JOINT FORCE QUARTERLY

JFQ

Joint Training

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Summer 96

A PROFESSIONAL MILITARY JOURNAL

U.S. COAST GUARD

JFQ

A Word from the Chairman

In 1945, General Dwight D. Eisenhower, then chief of staff of the U.S. Army, pondered the bitter lessons of joint operations from World War II and the price paid in blood of parochialism in the services and a lack of joint doctrine. He argued that "separate ground, air, and sea warfare is gone forever." Such ideas, although deemed "revolutionary, dangerous, and unnecessary" during the organizational battles that raged after the war, resulted in the formation of the Department of Defense in 1947.

From the National Security Act of 1947 to the Goldwater-Nichols DOD Reorganization Act of 1986, we have traveled a long, hard road. Nonetheless, we have made considerable progress in acquiring, sustaining, and refining the capability to conduct joint and combined operations. Even in the Persian Gulf significant interservice problems emerged: fratricide, difficulties in intelligence diffusion, incompatible communication links, limited airlift and sealift capabilities, the development and dissemination of air tasking orders, and logistical problems. As in the past, however, we were able to resolve most of these and other issues during a lengthy period of preparation prior to the campaign. In the future, we cannot count on the factor of time to resolve joint concerns. We must be ready to execute a CINC's war plan with little or no notice.

Today we face some interesting paradoxes. On one hand the end of the Cold War enabled us to reduce forces and budgets by about 35 percent. On the other we have conducted some forty joint operations in recent years—to preserve the dignity of peoples in the face of savage tragedies, evacuate innocent citizens, crush illegal drug activities, and help failing states. The Armed Forces have performed superbly in every operation despite arduous demands on them and their families. In addition, a quantum leap in joint doctrine—with 63 publications completed and another 35 on the way—has improved joint operations and training exercises. As in the past, many of our best joint efforts have been a product of cooperation among artful commanders after an operation has begun. That cooperation must continue, but we must be more proactive in providing the fabric of jointness before an operation begins.

A second paradox involves strategic and budget realities. Today's force will compete with tomorrow's. We must continue to refine critical operational aspects of joint operations and sustain a high level of readiness. Training, exercises, education, and even quality of life are fundamental to day-to-day readiness. At the same time, for the future, we must also devote greater resources to force modernization to take advantage of new technologies and replace aging equipment. We need readiness and modernization to successfully accomplish missions at minimal cost of lives.

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The cover features *USS Kentucky* (U.S. Navy/F.E. Zip Zimmerman); the inset photos (from top) show Marine opposing force during CJTFEX '96 (U.S. Marine Corps/C.D. Clark), aviators examining Vickers machine gun in France, 1918 (U.S. Army Military History Institute), Bradley fighting vehicle (U.S. Army), military police posted in front of Haitian parliament building (2d Marine Division/M.T. Huff), and F–16s aloft (Combat Camera/Brett Snow).

The front inside cover incorporates (clockwise, from top right) self-propelled gun and tactical vehicles being loaded on C–17 transport (McDonnell Douglas), Coast Guard cutter *Northland* repatriating Haitians (U.S. Air Force/Val Gempis), preparing for air drop (U.S. Air Force/Ken Bergmann), Marine M–1 tank rolling off landing craft (Military Photography/Greg Stewart), and Blackhawk helicopter lifting off *USS George Washington* (U.S. Navy/Gregg Snaza).

The table of contents photos show (from top) Indonesian peacekeeper providing security at political rally in Cambodia (United Nations/J. Issac), C–17 transport (U.S. Air Force/David McLeod), SEALs and Thai special forces during Cobra Gold '95 (Joint Combat Camera/Tony Lambert), Special Forces aboard *USS George Washington* for fleet exercise 2–94 (U.S. Navy/Gregg Snaza), and *Fill 'er Up* by James F. Berge (U.S. Air Force Art Collection).

The back inside cover captures IFOR 155mm self-propelled howitzer at McGill Base, Grid 171726, in Bosnia and Herzegovina (55th Signal Company/Jon E. Long).

The back cover encompasses landing craft underway off Rota, Spain (U.S. Navy/Stephen H. Kless), M–1 tank (U.S. Marine Corps), naval battle group (U.S. Navy), and F–16s at Luke Air Force Base, Arizona (U.S. Air Force/Val Gempis).

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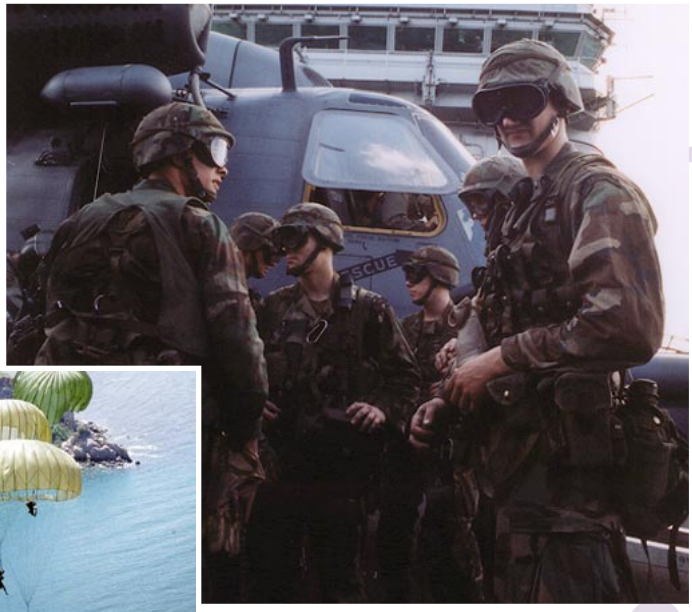

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Hans Binnendijk
Director, Institute for National Strategic Studies
Editor-in-Chief

Patrick M. Cronin
Acting Deputy Director for Strategy and Policy Analysis, Institute for National Strategic Studies
Consulting Editor

Robert A. Silano
Editor

Martin J. Peters, Jr.
Production Coordinator

Calvin B. Kelley
Copy Editor

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Editor
Joint Force Quarterly
ATTN: NDU–NSS–JFQ
300 Fifth Avenue (Bldg. 62)
Fort Lesley J. McNair
Washington, D.C. 20319–5066

Telephone: (202) 685–4220 / DSN 325–4220
FAX: (202) 685–4219 / DSN 325–4219

E-Mail: JFQ1@ndu.edu

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August 1996

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GEN John M. Shalikashvili, USA
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A PROFESSIONAL MILITARY JOURNAL

(*continued from page 1*)

Historically, great leaders such as Eisenhower and Marshall have seen improved jointness as a means of dealing with similar paradoxes. The information age has magnified this reality. For example, many improved C^4I systems have no single-service parent. Moreover, information age technologies offer the possibility for weapons and other systems that will meet the requirements of all or many of the services and warfighting CINCs.

we have come a long way since the Goldwater-Nichols Act, but we have some distance to go

Clearly efforts to achieve a common direction and high levels of jointness must continue. Today we are institutionalizing the spirit of that endeavor. And that is the process we have begun over the past several years by developing joint doctrine, strengthening joint training and exercises, embedding jointness into force planning and materiel development processes, adding new facilities such as the Joint Warfighting Center, and continuing to refine interaction with warfighting CINCs. We have come a long way since the Goldwater-Nichols Act, but we have some distance to go.

Scripture tells us that "Where there is no vision, the people perish," and that is just as true today. A joint, long-term vision—shared by all services and unified CINCs—is essential if we are to retain a viable national security into the uncertain environment of the next century. We had long-range assessments in the past, but out of necessity we designed and sized forces primarily for one worst case, threat-based scenario: global war with the Soviet Union. Yet with the massive changes that followed the end of the Cold War we found it necessary to focus almost exclusively on short- and mid-range modifications to Cold War force structure. This process resulted in the Base Force and the Bottom-Up Review. The latter provided a "sizing scenario" for designing force structure absent a clear threat.

Today, for example, we are sized to meet two major regional contingencies (MRC). These scenarios are only mid-term markers that helped build, manage, and sustain our forces. Today, it is clear that we need a long-term vision to focus our efforts. The Commission on Roles and Missions of the Armed Forces agreed and recommended that JCS "propose a unified vision for joint operations . . . to guide force and materiel development, integrate support to CINCs, improve joint doc-

trine development, develop and monitor joint readiness standards, and increase emphasis on joint training." Thus, to remain dominant in the future we will need a mark on the wall to help us develop the requisite warfighting capabilities to deter or defeat any threat that emerges.

JV 2010 is that mark on the wall. It is the conceptual template for how the Armed Forces will channel the vitality and innovation of our people and leverage technological opportunities to achieve new levels of effectiveness in joint warfighting into the 21st century. It will help us leverage our strengths, especially quality people and technology, to create a force with capabilities to dominate any battlefield across a full spectrum of threats. *JV 2010* will also provide a measure of merit for evaluating innovations which have the potential to support our vision.

JV 2010 is the result of two years of thought and hard work by the CINCs, services, and Joint Staff. We have a long history of multiservice initiatives, interservice rivalries, and contention over roles and missions. This is not all bad. Healthy competition over ideas is fundamental to the course of innovation. But the collegiate, joint effort represented in *JV 2010* bodes well for service cooperation within a framework of joint warfighting concepts.

_JV 2010_ will enable us to further refine procedures for assessing and developing joint capabilities

JV 2010 is not so much about technology as it is focused on developing new operational capabilities. The new capabilities embrace every aspect of warfighting including quality people, leading edge technology, integrated training and doctrine, superior equipment and weapons systems, and more.

Three important benefits will emerge from *JV 2010* and the process that flows from it.

First, it will foster continued cooperation among all DOD components in working toward a common set of joint warfighting capabilities in two critical ways. It will serve as a litmus test for evaluating future service and CINC initiatives. The services will be the prime movers in over-the-horizon thinking and restructuring, and CINCs will be the prime movers in testing and validating concepts and technologies. *JV 2010* will also provide a benchmark for evaluating changes into the 21st century. It will help us harness the best efforts and keep us focused on joint capabilities, not business as usual or divergent priorities.

Once implemented, *JV 2010* will also enable us to further refine procedures for assessing and developing joint capabilities. It will provide a bridge between such critical efforts as the Joint Requirements Oversight Council (JROC), the Joint Warfighting Capabilities Assessments (JWCA), and the upcoming Quadrennial Defense Review by offering a common benchmark against which to measure all options under consideration. While these individual processes currently bring service perspectives into joint focus, *JV 2010* will integrate the efforts of all processes. The result will be more efficient use of resources and a better return on our investment.

The second benefit is that *JV 2010* will enable us to leverage every opportunity that presents itself during this period of rapid change. Knowing the types of capabilities we desire, it will permit us to transform emerging technologies into advantages that support our vision. Today, for example, we are in the midst of a revolution in military affairs. Rapid technological changes must and will force changes in organization, training, and operations. If there is one certainty, it is that the revolution will cause us to either maintain our edge or lose it. *JV 2010* is designed to help us retain it.

The final benefit of *JV 2010* is that it will allow us to achieve higher levels of jointness. We will always fight jointly, and despite tremendous progress over the last several years we must continuously refine our warfighting capabilities.

Various joint efforts are underway, such as enhancing the joint lessons learned process and developing joint doctrine and training. These efforts will continue and I expect that *JV 2010* and the plans that result from it will accelerate them. *JV 2010* will also bring a greater level of jointness to every facet of warfighting by ensuring that current and future development efforts contribute to desired joint capabilities. We will capitalize on the experience of the Joint Warfighting Center as it plays a central role in implementing *JV 2010*.

We now enjoy the advantage of having the world's finest military. That fact is not chiseled in stone. Maintaining our status as a preeminent power will demand work, particularly at a time of unprecedented change. We will have to be united and flexible as we move into the next century.

JV 2010 will help us negotiate the changes ahead, leverage new opportunities, and maintain our standing as the finest fighting force in the world, capable of deterring war or winning a conflict if called upon to fight. We will maintain a force with the capability to deploy to a theater on short notice, ready to fight and win as a joint team.

JOHN M. SHALIKASHVILI
Chairman
of the Joint Chiefs of Staff

Letters . . .

ROTATING ASHORE

To the Editor—In "A Word from the Chairman" (*JFQ*, Winter 95–96), GEN Shalikashvili dealt mainly with what should and should not be done with defense spending. While I agree with most of his points on base realignment, acquisition reform, and base closures, I disagree with the notion of privatizing and outsourcing at shore-based commands. Shore duty is typically viewed by those of us who serve in the Navy as a break between sea duty assignments. But when civilians replace sailors in these commands you cut the number of billets available for shore duty. Most sailors look forward to rotating ashore, regarding such assignments as incentives for the time that they spend at sea. Taking that away is demoralizing. I also find it wasteful to hire civilians for jobs that sailors can do just as well and at less cost. Sailors already collect a paycheck. Why not capitalize on that?

—STG2 (SW) Michael V. Chiazza, USN
Master at Arms Division
Naval Education and Training Center

ENGAGEMENT FORCES

To the Editor—In "New Forces for Engagement Policy" (*JFQ*, Winter 95–96), William Mendel made an excellent case for organizing a joint engagement command (JEC) to tackle operations other than war (OOTW). He recommended a functional, CONUS-based standing joint task force (JTF) for worldwide use. Another way to meet this challenge is with regional policy and forces. OOTW missions are often regional versus functional, with solutions peculiar to a CINC's AOR.

Standing JTFs in peacetime are few and normally reserved for special missions. However, some theater exercise programs train regionally apportioned forces for missions, including OOTW, predicted for their AOR. Predesignated headquarters within the PACOM AOR (namely, I Corps, III MEF, Seventh Fleet) are trained as JTF commanders under CINCPAC. Joint forces are trained and routinely employed in PACOM, gaining valuable experience at all levels.

CINCPAC developed a decision process for selecting the best suited JTF commander for a particular mission based on various factors, some of which are hard to forecast prior to the event. A deployable augmentation cell from the CINCPAC staff and components, routinely exercised, is sent to a JTF commander and assures that it has the joint expertise to accomplish the mission.

A new CONUS-based organization which neither routinely works in the theater nor trains with theater forces may be unnecessary—and less effective. The current policy whereby regional CINCs source components to form JTFs/JECs when needed *works*.

—LTC Chris North, USA
EUSA Battlefield Coordination
Detachment, Korea

OR A JOINT CPO?

To the Editor—While serving as command master chief for Naval Special Warfare Group Two, I recommended *JFQ* to my chiefs' mess for awareness of a joint perspective in executing our tasks. For that reason I read the letter from SGM Traeger ("A Joint NCO?" *JFQ*, Autumn 95) with great interest. It hit home since much if not all of the focus on jointness involves matters of operational planning and execution. Personnel items—morale, welfare, personal recognition, education, and training—are largely ignored.

Simple nuisances in the context of one service culture can become significant obstacles for the soldiers, sailors, marines, and airmen who serve in joint billets or participate in joint exercises. This might involve disparities along service lines among members of a "joint team" when it comes to per diem rates or awards recommendations.

Dealing with such challenges is not uncommon for senior enlisted personnel who daily face education, PERSTEMPO, and retention problems. Such issues do not go away in the joint world; they become more complex. Though Traeger touched on "the friction at the seams of joint training and operations," he might have asked: How well are we managing the intricate relationships among the members of different services with their unique cultures and how well are they working, living, learning, and executing together? The answer today is "okay, but." That is unacceptable. We can do better. I support the sergeant major's recommendation. The Chairman should have a senior NCO or CPO on his joint leadership team.

—GMCM Brian L. Berrey, USN (Ret.)
Waldorf, Maryland

SORRY MEIN HERR

To the Editor—Carl von Clausewitz's middle name is Philipp Gottlieb, not Maria as shown in the caption under his likeness which accompanied my article (*JFQ*, Winter 95–96). For the record, Maria was his wife's name. This confusion has been very pervasive. Even Sir Michael Howard admits having gotten it wrong as did reference works like the *Harper Encyclopedia of Military Biography.*

—MAJ Antulio J. Echevarria II, USA
Chief, Battalion/Brigade Doctrine
3/16 Cavalry

THE LAST WORD

To the Editor—The two letters from John Ray Skates and Barton J. Bernstein in your last issue, which appeared in response to my article, "Operation Downfall: The Devil Was in the Details" (see *JFQ*, Autumn 95), prompt me to make one final effort to make my case.

The assertion by Professor Skates that he was only attempting "to determine the casualties that were projected by the military planners" contradicts statements in the preface, summation, and subtitle of his book. Moreover, the remarkably low number of casualties which he projected from *larger* estimates in contemporarious military sources is central to his thesis that a ground invasion would not have been so bad after all: a contention that he now seems to hope readers will not notice.

While Skates had access to much of the available evidence, he seems to understand little of it. As a result, his book reveals innumerable misconceptions which directly or indirectly support his claim that casualties would have been comparatively low and that using the atomic bomb was unnecessary. These include an overly literal interpretation of what the Japanese meant by *beach* defenses, misreading the increasing effectiveness of enemy anti-tank doctrine, and failing to realize that weak centralized control of Japanese artillery was irrelevant when firing from dug-in, camouflaged positions on pre-ranged, congested landing sites and avenues of approach. Also, he serious mishandles the question of the Kamikazes.

I am delighted, however, that Professor Bernstein found my criticism of the Skates book "spirited," but unfortunately he and I differ on the historical record. Regarding President Truman's letter to Air Force historian James Cate, though Truman bypassed his staff more frequently than any other chief executive in this century, it was not unusual for him to allow his staff read and comment on hastily penned communications. In the original draft of the Cate letter, Truman recounted only the "minimum" number of expected casualties that George Marshall gave him—which happened to be 250,000 men—and made no reference to a maximum. Secretary Stimson, however, had publicly cited a maximum, stating that he was advised that the figures "might" exceed one million.

Presidential aids Ken Heckler and David Lloyd thought that providing both maximum and minimums figure was crucial, and among other things, raised the Stimson account. That Truman was reminded by these two young staffers—who had not attended any meeting with Marshall—is not, as

Bernstein proposes, something that proves or disproves what the President discussed with Marshall in private. Neither does it alter the fact that Truman personally approved the addition to his letter, which credited Marshall as the source, and used these figures and attribution in his memoirs as well.

As for Bernstein's contention that "Stimson's own published postwar claim is unsupported by reliable pre-Hiroshima sources that any scholar has unearthed," perhaps he should consult *Truman and the Hiroshima Cult* by Robert P. Newman. It seems that during this period of intense scrutiny of the casualty issue and the wider implications of dropping the bomb, the Secretary of War's own staff reported a figure of 1,000,000 which meets Bernstein's search for a pre-Hiroshima source.

It is also important that Marshall never refuted Truman's statement, even obliquely. What he said was that an invasion would have been "terribly bitter and frightfully expensive in lives and treasure." He also stated that claims the war would have ended soon, even without using atomic weapons "were rather silly," maintaining that "it was quite necessary to drop the bomb to shorten the war," going on to add that "I think it was very wise to use it."

—D.M. Giangreco
Military Review
U.S. Army Command and
General Staff College

A MATTER OF HONOR

To the Editor—As the Army reengineers its doctrine on leadership, one underlying objective is to adopt a set of values. In his article on "Leadership, Community, and Virtue" (*JFQ*, Spring 96), James Toner provides a timely impetus for considering candidate values. And yet I was troubled by the structure of his argument with its mantra that "the highest virtue of a soldier . . . is honor." The problem, as he rightly indicates, is that honor can be easily distorted and turned into a shield for disgracefully selfish conduct. What seems odd is that Toner clearly points to the superiority of integrity over all other virtues. To me, integrity is the fullest expression of those essential qualities that make up a person of character.

Integrity is the virtue of honor selflessly applied and devotion to professional competence. It goes beyond wisdom and good judgment because it brings forth right action which, in turn, is the very heart of duty. Whatever one thinks of Robert E. Lee's personal behavior, his statement that "Duty is the sublimest word in the English language," reflects a soldier's traditional grasp of that concept as it existed prior to World War II.

One facet of duty is perhaps rather stiffly, albeit well captured in Worth's battalion orders issued at West Point in 1820: ". . . an officer on duty knows no one. To be partial is to dishonor both himself and the object of his ill-advised favor." Here integrity of person and the fulfillment of lawful orders are united to transcends mere honor. Honorable conduct is fundamental to integrity, but honor has a distinctly personal quality, so much so that, without an admixture of selflessness, it is easily distorted. Integrity, as Toner ably, if indirectly notes, is a better basis for conduct.

—Douglas V. Johnson II
Strategic Studies Institute
U.S. Army War College

NONLINEAR WORLD

To the Editor—Having read arguments on the disestablishment of a separate Air Force in the pages of *JFQ* and elsewhere, I find many of them, though valid, are linear and reductionist. Protagonists assume that adding enough details—on roles, missions, capabilities, et al.—will carry the day. The Air Force will then survive or be eliminated.

The modern world is enormously complex and it is also nonlinear. International security is at least that complex, and since the demise of the bipolar Cold War it is becoming more so. Linear, reductionist argumentation can neither adequately describe nor prescribe such a world. Those who disagree over the continued existence of the Air Force in such an environment should consider the nature of both the defense establishment and the external world in which it exists and must interact. Let me to cite two illustrations, one negative and one positive.

On the negative side, there is the field of "cutback management" that addresses reducing or eliminating organizational structure. Unfortunately, administrators and policymakers who initiate this process often fail to take into account the complexity and nonlinearity found in the real world. The result is that in attempting to "unbuild" a major organization such as the Air Force one finds that things do not tend to come apart in the same way they were put together.

On the positive side, the simple existence of a separate Air Force can yield real benefits in the complex world of international security. Thus in coping with complex environments (such as foreign affairs), the regulating system (or security structure) must be similarly complex. Structural complexity of human systems can be enhanced by a variety of people, viewpoints, and experiences (educational and operational). One can't assume that complexity is enhanced just by the existence of many entities within a larger structure. That is, the existence of a navy and marine corps in one compartment, an army in another, and an air force in yet another doesn't in itself add to complexity in a defense establishment. Linear addition does not enhance complexity. Elements must be linked both horizontally and vertically. Individual services must be made to interact and perform jointly.

There are several bottom lines. First, a separate Department of the Air Force has existed for half a century. Much of the defense establishment today is predicated on that fact. Any effort to disestablish the Air Force may not be as clearly delineated as some might believe. Second, any attempt to do so may have major unforeseen consequences. Sadly, in the nonlinear world events are generally not reversible. Thus we may create an "oops" that cannot be undone. Third, though messy and perhaps duplicative, the existing defense establishment may by its complexity be more survivable and adaptive to real world events.

—Maj Francis X. Neumann, Jr.,
USAF (Ret.)
Troy, Illinois

put your pen to paper . . .

JFQ

welcomes your letters and comments

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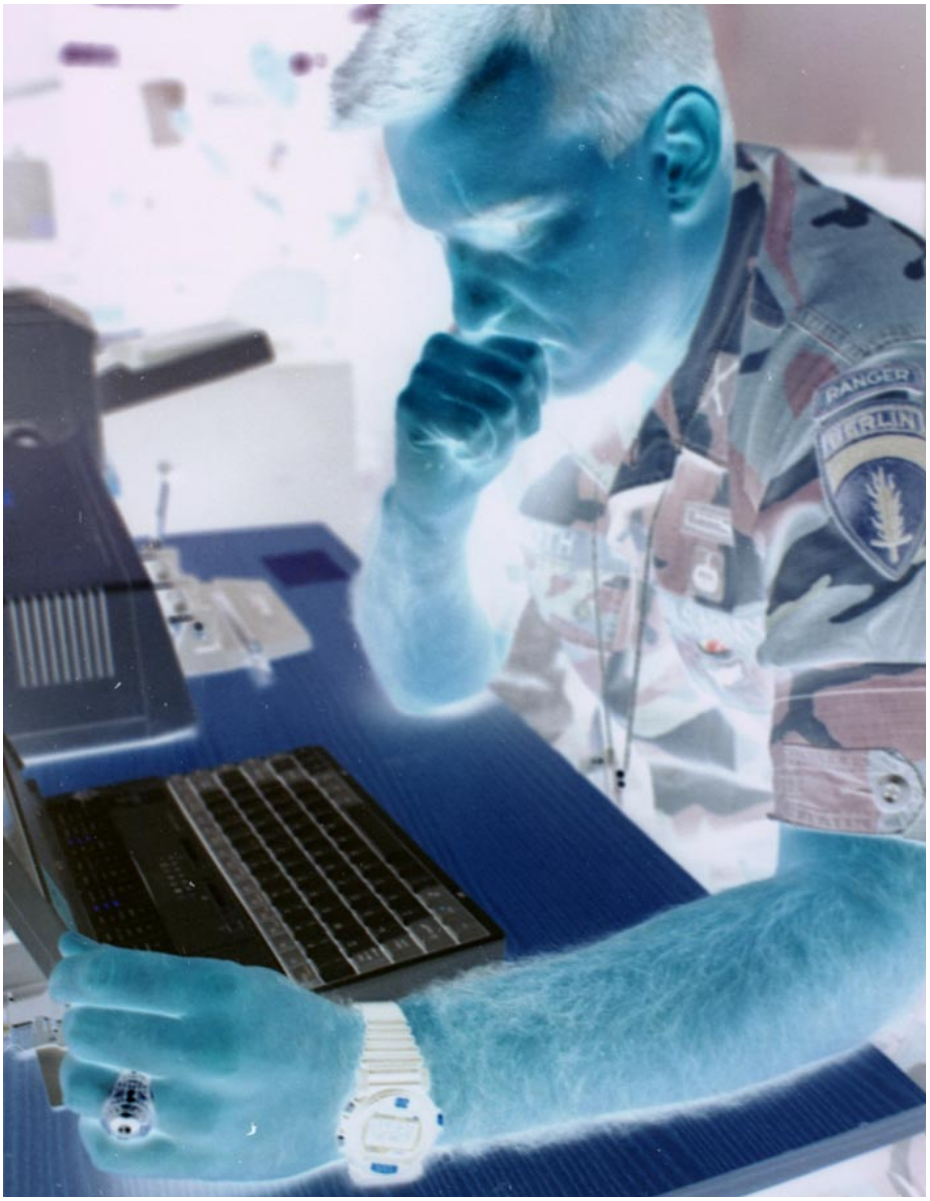
WARRIORS of the 13th Generation

By LEWIS WARE

The article by Lieutenant General Jay W. Kelley, USAF, the commander of Air University, on "Brilliant Warriors" which appeared in the last issue of *JFQ* offered various thought-provoking ideas on professional military education (PME). Since the author sought to stimulate debate, let me accept the challenge.

Kelley assumes that PME should teach students to recognize strategic environments of the next century as "alternate futures." They "are descriptive," he says, "not predictive or normative." Thus from the outset he begs the question of the reality that such futures claim to represent and in which officers will be expected to operate. Even if one succeeds in grasping the general shape of "alternate futures" for objective scrutiny, nowhere does he spell out how to validate their concrete nature. One is asked, in fact, to view alternate futures in terms of "planning stories or scenarios." Thus it may be hard to resist predicating the future on subjective predilections.



U.S. Air Force (Ken Wright)

Lewis Ware is on the faculty of the Air Command and Staff College.

If alternate futures are nothing more than plausible constructs of reality, Kelley nevertheless encourages applying a rigorously objective method in creating them. The system chosen to build the future uses the same inferential reasoning that he asserts is sufficient in order to know the past. As proof he claims that a proportional relationship exists between creating alternate futures and commercial profitability. Thus, for a business to neglect shaping the future environment in which it expects to sell its products might entail a loss of its market share to another business that does. By the same token, one is counseled, a military that does not generate alternate futures may lose the nation it serves.

Equating the loss of a market to the loss of national security is inappropriate. The military does not make a product whose profitability determines the degree to which national survival may be assured. On the contrary, it is one of many instruments whose power ensures the execution of policy on which national security is based, security itself being the result of many complex social, political, economic, and military interactions.

The marketplace comparison is perhaps more apt when one service is bested by another for a share of the defense budget. But even here the survival of one service vis-à-vis another, to say nothing of a nation as a whole, is never in doubt. Still it is not surprising that Kelley frames our national survival in such terms since services are expected to make the ultimate sacrifice to defend the Nation and undercapitalized militaries are presumed to be weak.

Though conclusions about the future can be drawn from present evidence, to make similar inferences from the past may ignore the objectivity of established facts. Alternate futures dismiss the past by absolving us from tediously analyzing empirical data, enabling us to make theoretical quick fixes on reality. The need to infer the nature of both the past and future is an occupational hazard of the military that flows invariably from pressure to act decisively. For this reason, the process proposed can rapidly become an exercise in expediency if driven by concern that any action is preferable to misdirected action or no action at all.

This perspective leads to other pitfalls. The need to pick the *right* future from the profusion available encourages Kelley to suggest that technology will provide the instrument of analysis to validate the correct choice. From here, it is but a single step to define the sole purpose of education as helping the military select the proper technologies to evaluate alternate futures. But more than a simple instrument of analysis, technology will itself ultimately become, to his mind, the facilitator by which the next generation of officers will be creatively nurtured and educated. Hence it follows that "if we can envision alternate futures, we can use technology to create them as virtual realities." Similarly, because officers have been exposed to the high potential of technology during training, they will expect the same quality of exposure in education. Therefore traditional approaches to education will no longer do.

If alternate futures are manifested as virtual realities and technology is key to gaining access to those realities, PME is doing its job correctly when it furnishes the reasons for students to make informed choices from the virtual realities they may confront. To quote Kelley, "PME must come at the right time, offer the right experience, point to the right information, provide a nearly risk-free laboratory to innovate, apply technology to unusual conditions, and reach conclusions that can [be] tested." The rationale for exposing students to such a technologically-driven system is to produce officers with appropriate behavioral responses at the lowest possible cost. From his perspective, only an experience-based program can provide the optimal environment for this process.

Be this as it may, to insist that experience-based education contains little risk is to place unwarranted faith in the value-free nature of technology and in the capacity of machines to solve all intellectual problems with minimum effort and maximum efficiency. Furthermore, Kelley feels strongly that appropriate behavior ought to be measured against a moral as well as an intellectual standard. Thus his interest in experience-based education has the added attraction of reestablishing the "confident assurance of virtue, right conduct, and fidelity to core values." In this way PME is sensitive to problems of a larger society by recreating an environment in which institutional civics with its associated standard of morality may be inculcated and a professional ethos restored. As he says, a military that loses public support may be, like a faltering bureaucracy, in more trouble than a military which loses a battle.

This concern over core values is laudatory. One must ask, nonetheless, whether such remediation is really possible given the vast range of experiences that PME curricula intend to tailor technologically in addressing the needs of individual students. The problem is that the requirement to meet student expectations will almost certainly guarantee that students remain the subject, not the object, of a process designed for their improvement. Thus they may ultimately exercise a deciding influence on the structure of their education according to a principle of personal utility rather than intellectual or moral rigor. It can be argued that since education has no output except students, undue deference to the will of students may, in the final analysis, exact a price in entitlements that PME can little afford. Once granted, entitlements may embolden students to make further demands on the educational system in the name of individual progress. As Carl Builder pointed out in his recent book entitled *Icarus Syndrome*, the military has lost a sense of its collective mission, leaving a vacuum that the careerism of individual officers has promptly filled. It would be tragic indeed if suggestions made by Kelley to make PME more meaningful to students ultimately encourages this vexing trend.

That could conceivably be the case if the PME system which he envisions is decentralized, organized around short courses of a practical nature, and conducted throughout an officer's career in the form of continuing education. The chance for students to attend a resident

college dedicated to a synoptic vision of the educational process rather than specific and discrete student needs would decrease proportionately and, also, any possibility that students would be personally counselled by mentors in the intellectual values that Kelley wants PME to inculcate. Thus the essence of learning by observation, example, and personal interaction with leaders will no longer be available. From there it is but a short step to the compensatory belief that informational technology will replace the mentor in the same way one is told to expect that it will create the virtual reality of alternate futures. That the system is envisaged, under these conditions, to furnish an environment of high innovative potential capable of offering intellectual and moral guidance in which the educator is more, not less important, seems highly improbable.

