City, Missouri, April 25, 1997.

Tobiassen, Lloyd T., 3d Corps Support Command (CONUS Augmentation), Wiesbaden, Germany, February 27, 1996.

Wilson, Emory S., Office of the Chief, Army Reserve, Washington, D.C., May 17, 1997.

Wright, James M., Commander, 21st Theater Army Area Command, Kaiserslautern, Germany, December 11, 1996.

Briefings, Letters, Memorana, Speeches

311th Corps Support Command, Briefing, Operation Joint Endeavor, Los Angeles, California, undated.

Assistant Deputy Under Secretary of Defense (Logistics), Memorandum, Integrated Management of Department of Defense Logistics Activities, October 14, 1993.

Brautigan, Roger, Briefing to Senior Army Reserve Commanders Association, "Mobilization Support Center Operations," Washington, D.C., January 1997.

Bruner, Thomas J., Letter to Commander, 21st TAACOM, Subject: PSRC AAR, January 6, 1996.

_____, Memorandum to Chief, Army Reserve. Subject: Direct Re-Deploy, March 26, 1996.

Clinton, William J., Speech, "Why We're Sending Troops to Bosnia," Washington, D.C., November 27, 1995.

_____, Speech, Aviano Air Base, Aviano, Italy, January 13, 1996.

Crouch, William W., Briefing to Association of the United States Army annual meeting, "Update on the U.S. Army in Bosnia," October 14, 1996.

Joulwan, George A., Briefing to OSD Press Pool, Washington, D.C., September 18, 1996.

Kindred, Samuel L., Letter to Commander, V Corps, Subject: Prioritization of Reserve Component Augmentation Unit, September 5, 1995.

Lee, Deborah R., Letter, "Bosnia is Difficult, But the Reserves are up to the Task," Washington, D.C., undated.

Maples, Michael, Briefing on Operation Joint Endeavor, "Project Power: Support the Peace," Heidelberg, Germany, December 8, 1996.

McLaughlin, David W. Jr., Memorandum, Lessons Learned From Operation Joint Endeavor, 21st Theater Army Area Command (CONUS Augmentation), Indianapolis, Indiana, November 3, 1996.

Meyer, Galen H., Memorandum, Lessons Learned From Operation Joint Endeavor, 21st Theater Army Area Command (CONUS Augmentation), Indianapolis, Indiana, January 30, 1997.

Murphy, David P., Memorandum, Lessons Learned From Operation Joint Endeavor, 21st Theater Army Area Command (CONUS Augmentation), Indianapolis, Indiana, January 4, 1997.

Office of the Chief, Army Reserve, Army Reserve Strategic Communications Briefing, Washington, D.C., April 28, 1997.

Sackett, Richard A., Briefing on 2nd Rotation, PSRC, Kaiserslautern, Germany, December 1996.

Sullivan, Gordon, Speech, Association of the United States Army, annual meeting, January 14, 1994.

Task Force 21, Briefing, "Base Camp Decommissioning Strategy," Kaposvar, Hungary, undated.

_____, Briefing, "Better Business Practices Team," Kaposvar, Hungary, undated.

_____, Briefing, "Command Information Briefing," Kaposvar, Hungary, undated.

_____, Briefing, "OJE Property Recovery Program," Kaposvar, Hungary, undated.

_____, Briefing, "RSB Node Analysis," Kaposvar, Hungary, undated.

_____, Briefing, "Railhead Analysis," Kaposvar, Hungary, undated.

_____, Briefing, "Sustainment Operations," Kaposvar, Hungary, undated.

_____, Briefing, "Transportation System Analysis," Kaposvar, Hungary, undated.

U.S. Army Training and Doctrine Command, "FDU 96-2: Briefing Package for Field Staffing," Ft. Monroe, Virginia, April 22, 1997.

Vartanian, Donald N., Memorandum, Lessons Learned Operation Joint Endeavor, 21st Theater Army Area Command (CONUS Augmentation), Indianapolis, Indiana, January 4, 1997.

Wright, James M., Letter to Staff Elements, Kaiserslautern, Germany, December 5, 1996.