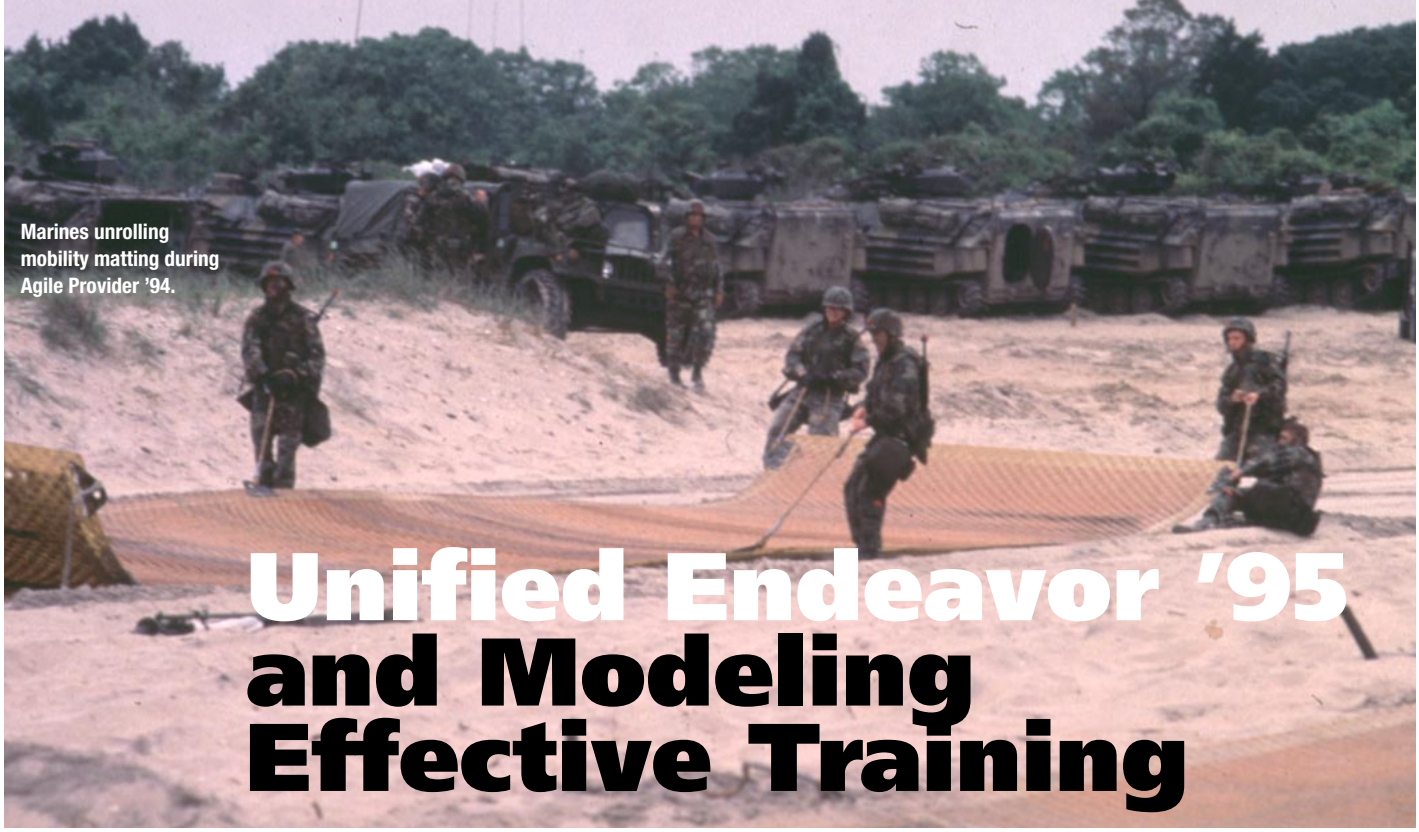
The ideas in "Brilliant Warriors" attempt to respond to the certainty that the Armed Forces will decrease in size while conducting a wider range of both traditional and nontraditional roles. Equally certain is that the military will carry out these missions in coalitions and must find the most advantageous way to more fully understand their partners. Kelley feels that a recourse to the study of human motivation alone is needed to perfect interpersonal skills. While it is important to know that certain signals have broad social meanings which can impede communication, the suggestion that the antidote may be found in studying the psychology of cross-cultural relations is misplaced. One may tend to forget that studying culture as social behavior is, after all, only a small part of a constellation of meaning when compared to the greater value obtained from studying the historical evolution of national values and leadership.

I do not disagree that Kelley's preference for the behavioral, experiential, and technological in education may produce "smart, adept, agile, and savvy" professionals. These warriors certainly will be better equipped to exercise the quick reflexes of decision-making that greater familiarity with virtual reality and the wargames modelled on it can sharpen. But will experience-based education produce the desired brilliant warriors? So long as the purpose of PME is to encourage students to behave in a consistent moral and intellectual manner according to functions determined by alternate future technology alone and student demands on the educational system, the chances of producing "brilliant" officers are slim.

The lack of critical thinking decried in Kelley's article cannot be remedied by more interest in the future at the expense of less interest in the past. Nor will critical thinking be encouraged by better and more sophisticated gaming. The result will be officers who are not brilliant but facile, who are more quick-minded but whose intelligence lacks any depth because their ideas are devoid of real content. In losing their point of reference to the past, they will never grasp the notion that critical thinking is both a process by which the evolving social and historical contexts of ideas are comprehended and a matrix in which the quality of new ideas is judged. How to make conceptual interconnections is exactly what studying Clausewitz, Mahan, and the great campaigns of military history can teach brilliant warriors. To eliminate a learning environment in which critical attitudes are formed by great books in favor of technology of dubious educational value will yield results which are ambiguous at best. If one accepts the PME recommendations proposed by Kelley, both the individual forms and the signatures of concepts may be lost in the mass of undifferentiated data that information technology demands that one absorb and manipulate. And this may occur simply because the services have not prepared teachers as competent mentors and in those academic skills which are necessary to help students make this very fundamental distinction.

I propose that PME be designed with fewer technological schemes and more emphasis on human capital. At the senior and intermediate levels of Air Force education, academic preparation and experience to act as mentors are not yet given the full attention which they deserve as criteria for faculty selection. Without a military career specialty for academic personnel, a PME institution is devalued. When continuity and collective wisdom—essential to the health of such an institution—are violated by frequently assigning instructors to improve their promotion profiles, the standing of the PME system is diminished. When the inability of the personnel system to identify and assign competent officers to faculty positions in a prompt way is sometimes excused as administratively unfeasible, a college suffers. All too often such problems result in temporary technological fixes to long-term issues with the vain certainty that, by so doing, a virtue has been made out of the inconsistencies in military culture. Sadly that conviction lingers beneath the approach to the problem of PME found in "Brilliant Warriors." JFQ

JFQ welcomes your letters and comments. Write or FAX your correspondence to (202) 685–4219/DSN 325–4219, or E-Mail to JFQ1@ndu.edu



Marines unrolling mobility matting during Agile Provider '94.

U.S. Navy (John Luckenbaugh)

Unified Endeavor '95 and Modeling Effective Training

By RALPH W. PASSARELLI *and* FRANK E. SCHWAMB

Under the unified command plan, U.S. Atlantic Command (ACOM) is responsible for the joint training of assigned forces in the continental United States. Accordingly, it conducts training to prepare joint task force (JTF) commanders and staffs for joint operations. Unified Endeavor '95 (UE '95) was the first in a series of training exercises held in this program. ACOM viewed it as an opportunity to learn what works for JTF staff training and what needs improvement. This article describes the training program and the results of an evaluation of UE '95 by the authors.

Figure 1: ACOM JTF Commander and Staff Training

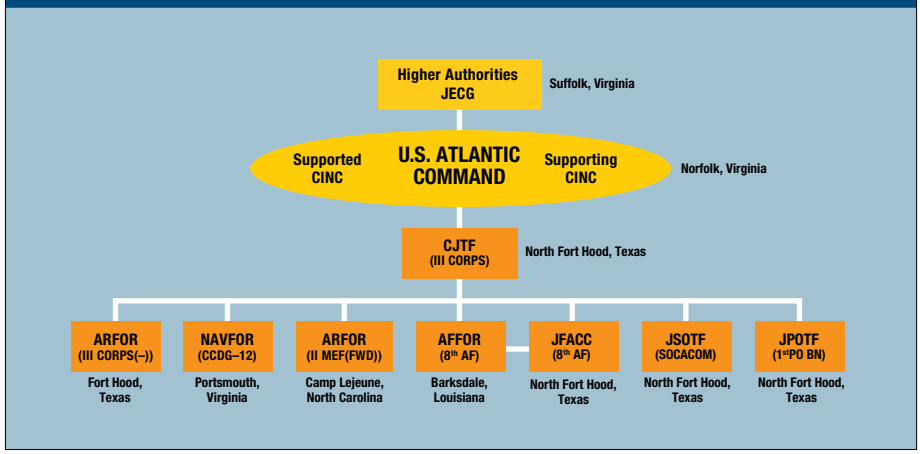
Ralph W. Passarelli and Frank E. Schwamb are both field representatives of the Center for Naval Analysis affiliated with U.S. Atlantic Command and U.S. Pacific Command, respectively.

Program Summary

JTF training is conducted in three phases (see figure 1). The first consists of five days of seminars held in three parts. Phase IA consists of three days dealing with the roles and organization of JTF headquarters, staff procedures, joint doctrine, and joint tactics, techniques, and procedures (JTTP). Phases IB and IC focus on joint planning and operational procedures, respectively. They are designed to help the staff prepare for phases II and III. Phase II is six days of joint planning that lead to development of an operations order (OPORD). During phase III both commander and staff execute the OPORD in a six-day simulation-driven exercise.

Phase IA is led by joint subject matter experts drawn from ACOM directorates. Phases II and III require more support. For these, ACOM stands up a joint task force training team (JTT) and joint exercise control group (JECG). When ACOM plays the role of the supported command, a CINC crisis action team (CAT), an operations planning group (OPG), and an ACOM deployable joint task force augmentation cell (DJTFAC) also are activated. JTT (with some 40 subject matter experts) and a senior mentor (retired flag/general officer) offer interactive instruction and feedback to exercise participants throughout both phases. A joint exercise control group (150 people) guides the entire process and ensures that the training remains focused on its objectives. CAT and OPG support CINC play. DJTFAC (14 individuals) augments a JTF commander's staff.

Figure 2: Command Structure and Locations, UE '95



To reduce costs, distributed interactive simulation (DIS) technology is utilized to produce a realistic environment for tactical activity in phase III. Realism is enhanced by actual command, control, communications, computer, and intelligence (C^4I) systems, a thinking opposition force, and role playing to simulate the Joint Staff, Department of State, and governmental agencies. The costs of moving actual units are avoided by computers which simulate movement and interaction. Moreover, separating staff training and unit/platform joint field training makes both more efficient. Joint staff training is freed of field exercise restrictions (such as safety and range requirements). Units/platforms can schedule joint field training without staff training being driven by the scenario. Simulation-supported joint staff training has replaced joint field exercise staff training (the Ocean Venture and Agile Provider series) at ACOM because it provides better JTF headquarters training at less cost.

realism is enhanced by C^4I systems, a thinking opposition force, and role playing

To structure and further enhance JTF staff training, ACOM is developing a Joint Training Analysis and Simulation Center (JTASC) with facilities, systems infrastructure, communications, simulations, technical support, analytical support, and control mechanisms for joint training as well as operational rehearsals.

ACOM is also developing a JTF headquarters mission training publication (MTP) that will serve as a descriptive, performance-oriented guide for commanders, staff sections, and personnel. A headquarters standing operating procedures (SOP) document is also being developed. It offers general guidance on responsibilities, organization, and practices for JTF headquarters sections and personnel.

JTASC, MTP, and SOP play important roles since there are no standing JTF headquarters organizations. Headquarters must be formed each time. The complex process of quickly standing up a JTF headquarters with as many as 1,000 men and women, of whom more than 60 percent could be augmentees, requires that we jointly train sufficient personnel and have written guidance.

Unified Endeavor '95

UE '95 was conducted in three phases spread over four months: IA, academic training seminars (January 9–11); IB/II, operations order development exercise (February 5–11); and IC/III, operations order execution exercise (April 18–24).

The scenario was cast in Southwest Asia and required the JTF commander to plan defense of an allied nation against an aggressive neighbor and, if necessary, to repel an invasion. U.S. Central Command (CENTCOM) was the supported command played by ACOM and a CENTCOM liaison cell. Commander III Corps commanded the exercise JTF.

During phase I, the JTF headquarters and component staff principals assembled at Fort Hood, Texas, for three days of academic training seminars led by ACOM subject matter experts.

Phase II was preceded by a day of academic training (phase IB) focused on joint planning and organization. This instruction helped the JTF planners prepare for six days of joint planning (phase II), which led to the UE '95 operations order.

Phase III was preceded by a day of academic training (phase IC) intended to help the 800 JTF staff members prepare for the execution phase. The JTF command structure and locations for phase III are shown in figure 2. During phase III, a JTF commander and his headquarters operated from North Fort Hood. The commander felt that conditions there more nearly replicated those a JTF might expect if deployed in a mounting crisis. The joint force air component commander (JFACC), joint special operations task force (JSOTF), and joint psychological operations task force (JPOTF) also operated from North Fort Hood, while the service component commanders operated from home stations.

At the end of UE '95 participants anonymously filled out questionnaires. ACOM used the responses to identify areas where the training concept or its implementation needs improvement. Of two hundred forms submitted, 84 percent felt that UE '95 provided both useful and effective JTF headquarters training for their position. The instruction was generally perceived as effective throughout the entire staff. However, this was the

Figure 3: UE '95 Compared with a Model for Effective Training

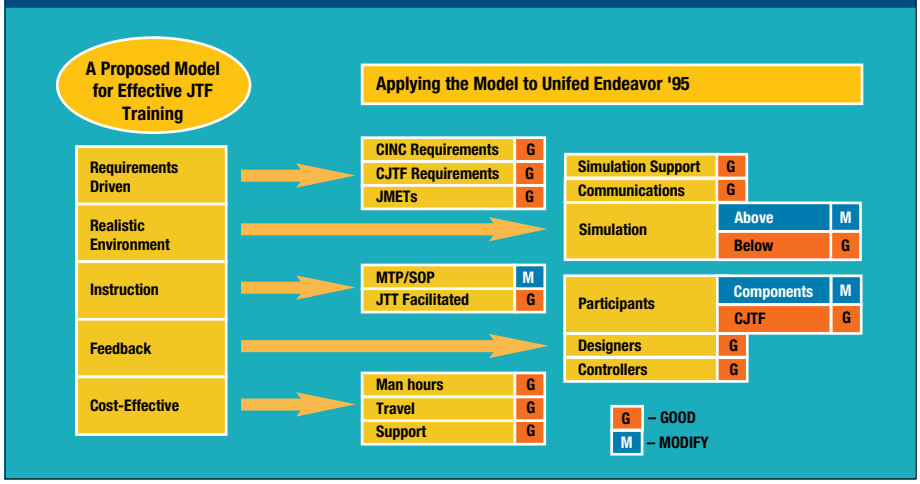
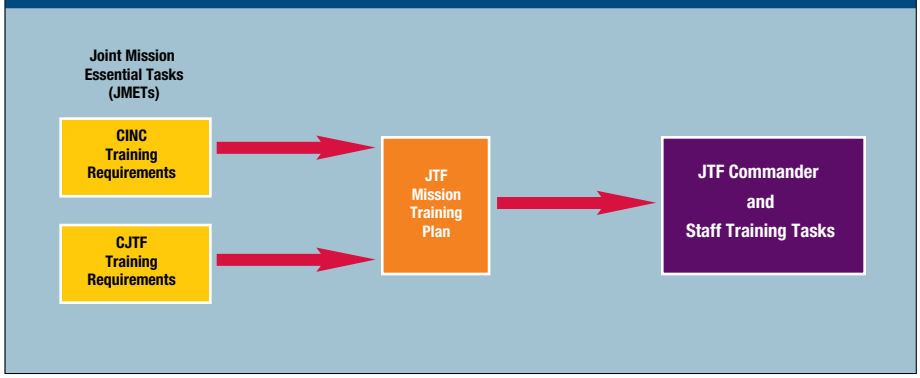


Figure 4: Translating Training Requirements into Tasks



first time many participants were exposed to joint training so they had little to compare it with.

Participants were asked to contrast UE '95 training with joint field exercise training if they had previously been in a field exercise at JTF headquarters level. Of the 40 who responded, 82 percent felt that UE '95 provided more effective JTF headquarters training than field exercises.

A Model

Effective training must be focused on specific requirements, occur in a realistic atmosphere, be supported with instruction and feedback, and be cost-effective. Using the model shown in figure 3, a comparison of the elements of UE '95 suggests five points.

in a perfect exercise participants are unaware of simulation support

First, the training process should be requirements driven. The theater training concerns of a CINC and the need to assess the soundness of war plans and crisis response capabilities normally drive training requirements. The needs of a JTF commander must also be part of this process. He normally focuses on training requirements that ensure JTF and component headquarters staffs can respond to various missions. Therefore, his requirements can usually be stated in terms of the ability of a JTF staff to perform the required joint planning and operational processes independent of a scenario. It is frequently possible to express the training requirements of both a CINC and JTF commander in terms of joint mission essential tasks (JMETs), and that was precisely the process used in UE '95. Figure 4 displays the connection between the requirements of a CINC and JTF commander and the UE '95 staff training tasks. Linking training in this manner ensures that it is focused on requirements articulated by a CINC and JTF commander and helps avoid repeating unnecessary training.

Second, training should be conducted in a realistic, supportive environment. The questions that follow are of interest in evaluating a simulations-driven training environment. How close are we to reproducing stimuli that a JTF can expect in actual operations? Is the headquarters dealing with issues one would expect in actual operations? Are participants getting appropriate stimulation from above and below? Do they receive realistic inputs in the expected amounts from organic C^4I systems? Are these inputs believable in terms of timeliness, responsiveness, accuracy, relevance, and sufficiency? Finally, are trainees being led logically through the training tasks?

For UE '95, we gathered data on the realism of the simulation support, communications, and stimulation from above and below JTF command level. In UE '95, simulations-driven tactical movement and engagement support was provided by a confederation of service simulations using distributed interactive simulation (DIS) technology. The simulations remained on-line throughout phase III—an outstanding performance for a developmental exercise.

In a perfect exercise participants are unaware of simulation support and remain focused on the training. However, 55 percent of UE '95 participants found that simulation was particularly noticeable or intrusive at their position. We will never get to the point where everyone agrees on

Main compound for UE '95 at North Fort Hood.

the model results. However, when over half of the participants find the simulation intrusive, the visibility of the models needs to be reduced. It should decrease as ACOM gains experience with exercise design and control and JTASC stands up.

For the most part participants used their command and control systems. Employing them during the execution phase adds to realism and improves training. This practice should be considered essential to good simulations-supported training.

Appropriate levels of stimulation for a JTF staff from both above and below is another consideration. Stimulation from below is easier to achieve because simulations interact primarily at component level (from under). This plus strong component play provided significant stimulation from below JTF headquarters command level during UE '95.

Stimulation from above JTF level is more difficult. Current models do not do it. It only can be done by a CINC and his staff or credible role players. During UE '95, the on-scene role players (such as the ambassador) were quite effective. When surveyed, the JTF was very satisfied with the amount of interaction between the JTF and CINC staff. But JTF headquarters spent more time dealing with tactical issues from below than strategic and operational issues from above. This would not be expected in real operations. ACOM exercise designers are working to provide more stimulation from over the JTF level.

One should not lose sight of the proper role for simulations and scenarios. Joint staffs train to processes (or tasks), not to particular scenarios. What matters is that the staff can coordinate air assets in support of the assigned mission, not simulation results used to drive training. Realistic scenarios and simulation results allow JTF staffs to execute such processes (tasks) while reacting to appropriate stimuli. Thus, improving simulation fidelity by 10 percent will have little effect on joint training.

Third, training should include formal and facilitated instruction. ACOM JTT provided the formal and facilitated instruction. It was the strength of UE '95 training and achieved the highest recognition of any training element. Phase IA seminars were so effective that JTF staff principals recommended that future phase IAs include more members of the JTF staff and additional topics. At the end of phase III, 80 percent of participants felt that JTT feedback had improved their training and performance.

USS Nassau.

U.S. Navy (Johnny R. Wilson)

During UE '95, we discovered that phases IB and IC (academic training) were particularly effective yet hard to accomplish. On arriving at the exercise site for phases II and III, participants were anxious to begin planning and organizing for operations. There was pressure to compress IB and IC. However, by the end of phases II and III participants expressed a growing appreciation for IB and IC. At the end of phase II, 76 percent of the participants indicated more time should have been devoted to phase IB, which lasted only six hours.

support costs can be controlled by matching simulation fidelity to JTF training processes

Fourth, the training should include substantive feedback to both participants and designers. JTT provided the participant feedback in UE '95. It included four formal after action reviews for the staff principals, interactive individual feedback by JTT members during the exercise, and a mini-after action review between the JTT members and their respective staff sections at the end of each phase. Headquarters was surveyed and found to be quite satisfied with the feedback process.

Reaction for designers was also substantial. It included an after action review with the JTF principals and CINC, a survey of the entire JTF staff for ways to improve training, written self-evaluations by each ACOM directorate, and assessments by both JECG and JTT. This feedback concentrated on design and control.

However, JTF components were not included in the reaction process to a degree that made them full participants in the training. During UE '95, JTT focused on the JTF headquarters staff. The components viewed the JTF after action reviews via video teleconference. At the end of UE '95, the components recommended that JTT members be stationed at their locations to provide self-directed training and feedback focused at the component level. This suggestion will be pursued.

Fifth, the training must be cost-effective. If training is too costly in dollars or man-hours, it may not be performed often enough by ACOM to maintain proficiency. In this regard UE '95 is commendable. Its estimated cost was less than a tenth that of Agile Provider '94. Large joint field exercises are clearly not the venue for training JTF staffs; they are too expensive and infrequent.

However, if the UE '95 series of exercises is to remain the most cost-effective joint staff training it must compete with other simulation-based training approaches. While this comparison was not made, UE '95 would likely contrast quite favorably.

Total training expense is comprised of elements that can be examined individually for cost-effectiveness. In particular, simulation-support costs may vary widely but can be controlled by matching simulation fidelity to JTF training processes. For example, if an electronic terrain map with 1-meter accuracy would not normally be available there is no reason to provide it as part of the training. Exercise designers can pursue a cost-effective staff training program by protecting low cost/more effective elements at the expense of some high cost/less effective elements.

ACOM is incorporating the lessons of UE '95 into training for JTF commanders and staffs. Methods for improving JTF stimulation from above are under development, and MTP and SOP are being revised. JTASC will soon achieve full operational capability to improve the ability of ACOM in creating increasingly realistic training environments. **JFQ**

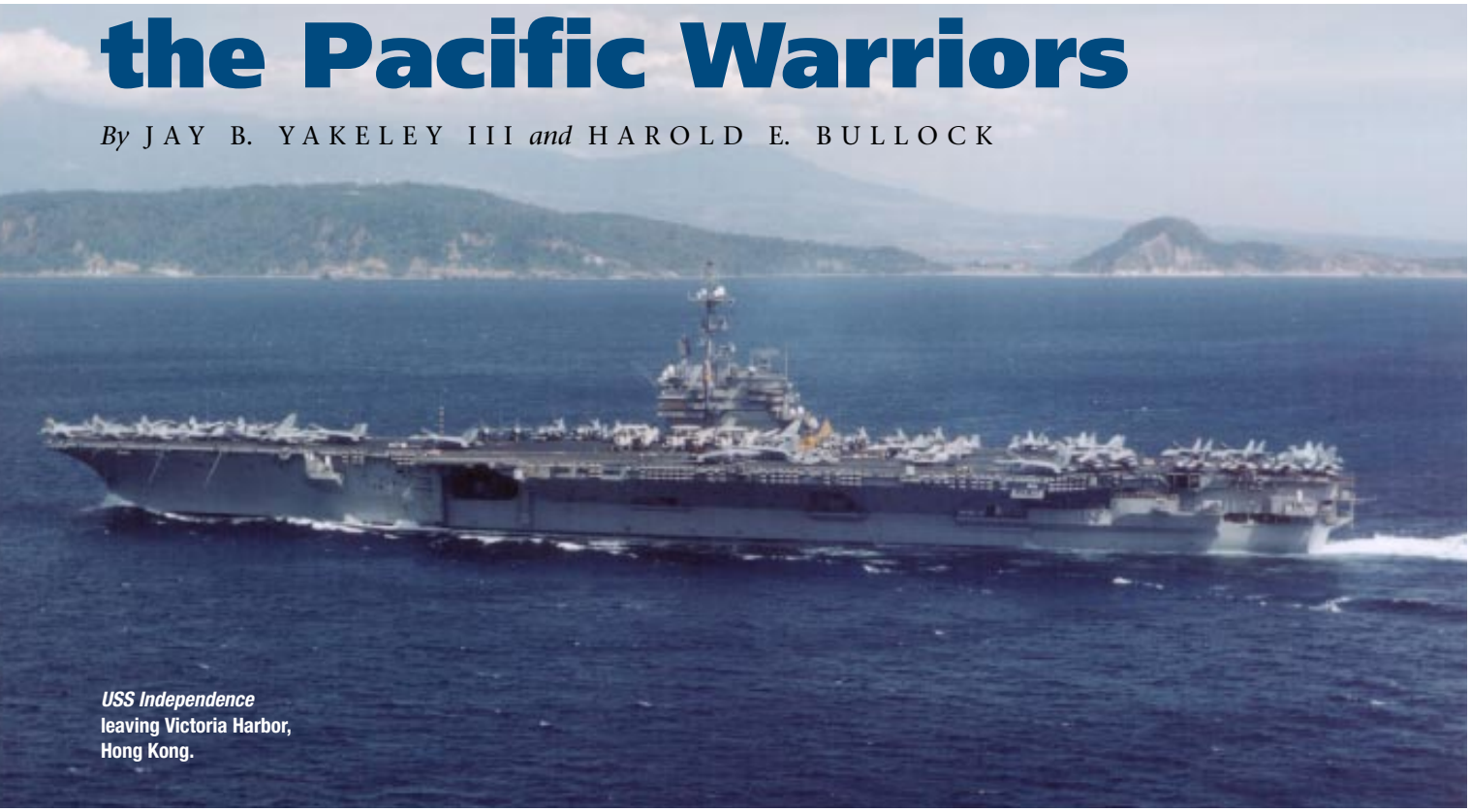
The message from the National Military Command Center (NMCC) flashed on the screen of the U.S. Pacific Command (PACOM) command duty officer at 0200. The American Embassy had informed the CINC of its original assessment some hours earlier. Yet the message was jolting: immediately after a devastating earthquake had struck a small yet vital Pacific nation, guerrillas had attacked its capital. Urgent calls for help ensued. The prime minister warned that his country could no longer safeguard American lives and property.

The duty officer rushed the latest information to the CINC and his battle staff who were already assembling. Together they reviewed an assessment from the operational planning team (OPT) and activated the crisis action team (CAT). With details from the NMCC message, OPT recommended activation of joint task force (JTF) Decisive Response based on I Corps, a PACOM designated and trained JTF headquarters. A 35-member deployable joint task force augmentation cell (DJTFAC) was told to "purple-up" the corps staff. The DJTFAC team chief, part of OPT from the outset, made certain DJTFAC received the latest information to begin parallel crisis action planning while waiting to join the JTF staff.

By 0800, DJTFAC was on its way to join JTF Decisive Response with a copy of the OPT-drafted warning order. It stayed in radio contact with CINCPAC and the JTF headquarters during the trip, developing courses of action. Within hours, a single-service headquarters became a fully-functional JTF headquarters. American citizens at risk as well as an ally on the ropes had brought a rapid, decisive response by the United States through its unified headquarters in the Pacific.

TRAINING the Pacific Warriors

By JAY B. YAKELEY III *and* HAROLD E. BULLOCK



USS Independence **leaving Victoria Harbor, Hong Kong.**

U.S. Navy (*Independence* Photo Lab)

Many scenarios involving the PACOM area of responsibility (AOR) demand an immediate though calculated response. How does the command maintain the ability to react? The answer is a combination of vision, planning, and rigorous training based on a two-tiered warfighting strategy. Under this strategy, a major regional conflict (MRC) which occurred in Korea would be handled by the commander in chief, U.S. Pacific Command (CINCPAC), and by the commander in chief, U.N. Command. Lesser regional contingencies (LRC) would be conducted using pre-designated, highly trained JTF headquarters in command of tailored component forces (tier two) with strategic guidance from tier one, namely, CINCPAC.

The two-tier strategy drives much of PACOM joint training. CINCPAC conducts frequent, rigorous training for each JTF. It includes classes, realistic command post exercises, and large-scale field drills. Exercises are designed around the training objectives of the JTF commander and include a comprehensive after action review (AAR). By comparing joint mission essential task list (JMETL) standards against training performance, JTF commanders arrive at a realistic readiness assessment and determine follow-on training needs. This creates a feedback loop, from training objectives to exercise design to post-exercise capability assessments and follow-on training goals. This process enables PACOM to focus joint training on regional demands and JTF commanders to tailor training to their needs. Independent inspector general assessment is a refinement that concentrates on the structure of training events. From initial JMETL-based readiness assessment through post-training reassessment, the PACOM program links tailored joint training to missions, culminating in effective warfighting.[1]

CINCPAC concentrates on enabling, guidance, and synchronizing JTF actions with theater operations

Foundation for Readiness

The PACOM two-tiered command and control strategy—employing trained, pre-designated JTF headquarters to handle LRCs—is born of a uniquely challenging theater, an AOR that covers more than half of the earth's surface, stretching across 16 time zones. It contains 63 percent of the world population in emerging to highly-industrialized societies. The presence of the world's seven largest land armies demonstrates the historical tensions in the region.[2] Dealing with such an AOR requires innovation, regional focus, and specialized training for both headquarters and forces.

CINCPAC, as tier one in the command and control structure, concentrates on three major tasks: enabling a JTF, providing strategic guidance, and synchronizing JTF actions with theater operations. The CINCPAC battle staff and operational planning team, in coordination with the national command authorities (NCA), both formulate a strategic course of action and evaluate JTF operational courses of action. The PACOM nerve center, the crisis action team, provides interface to NCA and coordinates information and sustainment flow to JTF.

The second tier consists of six headquarters pre-designated and trained as either primary or alternate JTFs. The primary headquarters are I Corps, III Marine Expeditionary Force (MEF), and Seventh Fleet, while the alternates are Alaskan Command, I MEF, and Third Fleet. Each receives regular, focused training in JTF operations, and upon activation as a JTF are reinforced with the CINCPAC deployable joint task force augmentation cell.

DJTFAC is not a standing organization with specified manning, but a tailored organization (25–35 personnel) drawn from a trained pool of CINCPAC headquarters and Hawaii-based service component personnel with various specialties. These hand-picked augmentees provide joint and area expertise in key positions on the JTF staff and are specially trained in crisis action procedures at the operational level. All members perform normal staff duties at their parent commands while on call, thus saving the expense of a separate organization. Besides adding joint perspective and operational expertise, members provide theater-level expertise on Pacific region issues. In short, DJTFAC is a tool in the commander's box for transforming his staff from a single service or area headquarters to that of a fully-capable JTF.

Having described what DJTFAC is, it is equally important to indicate what it is not. While staffed largely by CINCPAC headquarters personnel, it is not "CINCPAC-forward." In fact, as an entity it vanishes on arrival. The CINC transfers operational control of all DJTFAC members to a JTF commander, and they are completely integrated into his staff. DJTFAC, though thoroughly versed in crisis action planning, is not limited to future operations planning. Members serve at the commander's discretion wherever their expertise is required, from personnel matters to operations to logistics to communications. A JTF commander can also request special staff such as medical, legal, and civil affairs experts.[3]

Rear Admiral Jay B. Yakeley III, USN, and Major Harold E. Bullock, USAF, are director for operations and JTF training officer, respectively, at U.S. Pacific Command.

Underlying the use of JTFs for contingencies short of an MRC is the assumption, backed by experience, that Pacific contingencies will likely be sudden, short, and relatively small. Examples are Operation Fiery Vigil (after the eruption of Mount Pinatubo) and Operation Sea Angel (following the massive 1991 floods in Bangladesh).[4]

JTF operations (training and contingency response) also are a principal way of furthering the CINCPAC cooperative engagement strategy. In part, this strategy seeks to further national objectives and foster regional peace through bilateral and multilateral contact.[5]

Unlike the European theater, with a strong NATO alliance structure, the Pacific depends on diverse bilateral and multilateral agreements to protect and enhance U.S. interests. Of the seven mutual defense treaties worldwide to which the United States is a signator, five are with nations in the PACOM AOR.[6] Sustained and frequent military to military contact is critical to international relationships in the Pacific. Combined JTF operations are an excellent vehicle for such contact and enable our forces to strengthen interoperability with armed forces throughout the region.

planning and organizational abilities gained during joint training provide a foundation for full JTF capability

Since specific missions cannot be predicted and JTFs do not exist until a mission requires one, innovation is needed to define JTF training. The six designated PACOM JTF headquarters face a full range of possible missions from humanitarian assistance to conventional warfighting. Forces assigned could vary widely in composition and size.

Because it is impossible to anticipate exactly what operations a given JTF might conduct, PACOM training rests on two joint mission essential task lists (JMETLs)—a theater-strategic list addressing tier one[7] and an operational-level list shared by JTF headquarters.[8] Both strategic and operational-level JMETLs contain tasks essential to mission success. JMETLs include measurable standards for each task, helping a commander to determine the readiness of his headquarters with respect to these tasks. By assessing performance at METL tasks, the CINC or a JTF commander determines key items that need further training and tailors exercises accordingly. This discourages designing an exercise around that of the previous year. It also allows the commander being trained to choose the objectives rather than leaving it to exercise designers.

A Pacific-Oriented Program

As mentioned above, the PACOM two-tiered strategy is designed around JTFs capable of responding to no-notice crises anywhere in the AOR. Pacific JTF training includes three distinct phases. The first, purely academic, is conducted by a small mobile team from the Readiness and Training Division of CINCPAC headquarters. Over two or three days instructors cover a variety of JTF responsibilities including crisis action planning, JTF structure, information management, and operational-level joint warfighting. Specialized tutelage also is offered to JTF headquarters sections such as J-1 or J-2. Moreover, electives are available which allow a recipient headquarters to customize instruction to organizational strengths and weaknesses. This is linked directly to the second phase of joint training, a staff exercise known as Tempest Express.

Tempest Express is a scenario-based, five to seven day event conducted by Readiness and Training Division and assisted by other DJTFAC members. Aimed at a JTF commander's primary staff, it includes specialized classes in staff integration and more detailed instruction on crisis action planning (CAP), but its main focus is to walk a staff through the CAP steps from mission analysis through campaign plan or OPORDER development. The emphasis is on process rather than product, with frequent breaks to discuss ways to approach various aspects of planning. Daily after-action reviews reinforce the learning process and resolve problems.

Tempest Express provides a single-service or geographically-focused organization with the skills to transition to a full JTF headquarters. Planning and organizational abilities gained during joint training phases one and two, combined with the joint staff augmentation of DJTFAC, provide a foundation for full JTF capability. This is tested in phase three—serving as a JTF headquarters in a major JCS exercise.

This phase-three JTF training exercise serves a number of purposes. First, it allows the commander and staff to put the lessons of phases one and two into practice. Second, it enables further bonding between DJTFAC members and an augmented headquarters. Trainers and mentors of phases one and two are an integral part of a JTF staff during phase three. On another level, the exercise program itself is key to developing regional affinities among allies and potential coalition partners. This streamlines command and control since JTFs often include members from other nations.

A major joint exercise orients participants geographically, politically, and organizationally. It is conducted in varied environments to maximize

training value and international interoperability while building mutual trust and confidence. Professional associations and exchanges also provide real value. An allied colonel on the combined task force (CTF) staff today may be his nation's commanding general tomorrow.

A diversity of exercise venues offers frames of reference that could not be duplicated outside the theater. U.S. and foreign forces that may fight together can train together, often in the same areas they would deploy to in an actual contingency. Even when the training is done in the continental United States, it often includes allied personnel from throughout the Pacific and retains a specific theater focus.

Realistic exercises such as Tandem Thrust, where the commander is sea-based and the JTF components often include Australian forces, and Cobra Gold, which includes Thai forces, further enhance JTF readiness and coalition experience. Countries such as Australia are now studying the CINCPAC JTF model for their own regional training.

With shrinking budgets and downsizing, PACOM works to achieve realistic training while minimizing the number of days individuals are deployed away from home station (PERSTEMPO). For example, CINCPAC has combined disparate service exercises under an umbrella JTF. This synergy allows JTF headquarters to experience joint operations without levying an added exercise load on subordinate forces.

Also, efforts are made to realistically represent senior authorities up to and including NCA. In recent exercises, designers have employed cells at the National Defense University and the U.S. Army War College to accurately represent NCA actions. The lifelike play of "command-external" influences is critical to training tier-one (CINCPAC headquarters) as well as tier-two (JTF) forces.

High-fidelity simulation also requires JTF commanders (as well as U.S. Forces Korea and CINCPAC) to control large forces without the expense—in terms of dollars and operations tempo (OPTEMPO)—of fielding huge tactical formations. Ulchi Focus Lens, a vast simulation-aided war game held each year in Korea, is the largest such exercise in the world and has far fewer political ramifications than the better-known Team Spirit. Likewise, the simulation-based Tempo Brave exercise enables a JTF commander to wield large tactical forces without raising PERSTEMPO or OPTEMPO of actual units.

Another facet of the PACOM exercise program is the creative and realistic participation of

U.S. and Thai Seals rappelling during Cobra Gold '95.

Joint Combat Camera Center (Steve Thurow)

U.S. and Korean amphibious forces on Tok Sok Ri Beach.

U.S. Navy (Melvin C. Farrington)

U.S. Air Force (Val Gempis)

Rangers boarding aircraft in Thailand.

coalition and allied forces. Both overseas and CONUS-based PACOM forces regularly join with their counterparts in theater. In a recent Tempo Brave exercise, an Australian army major general served as deputy CTF commander, and Australian officers and NCOs filled key billets throughout the headquarters. This same integration is found in other combined exercises in theater. Whether it is I Corps forming a CTF with Royal Thai armed forces or a III MEF-Australian Defence Forces partnership, regular training with potential partners is invaluable in preparing for future crises.

Yet any exercise, regardless of how well it is executed, has little value without a way of learning from its strengths and weaknesses. Too often this effort has taken the form of a "hot wash" focused on what happened rather than why it happened. PACOM recently integrated systematic after action reports (AARs) into each exercise. With the aid of experts from the Joint Warfighting Center and in-house trained observers, the AAR team objectively assesses command performance after each exercise.[9]

It should be remembered that during exercise design participant commands picked JMETL tasks for the training. Using JMETL, which sets standards for tasks, trained observers assess JTF performance on each task being exercised. At the end, an AAR facilitator guides commanders and their senior staffs through a review of exercise events, encouraging positive aspects and discussing weaknesses. This dialogue focuses on why a specific area fell short, not on who or what failed. A full AAR report is provided only to the commander of the organization under review. It is an objective tool to define goals for subsequent training. It is not a means of reporting failure or success to senior commands.

The Payoff

The most obvious advantage of the PACOM approach to joint training is characterized in the phrase "train as you fight." During the dedicated instruction phases (one and two), DJTFAC builds a reputation with designated JTF commanders and staffs as knowledgeable professionals. They are a known commodity by the time they integrate with JTF as DJTFAC during an exercise or contingency. This allows not only continuity in methodology, though that is critical. More importantly, as the same team deploys repeatedly to join with a JTF headquarters, they develop strong one-on-one relationships with their JTF counterparts. When DJTFAC deploys for a major exercise or contingency response operation, they have the full trust of a JTF commander and staff. Though hard to quantify, personal relationships and mutual understanding pay huge dividends in crises, where every second counts and staffs must start out at a dead run.

The PACOM approach to joint training and operations maximizes the capabilities of theater forces, CONUS and overseas-based. Even those based at home maintain a focus on the Pacific honed by the PACOM joint training program. The two-tiered strategy and phased training meet the needs of each command and refine joint skills. To ensure such a customized approach, training activities are based on a participating commander's JMETL assessment, maximizing the benefit of each academic and practical exercise. CINCPAC tailors personnel support to its JTFs as well. The DJTFAC team that helps transform a single-service headquarters into a joint operational-level JTF is chosen to fit the needs of the augmented command as well as the crisis faced by that JTF.

Another aspect of the PACOM approach is efficient use of personnel. Those who conduct joint training are the same individuals who integrate into a contingency headquarters. Drawn from CINCPAC and service headquarters (PACAF, USARPAC, CINCPACFLT, and MARFORPAC), they are selected for expertise in service component and joint employment. However, except for CINCPAC J-38 which coordinates DJTFAC, they are not full-time trainers. When not deployed, they serve as action officers on their respective staffs, maintaining specialty and regional expertise. The skill of this training team, combined with the knowledge that the same officers and NCOs will be there when the proverbial balloon goes up, strengthens trust and confidence between CINCPAC and the second tier, the JTF commander.

In all areas, CINCPAC strives for a seamless transition between training and operations. Forces that expect to operate in the Pacific theater train there whether they are garrisoned in Japan or California. Furthermore, they train using the same command and control structure they would operate under during an actual contingency. Exercises are tailored to known or likely hot-spots in theater. CINCPAC also hosts frequent multilateral training. It may be overseas, afloat, or on the U.S. mainland. Combined training enhances forward presence in a region where most diplomatic interaction is accomplished through military-to-military contacts.

Multilateral training reflects the reality that U.S. forces are unlikely to operate unilaterally in any effort, be it disaster relief or combat. CINCPAC conducted a JTF commanders conference in April 1996 with emphasis on the balance between force readiness and multilateral engagement. Decisions reached at the conference will be incorporated in future training and operations.

multilateral training reflects the reality that U.S. forces are unlikely to operate unilaterally in any effort

Recent exercises with the Japanese Self Defense Force in Yakima, Washington, provided the forces of both nations with important combined operations experience. Professional as well as personal relationships established among U.S. and foreign militaries, country teams, and regional agencies are force multipliers in crises where time is short and smooth integration is essential.

Personal trust and confidence is just as critical within the U.S. military team. PACOM JTF commanders know that the trainers working with them in a Tempest Express command post walkthrough will be back for major JCS exercises or real world contingencies to serve on their staffs. The continuity between training and operations in terms of personnel and procedures smooths the transition to crisis operations, even when their nature cannot be predicted.

The benefits of the PACOM mission-driven, JMETL-based training are clear. The training is driven by commanders, not exercise designers. Guided by an assessment of his command's ability to execute its mission essential tasks, a commander specifies training objectives which drive training events. This applies whether he is the CINC or a designated JTF commander and results in training events tightly focused on force readiness.

Theater-specific training brings further preparedness. Commanders and their forces remain current in both Pacific politico-military affairs and theater command and control processes. With increasing OPTEMPO and shrinking forces, a tailored regional orientation optimizes training.

In sum, the CINCPAC approach creates a seamless, broad-based link between actual joint operations and training to execute them. The two-tiered warfighting strategy used in joint training today is the one used in contingencies of tomorrow. The next crisis location may be the occasion for joint training. And importantly, those who execute the contingency operations of tomorrow—from the tactical warfighter to CINCPAC—are the participants in today's joint training.

The bottom line? The PACOM focused, high-quality joint training provides mission ready forces equal to the challenges of an unpredictable new world. **JFQ**

NOTES

[1] CINCPAC (J-382), "JTF Training Concept," Information Paper, January 9, 1996.

[2] The seven largest armies are, in order, China, Russia, United States, India, North Korea, Vietnam, and South Korea. CINCPAC, Pacific Area Update Brief, February 1995.

[3] CINCPAC Instruction 3020.11A, "Organization and Administration of the USCINCPAC Deployable Joint Task Force Augmentation Cell (DTJFAC)," January 3, 1994.

[4] JTF Fiery Vigil (June 10–24, 1991), under Maj Gen William Studer, USAF, was tasked with the evacuation in the wake of the eruption. This JTF included the *USS Lincoln* carrier battle group, an amphibious ready group (ARG), and nearly the entire military community on Guam. JTF Sea Angel (May 11–June 15, 1991), commanded by MajGen Henry Stackpole III, USMC, accomplished humanitarian relief tasks following the flooding in Bangladesh. In addition to the *Tarawa* ARG, JTF–SA included Marine and Army troops as well as airlift provided by the Army, Air Force, and the Marine Corps, plus Air Force communications units.

[5] Cooperative engagement aggressively employs the means available to PACOM—forces, assets, funds, programs—through forward presence, strong alliances/bilateral relationships, and crisis response. Using them, this strategy seeks engagement and reassurance in peace, deterrence and cooperation in crisis, and unilateral or multilateral victory in conflict. See "A Commander in Chief Looks at East Asia," *Joint Force Quarterly*, no. 7 (Spring 1995), pp. 12–13.

[6] The nations include the Republic of Korea, Japan, Thailand, Philippines, and Australia.

[7] CINCPAC Joint Mission Essential Task List, version 1.0, March 1, 1996.

[8] CINCPAC JTF Joint Mission Essential Task List, version 1.0, 1995.

[9] Joe Barto et al., "Joint Model After-Action Review System," *Common Perspective*, vol. 3, no. 2, (September 1995), p. 21.

BUILDING a Joint Training Readiness Reporting System

By JOHN C.F. TILLSON

The warfighting commanders in chief (CINCs) and services are working to become "fully capable of operating effectively as a joint team."[1] Toward that end, the commander in chief, U.S. Atlantic Command (ACOM), has designed a joint training program to enhance the capability of the Armed Forces to deploy and operate immediately upon arriving overseas.[2] Unfortunately neither the CINCs nor services are likely to know if and when they achieve that goal since there is no way of measuring or reporting key elements of joint training readiness.[3] This article outlines a system that could provide both CINCs and services with the information to assure force readiness.

Readiness can be viewed like a business situation in which the customer is always right. If combatant CINCs are seen as customers to whom the services supply forces, CINCs must create demands (or define requirements) and communicate them to suppliers. Otherwise the services may supply forces untrained for customers' needs. Supporting CINCs[4] are like wholesalers who help customers determine their requirements, then decide what will meet them, then communicate those needs to the services who supply forces.

John C.F. Tillson is a member of the Strategy, Forces, and Resources Division at the Institute for Defense Analyses and formerly served in the Office of the Secretary of Defense.

Currently, CINCs as customers can identify only a few general needs at best and have no consistent way of informing suppliers of specifics. The services as suppliers thus cannot be sure they are providing forces capable of performing joint tasks. Nor can CINCs as customers predict whether the suppliers can provide forces that meet their needs. CINCs have access to reports on training readiness of units assigned or apportioned to them—for example, the joint reporting structure status of resources and training system (SORTS)[5]—but the reports present problems for both suppliers and customers:

- Customers get a generic view of training readiness from SORTS, but they do not know a unit's capability to perform joint missions or even specific service tasks or missions. They do not know the training readiness of large formations such as Army corps or Navy fleets, logistics organizations, or critical enablers such as supporting CINCs and service/joint battle staffs.
- Although suppliers use a common rating system (C-ratings) to report the status of their units, its meaning differs among and even within services. In addition, it allows suppliers to use any one of three uncoordinated measures of training readiness[6] that make it even harder for a CINC to determine if his needs are being met.
- The ratings have little predictive value. External events like personnel turbulence can destroy training readiness overnight.
- Some services have no generally accepted way to predict the time needed to increase training readiness levels to qualify for deployment ready status. This has led to troublesome controversies over the ability of

Air Force security police personnel disembarking in Jordan.

U.S. Air Force (Paul R. Caron)

Army National Guard divisions or brigades and Naval Reserve air wings to meet customer needs.

- Neither CINCs nor services have a way to link mission readiness to estimates of the resources needed to maintain it.
- Neither CINCs nor services have a way to estimate future training readiness.

CINCs thus have a poor basis on which to report to the Secretary of Defense on their readiness or on needed resources. They can clearly insist on better information. According to chapter 6, title 10, of the U.S. Code, a CINC has responsibility for the *preparedness* of his forces and also has the authority to give directions to subordinate component commands and forces "necessary to carry out missions assigned to the command."

CINCs have a poor basis on which to report on their readiness or on needed resources

Subordinate component commands include all operational forces within the Department of Defense. Thus the commander in chief, U.S. Atlantic Command, for example, has charge over the U.S. Army Forces Command, which includes all Army forces within CONUS (except for special operations forces, which are subordinate to U.S. Special Operations Command). He also controls air forces under the Air Combat Command, naval forces under Second Fleet, and Marine forces under Marine Forces Atlantic. Regional CINCs, such as the commander in chief, U.S. European Command, have charge over all forward deployed forces within their areas of responsibility.

Service secretaries and chiefs have similar but broader responsibilities. Though not under CINCs, they are subject to the provisions of chapter 6. Each secretary has a legal responsibility to respond to requests from CINCs on preparedness—either through responsibilities of the secretary to component commanders or directly to CINCs. These conflicting duties have not been resolved in law or practice.

The Right Tasks

A potential solution to these problems has three parts. First, CINC joint mission essential task list (JMETL) and service METL systems should be connected to provide two-way, mission-related information flow between CINCs and operational forces. That would allow CINCs and services to communicate more exactly tasks for which CINCs need forces and enablers to perform. It would also allow for essential feedback.

U.S. Air Force (Lem Robson)

F–16s and KC–135 tanker during Cope North 94–1.

Second, services should adopt a common measure of training readiness that is mission and task oriented. Given the varied missions and associated tasks assigned to CINCs, such a cross-service reporting measure will provide CINCs and services the necessary mission-oriented training readiness data. The measure should be based on the percentage of METL tasks trained to standard. That percent is one of three ways SORTS provides for reporting training readiness.

Third, CINCs and services should employ modern data base management systems and the global command and control system to integrate joint and service data. The appropriate CINC or service should maintain the data bases while providing access to noncustodial CINCs and services.

There are numerous reasons for the poor exchange of mission, task, and training readiness information among CINCs, component commanders and services, and assigned forces:

- CINCs have not had a tool for analyzing their missions in terms of tasks to be performed by forces and enablers under them.
- CINCs have recently developed a process for identifying their JMETL, but do not transmit it to their components.
- Components have their own METL process and train on service-defined tasks but do not coordinate their METL with CINCs.

The universal joint task list (UJTL) can provide a framework for enhancing CINC-service communications. It lists the full range of tasks a CINC might have to perform.[7] CINCs use UJTL to create a JMETL for each mission assigned. CINCs are still developing this capability and do not use it to communicate their needs to the services. But they could.

Each service has a process for determining the tasks that their forces must perform as well as for building a service-oriented METL. Each process allows service commanders to tell units about these tasks. These processes have little or no connection to CINCs or other services.

- Army and Marine Corps ground force commanders use a METL process to tell subordinate commanders which tasks to train on, but neither process is linked to CINCs. Ground unit commanders generally develop their own METL without explicit review from the Army or Marine component commander.
- Navy type commanders (COMSURFLANT, COMSUBLANT, COMAIRLANT) on each coast identify specific tasks that ships, squadrons, and submarines are to train on. Many are Navy-specific, such as convoy escort, and may not be relevant to CINC missions.
- Air Force commanders of the Air Combat and Air Mobility Commands specify the tasks units are to train and manage the training readiness system.
- The Marine Corps air combat element uses a centralized process for determining mission essential tasks, training syllabus, and training readiness measures for each type of aviation unit.

These processes are not based on CINC JMETLs nor coordinated with them, but they also could be.

The lack of communication on training status between CINCs and forces might be solved through a system that uses the existing chain of command and links the CINC JMETL and service METL processes. CINCs would receive their missions and force allocations, conduct their own analyses to identify JMETLs for each mission, and determine what missions should be given to subordinate component commanders. They would then assign missions to component commanders and communicate their JMETLs to them. The services could also use this process to identify "core competencies" (for instance, convoy escort) that remain important even if no CINC has an immediate need for them. It can also ensure that service forces are trained in the wide range of tasks necessary for overseas deployment with no certain destination or mission.

The component commanders would conduct their own mission analyses, identify their own METLs for each mission, and assign missions to their subordinate organizations, which in turn would conduct their own mission analyses and identify their METLs. Part of each commander's analysis would be to compare his METL with that of his higher commander and reconcile any differences. Every commander would ensure consistency. In this way missions up and down the chain of command would fit those assigned to

combatant CINCs, and every commander would have a METL that aligned with every other. Each commander would train his unit in its METL tasks to the standards specified. Knowing his tasks, each commander could identify the resources needed to train his unit to standard in each task. This proposal expands on practices described in Army training manual FM 25–100.

This process would require that each service or component commander tentatively identify the active and Reserve organizations and units to be assigned to a CINC for a given mission. This step alone should focus the efforts of subordinate units on specific missions and tasks. It could be particularly important to Reserve units that often have no clear idea what missions to train for. It would also force CINCs and services to resolve conflicts in cases where, for example, units may be assigned to more than one CINC or to so many mission essential tasks they cannot meet training standards.

mission analysis could identify the standards to which a task must be performed

The mission analysis process could also be used to identify the conditions under which, and the standards to which, a task must be performed. The feedback process would help commanders at every level to train their units to the conditions and standards set by the CINC or service component commander. It would also allow CINCs and services to assure both cross- and intra-service consistency.

Measuring Readiness

It is not enough to connect JMETLs to METLs. The second element of the proposed reporting system is a common, mission-oriented joint training readiness measure that could be used by CINCs, services, and joint enablers such as JTF battle staffs.

Each service either has or is working on a training management system that tracks training by tasks and associates resources to tasks. One is the standard Army training system (SATS). The Navy uses the type commander readiness management system (TRMS) for surface ships, and it is developing a similar system for aviation units. The Air Force keeps track of its pilots through the graduated combat capability (GCC) system, a measure of the tasks for which a pilot or aircrew is trained. The Marines monitor the combat readiness percentage (CRP) of their pilots in an automated scheme called the aviation training and readiness information management system (ATRIMS). They are also working on an overall training management procedure called the Marine Corps training readiness support system (MCTRSS). It may be that these systems can be modified to fit the joint community.

Because each service uses from one to three measures of training readiness, none of which are specifically oriented to a CINC's mission, the information CINCs receive does not offer a consistent, mission-oriented view of unit preparedness.

A cross-service training readiness measure tied to each CINC's JMETL would provide a common basis on which to evaluate the training readiness of the forces and enablers for a particular mission. It would allow CINCs and services to work together to identify key training tasks, training priorities, and training shortfalls both generally and for specific CINC missions. It would provide a consistent, cross-service measure of training readiness that reflects the importance of different tasks for different missions for different CINCs.

The Marine Corps CRP system is a potential model for such a cross-service measure. It is an explicit survey of the percentage of mission essential tasks trained to standard. The Marines have long used it for aviation units and are now expanding it to ground units. It could be applied to staffs, individuals, crews, and units of all sizes.

CRP has various characteristics that are important in the proposed joint training readiness reporting system (JTRRS):

- based on mission analysis
- task oriented and used to indicate performance to standard for each task
- applicable for both individual and collective training
- reflects the impact of personnel turbulence because it is tied to individuals
- provides a way to link resources to training readiness because each task has an associated cost, described in terms of both time and money
- details the training events, cost, and time needed to move a pilot or squadron to a "fully trained" status.

CRP as currently employed has three major shortcomings for joint training readiness:

- based on generic and fixed missions and tasks and may not reflect the missions and tasks of concern to a CINC
- applied to individual pilots and crew members only. There is no CRP rating for battle staffs or complex organizations with many capabilities or systems
- gives equal weight to all pilots in a unit and does not explicitly recognize the need to have some who are better trained, such as flight leaders and mission commanders.

The Navy training system for ships and aircraft and the Air Force system for aviation units are similar to the Marine Corps system. What

they lack is a way to convey the training information to joint commanders. That is the purpose of a training readiness measure usable by all services. Given multiple CINCs with multiple missions, most units will be responsible to multiple CINCs and for multiple missions. Units therefore require multiple training readiness scores—one for each mission assigned. For example, a unit might be ready for peace operations but not for a major war. Current systems do not reflect this difference. But they could.

units require multiple training readiness scores—one for each mission assigned

Building on the Marine CRP and similar Navy and Air Force systems, we have designed a DOD-wide joint training readiness measure known as the training readiness percentage (TRP). It is intended to retain the commander's responsibility for assessing the training readiness of his unit while simultaneously allowing all services to describe training readiness on a common basis that would be directly related to a CINC's assigned missions.

II MEF Combat Camera (R.A. Phifer)

Marines during CJTFEX '96, Camp Lejeune.

Here is how a TRP scoring system might work. As part of the mission analysis process, commanders could assign weights or values to each JMETL or METL task based on its importance to assigned missions. That weight would be the TRP METL percentage score for that task. By definition, the sum of task weights in a METL would be 100 percent. A unit that is fully trained for a mission would receive the maximum TRP score for that mission—100 percent. The weights assigned to tasks at each level would be subject to review as part of the JMETL/METL consistency assurance process described above.

The score for each task would be measured much like training readiness scores are determined today. In tasks where objective measures are possible, as in gunnery, the tally could come directly from firing range scores. In others, commanders and subject matter experts might determine the scores.

The accompanying table shows how a commander with three missions and the same three tasks[8] for each mission might assign weights to each task for each mission, resulting in a different TRP score for each task and mission. A unit or subunit would receive an absolute score for each task reflecting its training status. If the task is fully trained to standard, the score is 100 percent. If it is partially trained, the score is less. If a unit receives an absolute score of 75 percent for task A and the task weight for mission 1 is 33 percent, the TRP score is the product of 75 percent and 33 percent, or 25 percent. For mission 2, regardless of the absolute score, if task B is not relevant to the mission, then the weight is zero and the TRP score for that task for that mission is zero. The unit is fully trained in task C and gets full credit for that task for each mission. Since task C is relatively unimportant to missions 1 and 3, this high absolute score does not translate into a high TRP score for these missions. The overall unit TRP score for each mission would be the sum of the TRP scores for each task.

More complicated techniques for assigning weights could be built into the METL-building software and could quickly become a routine task for commanders as they build their METLs for each assigned mission.

Multiple Reports

A mission-oriented JTRRS is very complex. A unit may have to be proficient in multiple tasks associated with multiple missions assigned to multiple CINCs. For JTRRS to work, a unit needs a way to keep track of its multiple tasks and to report its mission-oriented training readiness to its multiple masters. Each service needs to manage forces and resources to optimize the training readiness of its multiple units and organizations to meet multiple needs of multiple CINCs. And CINCs need a way to keep track of the readiness of forces allocated to each of their multiple missions. These requirements would have made such a system impossible prior to the computer age, data base management, and communications systems.

Accordingly, we propose that JTRRS exploit both new communications and data base management systems to integrate service and joint data bases and to provide communications up and down the chain of command. These systems

Table: Assigning Task Training Scores

Tasks for each mission	Absolute score for each task	Mission 1 Task weight	Mission 1 TRP score	Mission 2 Task weight	Mission 2 TRP score	Mission 3 Task weight	Mission 3 TRP score
A	75	33	25	50	38	10	07
B	40	50	20	00	00	75	30
C	100	17	17	50	50	15	15
			—		—		—
			62		83		52

Sample TRP calculation for unit or subunit with three missions (in percent).

would track multiple JMETLs and METLs, monitor training status by task, and allow CINCs and services to maintain a real-time record of mission training readiness by CINC, mission, and unit. Such a system might work as follows:

CINCs and services would keep track of pertinent data. CINCs would monitor missions, the associated JMETLs for each mission, and the training by task of those forces and enablers for which they are responsible. For example, each CINC would keep track of the training readiness of his battle staff and supporting communications units.

Each service would oversee the missions, associated METLs, and training, by task, of the forces and enablers for which it is responsible. For example, the Air Force would keep track of all task training by unit and also by air operations centers that support component commanders.

Once JMETLs/METLs and task training status are in appropriate data bases, any participant with approved access can compare JMETLs and METLs to ensure compatibility and to compute a mission-oriented training readiness status. Each participant will be authorized access to some data in all other participants' data bases. For example, a CINC may be given access to service METLs and training readiness data at every level from large organizations down to battalion, ship, or squadron level though not lower. CINCs will be able to look at service METLs to ensure that organizations assigned or allocated to them are trained appropriately. They will also have access to data needed to compute the mission-oriented training readiness of assigned and allocated forces.

it may be possible to project peacetime training readiness a year or so in advance

In most cases a CINC will most want to know the mission readiness of large organizations such as Army divisions or Navy battle groups—a capability that does not exist now. He might also want to know the mission readiness of units at the level of battalions, ships, and squadrons, as is possible today.

Services will have access to CINC data bases to identify mission-oriented JMETL of each CINC and the conditions and standards associated with tasks. As they build force packages in real time for contingencies, CINCs and services will have access to one another's data bases to identify the units best trained in an emerging mission.

The impact of this system at unit level should be small. Virtually all units use computers to monitor training on a task basis. All units keep track of their SORTS status and send the data to a higher headquarters. Under this system, units would continue that practice. New software could simplify unit reporting.

JTRRS could assist military departments and CINCs in exercising training and personnel management responsibilities. A key issue facing DOD is the need to estimate training readiness. Today there is no way to reliably project it. With JTRRS, it may be possible to project peacetime training readiness a year or so in advance and to project how long it should take either an active or Reserve component unit to train to standard in its METL tasks.

Given a systematic, task-based understanding of unit training readiness, cognizance of the tasks that need to be trained for a projected operation, and estimates of time and resources needed for training each task, each service may be able to predict pre-deployment training time and future peacetime training readiness. In other words, given certain assumptions about the availability of personnel and training resources, JTRRS could include two additional indicators:

- an estimate of how long it will take a unit to go from its current training readiness status to 100 percent TRP, a threshold TRP, or an appropriate TRP for some other mission
- the future training readiness of a unit given assumptions about the availability of personnel and training resources.

Both projections could be maintained in the same data system as the standard JTRRS.

These indicators should help identify the impact of the personnel management system on unit training readiness. JTRRS will allow unit commanders to determine the specific implications of turbulence on units and may improve personnel policies. This system could demonstrate the relative consequences on training readiness of policies such as the individual replacement system compared with the Army cohesion, operational readiness, and training (COHORT) system or the Marine unit deployment program—two policies designed to enhance unit readiness and solidarity.

JTRRS should also help CINCs and services manage other training resources. When component and unit commanders know their missions and tasks to be trained, they will have an explicit basis for allocating training funds and resources. Unit commanders will have a credible, objective basis for requesting training resources. CINCs will know which units are trained in which tasks and will have a basis for discussing training and resource allocation with the services. Units, both active and Reserve, can be told to maintain different levels of training readiness and can be held accountable. Finally, wartime planning can include specific plans and resources for pre-deployment training for both the active and Reserve components.

Much of what needs to be done to build JTRRS is already underway.

- CINCs, with the Directorate for Operational Plans and Interoperability (J-7), Joint Staff, are developing a task-based, mission-oriented system for building JMETLs for assigned missions.
- ACOM and J-7 are identifying JMETLs for JTF battle staffs.
- ACOM and J-7 are building JTF battle staff training systems.
- The services have or are developing task-based training and reporting systems:
  - —The Army and Marine Corps are developing task-based training reporting systems for ground forces.
  - —The Navy is converting to a METL system, and the type commander readiness management system (TRMS) will provide Navy component commanders task-based training readiness information for ships, submarines, and aircraft.
  - —The Navy, Marine Corps, and Air Force, have been using task-based training readiness systems for aircraft for years.

But this is not enough. Building effective JTRRS requires initiatives to:

- coordinate and connect CINC JMETL and service METL efforts
- develop a compatible cross-service training readiness reporting measure based upon CINC JMETLs and service METLs
- design a data base and management system for training that is in sync with the global command and control system
- expand, within each service, the METL or equivalent systems to cover large organizations, battle staffs, and other enablers
- develop a METL system for joint battle staffs and other enablers
- design and conduct tests of any proposed training readiness reporting system in order to demonstrate its feasibility, validity, and reliability.