_____, Briefing, "21st TAACOM—Leaning Forward in Logistics," Senior Logisticians Commanders Conference, Ft. Lee, Virginia, April 1997.

Unpublished Documents

Army News Service, Press Release, "Perry: IFOR Mission on Schedule for Completion by Year's End." Taszar Air Base, Hungary, July 5, 1996.

Army News Service, Press Release, "First Reserve Component Units Scheduled to Return by End of July," Washington, D.C., July 15, 1996.

Army News Service, Press Release, "Returning by Barge: Army Reduces Costs of Redeployment," Aschaffenburg, Germany, November 22, 1996.

Headquarters, V Corps, "Interim Report on Lessons Learned." March 1996.

MDW News Service, Press Release, "Army Investment Said to Pay Off in Bosnia." Washington, D.C., October 1996.

Swartz, James E., "America's Economic Interests in Bosnia: Does a Virtually Non-Existent Trading Partner Warrant Such a Strategic Investment?" a paper delivered to the annual conference of the International Business Association, at sea, May 23, 1996.

ENDNOTES

[1] Julian Thompson, *The Lifeblood of War* (London: Brassey's, 1991), 289.

[2] Ibid.

[3] U.S. Joint Chiefs of Staff, *Joint Vision 2010* (Washington: Office of the Chairman of the Joint Chiefs of Staff, 1996).

[4] U.S. Army, *Army Vision 2010* (Washington: Department of the Army, 1996).

[5] Dennis J. Reimer, *The Army Times*, April 28, 1997.

[6] See, for example, James E. Swartz, "America's Strategic Interests in the Balkans: Fact or Fiction?" a paper presented to the annual conference of the International Business Association, at sea, May 23, 1996. The premise of this paper is that while the military incursion into the Balkans may enhance the prestige of the United States, it clearly is not expected to significantly improve its economic position strategically.

[7] For example, the overwhelming majority—some 75 per cent—of 22d SUPCOM, the theater logistics element supporting General H. Norman Schwarzkopf's Central Command elements in the Gulf War of 1990-91, was comprised of Army Reservists and Guardsmen.

[8] William G. Pagonis, *Moving Mountains* (Boston: Harvard Business School Press, 1992), 98, 131.

[9] Pagonis, ibid.

[10] H. Norman Schwarzkopf with Peter Petre, *It Doesn't Take a Hero* (New York: Bantam, 1992), 423.

[11] Pagonis, 101.

[12] Carl von Clausewitz, *On War* (Princeton, N.J.: Princeton University Press, 1976), 338.

[13] Martin Van Creveld, *Supplying War* (Cambridge: Cambridge University Press, 1977), 5.

[14] George C. Thorpe, *Pure Logistics* (Washington: National Defense University Press, 1986), xviii.

[15] Ibid., xviii, 1.

[16] Pagonis, x.

[17] Thorpe, 2.

[18] Sun Tzu, *The Art of War* (Oxford, United Kingdom: Oxford University Press, 1963).

[19] Richard A. Chilcoat, "The 'Fourth' Army War College: Preparing Strategic Leaders For the Next Century," *Parameters*, Winter 1995-96, 8.

[20] Thorpe, ibid., 4-5.

[21] Ibid.

[22] Ibid., 9-16.

[23] Thompson, 29-33.

[24] Thorpe, xviii, 27.

[25] Thompson, 6.

[26] Ibid., 131.

[27] Ibid., 164-185.

[28] Pagonis, 14.

[29] James K. Matthews and Cora J. Holt, *So Many, So Much, So Far, So Fast* (Washington: Office of the Chairman, Joint Chiefs of Staff, 1995), 12.

[30] U.S. Department of Defense, *Logistics Strategic Plan* (Washington: Office of Under Secretary of Defense (Acquisition and Technology), undated), foreword.

[31] Ibid., executive summary.

[32] Ibid.

[33] Ibid.

[34] U.S. Army, Army Regulation 700-137 (Washington: Department of the Army, 1985), delineates the details of the LOGCAP program, which only in the past five years has emerged in a major way.