These are issues that pose challenges to the joint world. **JFQ**

NOTES

[1] Chairman, Joint Chiefs of Staff, *Report on the Roles, Missions and Functions of the Armed Forces of the United States* (Washington: Joint Chiefs of Staff, February 1993), p. III–4.

[2] Clarence T. Morgan, "Atlantic Command's Joint Training Program," *Joint Force Quarterly,* no. 8 (Summer 1995), p. 120.

[3] Training readiness is the component of overall readiness that reflects the ability of a unit to perform assigned tasks to a given standard. We have defined joint training readiness as that of military units and enablers from different services working together to accomplish a mission that requires the coordination of their forces. It includes the training readiness of the joint headquarters and of the assigned and supporting service forces working together.

[4] Supporting CINCs include those who provide services to combatant CINCs (for example CINCTRANS, who provides strategic air and sealift), and other warfighting CINCs who furnish forces or other support to the CINC with primary responsibility for a mission.

[5] Joint Chiefs of Staff, Joint Pub 1–03.3, *Joint Reporting Structure Status of Resources and Training System* (Washington: Government Printing Office, August 1993).

[6] The three measures defined in the JCS SORTS directive are percentage of mission-essential tasks trained to standard, percentage of crews mission qualified, and training time in days required to bring unit performance in mission-essential tasks to standard.

[7] Joint Chiefs of Staff, JSM 3500.04, *Universal Joint Task List* (Washington: Government Printing Office, May 15, 1995).

[8] These tasks might be primary mission areas for Navy ships and aviation units.

Joint Combat Camera Center (Tony Lambert)

Educating Future Leaders in Strategic and Operational Art

By JAMES C. HYDE *and* MICHAEL W. EVERETT

The joint land, aerospace, and sea simulation (JLASS) is the preeminent joint educational exercise structured to support wargaming at the senior colleges. It generally concludes advanced studies electives on strategic and operational art. The exercise is unique in that both red and blue teams win. This can only be accomplished through cooperation among faculty and staff members.

JLASS is also the only exercise that explores service capabilities in a learning environment, which not only allows but actually encourages risk-taking. Students thus think in a nonthreatening situation, learn to ask the right questions, explore military options in support of political objectives, and experiment by employing innovative teaching tools at a pivotal time in their careers.

Warriors who fought in the Persian Gulf, regardless of component, attributed much of their success to training at Red Flag, Blue Flag, Twentynine Palms, and the National Training Center. But such training is costly because it requires deployment of a large number of personnel as well as considerable material over great distances. It also consumes sustainment and maintenance stocks.

Congress is heeding the popular call to focus on domestic issues and balance the budget. Cuts have been made across the board, leaving much of the government to provide the same output with reduced resources. This has required the services to make hard decisions on weapon systems and readiness that are felt by unified commands: CINCs must train with fewer resources each day. It therefore becomes more vital for senior colleges to find ways to educate officers in strategic and operational art and science. Part of this need can be met through wargaming.

Wargaming

In the Summer 1994 issue of *JFQ*, Peter Perla characterized wargaming as "focused on the dynamics and on the interplay of human decisions and possible outcomes of those decisions. . . . By

Lt Col James C. Hyde, USAF, is assigned to the Wargaming and Simulation Center, National Defense University, and COL Michael W. Everett, USA, is on the faculty of the Industrial College of the Armed Forces.

nature wargames seek to explore messy, unquantified questions that the physical sciences and operations analysis must ignore." Although there are many kinds of games—ranging from visual two-dimensional simulations of a theater battlefield of today to three-dimensional virtual battlefield simulations of tomorrow—all have three roles: to train, to analyze possible outcomes and military capabilities against those varied outcomes, and to educate.

games train, analyze possible outcomes and military capabilities, and educate

Educational games have been used traditionally at intermediate and senior level professional military education (PME) institutions: that is, at staff and war colleges. Unlike training wargames, they expose students to issues that they will likely confront as senior leaders. A game may have either a service or a joint flavor depending on its institutional sponsor.

The senior colleges provide player cells (see figure 1) for JLASS which is held each spring at Maxwell Air Force Base, Alabama. A 1993 agreement among the colleges outlined the threefold purpose of this exercise: to develop future strategic leaders, enhance PME by examining potential U.S. military responses to regional crises, and advance development and application of supporting technical tools and methodologies. This rationale is complemented by four exercise objectives:

- educate through an active learning process addressing issues at the strategic and operational levels
- promote jointness, recognition of coalition issues, and enhancement of resident instructional programs
- improve strategic and operational level simulations, wargames, and exercises
- expand logistics and sustainment play to illustrate strategic and operational impacts.

Various scenarios have been gamed thus far. JLASS has had an Asia/Pacific focus in the last few years and the first scenario with two major regional conflicts (MRCs) was used in 1996. It also included three limited regional conflicts (LRCs). One MRC was situated in Southwest Asia and was scripted off-line prior to the arrival of students. Players received intelligence updates on a Southwest Asian MRC while planning for a possible second conflict in the Pacific. The purpose of the first MRC was to compound the difficulties of executing a near–simultaneous second MRC.

Another purpose for a robust scenario was to enable blue team players to grasp the impact of an ongoing MRC on a second one in terms of mobility and equipment availability—from special assets which both CINCs would require to Reserve forces already fighting in another region—as well as the political problems which a second MRC would cause at home and in theater. The LRC scenarios occurred in the South China Sea. They were designed to place continued pressure on the blue force once a Southwest Asia MRC had subsided. They also provided the red team with options with which to confound the politics of the Pacific region.

Figure 1: JLASS Player Cells

OPPOSING FORCE
(National War College)

U.S. TRANSPORTATION COMMAND
(Industrial College of the Armed Forces)

COMBINED FORCES COMMAND
(U.S. Army War College)

PACIFIC FLEET
(Naval War College)

U.S. PACIFIC COMMAND
(Marine Corps War College)

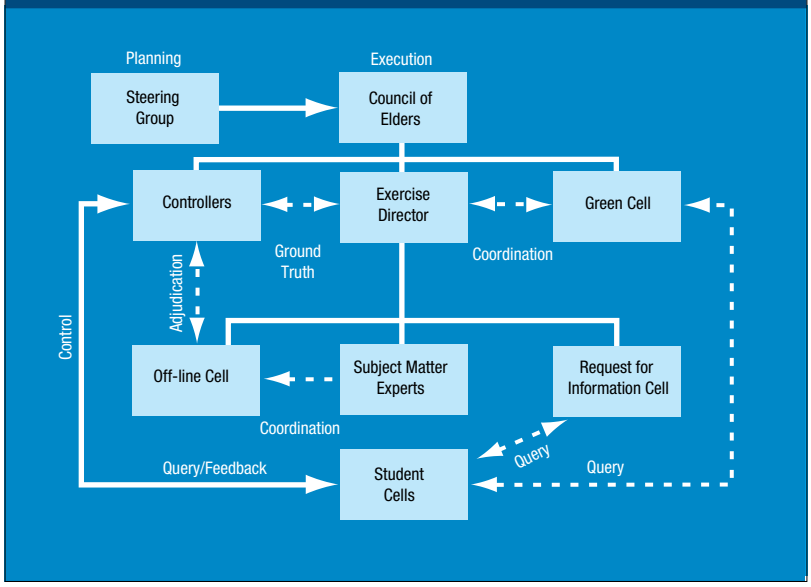
PACIFIC AIR FORCES
(Air War College)

Structure

Within the JLASS structure the heads of the senior PME institutions serve as the executive authority and the exercise sponsors. By agreement, committees both plan and execute the program while a JLASS steering group plans the exercise. A new planning cycle begins with the end of an exercise. Each college provides at least one faculty member and one wargamer who select tasks to address from the universal joint task list. Tasks for 1996 include: deployment and redeployment, employment, force sustainment, intelligence, direction and integration, mobilization, theater force requirements and readiness, alliances and regional relationships, maneuver and firepower, and command and control (C^2). A game design document is published to determine the nature of play. In addition, the steering committee schedules game dates and planning conferences.

A council of elders (COE), comprised of representatives of the colleges, directs the game to ensure that student learning objectives are met. Given the number of objectives for each college, the council has performed with aplomb. Within the five days of the exercise it managed a ple-

Figure 2: JLASS Structure



thora of learning objectives and accomplished the following:

- employed concepts of strategic and operational art
- understood crisis action planning and execution process
- translated political objectives into military objectives
- understood strategic leadership environment
- developed theater strategies
- developed and executed joint multinational intercollegiate campaign plans—conducted defensive and offensive operations (counterattack), and developed and executed logistical plans
- understood strategic aspects of mobilization
- understood strategic deployment
- examined Reserve component employment options
- examined and executed force projection options
- engaged in media relations
- organized C^2 joint forces
- understood strategic intelligence
- developed options for weapons of mass destruction (WMD)—identified and suggested appropriate theater response, assessed impact of WMD attack on executing campaign plan, and developed campaign plan contingencies
- analyzed theater options in second MRC in two near-simultaneous MRC environment
- allocated forces and resources in multi-crisis theater
- examined and suggested regional strategies—battlespace dominance, power projection
- understood employment of JFACC in theater campaign planning
- understood ballistic missile defense planning
- recognized difficulties in coordinating basing rights
- understood the impact of special operations
- planned for and integrated information warfare (IW)
- assessed impact of maritime exclusionary zone
- developed noncombatant evacuation operation plan in MRC theater
- planned for war termination and post-conflict activities—force regeneration, rearm, refit.

COE helps the exercise director in resolving problems that arise from student moves and resultant adjudications. The director, who works for COE, is responsible for game control and also keeps adjudication moving smoothly to ensure that the daily input from student moves results in realistic outcomes that facilitate ensuing learning objectives.

Under the exercise director and COE (JLASS Structure, figure 2) are the controllers, green (other nations) cell, off-line adjudication cell, subject matter experts, and request for information (RFI) cell. Normally there are one or two controllers (professional wargaming staff members) for each player cell who articulate player moves to the director and COE. The off-line adjudication cell coordinates with subject matter experts on special operations forces (SOF), logistics, intelligence, WMD, service specific capabilities, and computer-simulation modeling. Combined, the cells help controllers immeasurably during adjudication.

The Media

Students learn to deal with the media during planning phases. Media attention intensifies as students arrive at Maxwell. CINCs and political advisers immediately undergo a media "murderboard" to ascertain their perspectives on the conflict. Red and blue team members also may make subsequent statements throughout the exercise. Each day the exercise begins with a Global News Network (GNN) telecast providing an overview of the simulated world. Great care is taken to weave a credible story through a series of fabricated press releases from both sides. Day-to-day decisions of a political nature may not directly affect the battle area but have a significant impact on the overall simulation. In JLASS '96 interviews, for example, prominent businessmen complained about the effect of fighting on sales to their regional trading partners who were not involved in the conflict. A congressional representative reported that her constituency wanted a quick peace since the reduced flow of raw material and subassemblies from the Pacific rim was costing jobs. Several other "short bites" contributed to virtual realism.

Game Play

After the morning GNN update, each team receives an intelligence and operations briefing to set the stage for the day's learning objectives. Then students pursue development of branches and sequels based on the situation. Later in the day, players brief controllers on their next move and long–term vision of how the conflict will develop. After that students attend seminars which complement the exercise. For the faculty and controllers the day has just begun.

Controllers discuss the next move for each player cell with COE and the director. Then, in a closed session, COE and the director determine the length of moves through a combination of player decisions and in conjunction with learning objectives. COE recalls controllers to provide the "new ground truth regional picture." This includes the new current date, the timeline since the last move, and major constraints placed on the game. Shortly thereafter the off-line cell and controllers adjourn for the nitty-gritty assessment (placing data within the framework constructed by COE).

The assessment process adds realism to keep players involved. This part of the simulation is critical if students are to believe that they are in a real struggle for survival. The process usually begins with an overview of the timeline and theater-wide player moves such as warships assuming defensive positions, movement of air assets, or information/command and control warfare (C^2W). Special operations missions include disruption, destruction, or gathering intelligence on units and logistics sites. Several computer models support adjudication and are particularly helpful in areas such as air defense, deployment, WMD, SOF, and IW/C^2W (see listing in figure 3).

video teleconferencing could permit students to participate in JLASS from their home stations

The off-line cell melds the results from models plus information from the controllers with logistics constraints and air base and port capabilities to create events that lead to "ground truth" on the next day. Not all information is computer-supplied. Much of it comes from controllers who may want to stress a point, challenge students, or review an issue from the classroom. In either case, the timeline is massaged and woven into a plausible story to present a dilemma to both sides. In the evening after the adjudication teams finish, the controller group (that is, the exercise director, controllers, RFI, media, and off-line cells) reviews the assessment. Controllers express opinions on whether the results make sense. If stories follow council guidance, intelligence and operations updates are worked while media personnel turn the highlights into the next day's GNN report.

Figure 3: JLASS Supporting Models

Joint Integrated Contingency Model
(JICM)

Extended Air Defense Simulation
(EADSIM)

Fallout Assessment System
(FAS)

Automated NBC Informational System II
(ANBACIS)

Strategic Unconventional Warfare Model
(SUWAM)

Crisis Action Model
(CAM)

Issues

As in any large exercise, issues arise that may exist in future games and actual operations. Player coordination is important to developing wargames. Blue teams must be able to discuss and resolve planning issues during the academic year. In the current year as in the past, the primary means of coordination was via secure telephone and video teleconferencing (VTC) facilities. Also, differences in VTC audio-visual equipment among colleges and equipment down time continued to impact on student coordination. Each college is on the defense simulation internet (DSI), but this system is cumbersome for the multi-point mode and has reliability problems. Three colleges have the defense commercial telecommunications network (DCTN) which appears more dependable than DSI. A single reliable, secure VTC system is essential to distributed coordination and gaming.

Also, differences in college travel and conflicts in scheduling VTC persist. Again this year students were unable to resolve some issues until they met face-to-face at Maxwell. To help them remain focused, colleges should select standardized hardware and software to create a joint senior level VTC network. This system could also help faculties coordinate curricula issues, provide for distance learning (faculty and guest lecturers addressing other institutions), allow for gaming other than JLASS, and eventually permit students to participate in JLASS from their home stations.

Controllers utilized a computer model to help adjudicate SOF and IW/C²W missions for the first time in 1996. Previously SOF adjudication caused concern among controllers and students. Resource specialists were well versed on special operations doctrine but unfamiliar with the modus operandi of opposing force unconventional warfare capabilities. Consequently, achieving adequate SOF results, and then applying them to the game, was a problem. Difficulties arose due to the lack of computer programs that could quickly show the effects of near-term SOF missions on the long-term conflict. For example, an attack on a satellite downlink station might have no effect at all on the current battle. However, if sufficient backup downlink stations are available, the normal flow of information may be disrupted while switching takes place. It could affect future fighting if the air tasking order was in the process of being sent when the system was destroyed and the backup stations were under assault. In a very short time, the computer model partly resolved this problem by assessing successes and failures of SOF missions. This is a step in the right direction because SOF operations will get increased emphasis as JLASS matures.

If adjudicating SOF is hard, information warfare and C²W is more so. The exercise held in 1996 was the first in which an honest attempt was made to introduce IW/C²W into a JLASS game. Work in this area is still in a nascent stage. There are no educational models available to adjudicate IW/C²W actions. Moreover, it is tough to subjectively assess the effects of a successful IW attack on the game. Providing results to students for planning purposes was a challenge. It was also especially difficult for red controllers since the National War College team included students from the School of Information Warfare Strategy. Given potential capabilities of opposing forces in the year 2004, students developed comprehensive plans to disrupt or delay blue force deployment into theater. In addition, they planned to drive wedges between blue coalition partners, interfere with financial networks in blue home areas, disrupt air traffic control systems from their homeland to northeast Asia, and destroy quality of life systems within their territories (for example, power grids and water supplies). As there is still no consensus on the effects of this type of warfare, there was no agreement among controllers on the success or effect of an IW campaign. Absent an IW/C²W specific model, red controllers used the SOF model which provided adequate material to generate feedback to students.

Logistics becomes an enabler and disabler for operations in a two-MRC scenario. Red and blue teams experienced constraints because of industrial base shortcomings. Logistics handbooks developed by the Industrial College of the Armed Forces contributed to the exercise by delineating available resources. Logistics issues led to operational debates on both sides. Students learned to operate in a resource constrained environment which, although the constraints may not have been as debilitating as necessary, made the transportation cell an integral partner with unified command cells and a "must" player.

JLASS remains the premier joint educational exercise. Its structure and format offer ample leverage for senior colleges to meet their learning objectives. Faculty and staff learn to trust and cooperate with one another from the initial steering group meeting to the final after action review. Students internalize the spirit of cooperation as an essential aspect of joint and combined warfare. This provides future leaders an educational experience in strategic and operational art not available elsewhere. Preparation for and involvement in the exercise allow players to explore issues beyond the scope of unified command planning staffs. The exchange of ideas derived from various service perspectives and college curricula enlivens the unique potential of JLASS. **JFQ**

Joint Vision 2010:

America's Military—Preparing for Tomorrow

Joint Vision 2010 is the conceptual template for how the Armed Forces will channel the vitality and innovation of our people and leverage technological opportunities to achieve new levels of effectiveness in joint warfighting. Focused on achieving dominance across the range of military operations through the application of new operational concepts, this template provides a common direction for the services in developing unique capabilities within a joint framework of doctrine and programs as we prepare to meet an uncertain and challenging future.

The nature of modern warfare demands that we fight as a joint team. This was important yesterday, it is essential today, and it will be even more imperative tomorrow.* JV 2010 *provides an operationally based template for the evolution of the Armed Forces for a challenging and uncertain future. It must become a benchmark for service and unified command visions.

—JOHN M. SHALIKASHVILI
Chairman of the Joint Chiefs of Staff

JV 2010 begins by addressing the expected continuities and changes in the strategic environment, including technology trends and implications for the Armed Forces. It recognizes the crucial importance of our current high quality, highly trained forces and provides the basis for their further enhancement by prescribing how we will fight in the early 21st century.

This vision of future warfighting embodies the improved intelligence and command and control available in the information age and goes on to develop four operational concepts: dominant maneuver, precision engagement, full dimensional protection, and focused logistics.

Each of the operational concepts incorporates our core strengths of high quality people and information-age technological advances, builds on proven competencies, and focuses development of future joint capabilities. Together, the application of these four concepts by robust high quality forces will provide America with the capability to dominate an opponent across the range of military operations. This *full spectrum dominance* will be the key characteristic we seek for the Armed Forces in the 21st century.

Joint Vision 2010 then examines six critical elements required to transform the operational concepts into joint capabilities: people, leadership, doctrine, education and training, organizational structure, and materiel. In its conclusion, *JV 2010* assesses the challenges and opportunities in moving toward its implementation.

This vision draws on our most fundamental source of strength—our people. People are the Armed Forces; at the end of the day, success in war or in peace will rest ultimately on the men and women of the Armed Forces.

U.S. Navy (Timothy Osborne)

The skills and vitality of our people will also provide the driving force for shaping change. Channeling our strengths with this vision, we will move toward a common goal: a joint force—persuasive in peace, decisive in war, preeminent in any form of conflict.

THREADS OF CONTINUITY

As we build forces to this joint vision, there will be strong threads of continuity with the contemporary strategic and operational environment. Among these threads are American goals and interests, as well as the missions, tasks, strategic concepts, and quality of the Armed Forces.

Goals and Interests

Enduring goals include protecting the lives and safety of Americans both at home and abroad; maintaining the political freedom and national independence of the United States with its values, institutions, and territory intact; and providing for the well-being and prosperity of the Nation and its people.

These goals, in turn, generate interests that must be protected and advanced. Fundamental interests are enhancing U.S. security, promoting prosperity at home, and promoting democracy abroad.

The United States has undertaken foreign and security policies aimed at securing these interests. Ensuring strong relations with our allies, protecting rights of transit on the high seas, and enlarging the community of free market democracies are examples of policies we are likely to continue to pursue in the years ahead. On the whole, there is likely to be far more continuity than change in these interests and policies.

DOD

Missions, Tasks, and Strategic Concepts

To protect vital national interests we require strong forces, which are organized, trained, and equipped to fight and win against any adversary at any level of conflict. Concurrently, we must also be able to employ these forces in operations other than war to assist in the pursuit of other important interests.

The primary task of the Armed Forces will remain to deter conflict—but, should deterrence fail, to fight and win the Nation's wars. In addition, we should expect to participate in a broad range of deterrent, conflict prevention, and peacetime activities. Further, our history, strategy, and recent experience suggest that we will usually work in concert with friends and allies in almost all operations.

America's strategic nuclear deterrent, along with appropriate national level detection and defensive capabilities, will likely remain at the core of national security. However, the bulk of our forces will be engaged in or training for worldwide military operations. In these operations we will largely draw upon conventional warfighting capabilities—we will fight if we must—but will also use these same capabilities to deter, contain conflict, fight and win, or otherwise promote American interests and values.

To ensure we can accomplish these tasks, power projection, enabled by overseas presence, will likely remain the fundamental strategic concept of a future force. We will remain largely a force based in the continental United States (CONUS). However, permanently stationed overseas forces, infrastructure and equipment, temporarily deployed forces, and interaction between U.S. and foreign militaries demonstrate commitments, strengthen our military capabilities, and enhance the organization of coalitions and multinational operations to deter or defeat aggression. Power projection from the United States, achieved through rapid strategic mobility, will enable the timely response critical to deterrence and warfighting capabilities. Overseas presence and highly mobile forces will both remain essential to future operations.

Quality of the Force

Currently, our Armed Forces are the best trained, best equipped, and most ready force in the world. The quality of our people is unequaled at all levels of the chain of command. Leaders are developed through well-conceived, intensive, and long-term programs. Equipment is first-rate and it is sustainable in all operations. Together, personnel, leadership, and equipment are molded into exceptionally able forces through stressful training, which closely approximates wartime conditions and requirements.

Since the mid-1980s, this high quality has been the essence of the Armed Forces. Military operations are planned knowing that leaders truly understand the requirements, that the equipment is operable and safe, and that the men and women at the cutting edge have the skills and character to execute their tasks successfully.

However, this quality force has been achieved only at great expense and effort. It has required the creation of institutions and procedures, sharpened over more than two decades of experience, to develop the Armed Forces in the most effective, efficient manner possible. These institutions and procedures, and the high quality forces they have produced, remain at the very center of *Joint Vision 2010*.

II MEF Combat Center (C. D. Clark)

Attracting people with intellectual tools, physical skills, and motivation to serve effectively in the military was foremost among the requirements for building a professional, robust, and ready force. In the late 1970s, over 15 percent of all enlistees scored in the lowest category for military qualification examinations. Today, less than 1 percent are in that category and over 90 percent of enlistees have graduated from high school. The combination of careful targeting of requirements, recruiting incentives, quality of life initiatives, and challenging opportunities has been very effective in attracting the personnel needed to sustain a quality force.

Retention of highly trained servicemembers in sufficient numbers has also been a key requirement, and we intend to sustain these efforts. Our first-term reenlistment rates have risen by 10 percent over the last fifteen years. Higher retention is the result of a committed effort by top leadership throughout the government toward raising career satisfaction, improving command climates, keeping pay competitive and benefits stable, maintaining time at home and deployed at an acceptable balance, and focusing on quality of life initiatives.

Another element of success has been effective leadership development. From deliberate and intensive processes involving institutional, on-the-job, and self-study methods, the men and women of the Armed Forces gain the skills, knowledge, and attitudes needed to accomplish their required tasks across the range of military operations. These formal development processes are designed to balance timing, costs, and operational requirements at each level of leadership. We will retain those innovative processes to ensure that we maintain the best possible leadership for the Armed Forces.

Realistic and stressful training has been the primary way to keep readiness high and prepare us to face the challenges of combat. Such training, consisting of carefully balanced programs of individual, crew, and larger organizational training and assessments, is central to training the way we will fight. From individual or crew mission simulators, through full-blown field exercises at home or abroad, realistic, evaluated training is and must remain our best combat multiplier. Joint, coalition, and combined training and exercises have improved interoperability and understanding of the strengths of each service as well as allies and coalition partners. From the individual warfighter to large multinational forces, this systematic approach has enabled our men and women to hone their skills many times before ever having to perform actual combat missions. These training innovations must be sustained.

Today, our highly trained, quality force has the tools to perform its warfighting tasks. Just 15 years ago, our forces were less well equipped, spare parts inventories were critically short, and sustainability was low. Since then, we have modernized the force and ensured that we procured the parts and provided the training required to take full advantage of this new equipment.

Technologically superior equipment has been critical to the success of our forces in combat. This first-rate equipment, when combined with top quality forces, has been a key element of our continuing operational successes. We must continue to ensure our soldiers, sailors, marines, and airmen are fully capable of fulfilling their required tasks with equipment that is engineered to provide superior mission performance as well as safety and reliability. We must maintain a careful balance between equipping and sustaining our forces and between tooth and tail in force structure. We must also work to assure an efficient, effective support structure and resources.

DYNAMIC CHANGES

Accelerating rates of change will make the future environment more unpredictable and less stable, presenting the Armed Forces with a wide range of plausible futures. Whatever direction global change ultimately takes, it will affect how we think about and conduct joint and multinational operations in the 21st century. How we respond to dynamic changes concerning potential adversaries, technological advances and their implications, and the emerging importance for information superiority will dramatically impact how well the Armed Forces can perform its duties in 2010.

USS America (Robert McRoy)

The Imperative of Jointness

The Armed Forces are smaller than they have been in over 40 years, and we have decreased the percentage of forces permanently stationed overseas. Faced with flat budgets and increasingly costly readiness and modernization, we should not expect a return to the larger active forces of the Cold War period.

The American people will continue to expect us to win in any engagement, but they will also expect us to be more efficient in protecting lives and resources while accomplishing missions successfully. Commanders will be expected to reduce the costs and adverse effects of military operations, from environmental disruption in training to collateral damage in combat. Risks and expenditures will be even more closely scrutinized than they are at present.

Simply to retain our effectiveness with less redundancy, we will need to wring every ounce of capability from every available source. That outcome can only be accomplished through a more seamless integration of service capabilities. To achieve this integration while conducting military operations we must be fully joint: institutionally, organizationally, intellectually, and technically. Future commanders must be able to visualize and create the best fit of available forces needed to produce the immediate effects and achieve the desired results.

Multinational Operations

It is not enough just to be joint when conducting future operations. We must find the most effective methods for integrating and improving interoperability with allied and coalition partners. Although the Armed Forces will maintain decisive unilateral strength, we expect to work in concert with allied and coalition forces in nearly all future operations, and increasingly, our procedures, programs, and planning must recognize this reality.

Potential Adversaries

There will continue to be states or groups that oppose or threaten American interests and values or those of friends and allies. Our recognition of these threats and challenges will continue to drive national security efforts.

Greater global interaction will strongly influence the nature of future threats. Wider access to advanced technology along with modern weaponry, including weapons of mass destruction (WMD), and the requisite skills to maintain and employ it, will increase the number of actors with sufficient military potential to upset existing regional balances of power.

Modern systems are sufficiently powerful that smaller numbers can dramatically alter the threats facing us. A number of potential adversaries may acquire the military hardware to make themselves distinctly more dangerous.

Our most vexing future adversary may be one who can use technology to make rapid improvements in its military capabilities that provide asymmetrical counters to U.S. military strengths, including information technologies. Alternatively, the high leverage associated with modern systems means that significant improvements in military capabilities can occur very rapidly, outrunning the pace of compensating political or military countermeasures.

Application of these technologies against us may also prove surprising. Adversaries will have an independent will, some knowledge of our capabilities, and a desire to avoid our strengths and exploit vulnerabilities. We anticipate the probability of facing technological or operational surprise will increase in the period ahead.

In sum, the United States must prepare to face a wider range of threats, emerging unpredictably, employing varying combinations of technology, and challenging us at varying levels of intensity.

U.S. Air Force (Russ Pollanen)

Accelerating rates of change will make the future environment more unpredictable and less stable, presenting the Armed Forces with a wide range of plausible futures. Whatever direction global change ultimately takes, it will affect how we think about and conduct joint and multinational operations in the 21st century. How we respond to dynamic changes concerning potential adversaries, technological advances and their implications, and the emerging importance for information superiority will dramatically impact how well the Armed Forces can perform its duties in 2010.

Advancing Technology Trends

This era will be one of accelerating technological change. Critical advances will have enormous impact on all military forces. Successful adaptation of new and improved technologies may provide great increases in specific capabilities. Conversely, failure to understand and adapt could lead today's militaries into premature obsolescence and greatly increase the risks that such forces will be incapable of effective operations against forces with high technology.

Long-range precision capability, combined with a wide range of delivery systems, is emerging as a key factor in future warfare. Technological advances will continue the trend toward improved precision. Global positioning systems, high-energy research, electromagnetic technology, and enhanced stand-off capabilities will provide increased accuracy and a wider range of delivery options. These capabilities will increase the combat power available for use against selected objectives, resulting in enhanced economy of force and a higher tempo of operations.

The ability to produce a broader range of potential weapons effects, from less-lethal to hard target kill, from sensor-fused to directed energy weapons, will further enhance precision capability. Advances in target effects technologies will be integrated into existing weapons and give commanders greater flexibility. These improvements will result in increasingly discrete and precise capabilities, which can achieve optimum results in both combat and other operations.

Advances in low observable technologies and the ability to mask friendly forces will also continue over the next 15 years. Signature reduction will enhance the ability to engage adversaries anywhere in the battlespace and improve the survivability of forces who employ it. Stealth will strengthen the ability to accomplish surprise, reduce overall force requirements in many operations, and make forces less visible to an unsophisticated or disoriented adversary. Micro-miniaturization will also promote signature reduction and greatly increase the capabilities available for individuals and small units. Concurrently, multispectral sensing, automated target recognition, and other advances will enhance the detectability of targets across the battlespace, improving detection ranges, turning night into day for some classes of operations, reducing the risk of fratricide and further accelerating operational tempo.

Improvements in information and systems integration technologies will also significantly impact future military operations by providing decisionmakers with accurate information in a timely manner. Information technology will improve the ability to see, prioritize, assign, and assess information. The fusion of all-source intelligence with the fluid integration of sensors, platforms, command organizations, and logistic support centers will allow a greater number of operational tasks to be accomplished faster. Advances in computer processing, precise global positioning, and telecommunications will provide the capability to determine accurate locations of friendly and enemy forces, as well as to collect, process, and distribute relevant data to thousands of locations.

Forces harnessing the capabilities potentially available from this system of systems will gain *dominant battlespace awareness*, an interactive picture which will yield much more accurate assessments of friendly and enemy operations within the area of interest. Although this will not eliminate the fog of war, dominant battlespace awareness will improve situational awareness, decrease response time, and make the battlespace considerably more transparent to those who achieve it.

U.S. Navy (F. E. Zip Zimmerman)

During all operations, advanced technology in the hands of an adversary will increase the importance of force protection at all echelons. Any efficiencies garnered by offensive systems must be underwritten by appropriate redundancies to safeguard against unanticipated technological, strategic, or operational surprise.

Adaptations to this increasingly lethal battlespace will be warranted. These adaptations are likely to take the forms of increased stealth, mobility, dispersion, and pursuit of a higher tempo of operations among elements within the battlespace.

To cope with more lethal systems and improved targeting, our forces will require stealth and other means of passive protection, along with mobility superior to enemy ability to retarget or react to our forces. Increased stealth will reduce an enemy's ability to target our forces. Increased dispersion and mobility are possible offensively because each platform or individual warfighter carries higher lethality and has greater reach. Defensively, dispersion and higher tempo complicate enemy targeting and reduce the effectiveness of area attack and area denial weaponry such as weapons of mass destruction (WMD). The capability to control the tempo of operations and, if necessary, sustain a tempo faster than an enemy will also enable our forces to seize and maintain the initiative during military operations.

Greater mobility and increased dispersion will, in turn, require additional communications and coordination capabilities since the synchronization of these dispersed elements will become even more important. Fortunately, the technology for this improved systems integration is at hand.

The implications of improved systems integration are both profound and complex. New technologies will allow increased capability at lower echelons to control more lethal forces over larger areas, thus leveraging skills and initiative of individuals and small units. These capabilities could empower a degree of independent maneuver, planning, and coordination at lower echelons, which were normally exercised by more senior commanders in the past. Concurrently, commanders at higher echelons will use these technologies to reduce the friction of war and apply precise centralized control when and where appropriate.

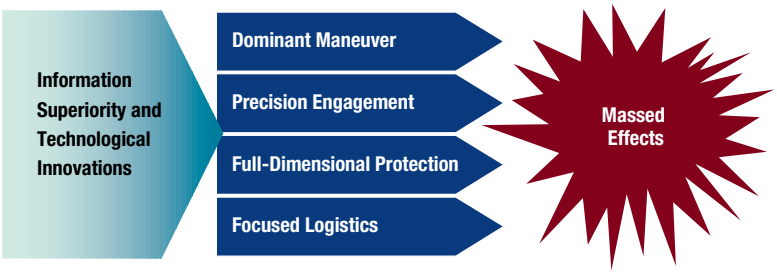
Implications of Technological Advances

The combination of technology trends will provide an order of magnitude improvement in lethality. Commanders will be able to attack targets successfully with fewer platforms and less ordnance while achieving objectives more rapidly and with reduced risk. Individual warfighters will be empowered as never before, with an array of detection, targeting, and communications equipment that will greatly magnify the power of small units. Strategically, this improvement will enable more rapid power projection and reduced logistics tails. Operationally, within the theater, these capabilities will mean a more rapid transition from deployment to full operational capability. As a result, we will improve the capability for rapid, worldwide deployment while becoming even more tactically mobile and lethal.

more lethal battlespace will increase the importance of stealth, mobility, dispersion, and pursuit of a higher operational tempo

The implications of this increased lethality for overall force structure requirements are unclear. Given current technology, force structure today is adequate to meet a full range of global needs, but barely so. While these prospective improvements in lethality clearly offer promise of reducing the number of platforms and amount of ordnance required to destroy targets, many military missions will require occupation of the ground and intensive physical presence. For these missions the promises of technology are less certain, especially in environments such as cities or jungles.

Figure 1: Emerging Operational Concepts



Even for higher level commanders, the accelerated operational tempo and greater integration requirements will likely create a more stressful, faster moving decision environment. Real-time information will likely drive parallel, not sequential, planning and real-time, not prearranged, decisionmaking. The optimal balance between centralized and decentralized command and control will have to be carefully developed as systems are brought into the inventories.

Emerging Importance of Information Superiority

Throughout history, gathering, exploiting, and protecting information have been critical in command, control, and intelligence. The unqualified importance of information will not change in 2010. What will differ is the increased access to information and improvements in the speed and accuracy of prioritizing and transferring data brought about by advances in technology. While the friction and fog of war can never be eliminated, new technology promises to mitigate their impact.

information superiority—to collect, process, and disseminate an uninterrupted flow of information while exploiting or denying an adversary's ability to do the same

Sustaining the responsive, high quality data processing and information needed for joint military operations will require more than just an edge over an adversary. We must have information superiority: the capability to collect, process, and disseminate an uninterrupted flow of information while exploiting or denying an adversary's ability to do the same.

Information superiority will require offensive and defensive information warfare (IW). Offensive information warfare will degrade or exploit adversary collection or use of information. It will include both traditional methods, such as a precision attack to destroy adversary command and control capability, and nontraditional methods, such as electronic intrusion into an information and control network to convince, confuse, or deceive enemy military decisionmakers.

There should be no misunderstanding that our effort to achieve and maintain information superiority will also invite resourceful attacks on information systems. *Defensive information warfare* to protect the ability to conduct information operations will be one of the biggest challenges in the period ahead. Traditional defensive IW operations include physical security measures and encryption. Nontraditional actions will range from antivirus protection to innovative methods of secure data transmission. In addition, increased strategic level programs will be required in this critical area.

CONDUCT OF JOINT OPERATIONS

Our forces have been largely organized, trained, and equipped to defeat military forces of potential adversaries. Direct combat against enemy forces is the most demanding and complex set of requirements we have faced. Other operations, from humanitarian assistance in peacetime to peace operations in a near hostile environment, have proved to be possible using forces optimized for wartime effectiveness.

Technological advances will magnify the advantages provided by our high quality force. The promise provided by these technologies is best viewed from an operational perspective. In the past, capabilities often required us to physically mass forces to neutralize enemy power. The time needed to build and employ massed combat forces, including platforms, weapons, and associated logistics, required to achieve success resulted in military operations that were largely sequential in nature and tactics which too often saw land, maritime, and air forces massed in time and space

By 2010, we should be able to change how we conduct the most intense joint operations. Instead of relying upon massed forces and sequential operations, we will achieve massed effects in other ways. Information superiority and advances in technology will enable us to achieve desired effects through the tailored application of joint combat power. Higher lethality weapons will allow us to conduct attacks concurrently that formerly required massed assets, applied in a sequential manner. With precision targeting and

U.S. Air Force (Conrad M. Evans)

longer range systems, commanders can achieve necessary destruction or suppression of enemy forces with fewer systems, thereby reducing the need for time-consuming and risky massing of people and equipment. Improved command and control, based on fused, all-source, real-time intelligence will reduce the need to assemble maneuver formations days and hours in advance of attacks. Providing improved targeting information directly to the most effective weapon system will potentially reduce traditional force requirements at the point of main effort.

All of this suggests that we will be increasingly able to accomplish the effects of mass—the necessary concentration of combat power at the decisive time and place—with less need to mass forces physically than in the past.

This will enhance combat capabilities against opposing military forces. To be sure, this will not obviate the ultimate need for "boots on the ground" in many operations, nor will it relieve servicemen and women of the need to be physically present at decisive points in battle or in other operations, or to be exposed to conditions of great danger and hardship.

However, in all operations technological advances and use of information will give our warfighters at the individual, crew, and small unit levels major qualitative advantages over potential adversaries. Our forces will be able to sense dangers sooner. They will have increased awareness of the overall operational environment, including the situation of friendly forces, allowing them to make better decisions more rapidly. They will have an enhanced ability to produce a range of desired effects by bringing together the correct mix of assets at the place and time most favorable to success. When tied to a more rapid resupply, reinforcement, and reengagement capability, they will be better able to provide the best response at less risk to themselves, based on the mission objectives and circumstances of the battlespace. Whether operating from dispersed locations or in close proximity to each other, the confidence of each warfighter or crew will be bolstered by enhanced connectivity to comrades, supporting elements, and higher commands.

In sum, by 2010 we should be able to enhance the capabilities of our forces through technology. This will, in turn, expand our great advantage: the adaptability, initiative, teamwork, and commitment of our people at every level.

To exploit the enormous potential of technology, we must develop in a systematic manner the full range of required enhancements. This process must begin with a new conceptual framework for operations.

The basis for this framework is found in the improved command, control, and intelligence which can be assured by information superiority. These are the most straightforward applications of much of the new technology; however, the full impact of these technologies is more profound. Enhanced command and control and much improved intelligence, along with other applications of new technology, will transform traditional functions of maneuver, strike, protection, and logistics. These transformations will be so powerful that they become, in effect, new operational concepts: dominant maneuver, precision engagement, full dimensional protection, and focused logistics. These operational concepts will provide our forces with a new conceptual framework.

New Operational Concepts

Dominant maneuver will be the multidimensional application of information, engagement, and mobility capabilities to position and employ widely dispersed joint land, sea, air, and space forces to accomplish assigned operational tasks. Dominant maneuver will allow our forces to gain a decisive advantage by controlling the breadth, depth, and height of the battlespace.

Through a combination of asymmetric leverage, achieved by positional advantages, as well as decisive speed and tempo, dominant maneuver allows us to apply decisive force to attack enemy centers of gravity at all levels and compels an adversary to either react from a position of disadvantage or quit.

U.S. Air Force

DOD

Dominant maneuver will require forces adept at conducting sustained and synchronized operations from dispersed locations. They must be able to apply overwhelming force in the same medium and create asymmetric advantages by attacking cross-dimensionally, such as air or sea against ground or ground and sea against air defenses. These forces must have the ability to outpace and outmaneuver an enemy. Current systems, enhanced by information superiority, will provide a clearer picture of enemy and friendly locations. Information superiority also will allow joint commanders to coordinate widely dispersed units, receive accurate feedback, and execute more demanding, higher precision requirements. Increasingly lethal direct and indirect fire systems, with longer ranges and more accurate targeting, will increase the punch of these forces as they maneuver.

The tailor-to-task organizational ability will provide the additional advantage of self protection—another key element for successfully achieving dominant maneuver. The combination of seamless operations with reduced buildup time and a smaller, more widely dispersed footprint will make it much more difficult for an adversary to find and attack our forces. Other defensive measures, low observable technologies, signature reduction, and enhanced deception capabilities will provide similar advantages for protection and improve chances for mission success.

Together, the organizational concept of dominant maneuver is a prescription for more agile, faster moving joint operations, which will combine land, maritime, and air forces more effectively to deliver decisive combat power.

Precision engagement will consist of a system of systems that enables our forces to locate an objective or target, provide responsive command and control, generate the desired effect, assess the level of success, and retain the flexibility to reengage with precision when required. Even from extended ranges, precision engagement will allow us to shape battlespace, enhancing the protection of our forces.

Information operations will tie high fidelity target acquisition, prioritized requirements, and command and control of joint forces within battlespace. This combination will provide a greater assurance of delivering the desired effect, lessen the risk to forces, and minimize collateral damage.

Precision engagement will build on current U.S. advantages in delivery accuracy and low observable technologies. It will use a wide variety of means, including very accurate aerial deliveries or air drops, discriminate weapon strikes, and precise, all-weather stand-off capability. Enhanced

U.S. Navy

jointness will ensure greater commonality between service precision engagement capabilities and provide future joint force commanders with a wider array of responsive, accurate, and flexible options.

Full Dimensional Protection. We must also protect forces from the very technologies that we are exploiting. Unless we provide an adequate measure of protection for our forces, these new operational concepts will be highly vulnerable to disruption. We will achieve this required level of protection through the concept called full dimensional protection. The primary prerequisite for full dimensional protection will be control of the battlespace to ensure forces can maintain freedom of action during deployment, maneuver, and engagement, while providing multi-layered defenses for forces and facilities at all levels. Full dimensional protection will enable effective employment of our forces while degrading opportunities for an enemy. It will be essential, in most cases, for gaining and maintaining the initiative required to execute decisive operations. The concept will be proactive, incorporating both offensive and defensive actions that may extend well into areas of enemy operations.

Full dimensional protection will be built upon information superiority which will provide multidimensional awareness and assessment, as well as identification of forces in the battlespace. Information warfare will support this effort by protecting information systems and processes while denying an adversary similar capabilities.

Upon this information base, we will employ a full array of active and passive measures at multiple echelons. Active measures will include battlespace control operations to guarantee the sea, air, space, and information superiority that is needed to gain the degree of control to accomplish the assigned tasks. Active measures will also include an integrated, in-depth theater air and missile defense that will exploit service-unique capabilities to detect, identify, locate, track, and deny enemy attacks on our joint forces.

Passive measures will include the inherent protection provided by information superiority and dispersal to increase warning of attacks. Operational dispersion will further reduce risks to our forces. New sensors and information dissemination systems will be deployed to detect chemical or biological attack at great ranges and provide warning to specific units that may be affected. Enhanced deception and camouflage measures, increased individual and collective protection, and a joint restoration capability against the effects of WMD are also key elements for achieving full dimensional protection.

Most importantly, these active and passive measures will be combined to provide a more seamless joint architecture for force protection, which will leverage the contributions of individual services, systems, and echelons. The result will be improved freedom of action for friendly forces, and better protection at all echelons against precision attack, weapons of mass destruction, and other conventional or nonconventional systems.

Focused Logistics. Each of the preceding concepts relies on our ability to project power with the most capable forces, at the decisive time and place. To optimize all three concepts, logistics must be responsive, flexible, and precise. 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 level of operations. It will be fully adaptive to the needs of our increasingly dispersed and mobile forces, providing support in hours or days versus weeks. Focused logistics will enable joint forces of the future to be more mobile, versatile, and projectable from anywhere in the world.

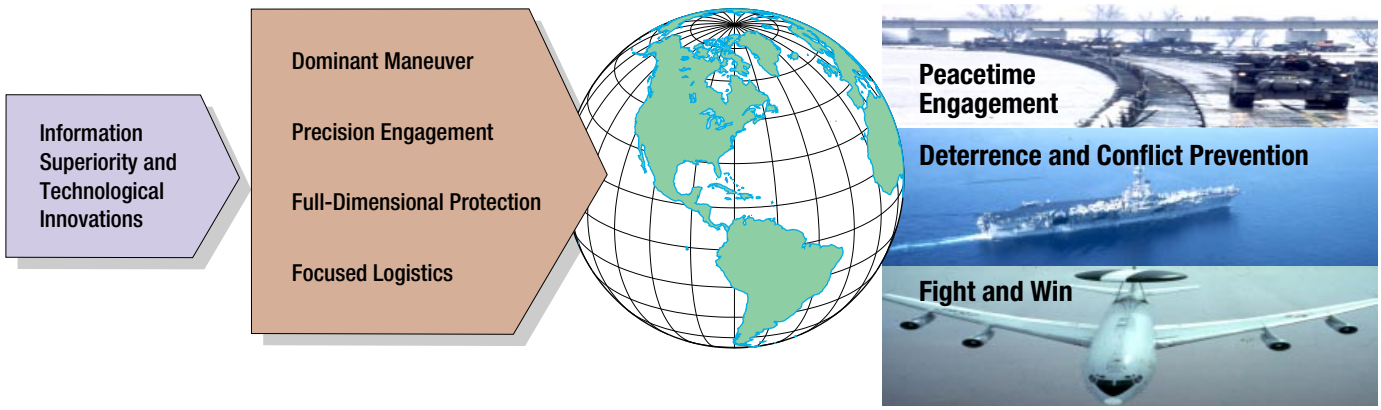
Logistic functions will incorporate information technologies to transition from the rigid vertical organizations of the past. Modular and specifically tailored combat service support packages will evolve in response to wide-ranging contingency requirements. Service and defense agencies will work jointly and integrate with the civilian sector, where required, to take advantage of advanced business practices, commercial

U.S. Air Force (Russ Pollanen)

Joint Combat Camera Center (Tony Lambert)

DOD

Figure 2: Full Spectrum Dominance



economies, and global networks. Active and Reserve combat service support capabilities, prepared for complete integration into joint operations, will provide logistic support and sustainment as long as necessary.

Information technologies will enhance airlift, sealift, and pre-positioning capabilities to lighten deployment loads, assist pinpoint logistics delivery systems, and extend the reach and longevity of systems currently in the inventory. The combined impact of these improvements will be a smaller, more capable deployed force. It will require less continuous support with a smaller logistics footprint, decreasing the vulnerability of U.S. logistics lines of communication.

Full Spectrum Dominance. Each of these operational concepts will reinforce the others and will allow us to achieve massed effects in warfare from more dispersed forces. This synergy will greatly enhance our capabilities in high intensity conventional military operations.

However, the synergy of these four concepts transcends intense conventional warfighting. Without overspecialization, the development of these new operational concepts has great potential to fulfill more effectively the full range of tasks assigned to us. That is, taken together these four new concepts will enable us to dominate the full range of military operations from humanitarian assistance, through peace operations, up to and into the highest intensity conflict.

Information superiority will provide a commander with enhanced awareness of his area of responsibility, whether his objective is to close with and engage an adversary or render assistance in a humanitarian operation. Surveillance, reconnaissance, and knowledge of the precise location of dispersed friendly forces to effectively direct their efforts are applicable for all military tasks.

Likewise, the tactical mobility required for dominant maneuver which enables our forces to move rapidly into position to overwhelm an enemy will also allow commanders to place forces in positions of control in counterdrug, counterterrorism, or peacekeeping operations. Precision engagement capabilities designed for warfighting tasks will also enable greater discrimination in the application of force against an emerging threat during peace enforcement operations. Full dimensional protection will allow freedom of action for forces and limit their vulnerability during combat and noncombatant operations. Focused logistics will ensure delivery of the precise amount and types of supplies required for joint forces to succeed in combat or noncombat operations.

Although the positive implications for enhancing capabilities across the range of military operations seem obvious, we cannot assume that all new concepts will be equally valuable in all operations. In intensive combat, target destruction may be essential in the early engagements of an operation, but extensive physical presence may later be necessary to accomplish the assigned mission. This presence may be required to fully neutralize enemy forces, deal with prisoners and potentially hostile populations, or otherwise assure that success in attacking targets is followed through to achieve overall objectives of operations. For noncombat operations, physical presence will likely be even more important. Thus, we must ensure that capturing new technologies does not overspecialize the force; we must retain balanced and sustainable capabilities.

We recognize that, regardless of how sophisticated technology becomes, the warfighter's judgment, creativity, and adaptability in the face

of highly dynamic situations will be essential to the success of future joint operations. The human element is especially important in situations where we cannot bring technological capabilities fully to bear against opponents who seek to nullify our technological superiority by various means. In these cases, success will depend, as it has historically, on the physical, intellectual, and moral strengths of the individual soldier, sailor, marine, and airman—especially their adaptability in the face of the unexpected.

Critical Considerations. To sustain the Armed Forces and instill these operational concepts will require high quality people—the key ingredient for success. The judgment, creativity, and fortitude of our people will remain the key to success in future joint operations. Turning concepts into capabilities requires adapting leadership, doctrine, education and training, organizations, and materiel to meet the high tempo, high technology demands posed by these new concepts.

critical considerations: high quality people, innovative leadership, joint doctrine, joint education and training, agile organizations, and enhanced material

Dedicated, High Quality People. Thus, recruiting and retaining dedicated high quality people will remain our first priority. Only a force that has the courage, stamina, and intellectual ability to cope with the complexity and rapid pace of future joint operations will have the capability to achieve full spectrum dominance.

U.S. Army

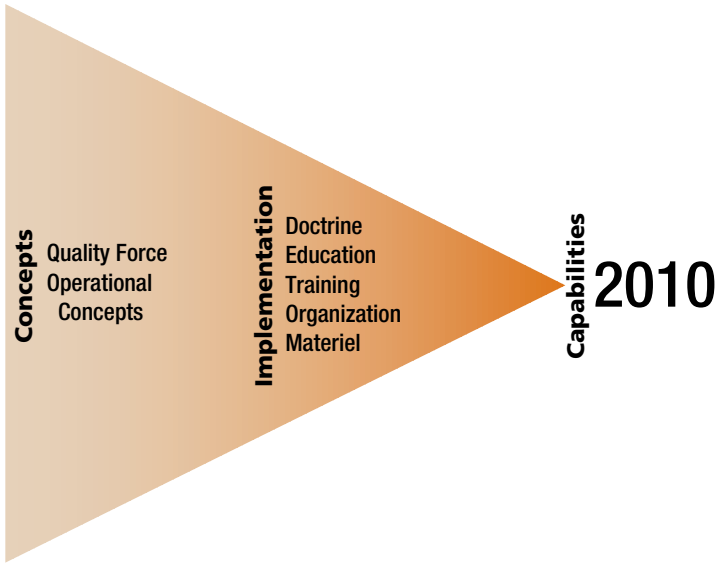
We cannot expect risk-free, push-button style operations in the future. Military operations will continue to demand extraordinary dedication and sacrifice under the most adverse conditions. Some military operations will require close combat on land, at sea, or in the air. The courage and heart of our soldiers, sailors, marines, and airmen will remain the foundation of all that the Armed Forces must do.

Innovative Leadership. The dynamic nature of joint operations in the 21st century battlespace will require a continued emphasis on developing strong leadership skills. While we must do everything possible to leverage the power of advanced technologies, there are inherent limitations. Confronting the inevitable friction and fog of war against a resourceful and strong minded adversary, the human dimension including innovative strategic and operational thinking and strong leadership will be essential to achieve decisive results. Effective leadership provides our greatest hedge against uncertainty.

We will build upon the enduring foundation of functional expertise, core values, and high ethical standards. Future leaders at all levels of command must understand the interrelationships among military power, diplomacy, and economic pressure, as well as the role of government agencies and nongovernmental actors, in achieving national security objectives. They will require a sophisticated understanding of historical context and communication skills to succeed in the future. The evolution of command structures, increased pace and scope of operations, and the continuing refinement of force structure and organizations will require leaders with a knowledge of the capabilities of all services. Without sacrificing their basic service competencies, these future leaders must be schooled in joint operations from the beginning of their careers. This leadership development must begin rigorous selection processes and extend beyond formal education and training. Hands-on experience in a variety of progressive assignments must stress innovation, dealing with ambiguity, and a sophisticated understanding of the military art. In short, our leaders must demonstrate the very highest levels of skill and versatility in ever more complex joint and multinational operations.

Joint Doctrine. As we change the way we fight, joint doctrine will remain the foundation that fundamentally shapes the way we think about and train for joint military operations. Joint doctrine is a critical ingredient for success because the way in which leaders think and organize their forces will be as important as the technology we use to conduct future joint operations. Future joint doctrine must articulate the process required for successful joint planning but must be

Figure 3: From Concepts to Capabilities



flexible enough to serve as a broad framework to guide forces in joint and multinational operations. It is the key to enhanced jointness because it transforms technology, new ideas, and operational concepts into joint capabilities.

We will discover new ways to change the development process for joint doctrine. Thus, we must integrate top-down doctrine throughout the development cycle, while continuing to ensure that joint doctrine fully incorporates the strengths that each service brings to joint warfare.

Education and training programs must prepare joint warriors to meet the challenges of the future battlespace. They must emphasize employing new technologies and achieving operational concepts outlined in this vision. It is essential that joint professional military education (PME) provide warfighters with an understanding of strategic concepts in the future environment where military force will be applied, as well as an in-depth understanding of individual service systems and how their integration enhances joint operations.

joint doctrine serves as a common perspective and fundamentally shapes the way we plan, think, and train for military operations

The requirement for high quality, realistic, and stressful training that amplifies education and fully prepares forces for joint operations is similarly important. We must emphasize integration of joint capabilities and develop skills that increase individual and organizational effectiveness. Our training must reflect emerging threats and include both information saturation and total interruption of information flow.

Enhanced modeling and simulation of the battlespace, when coupled with on the ground evaluation with real soldiers, sailors, marines, and airmen, improve the realism of training, upgrade the levels of day-to-day readiness, and increase opportunities to test innovative concepts and new strategies. Simulations must be interconnected globally—creating a near-real-time interactive simulation superhighway between forces in every theater. Each CINC must be able to tap into this global network and connect forces worldwide that would be available for theater operations. This network will allow selected units in CONUS to train with forces in an overseas theater without actually deploying there. Similarly, we will pursue improvements in campaign modeling and analysis to exploit the concepts of this vision.

This global simulation network must include Reserve and National Guard units, as well as selected multinational partners, to increase their readiness and interoperability.

Agile Organizations. In order to make optimum use of the technologies and operational concepts discussed earlier, we must carefully examine the traditional criteria governing span of control and organizational layers for services, commands, and defense agencies. We will need organizations and processes that are agile enough to exploit emerging technologies and respond to diverse threats and enemy capabilities. As we move forward, we may require further reductions in supervision and centralized direction.

All organizations must become more responsive to contingencies, with less startup time between deployment and employment. Because we rely on the total force to provide the full range of military capabilities, we also require responsive Reserve components that can rapidly integrate into joint organizations.

Increased organizational flexibility will enhance responsiveness. We will seek organizations that can support flexible force packaging and work to smooth the process further.

Enhanced Materiel. Since most of the platforms expected to be in use in 2010 are already designed or operational, we will emphasize high leverage, leading edge technology enhancements to increase capabilities. We will also place greater emphasis on common usage between services and increase interoperability among the services and multinational partners.

We will need a responsive research, development, and acquisition process to incorporate new technology. This process must leverage technology and management innovations originating in the private sector through responsive access to commercial developments.

IMPLEMENTING JOINT VISION 2010

We must proceed with implementing *Joint Vision 2010* in a way that captures the promise of new concepts while sustaining readiness and flexibility through every step of this evolution.

The implementation plan will involve CINCs, services, and joint organizations. Each element must participate in developing and testing these new concepts and their overall integration. Modeling, demonstrations, simulations, technology wargames, and joint exercises will help assess and validate these concepts, as well as assist in developing new operational procedures and organizations.

U.S. Air Force (Marv Lynchard)

The implementation process will integrate ongoing initiatives, such as the Joint Requirements Oversight Council, Joint Warfighting Capabilities Assessments, and Advanced Capabilities Technology Demonstrations (ACTD), to promote the integrated development of operational capabilities. Concurrently, joint education and doctrinal development must keep pace.

As we implement this vision, affordability of the technologies envisioned to achieve full spectrum dominance will be an important consideration. While we anticipate that some significant improvements in capability may be gained economically, for example, by dual-use technologies for C^4I, others will be more difficult to achieve within budget realities that exist today and will exist into the next century. We anticipate the need to be selective in the technologies we choose, and thus expect continuing assessment and adjustments for affordability as well as for other lessons learned during the implementation process.

Achieving the full promise of this vision will largely depend on how well we structure our defense program. We will have to make hard choices to achieve the tradeoffs that will bring the best balance, most capability, and greatest interoperability for the least cost. Ultimately, we will have to measure continuously the affordability of achieving full spectrum dominance against the overarching need to maintain the quality of forces, readiness, and force structure needed to execute our operational tasks between now and the year 2010.

As we implement this vision, we must acknowledge that strong leadership, warfighting skill, and innovative thinking will be central to developing the detailed requirements and decision points. Our organizational climate must reward critical thinking, foster a competition of ideas, and reduce structural or cultural barriers to innovation. Both in peacetime and war, the creative talents of our men and women provide us a critical advantage over those who would consider challenging us or our allies.

Our Armed Forces are the world standard for military excellence and joint warfighting. We will further strengthen our military capabilities by taking advantage of improved technology and the vitality and innovation of our people to prepare forces for the 21st century.

Joint Vision 2010 creates the template to guide the transformation of these concepts into joint operational capabilities. It serves as the basis for focusing the strengths of each individual service or component to exploit the full array of available capabilities and allow us to achieve full spectrum dominance. It will also guide the evolution of joint doctrine, education, and training to assure we will be able to achieve more seamless joint operations in the future.

As we pursue this vision, we must remain mindful of our responsibilities: to prevent threats to U.S. interests from emerging, deter those that do, and defeat those threats by military force if deterrence fails. In 2010, we will meet these responsibilities with high quality people and leaders, who are trained and ready for joint operations and able to exploit high technology equipment. Even during a time of unparalleled technological advances we will always rely on the courage, determination, and strength of America's men and women to ensure we are persuasive in peace, decisive in war, and preeminent in any form of conflict. **JFQ**

Now on the Internet—

http://www.dtic.mil/doctrine/jv2010

POTENTIAL ADVERSARIES

Joint Vision 2010:

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Persuasive in Peace

MULTINATIONAL OPERATIONS

Quality Forces

Preeminent in Any Form of Conflict

ENHANCED JOINTNESS

Dominant Maneuver

INNOVATION: Past and Future

By WILLIAMSON MURRAY

Mid-air refueling, Rockwell Field, California.

U.S. Air Force Historical Center

DarkStar UAV.

U.S. Air Force

We have entered a period of uncertainty where threats are indeterminate even as changes in technology accelerate. Rapid innovation—apparent in the impact of stealth and precision weaponry in the Gulf War—appears likely to continue. Yet the Armed Forces are not apt to receive anything close to the resources enjoyed during the Cold War. With less money and greater ambiguity on the nature of opponents and wars in the future, we must innovate. Recent case studies of innovation in a similar period—the 1920s and 1930s—when military institutions confronted great international uncertainty, relatively low support, and substantial technological change, offer views on how one might view innovation in the next century.[1]

Many difficulties confront historians in drawing guidance from the past. It is impossible to replicate conditions of war in peacetime, while war itself is so permeated with fog and friction that it is difficult for military organizations to determine what has actually happened on the battlefield.[2] Since we prepare for and fight war in the real world rather than on computers, military innovation and adaptation reflect the complexity of that reality—one in which, as science increasingly reveals, chance and nonlinear factors dominate. For the analyst of innovation, complexities of the

Williamson Murray currently holds the Major General Matthew C. Horner chair of military history at Marine Corps University and is professor of history emeritus at The Ohio State University.

Naval Historical Center

Higgins ramped landing boat, 1941.

process make it extraordinarily difficult to recover the past in a simple, digestible form. Relations among technological innovations, fundamentals of military operations, and changes in concepts, doctrine, and organization that drive innovation are essentially nonlinear. Changes in inputs such as weapon systems—large or small—may not yield proportionate changes in outputs or combat dynamics. And the impact of changes on doctrine or the education of an officer corps is almost incalculable.

Reading the past requires understanding how interactions actually work. Since the 1950s, research from fields as diverse as meteorology, ecology, physics, and mathematics has uncovered numerous dynamic systems so simple as to represent virtual paragons of deterministic, clockwork mechanisms; yet they can give rise to long-term behavior so complex as to be literally unpredictable or chaotic. It now appears that stable systems with simple and predictable dynamics are in fact the exceptions in nature rather than the rule. And most crucially, the local randomness of nonlinear systems is basic: gathering and processing more information with better algorithms and computers cannot, even in principle, make the unpredictability go away.

evolutionary innovation depends on organizational focus over time rather than guidance by one individual

The implications of these developments suggest that the world as a whole does not work in a mechanistic, deterministic fashion; that complex social interactions such as military innovation or actual combat do not reduce to simple linear processes; and that the study of human affairs—the interplay of thousands of independent variables—is more of an art than a science. The process of innovation in military institutions and cultures, involving myriad actors, complex technologies, and uncertainties of conflict and human relations, forms a part of this world and is no more subject to reductionist solutions than any other aspect of human affairs.

An Evolutionary Phenomenon

With the possible exception of the British air defense system developed by Hugh Dowding during the late 1930s, an innovation that flew in the face of airpower theories, bringing new ideas and concepts of fighting to fruition was a long process in the interwar years. This suggests that effective military innovation is evolutionary rather than revolutionary. To the British and French in summer 1940, the unfolding of German exploitation tactics, *Blitzkrieg* warfare, doubtless appeared as revolutionary. But to Germans involved in the process since the 1920s it seemed evolutionary.