[35] Camille M. Nichols, "The Logistics Civil Augmentation Program," *Military Review*, March-April 1996, 65.

[36] *Army Vision 2010*, 1.

[37] Ibid., 11.

[38] Ibid., 15.

[39] Ibid., 16.

[40] U.S. Army, *Army Strategic Logistics Plan* (Washington: Department of the Army, undated), foreword.

[41] Gordon Sullivan, Speech at Association of the United States Army annual meeting, Washington, D.C., January 14, 1994.

[42]See, for example, Jason Sherman, "Welcome to the Future," *Armed Forces Journal*, May 1997, 12-13, for an assessment of the EXFOR's performance at the National Training Center in March.

[43] William J. Clinton, "Why We're Sending Troops to Bosnia," Address to the Nation, Washington, D.C., November 27, 1995.

[44] John W. Collins Jr. and J. Stephen Koons, "Deploying for Joint Endeavor," *Army Logistician*, May/June 1997, 38-40.

[45] Kenneth C. Keener, "An Extra Christmas Present," *Army Logistician*, January/February 1997, 21-23.

[46] Ibid.

[47] For example, the TY-96 Training Guidance for 3d COSCOM (CONUS Augmentation) includes the following items: transition to war or regional operations; deploy and move the COSCOM or force; command and control the COSCOM; plan for and establish the corps support area; conduct sustainment operations; conduct operations other than war; and redeploy the COSCOM or force, Headquarters, 3d Corps Support Command (CONUS), SUBJECT: TY-96 Yearly Training Guidance, Des Moines, Iowa, March 1, 1995, 1.

[48] Clinton, "Reserve Callup for Joint Endeavor," Washington, D.C., December 8, 1995.

[49] George A. Fisher Jr., Press Briefing, "Mobilization of Army Plans," Washington, D.C., December 18, 1995.

[50] James M. Wright, Briefing, "Leaning Forward Logistics," undated.

[51] David W. McLaughlin Jr., After Action Report, "Lessons Learned From Operation Joint Endeavor," 21st TAACOM (CONUS Augmentation), Indianapolis, Indiana, November 3, 1996.

[52] Samuel L. Kindred, Memorandum for Commander, V Corps, Subject: Prioritization of Reserve Component Augmentation Unit, Wiesbaden, Germany, September 5, 1995.

[53] Headquarters, V Corps History Office, "Deployment to Wiesbaden for Operation Joint Endeavor," Heidelberg, Germany, March 1996, 3-4.

[54] Ibid., 9.

[55] Ibid.

[56] Nicholas J. Anderson, "Multinational Deployments in Operation Joint Endeavor," *Army Logistician*, November/December 1996, 21-23.

[57] George Strader, "Aviano's Peacekeeping Efforts Continue," Aviano Air Base *Vigileer*, February 28, 1997.

[58] Javier A. Rivera, interview, Aviano Air Base, Italy, December 8, 1996.

[59] Balthasar A. Gialcone, interview, Aviano Air Base, Italy, December 8, 1996.

[60] Gerald T. Evans, interview, 7th ARCOM Headquarters, Schwetzingen, Germany, December 10, 1996.

[61] Roger L. Brautigan, "Bosnia Callup and Deployment: Mobilization and Demobilization," Briefing at Senior Army Reserve Commanders Association (SARCA) winter meeting, Washington, D.C., February 16, 1997.

[62] Ibid.

[63] Thomas J. Bruner, interview, Washington, D.C., February 16, 1997.

[64] David J. Kaucheck, interview, Columbus, Ohio, May 13, 1997.

[65] James M. Wright, interview, Kaiserslautern, Germany, December 9, 1997.

[66] Wright, briefing, ibid.

[67] James W. Comstock, interview, Frankfurt, Germany, December 4, 1996.

[68] John T. Crowe, interview, Los Angeles, California, November 21, 1996.

[69] Comstock, ibid.

[70] William W. Crouch, "Update on the U.S. Army in Bosnia," Briefing to Association of the United States Army annual meeting, Washington, D.C., October 14, 1996.

[71] Comstock, ibid.

[72] Ibid.

[73] Kaucheck, ibid.