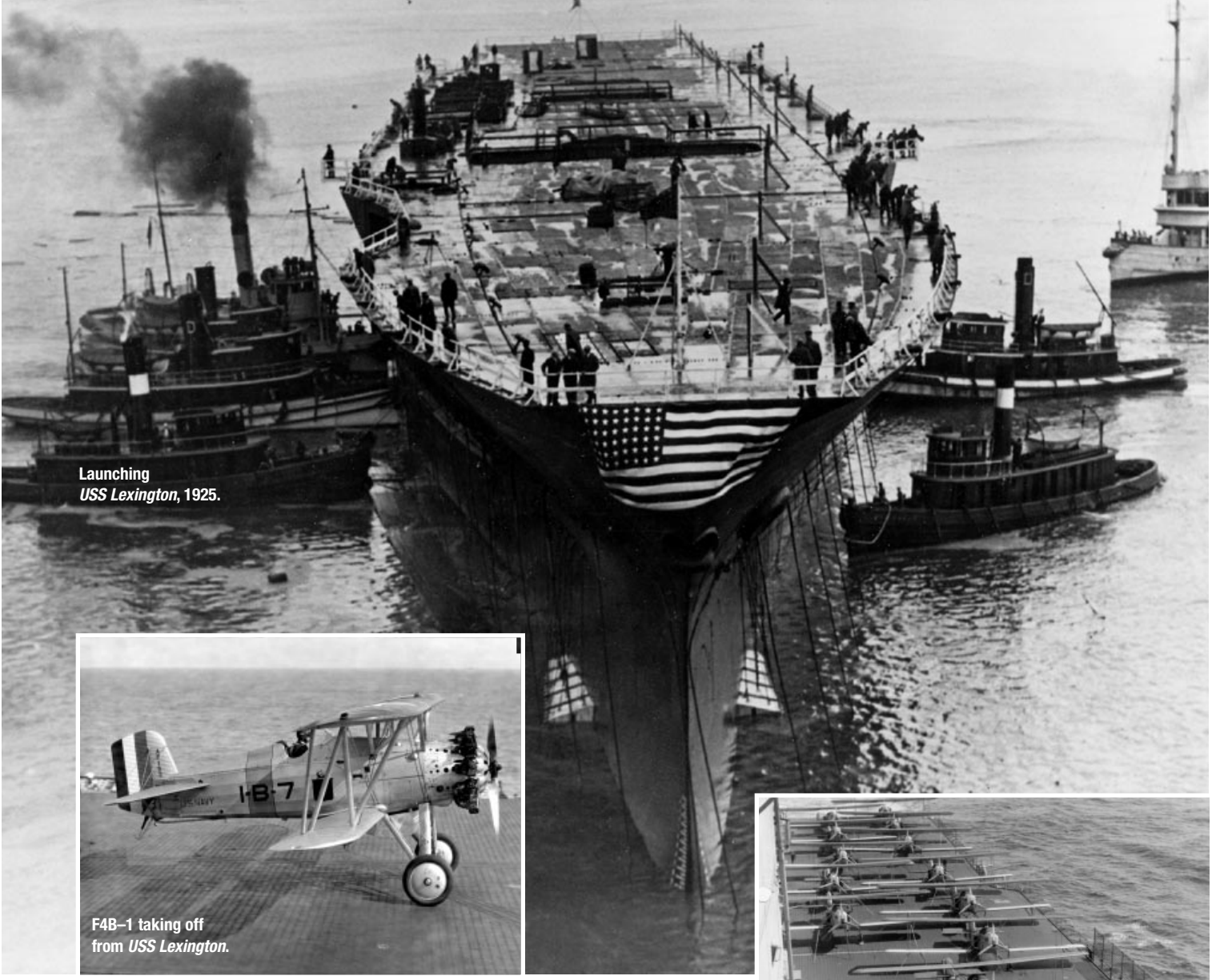
While the degree of alteration on a year-to-year basis can be relatively small, gradual and cumulative change can be dramatic over time. The contrast between French and German tactical systems could not have been more striking in May 1940, but innovations that led to this breaking point took two decades. However gradual the changes, a chasm existed between how these two forces thought about, prepared for, and executed on the battlefield.

Evolutionary innovation depends on organizational focus over time rather than guidance by one individual for a short period. Military leadership can affect the process through long-term cultural changes rather than short-term decisions. Interwar development of armored warfare offers some perspectives. The most influential leaders were Lord George Francis Milne of Britain and General Hans von Seeckt of Germany. Milne was the more willing to see the army of the future in terms of armored forces. He not only supported armored maneuvers with scarce funds but told his senior officers in the 1920s:

> *It is up to us to find some means of bringing war back to what it was when the art of generalship was possible. The only means of doing this is to increase mobility on the battlefield. Now that is the point of the initiation of the armored brigade—to revive the possibility of generalship.*[3]

Seeckt, though interested in motorized warfare, never got to that point. In 1928 he cautioned the *Reichswehr* officer corps that he did not foresee motorized soldiers entirely replacing horsemen.

But the significant issue is that Seeckt fostered a culture of innovation through the kind of officer corps he created in the early 1920s and the institutional values he inculcated. His officers developed doctrinal concepts based on past as well as current experience.[4] In 1920 he established 57 committees to study the lessons of World War I.[5] This effort produced the basic *Reichswehr* interwar doctrine manuals that had such influence on the *Wehrmacht*. This is an important point. There is an old axiom that generals prepare for the last war. In



Launching *USS Lexington*, 1925.

Naval Historical Center

F4B–1 taking off from *USS Lexington*.

Naval Historical Center

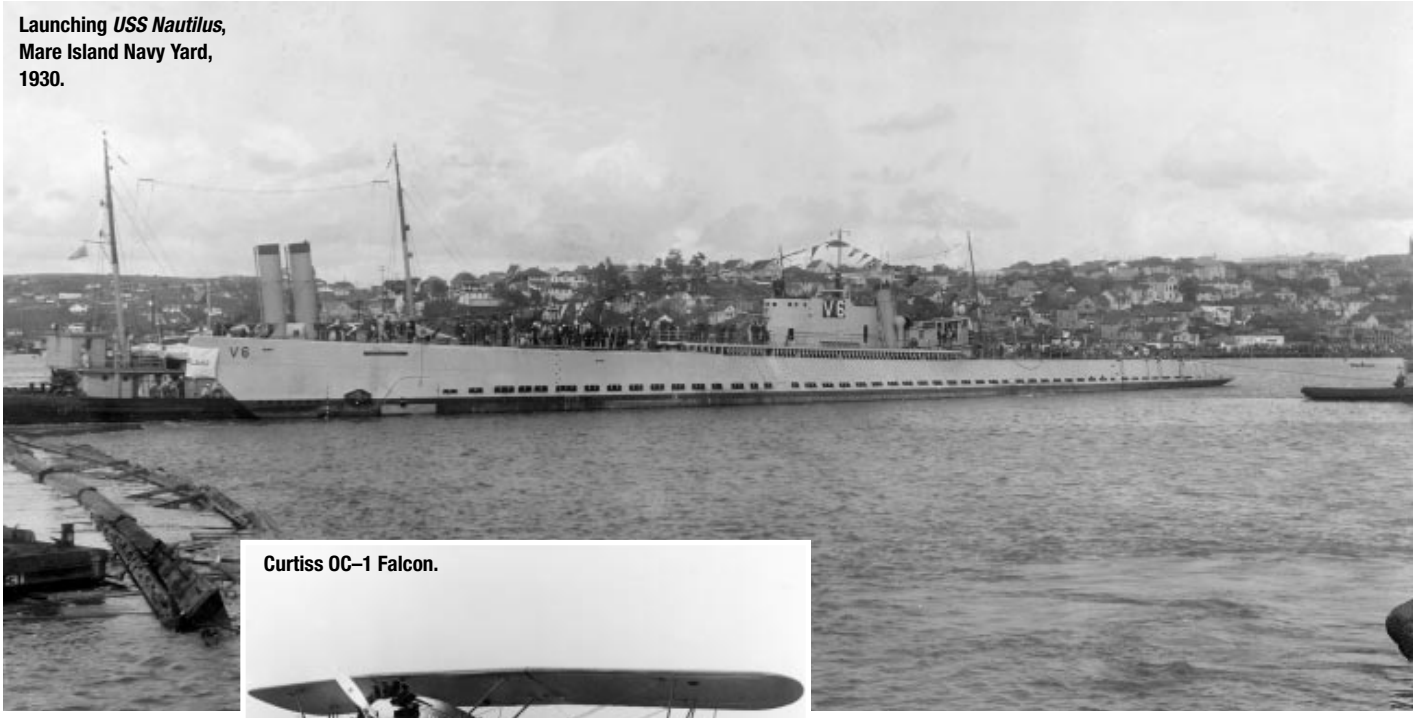
Naval Historical Center

F6Cs and T3Ms aboard *USS Lexington* off San Diego, 1928.

fact most military organizations show little interest in studying the lessons of even recent conflicts. Rather, they ignore the past or look to another paradigm. But the Germans were different.

Based on the *Reichswehr* study, Werner von Fritsch and Ludwig Beck—who became the army commander and the chief of the great general staff, respectively, when Adolf Hitler came to power—wrote *Die Truppenführung* in 1932, the chief army doctrine manual that the *Wehrmacht* used with such effect during World War II. The values Seeckt imparted to the *Reichswehr* placed a high value on analysis of changes in doctrine, tactics, and technology. In other words he created an ideal climate for innovation.

Milne, on the other hand, took over the British army well after World War I. That force had done little to examine its experience in the war, and Milne would not begin such an effort until his last year as the chief of the imperial general staff (CIGS). Moreover, the regimental system put little value on professional study of war.[6] Consequently, Milne's influence was wholly personal and dissipated rapidly in the 1930s after his retirement and a series of unimaginative leaders took control. These officers, particularly Field Marshal Archibald Montgomery-Massingberd (Milne's successor), effectively sabotaged his initiatives.[7] It thus appears that long-term decisions which affect the culture and values of the officer corps are crucial to innovation, while it is difficult for a single individual to institutionalize change.



Launching *USS Nautilus*, Mare Island Navy Yard, 1930.

Naval Historical Center

Curtiss OC–1 Falcon.

Naval Historical Center

Success in Innovation

Despite difficulties, some military institutions did innovate with success during the interwar period. Others, however, failed dismally. The factors that led to success thus show what will be conducive to future innovations. Perhaps the most crucial factor is military culture. One might define military culture as the sum of intellectual, professional, and traditional values possessed by an officer corps. It is key to how officers assess the external environment and respond to threats. It is also crucial in how forces prepare for combat and innovate.

since German officers took doctrine manuals seriously they could comprehend combined arms

As suggested above, the German officer corps met many of these criteria. They in effect incorporated innovations in armored warfare through a comprehensive and realistic understanding of modern warfare. Steady and incremental improvement in tactics as well as doctrine resulted in mechanized forces with capabilities well beyond those of other European armies. Essential to this success was the German ability to conceptualize the operational as well as tactical levels of war in doctrinal writings.

Thus *Die Truppenführung* provided the army with a coherent framework for thinking about future battlefields. It not only offered a means of integrating the traditional branches—artillery and infantry—but latitude to incorporate evolving concepts of armored war and close air support within a doctrine aimed at fighting mobile, decentralized battles. Since German officers took doctrine manuals seriously they could comprehend the larger picture of combined arms. Once exposed to the possibilities of armor in the Polish campaign, many skeptics were converted.

Moreover, there was honest reflection on future developments. For example, the German high command and general staff subjected army performance in Poland to a searching analysis in which operational success was not the major criterion. In Britain, on the other hand, Montgomery-Massingberd in the early 1930s suppressed the Kirk report on the performance of the British army in World War I because it was critical. That would have been inconceivable in Germany.

Naval Historical Center

P–39N, 1943.

This culture of critical examination transcended the learning processes about the last war. Throughout the late 1930s one sees the same pattern as the Germans conducted exercises and then combat operations. In all cases they continued to critically assess what had occurred in the field. Thus they learned from mistakes. Key to their approach was the treatment of errors in using new equipment or procedures. They saw mistakes as a learning experience, not a cause for reproof.

During this period German army culture provided for trust and honesty among command levels. Commanders were not afraid to admit that their units had problems. The *Anschluss* is a good illustration of this process, as the occupation of Austria in March 1938 indicated weaknesses throughout the participating units. After-action reports from battalion to army level became ever more critical of troop performance, training, and discipline in higher levels of command.

But cultural problems robbed Germans of the advantages gained in tactical and operational innovations. The most brilliant battlefield success could not make up for logistic and intelligence systems that failed to function in the modern world. Given the contempt on the part of their officer corps for these crucial areas—the *Luftwaffe* and navy were as bad as the army—the Germans were unable to engage in prolonged struggle. If tactical innovations gave the *Wehrmacht* an advantage early in World War II, they could not triumph over gross mistakes in strategy, logistics, and intelligence made largely as a result of military culture.

German officers were not alone in benefiting from a culture that encouraged innovation. Carrier aviation in the U.S. Navy offers lessons about successful military change in the interwar period. Navy culture created a realistic relationship between annual exercises and education and wargaming at the Naval War College. Developments in carrier aviation largely rested on academic processes. The college designed summer fleet problems, the fleet executed them realistically, then a careful evaluation funneled the results back to Newport. Finally the college, well connected with the fleet, kept officers informed on developments in naval aviation and concepts for employing it. Moreover, the Navy sent its best officers to the Naval War College.

The realism and imagination of the wargames at Newport are particularly striking. As early as 1923, a game involved a blue fleet of five aircraft carriers against an opponent with four. While some games cast carriers in the mundane role of spotting for a battlefleet, the blue forces launched a strike of two hundred aircraft armed with bombs and torpedoes which crippled enemy carriers and a battleship. As Steven Rosen observed in his study of innovation:

> *Most important, concepts essential in the conduct of carrier war were worked out. The necessity of massing aircraft for strikes was highlighted. Rather than assigning aircraft to each battleship to act as its eyes, they were launched and kept in the air until large numbers could be assembled for an independent strike. The need for a coherent air-defense plan to coordinate the use of defensive aircraft was emphasized, and the commander of the red fleet was faulted for failing to come up with such a plan.*[8]

The Navy approach to wargaming was similar to that of the German army. Neither used exercises or games to justify current revealed doctrine or exclude possibilities not popular among senior officers. In other words, exercises and games aimed at those questions that one might ask, not at solutions. In peacetime they were educational. In war they showed possibilities. The most important German game for crossing the Meuse, for example, held in March 1940, did not resolve whether *Panzer* spearheads should make the breakthrough by themselves or wait for the infantry.[9]

Perhaps the greatest interwar contribution which military culture made to innovation was in allowing officers to use their imaginations. Where that did not exist or military colleges inculcated an absolutist doctrine—as in the French army or at the U.S. Army Air Corps Tactical School—the result was flawed military innovation.

Failure to Innovate

Italians were the least successful innovators of the interwar period. While Anglo-American

and German historians once blamed Italian failures on ethnic characteristics, recent scholarship has placed it where it belongs—on an officer corps that failed its nation and soldiers.[10] A remark by General Ubaldo Soddu suggests the pervasive culture of the Italian military: "When you have a fine plate of pasta guaranteed for life, and a little music, you don't need anything more."[11] Any staff or war college that emphasizes golf and "getting in touch with the family" is not about to provide the intellectual climate for innovation.

the most glaring message of World War I was that the bomber only got through under fighter escort

Evidence throughout the interwar period suggests a wide-scale pattern of failing to innovate which reflects a larger problem of military effectiveness. As one commentator on the performance of military institutions from 1914 to 1945 noted:

Thus in the spheres of operations and tactics, where military competence would seem to be a nation's rightful due, the twenty-one studies [on separate national military experiences] *suggest for the most part less than general professional military competence and sometimes abysmal incompetence. One can doubt whether any other profession in these seven nations during the same periods would have achieved such poor ratings by similarly competent outside observers.*[12]

U.S. Army Military History Institute

France, 1918.

Misuses of History

Failing to innovate is more than simple incompetence. Some military institutions may have compelling reasons not to innovate or circumscribe possibilities. In the case of the development of British carrier aviation, the arguments over the fleet air arm and the loss of most naval airmen to the RAF in 1918 made innovation almost impossible, at least compared to events in the United States and Japan.

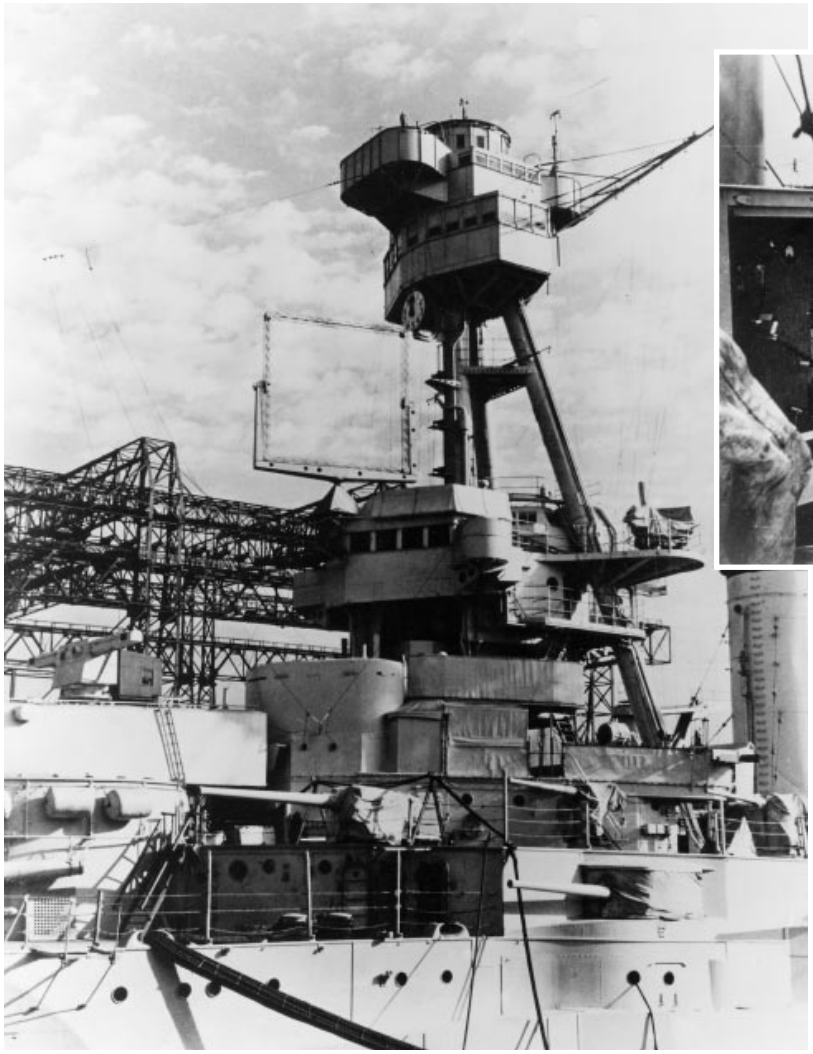
Distinct barriers to innovation appeared throughout the 1930s. Perhaps the most obvious is a willful desire to discard history or twist it to justify current doctrine and beliefs. In 1924 the British air staff explicitly rejected the past in a memorandum to the chiefs of staff committee which argued that the force attacking an enemy nation:

. . . can either bomb military objectives in populated areas from the beginning of the war, with the objective of obtaining a decision by moral effect which such attitudes will produce, and by the serious dislocation of the normal life of the country, or, alternatively, they can be used in the first instance to attack enemy aerodromes with a view to gaining some measure of air superiority and, when this has been gained, can be changed over to the direct attack on the nation. The latter alternative is the method which the lessons of history seem to recommend, but the air staff are convinced that the former is the correct one.

This dismissal of history reflected the attitudes of most air forces in those years. Unfortunately for crews in World War II, the lessons did matter. The most glaring message of World War I was that the bomber only got through and back under fighter escort. Yet there was a pervasive belief in the RAF and the U.S. Army Air Corps that long-range fighters were not needed, possible, or relevant to strategic bombing. Air combat had repeatedly stressed during World War I that air superiority was essential to all air operations, particularly bombing. Without fighter support, attacking aircraft took prohibitive losses. But it took innumerable Schweinfurts and Nurembergs before air staffs of the next war awoke to that fact.

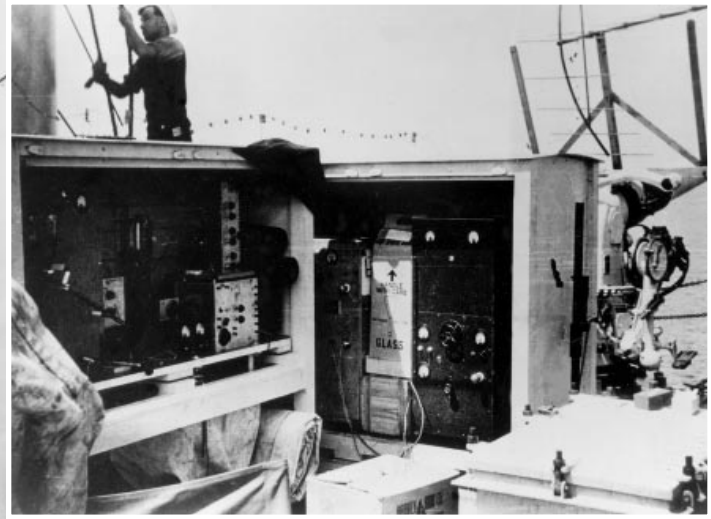
If military organizations sometimes ignore the past, they can also misuse it. The French, seeing the disasters that resulted from offensives in 1914, 1915, and 1917, wrote off any approach to offensive warfare other than their stylized, tightly controlled "methodical battle." Their defeat in 1940 displayed the quality and inevitability of a Greek tragedy; but it is hard to see how they could have developed another attitude on offensive operations. Nevertheless, the French interpretation was basically flawed and historically inaccurate. During the late 1930s General Maurice Gamelin exacerbated a faulty doctrine by shutting off all debate within the French army.

More difficult to explain is the reaction of most navies to the unrestricted submarine warfare during World War I. In retrospect, Germany almost broke Britain's sea lines of communications in 1917. Yet when the war was over, the



Naval Historical Center

XAF radar antenna, *USS New York*, 1938.



Naval Historical Center

Testing radar on board *USS Leary*, 1937.

Kriegsmarine wrote the U-boat off as a major weapon and based its hopes entirely on rebuilding a high sea fleet of battleships (and virtually no carriers). Ironically, in 1936 Admiral Karl Doenitz and his chief engineer pushed the naval high command to support development of U-boats with a higher underwater speed—what would eventually become the Walter U-boat. But senior admirals displayed no interest in technology for a form of naval war they had dismissed.[13] The Royal Navy also wrote off the submarine. On the basis of their victory in World War I and their development of sonar, the British gave up on antisubmarine warfare and threw themselves entirely into ensuring that Jutland would never happen again.

But the Japanese made the most amazing misuse of submarines despite their "long lance" torpedo, the finest undersea weapon of the war. In the face of the lessons of World War I and the Battle of the Atlantic in 1940–41, they failed to attack U.S. sea lines of communications. At the same time they devoted few resources to protecting their own commerce. In the end they lost their merchant shipping to U.S. submarines while inflicting hardly any damage on enemy shipping.

Rigidity

One fact of life in many organizations that has had a ominous influence on the institutional capacity to innovate is rigidity. It appears in many areas, especially doctrine. There are reasonable explanations for French offensive doctrine remaining rigid throughout the interwar period. Harder to fathom is why it stayed so fixed in regard to defensive warfare.

The French also believed the Germans could not and would not ultimately perform radically differently from their own forces. They refused to recognize that an enemy had other options and might exercise them. It was mirror imaging of the worst sort. Immediately after the defeat of France in 1940, historian Marc Bloch (a French reserve officer who observed the collapse at highest levels), identified one major cause of this disaster: "our minds [were] too [in]elastic for us ever to admit the possibility that the enemy might move with the speed which he actually achieved."[14]

This inflexibility was aggravated by an institutional bias against feedback that contradicted existing doctrine or preparations. Exercises aimed at inculcating "revealed truth" into units—not at adapting doctrine to real life. There was little learning since the high command had all the answers.

U.S. Air Force Historical Center

Parachuting over Brook Field, Texas, 1926.

The British army showed no greater interest in growing from exercises and had no effective system to disseminate lessons learned through its units. Even during the war there is little evidence that they incorporated battle experience in training.[15] There was ample data from the Middle East, but Home Forces appeared to pay virtually no attention to it. Divisions working up for combat had to innovate and adapt almost on their own. Hence tactical innovation came on the battlefield—a most expensive teacher. An armor officer in North Africa described the results:

the interwar period reveals the need for officers to be educated and encouraged to innovate

Other officers told me of how they had seen the Hussars charging into the Jerry tanks, sitting on top of their turrets more or less with their whips out. "It looked like the run-up to the first fence at a point-to-point," the adjutant described it. The first action was very typical of those early encounters involving cavalry regiments. They had incredible enthusiasm and dash, and sheer exciting courage which was only curbed by the rapidly decreasing stock of dashing officers and tanks.[16]

Such rigidity led organizations to shut off alternative paths. The belief that bombers would always get through led airmen to minimize the potential of the *Luftwaffe* to interfere with bomber operations. For the Royal Air Force and U.S. Army Air Forces, it meant minimizing technological support to aid the accuracy of attacks at night and in bad weather. The measure of air effectiveness thus became the number of sorties flown or targets attacked, tonnage of bombs dropped, and acres of cities destroyed. Air war had become an end in itself, and real measures of effectiveness simply failed to interest most air commanders.

Certainly the most rigid interwar military was the Soviet army. Stalin's purges ensured the loyalty of Soviet military institutions. Most innovation ceased and the officer corps chased after mindless conceptions of revolutionary war which severely damaged its capacity to fight and made it incapable of grasping how the *Wehrmacht* would fight. The outcome was the most catastrophic defeat in history in terms of human losses. The Soviets escaped its consequences only because of the appalling strategic and political misjudgments of their opponent.

Implications

There are some parameters for successful innovation. First, one must not think in terms of individuals—future Mitchells, Dowdings, Guderians—in furthering change. The interwar period reveals the need for officers to be educated and encouraged to innovate—a far larger problem than finding one innovative officer. Education and values are basic factors in innovation. Professional military education (PME) was vital to change in the interwar years and will be more so in the future if it provides the broad conceptual context that innovation requires.

In the larger picture, educational values among officers require an intellectual and physical commitment. Only a willingness to think through the business of war allows leaders to perceive the long-term potential of innovation. Moreover, officers must have connections with, and an understanding of, civilian technologies dominated by innovation. Military institutions must judge future war realistically. Here the muddy boot world of exercises and lifelike wargames lies at the heart of effective innovation. The development of German armor doctrine and close air support and of American and Japanese carrier aviation shows the relationships among education, doctrine, wargames, and exercises. When military organizations and high commands "knew" the answers and drove the solutions, the results were sometimes disastrous in stifling innovations.

U.S. Air Force Historical Center

B–9 bomber.

What does the past imply for those who will innovate during periods of low budgets, major technological changes, and uncertain strategic conditions? First, specific, detailed plans to enhance innovation are probably a nonstarter. Courses on it at staff and war colleges will offer little, and creating innovation specialties may only attract those interested in a safe career rather than crusaders for change. Efforts to institutionalize innovation will inhibit rather than foster the process. Change demands officers in the mainstream of their professions, with a prospect of reaching the top ranks, who have peer respect and will take risks. The bureaucratization of innovation—particularly in the current framework of the U.S. military—guarantees its death.

How then to encourage it? The best route appears to be to foster change in service cultures. But one can only achieve cultural changes over the long haul, not a traditional American approach.

Areas where the Armed Forces might push the process are listed in conclusion.

■ The services must think in terms of fighting real opponents, with real capabilities and real strategic and political objectives. Exercises and gaming must take place within concrete scenarios against realistic opponents who can truly challenge blue forces. Such scenarios must examine the impact of innovative approaches on all three levels of war: strategic, operational, and tactical.

■ The services must rethink their operational tempo and the number of annual exercises. The value of exercises, particularly when resources are short, lies not just in their conduct but their planning and lessons-learned analysis. The latter must involve more than reports no one reads, but rather rethinking doctrine, training, and education at every level. The value of exercises ultimately depends on the preparedness of participants to think through what went well and what did not.

■ The services must ensure that lessons learned focus on more than validating doctrine and processes. During the interwar period the French sought seriously to examine World War I and learn from exercises. But they also created a system that narrowly constrained exercises and study and that ensured the sanctioned approach would again prove. They learned what made generals and staff officers happy, a clear case of self-fulfilling prophecy, at least until the Germans arrived on the banks of the Meuse.

■ At every level the services must think in discrete measures of effectiveness. They need to consider exactly what they wish to do to an opponent. And as war changes, they will require new measures and methods. Above all, the services must foster a climate of military professionalism.

■ The services also need to rethink PME. Much interwar innovation depended on relations between the staff and war colleges and the world of operations. Unfortunately, the Armed Forces lost much of their belief in PME following World War II despite the testimony of Eisenhower and Spruance who credited their days at Leavenworth and Newport for their success. But any attempt to encourage cultural changes and foster intellectual curiosity demands better PME. It also requires that education remains central throughout an officer's career. One may not create another Seeckt or Dowding and manage his career through the ranks, but one can foster military culture where those so promoted have imagination and intellectual grounding to support innovation.

■ Finally, the services must encourage greater familiarity with nonlinear analyses. A heavy emphasis on engineering, which is prominent in the officer acquisition procedure of three services, reflects a mind set that is not conducive to innovation. While some suggest that the military needs more engineers to encourage nonlinear thinking, they are wrong. In fact what the services lack are biologists, mathematicians, and historians. Presently most senior officers think of innovation the way the *Luftwaffe* did during World War II, in quantitative and qualitative terms of techniques and platforms rather than conceptually. **JFQ**

NOTES

[1] See Williamson Murray and Allan R. Millett, *Military Innovation in the Interwar Period* (New York: Cambridge University Press, 1996). This article was adapted with permission of the publisher from a chapter in the above book. The author would like to acknowledge the assistance of Barry Watts in preparing the article.

[2] Despite claims that technological change will stop friction, there is compelling evidence to the contrary. See Barry Watts, "Friction in the Future," in *Brassey's Mershon American Defense Annual, 1996–1997* (Washington: Brassey's, 1996).

[3] B.H. Liddell Hart, *The Memoirs of Captain Liddell Hart*, vol. 1 (London: Cassell, 1965), p. 129.

[4] Williamson Murray, "Armored Warfare: The British, French, and German Experiences," in *Military Innovation*.

[5] James S. Corum, *The Roots of Blitzkrieg, Hans von Seeckt and German Military Reform* (Lawrence, Kans.: University Press of Kansas, 1992), p. 37.

[6] Brian Bond, *British Military Policy between the Two World Wars* (New York: Oxford University Press, 1980).

[7] Harold Winton, *To Change an Army: General Sir John Burnett-Stuart and British Armored Doctrine, 1927–1938* (Lawrence, Kans.: University Press of Kansas, 1988), pp. 130–31.

[8] Steven Peter Rosen, *Winning the Next War: Innovation and the Modern Military* (Ithaca, N.Y.: Cornell University Press, 1991), p. 69.

[9] Heinz Guderian, *Panzer Leader* (Washington: Zenger, 1979), p. 71.

[10] MacGregor Knox, *Mussolini Unleashed, 1939–1941, Politics and Strategy in Fascist Italy's Last War* (New York: Cambridge University Press, 1982), p. 16.

[11] Ibid., p. 57.

[12] John H. Cushman, "Challenge and Response at the Operational and Tactical Levels," in *Military Effectiveness*, volume 3, *World War II*, edited by Allan R. Millett and Williamson Murray (London, Allen and Unwin, 1988), p. 322.

[13] John Terraine, *The U-boat Wars, 1916–1945* (New York: Putnam, 1989), p. 617.

[14] Marc Bloch, *Strange Defeat* (New York: Norton, 1968), p. 45.

[15] Williamson Murray, "British Military Effectiveness," in *Military Effectiveness*, vol. 3, pp. 90–135.

[16] Robert Crisp, *Brazen Chariots* (New York: Ballantine, 1960), p. 32.

"Top Down" Planning and Joint Doctrine: The Australian Experience

Australians leading American column, Northern Territory.

U.S. Army (Al Chang)

By THOMAS-DURELL YOUNG

In terms of defense planning, Australia is a paradox. Though located in a remote region of the world, Australians do not in general draw a sense of security from their geographic isolation. There are no land boundaries, and regional threats since World War II have been distant or sporadic. Nonetheless Australia's anxiety over its exposed position proves that a country does not need an identifiable threat to consider itself insecure. For example, while sufficiently removed from the frontline in the Cold War, Canberra was a staunch "blue force" during the period of superpower confrontation; indeed, with shared experiences of many wars and a resilient alliance, it has retained a close security association with the United States.

Australia is the world's most urbanized society with the overwhelming preponderance of its populace in the southeast. Yet it is the climatically inhospitable, underdeveloped, and resource-rich north and northwest that have been receiving attention from the Australian Defence Force (ADF).

Geostrategic realities and recent experience have combined to produce an advanced defense planning system. Many post-Cold War difficulties facing Western militaries—such as developing capabilities-based planning systems and achieving greater jointness—have tested defense leaders in Canberra since the early 1970s. What initiated the change in thinking was the official recognition in 1972 that Australia had no threat against

Thomas-Durell Young is research professor of national security affairs in the Strategic Studies Institute at the U.S. Army War College.

Combat Camera Imagery (April Alexander)

F–111 arriving in Darwin for Pitch Black '93.

which to plan. To its credit, the defense establishment developed a top-down, threat-ambivalent planning system and force development methodology. One outcome of this approach has been to foster *jointness* by linking joint doctrinal development to strategic guidance. Indeed, it is not uncommon to hear that commanders not only know ADF joint doctrine but actually use it.

While the U.S. Armed Forces have now adopted jointness as a formal discipline of study and have tomes of doctrine, comparative literature on joint matters is limited. Thus the Australian experience warrants examination. This article analyzes two key elements of Australian jointness: defense planning/force development methodology and the development of joint doctrine. A description of the evolution of Australian defense policy will place these two systems in context. Whereas it would be imprudent to claim that the Australian experience is applicable to other defense establishments, the processes underlying its elements should be of interest to U.S. planning and doctrine communities.

it is not uncommon to hear that commanders not only know joint doctrine but use it

Defense Policy

For those unfamiliar with Australian defense, *Defending Australia 1994*, a white paper issued by the previous Labor government, is the latest iteration of a policy which has enjoyed general support across the political spectrum since 1972. In that year the ruling Liberal-Country Party coalition (the Liberal Party being "conservative" in Australia) issued the first formal white paper on defense. Significantly, the *Australian Defence Review* argued in favor of a defense policy of self-reliance in light of the impending withdrawal of the British from the Far East, the Nixon Guam Doctrine, and evident failure of the U.S. intervention in Vietnam.

The policy was further elucidated and with stronger language in the Liberal-Country Party coalition government's *Australian Defence, November 1976*. Reliance on allied military assistance in the event of a direct threat to Australia would no longer be assumed, thereby giving impetus to developing a balanced, more self-sufficient force. The apotheosis of self-reliance was reflected in *Defence of Australia 1987*. For the first time, the concepts of "self-reliance" and the "defense of Australia," with an endorsed national strategy and policy guidance to help implement them, became more than mere terms. A strategy of "defence in depth" was adopted to direct ADF development. Specific strategic guidance followed in 1991 and set the priorities for improving ADF capabilities to operate in the north by increased force presence and facilities for deployments.

The 1994 paper further acknowledges the new regional challenges involved in their pursuit and "defence in depth" has become "depth in defence," thereby providing a more holistic approach employing all national assets, as opposed to its earlier more limited definition.

One discernible change in previous policy is an acknowledgement that ADF must be more capable of carrying out missions outside of the defense of Australia. However, force development will still be guided by the defense of Australia, with capabilities for regional engagement, peacekeeping, and external deployment being considered tangentially. The 1993 *Strategic Review* made no mention of "Australia's area of direct military interest," which had been given considerable prominence in *Defence of Australia 1987*. This concept had utility in the 1980s in shifting the focus more firmly from filial protection by "great and powerful friends" to the peculiar needs of Australia's defense. The job done, and with growing engagement in the Asia-Pacific region, limited boundaries were discarded as strategic and force development tools. One result of Canberra's policy of "regional engagement" was the ground breaking December 1995 security pact with Indonesia.

While it may appear that Australian planners have long been blessed by policy consistency, this is not so at the implementation level. Between the 1972 white paper and its 1987 counterpart, defense planners lacked adequate guidance from political authorities. It took the publication of the *Review of Australia's Defence Capabilities* in 1986 by Paul Dibb, a consultant to the minister of defence, to move the government to articulate and sanction an official strategy. The 1987 defense white paper offered thorough guidance in which Canberra

HMAS Dubbo and *HMAS Fremantle* during Kangaroo '95.

Australian Defence Public Relations (K. Piggott)

U.S. Marines preparing to jump with Australian paratroops.

Australian Defence Public Relations (Gary Ramage)

stated national security aspirations and announced a strategy of "defense in depth." Importantly, this paper also had the effect of limiting force structure planning specifically to the defense of Australia.

Defense Planning

Australian defense policymaking has four major steps. First, planners consider geopolitical and geostrategic factors such as the proximity of states, population centers, terrain, infrastructure, et al. Overall, planners face defending an island continent distant from other countries, having a vast and climatically inhospitable north with a limited population base and infrastructure. On the positive side, Australia has a formidable "air-sea gap" between its coast and the archipelago farther north through which an attacker would have to pass.

Second, the defense establishment develops appreciations of regional military capabilities in being as well as prospect. These are not official threat assessments but rather surveys of regional defense capabilities.[1] As such, there is no consideration of, or judgment on, the motives or intent of regional countries. An appreciation of a nation's geographic setting and the military capabilities of regional states informs judgments on warning time and defense preparation requirements.

Third, these findings suggest what is credible and what is not in the form of "contingencies." For example, an invasion or conquest of Australian territory would be too demanding on enemy combat, combat support, and logistics elements. Japan might have thundered on the northern coast during World War II but never realistically looked like conquering the country.

On the other hand, while no motive or intent for conflict at any level can be perceived, prudence demands the ability to meet feasible contingencies, now called "short-warning" (rather than the earlier low or escalated) conflicts.[2] The scale and intensity of short-warning conflict could range

contingencies are used as a baseline against which defense capabilities can be weighed

from small raids to larger protracted operations, still a demanding prospect in the sparse tracts and remote waters of the far north.

Contingencies are not used for formal threat-based planning but as a baseline against which defense capabilities can be weighed. Credible contingencies have a direct influence on developing ADF capabilities to meet conflicts that could arise in the near term, and the defense expansion base (reserve forces and defense industrial capabilities) for conflicts that would take longer to develop.

Fourth, planners generate five and ten-year plans based on realistic financial guidance set by the government. This provision grew from a failure to garner the appropriations which the Dibb review and earlier white papers assumed.

This planning process produces the following conclusions:

- Australia possesses a natural and formidable air-sea barrier.
- There is no identifiable country with the intent or ability to threaten fundamental national interests, let alone national security (that is, to launch and sustain a lodgement on Australia).
- Certain countries do possess some capabilities which could be employed against Australia, and their acquisition of more threatening weapon systems could be countered by increasing ADF capabilities.
- Nevertheless, in the short term and without expansion, such capabilities could only generate conflict well short of major attack or invasion.
- As a consequence, Australia will protect itself through a strategy of depth in defense.

These conclusions equal a net assessment and establish requirements for a standing force structure and defense base. The assessment has the following implications for defense policy:

- In light of Australia's threat-ambiguous environment, sophisticated intelligence gathering and assessment capabilities are crucial to providing sufficient warning to allow an appropriate political response.
- Inhibiting incursions and monitoring sovereign territory and seas require refined air, maritime, and ground surveillance and reconnaissance capabilities suitable for peacetime and wartime.
- Priority must be directed to meeting short warning-time conflict.

These processes establish a practice by which defense officials can delineate ADF missions without accentuating implausible threat scenarios. This is not always easy since it requires clear policy and consensus on key areas in the defense community. The system has provided planning with stable direction to develop force structure for the defense of Australia in a top-down manner.

Force Development

The process used by the Australian Department of Defence and Headquarters ADF to carry out force development has three stages: strategic concepts, defence force capability options papers, and specific capability proposals, including key capability submissions. The process must be seen as a continuum since distinctions drawn between the stages are somewhat arbitrary.

Stage 1—Developing strategic concepts. Guidance identifies likely ADF roles in the defense of Australia. Currently, strategic concepts are written for each of eight roles. The concepts are developed to ensure a joint focus as well as the full and complementary capabilities of ADF:

- intelligence collection and evaluation
- surveillance of maritime areas and northern Australia
- maritime patrol and response
- protection of shipping, offshore territories, and resources
- air defense within maritime areas and northern approaches
- defeat of incursions on Australian territory
- protection of civil and military assets (including infrastructure and population centers)
- strategic strike.

But because these roles are broad, a strategic concept derives a list of tasks including specification, in the greatest possible detail, of task parameters such as rates of effort, location, duration, and sustainability and, whenever possible, initial judgments of task priorities.

Tasks derived from strategic concepts must be identified correctly and comprehensively as they evolve since they form the basis for force development. It must be made clear what is to be done, where, when, how many times, and for how long. Note that strategic concepts do not specify how to accomplish missions.

An update of these concepts over time is envisaged as factors change. Moreover, once all eight have been endorsed they will be supported by environmental (land, sea, and air) concepts and one master concept as a baseline repository for common consideration.[3]

Stage 2—Defence force capability options papers. These documents examine the extent to which current and approved ADF capabilities can undertake tasks identified in endorsed strategic concepts. Where tasks cannot be completed to an adequate level, the papers identify broad options for overcoming deficiencies. This drives the system to examine in a joint manner what can be done with existing capabilities and, should deficiencies arise, to determine what capabilities are required for the future.

Australian troops landing from *HMAS Tobruk*.

Australian Defence Public Relations (C. Woods)

Capability options papers are developed to accomplish the following:

- Assess the performance likely from using all existing capabilities.[4] This step establishes the baseline against which the cost of adjustment options will be measured.
- Determine what level of performance is acceptable and the consequences of not meeting that standard; that is, does a deficiency need to be overcome? This analysis must also consider the effects of not completing the tasks. Conversely, surplus capability requires a decision as to whether to reduce structure or shift excess capabilities elsewhere; for example, reserve components.
- Explain how a defense force could reduce the deficiency inexpensively with cost-effective adjustments such as changes in doctrine, training, or command and control.
- If the defense force cannot fulfill a task, this stage will explain ways it can acquire greater proficiency by improving such components as manpower, facilities, equipment, training, organization, etc.
- Estimate level of improvement and likely costs of an enhancement option as well as consequences of not performing to the level judged acceptable.
- Finally, establish force development priorities based on the preceding analyses as well as the best return for expended resources.

just as force development is influenced by strategic concepts, so is joint doctrine

While complicated, this process can be summed up as follows:

- Can the identified tasking be done now? (What are existing capabilities and how well can they perform the task?)
- How much is enough? (Identify where excess/shortfall exists and what to do about it.)
- What are the costs and risks?
- What are the preferred generic options?

Stage 3—Specific capability proposals, including major capability submissions. Following approval of generic options, the final step before funding approval and acquisition is determining specific solutions and matching resources with force structure requirements. Questions involved at this stage focus on cost, type, and density of equipment required and timing of procurement.

Joint Doctrine

Just as Australian force development is highly influenced by strategic concepts, so is joint doctrine. In short, endorsed strategic concepts provide the foundation for the development of ADF joint doctrine. So important are these concepts that it is extremely difficult for a service to obtain new capabilities unless it can show that they would directly support existing strategic concepts.

Joint doctrine must demonstrate how ADF is capable of performing the missions described by strategic concepts and has thus become more influential. For instance, while responding to an inherently low "force-to-space ratio" through a series of command reorganizations, ADF has had to become more proficient in joint operations. Consequently,

all exercises are joint. The capstone ADF Publication 1, *Doctrine*, has become umbrella guidance for the three services, to which their own doctrines must conform. The services have come to accept joint doctrine as a useful means to achieve the often elusive goal of jointness, noting, however, the important role of each service's professional doctrinal sources in influencing joint culture.

As concepts mature, joint doctrine increasingly flows from and supports specific concepts. ADF joint doctrine thereby provides methods by which the services can support national strategy. Although the individual services previously found it difficult to demonstrate that they could execute strategic concepts separately, joint doctrine combined with emerging operational concepts provides integrating and rationalizing guidance.

Lastly, joint doctrine will help the commander, Australian Theater, and his one geographic and three environmental component commanders to assess and demonstrate command preparations to accomplish missions stipulated in the Headquarters ADF *Master Task List*, as well as respond to the *Chief of Defence Force's Preparedness Directive* (on readiness levels and resource allocation).

Joint doctrine is drafted at the ADF Warfare Centre by teams of field grade officers from all services with recent operational experience. The centre, organized in 1990 from two joint warfare schools, is chartered to develop and teach joint doctrine, manage the ADF exercise analyses plan, and maintain a data base for post-exercise analyses. It is concerned with developing and validating joint doctrine on the operational level. Consequently, the centre does not normally develop tactical level doctrine, which is done by the individual services in accordance with joint doctrine.

Valid joint doctrine must address strategic concepts when it is drafted. Once completed and vetted, doctrine is reviewed by the Joint Operations Doctrine Group which is comprised of service representatives, joint commands, Headquarters ADF, and other interested parties. Draft doctrine is then staffed through the services. Agreement to publish is reached by consensus. The tendency to water down joint doctrine which can arise in the United States during consensus-building is largely mitigated in Australia because the process is focused on strategic concepts during the early stages of development and throughout the coordination phase.[5]

Once endorsed, joint doctrine is validated for relevance and utility through the observation of joint and combined exercises by the ADF Warfare Centre. The assistant chief of defence force (operations) sponsors such observation visits, thus ensuring the involvement of Headquarters ADF in the review. Any observed inadequacies can result in a doctrinal review. In this manner, there is a routine method of ensuring that doctrine remains relevant to operators in the field.

Post-1972 defense gave Canberra a twenty-year head start in planning to operate jointly in a threat-ambiguous regional environment. Moreover, geostrategic realities, financial exigencies, and defense guidance forced ADF to take jointness seriously. This is not to suggest that the Australian model is either perfect—it is evolving—or appropriate for other countries. Australia clearly enjoys a unique strategic culture.

What is relevant are the methodologies and systems outlined above. Developing a planning process that translates national policy and strategic guidance into overarching concepts, capability options, and principles to govern force employment should not be discounted. Given shortcomings in current joint strategic planning within the Pentagon, the Australian experiences could hold answers for improvements in the U.S. planning system. Thus, in an era of financial penury in many nations, and recognizing that future operations will require joint capabilities, a study of Australian defense planning and joint doctrine could reveal what will and what will not work. **JFQ**

NOTES

[1] While defense officials emphasize that these appreciations are not threat assessments, references to "intelligent adversaries" and Australia's "favorable security environment" presuppose a threat, however ill-defined. Officials respond that their methodology does not allow threats to overly influence their force development methodology.

[2] Levels of conflict include low-level, escalated low-level, and more substantial conflict. Escalated low-level conflict is defined as an "attacker supplementing or substituting unconventional tactics and forces with military units prepared to confront our forces direct."

[3] As further feedback, an operational level concept for the defense of Australia will produce the "warfighters' view" and improve interaction of the separate service planning for all eight roles or combinations of them.

[4] Concept papers make assumptions on actual geographic locations, frequency, intensity, and currency of significant conflict periods similar to two MRCs and the win/hold/win judgment.

[5] For a critique of the U.S. doctrine development process, see Douglas C. Lovelace, Jr., and Thomas-Durell Young, *Strategic Plans, Joint Doctrine, and Antipodean Insights* (Carlisle Barracks, Pa.: U.S. Army War College, Strategic Studies Institute, 1995).

The C–17 Transport—

C–17 Globemaster III.

U.S. Air Force (David McLeod)

Joint Before Its Time

By GEORGE M. DRYDEN

Jointness does not spring full blown from the mind and will of operational commanders. It must be cultivated not only through planning and training but in acquisition. For acquisition to be joint, cooperation among the services must exist at each step along the way.[1] Although infrequent, joint acquisition programs have been successful. The C–17 Globemaster III transport was a program in which the Army and Air Force cooperated in drafting specifications, source selection, promotion, engineering and development, testing, and doctrine formulation.[2] In this program, the Air Force supported the C–17 and accepted participation by the Army.

George M. Dryden is a defense analyst with International Technology and Trade Associates, Inc.

The Requirement

"The failure to appreciate the importance of airlift is as old as modern airpower—and even the Air Force is occasionally guilty of it."[3] Strategic lift has always been regarded as a bureaucratic stepchild and the Air Force commitment to the C–17 program was routinely questioned because the Army would be the principal user.[4] In addition, the C–17 competed for fighter dollars. Conventional wisdom would thus presume inattention by the Air Force. While support within the

Military Airlift Command (MAC)—now the Air Mobility Command (AMC)—was always absolute, the Air Force as a whole was not enthralled by the C–17 until 1991 when it was seen as a means of commanding scarce budget dollars because of its cross-service mission.

But the Air Force steadily supported C–17 procurement—at higher than authorized levels. As one observer stated: "The Air Force took the rare step of awarding the contract for [the C–17 program] to McDonnell Douglas even though Congress had not provided any funds."[5] And others emphasized that the mere existence of the program demonstrated commitment because C–17s were not necessary for any Air Force mission. If the service opposed the program it could have easily shifted its support to an alternative program. Thus most observers agree that Air Force support has been consistent if not overwhelming.

Cooperative Foundation

In 1979, Major General Emil Block, USAF, took command of the cargo/transport aircraft-experimental (C–X) task force that was charged with developing a program management directive, preliminary system operational concept, and draft mission element need statement. His Army and Marine Corps counterparts were tasked with providing service requirements to the Air Force.

Following the failed advanced medium takeoff and landing (AMST) program—an attempt to produce a jet-powered, outsized, cargo-capable C–130 replacement—the C–X program intended to meld the intercontinental range and outsized cargo bay of the C–5 with the austere field capability of the C–130. AMST produced two prototypes, one of which, the McDonnell Douglas YC–15, was a direct technological predecessor of the C–X program product, the C–17.

teams that developed requirements were comprised of Air Force and Army officers

General Block oversaw four sections of the task force. Army and Marine representatives were responsible for representing service interests and each oversaw a section.[6] Additionally, the operations panel was jointly chaired by an Air Force officer from MAC and another from Logistics Command and an Army officer. The program thus considered service interests to ensure general if not total satisfaction.

Concept and Design

Rather than prescribing particular technical characteristics, the request for proposal (RFP) described missions to be accomplished by C–X aircraft. Teams that developed those requirements were comprised of both Air Force and Army officers.

Mission design was divided into two sections. Army representatives developed scenarios for the types and numbers of units to be transported. As the Joint Chiefs noted in a memo to the Secretary of Defense:

Major Army field commands assisted in developing a series of individual (intratheater) airlift requirements that were derived from OPLANS for Europe, Southwest Asia, and Korea. These "snapshots" provided a sound basis for evaluating the qualitative airlift requirements of the CINCs.[7]

As a result, the process produced both payloads and schedules by determining how many troops and how much equipment had to be moved, to what destinations, and how fast.

Simultaneously, the Air Force developed a catalogue of global airfields (including runway and ramp specifications) and operational ranges required to utilize them. This revealed how far the aircraft had to fly and how austere a field it could land on.

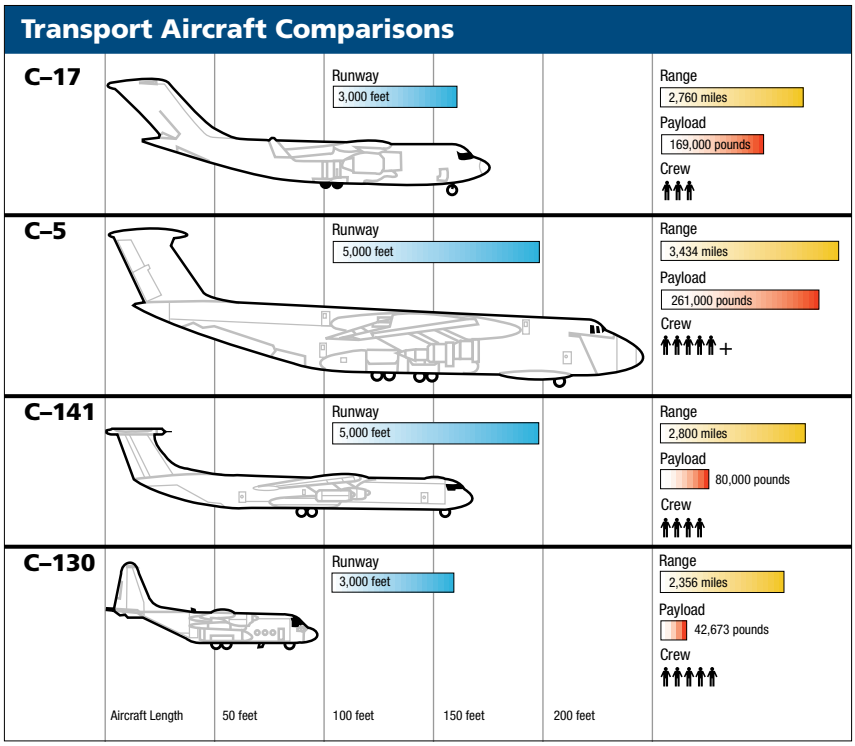
By merging data, the task force created 24 mission scenarios which the winning contractor had to solve. Mission 7, for example, was described as follows:

Logistics missions with payloads at 100 percent of the 2.25 G capability (of the aircraft) . . . final one hour at 500–1100 feet above ground level . . . at an average speed of 300 knot equivalent airspeed using low level (contour flying) . . . procedures. . . . Land on a 4000 foot paved runway with adequate fuel to fly an additional 500 nautical miles after offload. . . . At the midpoint of low altitude cruise at 300 KEAS, [the C–X should be able to perform] *an evasive maneuver of up to 2.25 G.*[8]

As a result, the C–X aircraft was conceived in terms of overall joint warfighting capabilities, not as an organic Air Force requirement.

Because C–X concept development and design included Army involvement in a traditionally Air Force domain, new design factors became important: how to load and tie down cargo, how much time it takes, and transitioning from one mission to another. Such factors may not have been addressed as thoroughly without direct Army participation.

With RFP completion, the program moved on to the process of source selection in which the Air Force did not solicit Army input but had an Army general on its board. As one Air Force officer told the author, "The Army had primary input at source selection. Some would even say one of the designs lost because of the Army. They didn't like it as well."



The C–X contract was awarded to McDonnell Douglas for a design designated C–17. After that decision, the Army was no longer involved in the contract negotiations but remained informed of developments. The Air Force served as the contractor's sole point of contact.

Jointness also extended vicariously to the contract design teams. In designing the C–17, McDonnell Douglas employed a studies and analysis group composed of up to 75 percent former Army personnel. In response to the mission-based RFP, this group designed what some called the optimal cargo compartment. The C–17 transport was built around a back-end cargo area which could accommodate paratroopers, vehicles, palletized loads, roll-on/roll-off shipments, airdrop, and medical evacuation. Designers looked at what the Army had to move and created the smallest transport possible based on that requirement.

the Army and Air Force chiefs of staff closely coordinated their support for the program

Testimony

Congressional scrutiny was intense as both the Air Force and the Army promoted the C–17. At a hearing in May 1993 before the Senate Armed Services Committee, the Army chief of staff, General Gordon Sullivan, and the Air Force chief of staff, General Merrill McPeak, testified in support of the aircraft. Sullivan remarked that on his service's birthday that year, "the first C–17 will be delivered to Charleston Air Force Base [which is] a very significant event for the United States Army."[9] McPeak, in turn, noted that the two services planned a joint celebration of the first delivery. "The C–17 is important to meet our mobility requirements. I plan to help celebrate the Army's birthday . . . by flying the C–17 personally into Charleston."

The following year, the Army and Air Force chiefs together with the Marine Corps commandant each sent personal letters to Congress on behalf of the transport. Sullivan's letter stated:

We will need the C–17 to provide the strategic airlift for troops and equipment to provide our forced entry capability and simultaneous application of joint combat power across the depth of the battlefield in the 21st century. The C–17 is the only aircraft that can get the Army's outsized combat systems to the next war when required.[10]

This echoed what the chiefs had said a decade earlier in support of the aircraft: "Because it offers superior military utility at a competitive price, the C–17 has strong support from the Air Force, Army, and Marine Corps."[11] It is hard to find similar joint backing for any other recent program.

Those who worked inside the program confirm that these public statements of cooperation were genuine. In the early days, one participant recalled the Army and the Air Force chiefs of staff closely coordinated their support for the program. But such high-level support also had its perils. Some Air Force participants groused that though the Army consistently supported the requirement, it was sometimes evasive in backing the aircraft. Further, a charge was made that the Army never pushed too hard for the C–17 because it feared being compelled to supply the funding. Yet as one Air Force officer commented, "the C–17 wouldn't be there without Army support."

Jointness on other levels of the program was at least as important as those described above. It would have been futile for the Army to provide input only at the outset since years of engineering development and testing programs have created hundreds of design changes.

Personnel Involvement

In the early 1980s, about 25 Army officers were assigned to the C–17 program. As one of them later recalled, initially the Air Force "didn't

Humvee in cargo area for air-drop.

U.S. Air Force (Mike Reinhardt)

U.S. Air Force (Ken Bergmann)

Jumping over Sicily drop zone, Fort Bragg.

U.S. Air Force (Paul Caron)

know what to do with Army [representatives] at the program office." Yet eventually cooperation took root without any extraordinary problems. The Army representative at Wright-Patterson—first a colonel, later a lieutenant colonel—served as a requirements officer to provide input to the Air Force.

But the Army's presence in the program office did not in itself guarantee a joint outcome. Some representatives were ineffective. In addition, a change in the chain of command reassigned the representative, who originally reported to the Army chief of staff, to the U.S. Army Training and Doctrine Command which arguably lessened his clout and ability to represent Army interests.

Army and Air Force officers working C–17 issues in Pentagon budget offices also coordinated efforts. Despite interservice cooperation, there were problems in locating the appropriate points of contact when questions arose or information was requested. Responsibilities for various aspects

of the program were widely diffused within the services and identifying counterparts was difficult. One solution was to set up a special distribution system within the Pentagon to speed documents between the Army and Air Force.

Joint Products

The measure of an effort is the product, which begs the question: have Army requirements been satisfactorily addressed? Three examples come to mind in answer. Early in development, one Army officer noted that the RFP document had omitted red cargo bay lighting to preserve night vision, an operational consideration which is central to Army doctrine and planning. Although the contractor balked at adding the lights, they were put in once specifications were provided by Army laboratories at Fort Rucker, Alabama.

Later, in November 1992, the U.S. Army Logistics Command alerted the Air Force that the Army wanted an update on the program. This occurred shortly after a C–17 wing broke during a static loading test. (Sections of fuselage and wings were tested using large hydraulic pistons prior to flight testing to simulate stress on the airframe; the wing was designed to withstand 150 percent of expected maximum flight stress.) Concern was expressed because of an earlier experience with the Lockheed C–5 which also had failed loading tests and did not fully satisfy Army needs.

jointness required data on C–17 capabilities to be disseminated throughout the services

Based on this concern, the Air Force briefed Army officials. During one of those sessions, the Army III Corps commander noted that the test plan had not been updated since the 1980s. This was a problem because the equipment listed in the plan was no longer in the inventory. M–60 tanks, for example, had been replaced by M–1s. This discovery allowed the Air Force to update the test plan, avoiding delays and embarrassment during subsequent cargo loading tests.

Another example involved paratrooper seat design. In the specifications, the seats were made of fiberglass and designed for a soldier weight of 310 pounds. But in the intervening decade the Army increased the weight to 400 pounds. While an Air Force official claimed the information had been miscommunicated, the result was the same. The seats were too small and the fiberglass caused "hotspots" on the paratroopers' backsides.

The Army lobbied for redesigned seats which it regarded as an issue of "fit and function." The Air Force, believing the point was solely comfort, opposed the change because it would result in more weight, time, and money. After three years, the Army convinced the Air Force of the need for a redesign. The outcome was larger seats which accommodate more weight and are made from a Kevlar composite to provide protection and lessen hotspots, again indicating the constructive role of the Army throughout the program.

Joint Testing and Doctrine

Similar to the role of Army officers at Wright-Patterson was that of the Army officer posted to the C–17 "test-bed" at Edwards Air Force Base, California. He worked daily with the Air Force testers and was responsible for Army paratroopers and technicians involved in the program. In 1993 the representative was a lieutenant colonel from the Army Materiel Command. Involvement in testing was a logical extension of the Army's participation in previous stages. Design elements that the Army requested—like paratrooper seats—had to be verified, and the service's involvement has been accordingly high. One McDonnell Douglas official explained that the Army was integral to testing. One of the first C–17 flights was to Fort Hood for load analysis. On reaching Texas the aircraft was packed with 1st Cavalry Division tanks, artillery, et al. and performed as designed. At the end of the test program the Army Airborne Board certified that the C–17 can carry equipment, thus ensuring that it satisfied Army needs.

Finally, the acquisition effort will be wasted if the C–17 is not employed jointly. Doctrine is consequently essential because it sets the tone for conduct in the field (especially for the Army). Both Army and Air Force officers acknowledged the need to develop joint doctrine, although one Air Force officer claimed that it is less of a problem for his service. He argued that Air Force doctrine would employ the C–17 jointly and effectively as soon as it became operational but Army doctrine may lag. An Army officer countered that doctrine within his service is to "deliver supplies as far forward as possible or practicable," thereby implying that it will fully utilize C–17 capabilities without adjustment.

Regardless of which opinion is more accurate, jointness required data on C–17 capabilities to be disseminated throughout the services. The center for this activity was Scott Air Force Base, Illinois, where both AMC and Transportation Command (TRANSCOM) are located. There the Army, Air Force, and Marines established the joint Airlift Concepts and Requirements Agency (ACRA) whose leadership rotates among them every two years. The agency coordinates doctrine

U.S. Air Force (Paul R. Caron)

C–17A taking off from Jordanian air base.

and helps develop joint system operating concepts. It was tasked to publish a pamphlet to help field commanders employ the C–17 and integrate all its capabilities into operational plans.

In December 1990 ACRA issued a draft pamphlet entitled *Multi-Service C–17 Employment Concept*. Its recipients ranged from the Joint Chiefs and commanders of the 25th Infantry Division and 1st Marine Amphibious Force to the Air National Guard.[12] The pamphlet's purpose was clear:

This concept describes how the services will use the C–17. The concept provides a basis for actions to improve the Nation's ability to deploy, employ, and sustain combat forces by airlift. The signatory headquarters will examine the concept, evaluate current employment concepts, and investigate possible changes to doctrine, training, materiel, procedures, plans, and force structure.[13]

The document also defined terms such as "small austere airfields" and "direct delivery," provided cargo load plans for various types of equipment, and explained aircraft capabilities. This information is similar to that found in promotional literature distributed by McDonnell Douglas. It represents a first step in revising doctrine and operational plans to jointly utilize the C–17.

The Lessons

Many would agree that efforts to make the C–17 program joint have been sincere if imperfect. As one Army officer stated, "The Air Force had always been cooperative but [problems are inevitable] in a program this big." He further noted that the sheer size of the C–17 program requires a constant effort to keep current. The situation was exacerbated by a tight defense budget, hostile press, and congressional pressure. Despite disagreements, the process has been open with both sides making concessions. As one congressional expert put it: "Interservice cooperation has kept the program going. I have never heard that the services were dissatisfied."

A final question remains: Why has the program proven to be joint? The C–17 began before the Goldwater-Nichols Act brought jointness to the fore. Nor was an interservice effort the natural thing to expect: the Army and Air Force had feuded for decades, especially over roles and missions such as tactical/close air support.

Explanations depend greatly on perspective. The Air Force recognized from the beginning that the Army was the prime user. As indicated, the Air Force appeared fully aware throughout of the value of involving the Army in most aspects of the program. Although broadly accurate, this explanation avoids further examination.

There is a more obvious reason why the Air Force realized the need for Army involvement with the C–17 transport. During the 1970s, the Air Force did not include the Army in the AMST program. As a result, there was no Army support when problems arose. AMST terminated because of a lack of jointness or the Air Force sought to make a 180-degree turn.

While other factors such as personal initiative played a role, no evidence contradicts or adds to the AMST explanation of jointness in the C–17 program. Therefore it may be concluded that bureaucratic learning by the Air Force—resulting from self-interest and its AMST experience—was the primary cause.

As one defense analyst observed:

There are no perfect weapons. There is no way to eliminate tensions between users and developers, or services and their various branches, in formulating weapons requirements or managing development. Nor is there any way to ensure a perfect balance between these competing demands as development proceeds.[14]

That is correct, but effectiveness, not perfection, should be the criterion, and the C–17 procurement process meets that standard. No one indicated any major problems in the joint effort. Most of the difficulties mentioned are nearly unavoidable in a large bureaucracy. The Army and Air Force worked together effectively, if cautiously, to produce an aircraft which will meet the requirements of both services well into the next century. As one member of the Joint Staff remarked, "The C–17 fills all the holes." The aircraft does that because the acquisition program was joint. JFQ

U.S. Air Force (E.H. Littlejohn)

Unloading Abrams tank.

U.S. Air Force (E.H. Littlejohn)

Desert airstrip at National Training Center.

NOTES

[1] This article is largely based on a series of confidential interviews conducted in 1993 and 1994.

[2] The Marines have also been represented. Their role has not been examined, however, since they play an identical but smaller role than the Army which, in any case, is much more reliant than the Marine Corps on airlift, and its involvement with the C–17 project is thus much more crucial.

[3] U.S. Air Force, *Airlift and U.S. National Security: The Case for the C–17* (Washington: Government Printing Office, 1991), p. 1.