[74] Michael Maples, interview, Heidelberg, Germany, December 10, 1997.

[75] U.S. Army Europe and 7th Army, *From the Rhine to the Sava--A Force For Peace* (Offenbach, Germany: LaserSatz, 1997), 15.

[76] See "From Beginning to End," *Armed Forces Journal*, November 1996, 35, for more information about Brown and Root.

[77] Task Force 21, Briefing, Property Recovery Program, Kaposvar, Hungary, December 22, 1996.

[78] Wright, interview, ibid.

[79] Ibid.

[80] G. E. Willis, "The 'Covering Force' Heads for Bosnia," *Army Times*, October 21, 1996, 22.

[81] Maples, ibid.

[82] Ibid.

[83] 311th COSCOM, Command Briefing, Los Angeles, California, April 30, 1997.

[84] John J. Cusick and Donald C. Pipp, "In Search of Focused Logistics," *Army Logistician*, May/June 1997, 2-3.

[85] Wright, interview, ibid.

[86] See, for example, Max Baratz, "A Restructured Army Reserve," *Army 1996-97 Green Book*, October 1996, 97-107.

[87] Evans, ibid.

[88] See, for example, Nicolas Herrera, "Up Front: DLA in Bosnia," *Army Logistician*, November/December 1996, 29-33, for details on DLA's contributions.

[89] See Clyde E. James, interview with Richard Thurston, Wiesbaden Air Base, Germany, May 14, 1996, for details. AMC provided technician level liaisons at Wiesbaden with the Army's Missile Command (MICOM), Communications Command (CECOM), Tank and Automotive Command (TACOM), Aviation and Troop Command (ATCOM), and Armament Chemical Munitions Activity (ACMA).

[90] See for example, Bruner, Memorandum for MG Petrosky, Subject: Waiver-Giessen, Wiesbaden, Germany, June 26, 1996; and Daniel J. Petrosky, Memorandum for Commander,

Third Corps Support Command, Subject: Request for Exception to REFRAD Policy, Heidelberg, Germany, July 11, 1996.

[91] Pagonis, 207.

[92] For a brief explanation on SARSS-O's employment in Bosnia, see "SARSS-O Extended to Bosnia," *Army Logistician*, November/December 1996, 44.

[93] Lionel A. Galway and Christopher A. Hanks, *Data Quality Problems in Army Logistics* (Santa Monica, California: Rand, 1996), 54.

[94] Jason Sherman, "Welcome to the Future," *Armed Forces Journal*, May 1997, 12.

[95] John G. Roos, "Peacekeeping's Brighter Side," *Armed Forces Journal*, November 1996, 32-34.

[96] George A. Joulwan, "Active and Reserve Forces: One Team—One Mission, *The Officer*, September 1996, 15.

[97] Ibid, 17. Also see Joulwan, "Reserve Component Campaign Plan," *The Officer*, October 1996, 23-32.

[98] Cusick and Pipp, ibid., explain more fully the interface of logistics at The Joint Staff level.

[99] Douglas A. MacGregor, *Breaking the Phalanx: A New Design for Landpower in the 21st Century* (Westport, Connecticut: Greenwood Publishing Group, 1997). This is perhaps the most widely read book in the Army in the past five years. Obviously, to contend that division and corps commanders and their staffs retire from the Army's rolls is, to put it mildly, a controversial topic.

[100] Wright, letter to commanders and staff, Kaiserslautern, Germany, December 5, 1996.

[101] Emory S. Wilson, interview, Washington, D.C., May 17, 1997.

[102] Ibid.

[103] United States Army Training and Doctrine Command, "FDU 96-2: Briefing Package for Field Staffing," Ft. Monroe, Virginia, April 22, 1997.

[104] Ibid.

[105] Office of the Chief, Army Reserve, "Army Reserve Strategic Communications Briefing," Washington, D.C., April 28, 1997.

[106] Ibid.

[107] William J. Clinton, *A National Security Strategy of Engagement and Enlargement* (Washington, D.C.: Government Printing Office, February 1996), iv.
uality Problems in Army Logistics. Santa Monica, Calif.: Rand, 1996.