[4] Jeffrey Record, *Beyond Military Reform: American Defense Dilemmas* (Washington: Pergamon-Brassey's, 1988), p. 50.

[5] William H. Gregory, *The Defense Procurement Mess* (Lexington, Mass.: Lexington Books, 1989), p. 116.

[6] Charles Johnson, *Acquisition of the C–17 Aircraft—An Historical Account* (Maxwell AFB, Ala.: Air Command and Staff College, 1986), p. 32.

[7] Joint Chiefs of Staff, memorandum for the Secretary of Defense, February 23, 1984.

[8] Johnson, *Acquisition*, p. 38.

[9] U.S. Congress, Senate, Armed Services Committee, "Hearing on FY94 Defense Authorization," 103d Cong., 1st sess., May 19, 1993.

[10] Gordon R. Sullivan, letter to Ronald V. Dellums, chairman of the House Armed Services Committee, May 17, 1994.

[11] R.H. Barrow, E.C. Meyer, and Lew Allen, Jr., letter to John G. Tower, chairman of the Senate Armed Services Committee, November 25, 1981.

[12] Airlift Concepts and Requirements Agency, *Multi-Service C–17 Employment Concept* (Scott AFB, Ill.: U.S. Army Training and Doctrine Command and U.S. Air Force Military Airlift Command, December 12, 1990), pp. D1–D6.

[13] Airlift Concepts and Requirements Agency, *C–17*, p. 1.

[14] Thomas L. McNaugher, *Defense Management Reform* (Washington: The Brookings Institution, 1990), p. 178.

Strategic Leadership and the "Fourth" Army War College

U.S. Army (Richard Ward)

Students discussing "hot spot" during exercise.

By RICHARD A. CHILCOAT *and* RODERICK R. MAGEE II

Scholars have long maintained that the military is a bona fide profession, standing shoulder to shoulder with other fields such as medicine, law, and education.[1] The task of keeping current in the profession of arms, however, is unique. Doctors, attorneys, and teachers practice their skills daily, whereas soldiers, sailors, marines, and airmen apply their talent—warfighting—only sporadically, often with years or even decades between conflicts.

This represents no small problem in the preparation of senior leaders. How competent would we expect a heart surgeon to be who performed coronary balloon angioplasty only once or twice in his career? What level of jurisprudence could we expect from a trial lawyer who tried his first case 28 years after law school? Both Dwight Eisenhower and Omar Bradley were graduated from the U.S. Military Academy in 1915 yet did not experience combat or wartime command for another quarter century. Military leaders who are exposed to two or three wars in a career are considered unusually experienced. While the frequency of military operations has increased since the Vietnam War, their duration has decreased, so that traditional limits on cumulative experience still apply.

Major General Richard A. Chilcoat, USA, is 43rd commandant of the U.S. Army War College and Lieutenant Colonel Roderick R. Magee II, USA, is assigned to the Center for Strategic Leadership, U.S. Army War College.

The Armed Forces—and indeed the militaries of all peace-bent Western democracies—thus face a paradox: to the extent they deter war they deny themselves the combat experience to continue to deter war. It has thus been the task of U.S. military education and training to impart to individuals and units the actual skills demanded by their wartime roles within a realistic combat-simulated environment. More specifically, it has been the dream of educators and trainers to replicate the psychological and physical experience of war, short of actually shedding blood, in arranged encounters with a hostile sparring partner. We have fallen far short of this over the years, though at times training is realistic, particularly at the individual and tactical levels.

The complexity of the interplay among many factors and actors on the operational, strategic, and policy levels, however, has made it impracticable until recently to exercise staff and

command functions in a simulated wartime setting with authenticity. With the microchip, military educators and trainers have—or soon will have—the ability to practice strategic leaders with such fidelity to the combat ideal that they can step from classroom to command post and barely tell the difference. Technology creates this virtual reality. Warfare on these levels is predominantly intellectual rather than physical, and information technology today enables the mind much as industrial technology once did the muscle. Exciting possibilities for senior leader development thus come into view.

information technology today enables the mind much as industrial technology once did the muscle

The U.S. Army War College (USAWC)—the preeminent military institution for teaching the application of landpower within a joint and multinational framework—is capitalizing on recent technological advances to prepare strategic leaders. The intent here is not to tout USAWC successes but to promote an understanding among all services of emerging potentialities. As the President of National Defense University, Lieutenant General Ervin Rokke, USAF, has pointed out in these pages, "The stakes have clearly changed . . . in the context of professional military education (PME). . . . Adapting [to changes of the post-Cold War era] is the basic challenge confronting the war colleges today." He cited updating pedagogical concepts, approaches, and technologies as among the ways PME must adapt.[2]

A Glance Back

Since its establishment in 1903 by Secretary of War Elihu Root, the Army War College has evolved through three stages and is now well into a fourth.[3] In establishing the college Root used terms that remain applicable today: "Not to promote war, but to preserve peace by intelligent and adequate preparation to repel aggression." In his vision, future leaders could "study and confer on the great problems of national defense, military science, and responsible command." These three immutable elements have lent continuity to the curriculum since 1903.

The college's first incarnation, which lasted until World War I, was animated largely by the felt need to improve senior level command and staff performance, which had been notably poor during the Spanish-American War. Located in Washington, it was organic to the War Department General Staff, actually serving as a war planning element. Initially, there was no formal academic instruction. Only gradually did the idea take hold that the program should include not only on-the-job training but theoretical study.

The second college emerged following 1918. Just as the Spanish-American War prodded reform of senior education, so too did the Great War by revealing glaring weaknesses in the ability of the defense establishment to plan and execute a national mobilization. The role of instruction was recognized, a course in command was introduced, and by the time the tenure of the second college drew to a close in 1940 political, economic, and social considerations had begun to appear in the curriculum, as did a greater emphasis on history.

Janus-like, the third college commenced in 1950, following a 10-year interregnum imposed by World War II, one face transfixed on that conflict and the other turned to the Cold War. Nearly every USAWC instructional and research entity matured during that period. Institutionalization of joint and multinational warfare led the college to go beyond field army tactics to operational art, theater strategy, and alliance protocol.

The main focus of instruction—student seminars—crystallized into a form that promised to endure. With 16 students representing a mix of services, branches, components, foreign services, and government agencies, each seminar was a microcosm of the joint, combined, interagency force sanctioned by doctrine. Immersion in an authentic heterogeneous environment modeling a typical strategic headquarters shaped leaders who, while expertly qualified in their own service domains, were conditioned to think and act jointly.

The fourth college, which dates from about 1990, is the product of two geostrategic events, the demise of the Cold War and the dawn of the information age. The former led to a revolution in grand strategy, replacing a clear unitary threat with more nebulous and sundered ones just as dangerous in the long term. The latter introduced a revolution in the conduct of war, information-based techniques that extend force effectiveness exponentially. Advanced computer technology, to cite one example, can digitize battlespace, deploying an array of sensors and surveillance devices that provide a real-time picture of friendly and enemy situations while enabling commanders to act before an enemy can knowledgeably react.

The fourth college is assimilating these revolutionary developments and learning pedagogy to produce more educated and practiced strategic leaders. Serendipitously, the information-based technology which is revolutionizing warfare has also helped achieve a degree of realism that meets the most demanding vision of educators and practitioners alike.

Managing Change

To assure that all institutional efforts were harnessed to a common goal, we initially had to decide what we wanted in a fourth USAWC. The vision—as determined by a deliberate process of institutional self-discovery—is to be "the Nation's preeminent center for strategic leadership and landpower . . . a learning institution . . . preparing today's leaders for tomorrow's challenges . . . pursuing mastery of the strategic art through education, research, and outreach."

The terms *strategic art* and *strategic leadership* as institutionalized in the vision also demanded explanation.[4] Deceptive in their apparent simplicity, both concepts in fact required considerable scrutiny. Strategic art—the counterpart to the much more widely discussed operational art—was accorded a brief, functional definition. It is the skillful formulation, coordination, and application of *ends* (national security goals and objectives), *ways* (courses of action for achieving them), and *means* (resources for pursuing courses of action) to promote or defend national interests. Strategic art is thus not a purely military activity but rather is permeated with political implications.

A definition of strategic leadership followed. It is the act of influencing people and organizations to systematically employ strategic art—and ends, ways, and means at hand—in defense of the Nation or theater interests. It is not the sole province of the military commander. It must be exercised by all staff members of joint, unified, and combined commands, as well as by civilians within DOD, the National Security Council, alliance structures, and even on the country-team level. The mission was then refined, placing special emphasis on preparing students for strategic leadership positions as part of a joint, unified, or multinational force.

we aim to produce jointly qualified strategic leaders who can implement national military strategy

Finally, it became clear that we must specify and teach special competencies beyond those we have traditionally required (but must continue to demand). Fluency in the strategic art in the information age must include capabilities such as orchestrating multiple simultaneous battles across a vast three-dimensional space, leading in learning organizations, managing massive flows of data, responding to new information and circumstances, maintaining flexibility in the empowerment of subordinate commands, psychological and physical stamina, hands-on computer skill, and literacy in joint and service doctrine.

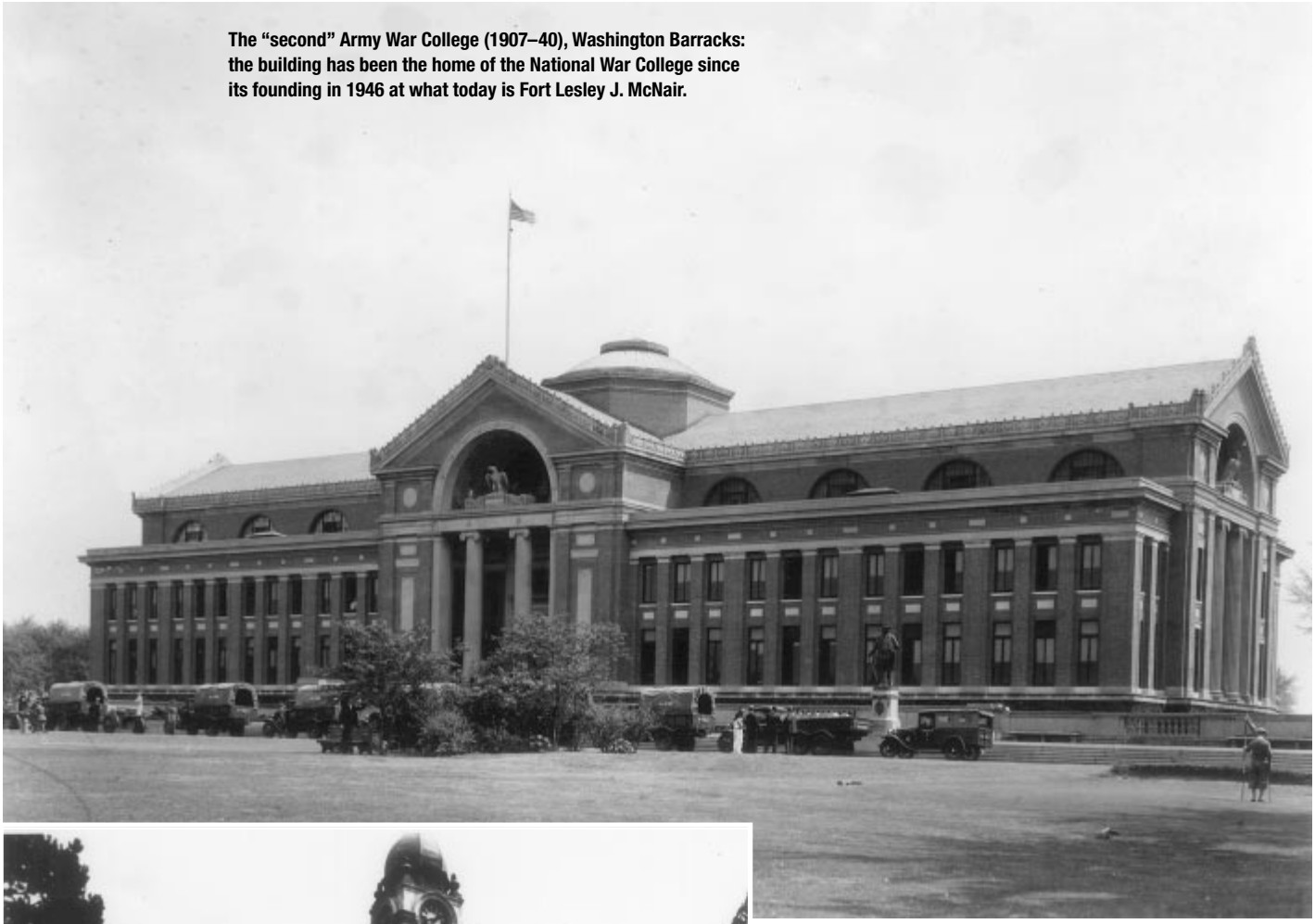
The staff and faculty must assure that future evolution of the college hews to the established path, thus realizing its vision. In brief, we aim to produce jointly qualified strategic leaders who can implement national military strategy. They must practice their craft in a politico-military climate more *volatile, uncertain, complex*, and *ambiguous* than in the past (dubbed VUCA by students). To develop the requisite mental agility, we employ an adult active-learning process, with emphasis on how to think as opposed to what to think. In small seminars, augmented by guest lectures and question-and-answer periods, students probe tough issues, mastering the art of strategic thinking, which includes a concurrent appeal to historical mindedness (past), conceptual and critical thinking (present), and creative and visionary thinking (future). Students are then ready for Collins Hall.

U.S. Army

The "first" Army War College (1902–07) located at 22 Jackson Place in Washington: the Army War Board and then the college occupied a brownstone (far right) facing Lafayette Square across Pennsylvania Avenue from the White House.

Strategic Training

Key to activities at USAWC is the recently completed Collins Hall which houses the Center for Strategic Leadership. The center has a dual mission of supporting the college in its educational role and defense leaders in their decision-making role. The hall is a secure learning, conferencing, and gaming facility with a conference



The "second" Army War College (1907–40), Washington Barracks: the building has been the home of the National War College since its founding in 1946 at what today is Fort Lesley J. McNair.

Courtesy of Special Collections, NDU Library.

U.S. Army

The "third" Army War College, Fort Leavenworth (1950–51): for one year the college was reestablished in Grant Hall (above) at the U.S. Army Command and General Staff College.

hall; video teleconference center; classrooms; state-of-the-art automation, computer, communications, and gaming assets; and access to the defense simulation internet and the global command and control system.

In academe, laboratory periods, practicums, and internships provide frequent opportunities to apply expertise, theories, and techniques. As discussed earlier, however, the military often falls short of the civilian academic model since opportunities for realistic on-the-job education as well as training in war are rare. What makes Collins Hall unique among simulation and gaming centers, aside from unrivaled communications capabilities, is the capacity of its gaming tools and facilities to incorporate more players, more transactions, and more third- and fourth-order effects. Strategic leaders of the future can verify their expertise under conditions of virtual reality. With students seated before computer terminals just as they would be in wartime joint headquarters, the stimuli of strategic war—down to fatigue and

U.S. Army

The "fourth" Army War College, Carlisle Barracks, 1951-present: Collins Hall (shown here) is a recent USAWC addition which houses the Strategic Leadership Center.

stress—can be replicated so faithfully that participants are able to suspend their disbelief and accept the virtual as real. We call it experiential learning.[5]

Collins Hall is the Army's strategic "combat training center," a laboratory where students can put ideas into action. Just as combat training centers (such as the National Training Center, Red Flag, Twentynine Palms, and Joint Readiness Training Center) train "virtual veterans," we educate "virtual strategic leaders."

Crisis Exercise

The strategic crisis exercise (SCE) is an annual ten-day politico-military exercise/wargame conducted at USAWC under the crisis action guidance found in Joint Pub 5–03.1, *Joint Operation Planning and Execution System*. The 1996 iteration of this exercise took place March 13–26, two-thirds of the way through the academic year, which permitted students to draw on the core courses in term I and regional appraisals and advanced courses in term II. Term III advanced courses were scheduled after SCE so students could pick electives to strengthen their professional development based on weaknesses revealed by the exercise.

Initiated in 1995, SCE is a joint multinational exercise that applies joint and service doctrine in 11 realistic regionally-based crisis scenarios. It involves all 320 students, 150 faculty members, and guests who play designated roles. The diversified student body provides an ideal pool from which to constitute staff and command teams for national and unified command headquarters.

The exercise embraces political, military, and economic play at the operational and strategic levels. To increase the intensity and diversity for each student cell, the class is divided into three groups, each playing the 11 scenarios independently. Operational fortunes among the groups vary since the same scenarios unfold according to differing student analyses and recommendations and contrasting decisions by key actors.

Roles played by students include members of the National Security Council; Departments of State, Defense, Treasury, and Commerce; Chairman of the Joint Chiefs of Staff and Joint Staff; country teams; service chiefs and staffs; geographic commanders in chief and liaisons to functional supporting commands; and public affairs. Major officials—the President, Secretaries of

State and Defense, and others—are played by staff and faculty or outside experts.

For each scenario students must systematically address the following planning issues:

- What are the national interests in the region of conflict?
- What are the interests and likely reactions of regional actors and those outside the region?
- If U.S. forces are committed, what strategic guidance will be given to CINCs? That is, what are the criteria for success? The desired exit strategy? The criteria for conflict termination? The desired end state? Post-conflict activities and responsibilities?

When answers to these questions are completed and staffed, students draft a presidential decision directive for each scenario.

The exercise design follows the standard crisis action planning (CAP) process as set forth in Joint Pub 5–03.1:

phase I—situation development
phase II—crisis assessment (major or lesser regional contingency)
phase III—course of action development
phase IV—course of action selection
phase V—campaign execution planning
phase VI—campaign execution and achievement of desired end state.

USAWC has added a phase VII (redeployment and force reallocation) to address troop- and lift-juggling requirements under a multiple-crisis environment and a phase VIII (exercise review) to complement the learning process.[6] Student performance is based on the universal joint task list, together with added reallocation and redeployment of forces. The analysis, planning, staffing, and execution procedures students use during the 11 scenarios precisely mirror those they may employ as strategic leaders. This is the epitome of experiential learning and is made even more meaningful when used with after action reviews designed for analyses, synthesis, evaluation, and diagnosis of the learning itself. Scenario development ensures that all player cells are involved and all organic phases of an operation are played, from strategic policy decisions to campaign execution. Scenario events and controller interplay exercise the interagency process, including negotiations with both governmental and international agencies. Media coverage and its political effects are also heavily played. The students are even required to testify before mock crisis-centered congressional panels. The scenarios involve the spectrum from general war to operations other than war. They are time-phased into a simulated 210-day period in order to stretch force and strategic lift resources.

scenario events exercise the interagency process, including governmental and international agencies

The scenarios were developed from a locally prepared futures document, a study resource depicting a plausible international environment for 2006 and not intended to be predictive. All five unified commands were assigned scenarios.

U.S. Southern Command faces two scenarios. A hurricane in a Central American nation necessitates a U.S. humanitarian assistance operation. Antigovernment guerrillas then exploit the situation, which leads to American involvement in counterinsurgency operations. Later, a border war among three South American countries results in the United States joining a multinational peace operation while a permanent political settlement is negotiated.

U.S. European Command confronts two scenarios. One remains the Balkan fragmentation of 1992. A U.N. force—with a U.S. contingent—keeps a precarious peace. But the situation is deteriorating as pressure grows to divert U.S. forces to other areas. Meanwhile, a major regional contingency has developed in northwest Africa, where one Maghreb state has attacked another. Washington must decide whether to commit forces to defend the victim. Another scenario involves a water crisis among three nations in the Middle East within the EUCOM area of responsibility. A major geostrategic issue is whether to assign this crisis to U.S. Central Command.

U.S. Central Command has its own hands full. Although a diplomatic solution to a water crisis is negotiated, the command must deal with a dispute among three states on the southeastern Arabian peninsula. Internal unrest in one raises the possibility of a noncombatant evacuation of U.S. citizens. The most pressing scenario, however, is an invasion of an oil-producing Gulf state by a powerful neighbor. This forces the national command authorities to deal with a second major regional contingency while the one in northwest Africa continues.

The Asia-Pacific region offers little respite for beleaguered decisionmakers. U.S. Pacific Command deals with three scenarios at roughly the same time. In the first, oil and gas discoveries in the South China Sea become the focus of a long-simmering dispute among several neighboring states, forcing Washington to abandon a policy of benign neglect. In the second, friction develops between a major Asian power, on one hand, and a smaller neighbor and the United States on the other. Further complicating the situation, an earthquake-induced tidal wave strikes a regional port,

leading to noncombatant evacuation of foreign nationals. The third scenario has intensified piracy in the South China Sea and the Strait of Malacca leading to growing requests for U.S. assistance by the Association of Southeast Asian Nations.

Even the continental United States gives rise to an operation. As a geographic command as well as force provider for other commands, U.S. Atlantic Command has regional responsibilities. When an earthquake, with its epicenter near a large metropolitan area, devastates the south central part of the Nation, ACOM must provide massive aid. The scenario exercises a Federal response when forces designated for such emergencies have been diverted overseas.

In sum, these scenarios enable students to practice strategic leadership in major and lesser regional contingencies, natural disaster relief, noncombatant evacuations, humanitarian assistance, peacekeeping, counterinsurgency, low-intensity conflict, and freedom-of-navigation disputes. Thus the modus operandi resembles what students would do in actual operations.

The annual SCE, having gone through only two iterations, is still developing. Indeed, as the technology of war simulation improves, USAWC staff and faculty must exploit such enhanced capabilities to produce ever more realistically practiced leaders.

More particularly, as SCE evolves we can introduce progressively more distributed play. This refers to participation of distant players through military communications links as opposed to simulating involvement locally. Such a capability is within the technical capability of Collins Hall and will be extended to the Department of the Army staff in 1997, Joint Staff in 1998, and Office of the Secretary of Defense and unified commands in 1999 or 2000. The challenge lies in organizing participation by busy, far-flung actors who face pressing operational distractions.

In any event, the improving capabilities of Collins Hall and incorporation of distant players will open the possibility in the near future of involving the highest level defense officials (serving or retired) in gaming and testing endeavors.

Some will remember when company training was no more realistic than playing cops and robbers. Senior NCOs in those days, hearkening back to a time when "real" soldiers bestrode the battlefield, enjoyed shocking us by saying "We need to get this outfit bloodied every month or so to keep it in fighting trim!" Today there is a similar challenge—to exercise troops in war without actually fighting—but we do it more successfully. If those sergeants of old could visit the National Training Center or a similar facility they would be astonished by how much today's tactical training resembles the real thing. SCE, capitalizing on the capabilities inherent in the Collins Hall complex, enables us to practice, educate, and develop strategic leaders with comparable realism. Senior level PME is on the right track. **JFQ**

NOTES

[1] See Samuel P. Huntington, *The Soldier and the State: The Theory and Politics of Civil-Military Relations* (New York: Harvard University Press, 1957), pp. 7–18; and Morris Janowitz, *The Professional Soldier: A Social and Political Portrait* (New York: The Free Press, 1960), pp. 3–5.

[2] Ervin J. Rokke, "Military Education for the New Age," *Joint Force Quarterly*, no. 9 (Autumn 1995), pp. 18–23.

[3] Based on Richard A. Chilcoat, "The 'Fourth' Army War College: Preparing Strategic Leaders for the Next Century," *Parameters*, vol. 25, no. 4 (Winter 1995–96), pp. 3–17.

[4] See Richard A. Chilcoat, *Strategic Art: The New Art for 21st Century Leaders* (Carlisle Barracks, Pa.: U.S. Army War College, Strategic Studies Institute, October 10, 1995).

[5] The active learning spiral is a model for experiential learning. Students bring a vast "experience" base to USAWC where they spend time "reflecting" in both individual efforts and the seminar, then "learning" from their reflections, and finally "acting" in varied roles during SCE. In this way they gain experience and the cycle continues. See Executive Development Roundtable, *Building Individual and Organizational Capacity Through Action Learning* (Boston: Boston University School of Management, 1993).

[6] Russell F. Weigley, who observed SCE in 1996, remarked: "Learning [really] takes place after the exercise," when students can reflect.

Camp Able Sentry in Skopje, Macedonia.

U.S. Air Force (Michael J. Haggerty)

Developing a Strategy for Troubled States

By ROBERT B. OAKLEY

The number of states undergoing internal unrest has increased notably since the Cold War. This has created some 45 million refugees and internally displaced persons, three times the number reported ten years ago. Communal violence exacerbated by ethnic, religious, or other differences has become far and away the preponderant form of conflict over the past five years, even though threats of interstate belligerency remain high in some regions. Deaths from violence, famine, and disease cannot be accurately estimated but run into the millions. Physical and political damage to states has included anarchy and massive destruction of their meager infrastructures. Internal unrest has sometimes led to conflicts with neighboring states and burdened them with waves of refugees. These severe problems threaten world stability, the advancement of human rights and democracy, and on occasion more tangible U.S. interests, including those of strategic importance.

The United States and the international community have channeled substantial energy and capital into efforts intended to resolve or mitigate internal upheavals, including grandiose, idealistic approaches described as the New World Order, Agenda for Peace, and "assertive multilateralism." They have discovered no generally applicable formula for assured success in the short term, remain

Ambassador Robert B. Oakley is a visiting fellow at the National Defense University; a former foreign service officer, he served as special envoy to Somalia under Presidents Bush and Clinton.

unsure of the best long-term solutions (such as sustainable development), and in any event will not dedicate the considerable resources required. Yet they have also found it impossible to simply turn their backs and walk away.

This article briefly assesses the causes and means available to deal with what for the lack of a better term are often called "troubled states." The focus is on employing the Armed Forces, with emphasis on areas to be improved on the strategic or policy level as well as the operational level.

Background

Unrest in troubled states is fueled by long-term, systemic crises such as overpopulation, environmental damage, food shortages, poverty, income disparity, corruption, and bad governance as well as societal divisions. There is also a propensity to appeal to ethnic, linguistic, cultural, or other forms of separatism for solace, protection, and identity. Such movements often pressure the regimes of the day, seeking to redress grievances, promote special interests, or simply take power. They fracture existing institutions and heighten the chance of emotion and violence prevailing over rational dialogue. Governments, in turn, have lost power and become vulnerable to fragmentation and particular causes. This is attributable to freer international communication; the increased power of global organizations, corporations, and criminal networks; and the spread of democracy, individual liberty, and private-sector economic systems at the expense of state control.

Absent Cold War restraints and a preoccupation with major conflicts, international law and organizations and individual nations have increasingly intervened in response to internal problems, particularly when violence erupts. The very substantial capabilities and resources of many defense establishments—freed from East-West confrontation—have become engaged in humanitarian and peace operations as well as more conventional activities, such as supporting allies, protecting vital interests, and preparing for major regional conflicts. Such operations frequently combine political, economic, diplomatic, and military actions supported by multinational coalitions—and occasionally multinational police. There is no sign of a diminution in the troubled-state phenomenon and attendant unrest in the next decade. Thus the Armed Forces can anticipate being immersed in multinational humanitarian and peace operations, though they may consider them as improper uses of resources or an unwelcome diversion from what they regard as more appropriate, traditional military roles.

Such operations have varied implications for C^4I, force selection and deployment, logistics and transport, availability of equipment, funding, et al. While the actual size and composition of U.S. and other forces will obviously vary depending upon country-specific situations, the activities and operational environment most frequently associated with these operations include:

- logistic and other support for—even direct roles in—benign humanitarian operations, including rapid provision of large-scale relief that surpasses readily available civilian resources, civil affairs and human rights support, and possible protection of relief operations in low-risk environments
- logistic and other support for—even direct roles in—small- to med-sized coalition peace operations, largely military in nature (observation, force separation, demilitarization, demining, and weapons control), conducted in low-risk environments with participating forces not being major combat units
- support for—even direct roles in (to include command of)—complex, med-sized civil-military peacekeeping and peacemaking operations in more dangerous environments
- bilateral and multilateral noncombatant evacuation operations (NEOs)
- bilateral and multilateral enforcement of blockades, embargoes, and no-fly zones
- participation in and command of major coalitions for expanded peacekeeping and peace enforcement operations in hostile environments.

Non-Military Strategy

Early Action. U.S. strategy should focus initially on the early identification of potentially troubled states and the effort to improve conditions before a crisis develops which requires urgent international military or humanitarian intervention. The best means of achieving that end is through conventional bilateral and multilateral instruments of assistance to address the causes of both short- and long-term tension, enhance stability, and improve governance. The many different attempts to prevent or resolve conflict by short-term actions have revealed the extreme difficulty of the task and the importance of tackling root causes. More long-term bilateral and international attention to intrinsic problems in troubled states will be needed, including social, economic, environmental, and other conditions, as well as mid-term issues such as greater political representation and more equitable resource distribution, and better trained and behaved military and security forces.

This situation is aggravated by reductions in bilateral and multilateral economic, social, and military assistance. The decline in spending has major implications for available global resources, including programs for preventive action in troubled states. This comes at a time when there is an

obvious need for more constructive use of international and regional organizations as well as ad hoc bilateral and multilateral activities. This trend will be difficult to reverse given the prevalent congressional mood of disengagement and deep cuts in support for civilian agencies which operate abroad (except the Central Intelligence Agency). However, not to do so will over time increase the burden on the Armed Forces, including defense budgets and force readiness. It can dangerously erode U.S. influence built up arduously over fifty years, thus damaging vital long-term interests.

Second Stage. The next stage would be a prompt response to resolve or contain a crisis to avoid greater problems and large-scale intervention. Usually this involves concerted multinational action of a primarily civilian nature with legitimization and support from regional or international organizations, focused on a rapid delivery of crisis assistance (food, medicine, and short-term job creation). Bilateral regional or international teams could survey and assist urgent socio-economic, human rights, and defense needs. They could include both U.N. and nongovernment organizations (NGOs) as well as civilian and military representatives of individual nations. Furthermore, they could survey future intervention possibilities should situations worsen.

there should be an interagency effort to begin contingency planning for organizations likely to participate

A preliminary assessment would be conducted of the desirable objectives and the types and levels of required resources, other contributors, and whether the situation demands unilateral, multinational, or international action. There should also be an interagency effort to collect data on the country in question and to begin contingency planning on a combined basis for civilian and military organizations likely to participate. The supporting diplomatic actions that would be needed prior to any force commitment include:

- consultations with U.N., international, and regional organizations and governments to communicate and obtain responses to the U.S. proposition that military action should be taken
- efforts to create a multinational core group, possibly including regional organizations, willing to assist through political influence, financial support, and/or direct civilian or military participation
- diplomatic approaches to U.N. and other international and regional organizations to mobilize support and legitimize intervention.

One alternative to direct intervention that ought to be weighed is economic sanctions. Sometimes implemented by the use of naval and air forces, this sort of action has political appeal and has been employed in recent years against Iraq, Bosnia, and Haiti. However, the effectiveness of embargoes is increasingly questioned since they are perceived as punishing the poor while not achieving their objectives within a reasonable time.

Political-Military Strategy

Doctrine and Planning. While nothing new for the military, the number and frequency of recent peace operations (or low intensity conflict), and growth of forces and supporting elements involved, has resulted in a new presidential policy directive (PDD–25) as well as new joint doctrine and joint tactics, techniques, and procedures.

Despite improved doctrine and more experienced policymakers, however, one must expect that not every decision will be made in accordance with a preplanned blueprint. PDD–25 provides valuable advice but no doubt will continue to be interpreted flexibly. Public opinion, the views of friendly states, and broadly construed national interests (human rights, promoting democracy, and humanitarian issues) may result in intervention even when important U.S. security or economic objectives are not directly threatened.

Joint and service doctrine and other pubs on humanitarian and peace operations have appeared, including the *Joint Task Force Commander's Handbook for Peace Operations* issued by the Joint Warfighting Center. Both doctrine and training emphasize effectively combining political, diplomatic, humanitarian, economic, and security considerations of military operations. However, there remains a need for overall doctrine, consistently applied, that provides for integrated planning and incorporates lessons learned from recent peace operations. (Some of those lessons that were successfully adopted in planning for the multinational force in Haiti were not put into practice when preparing for the Implementation Force (IFOR) in Bosnia and other recent operations.)

This means that civilian agencies as well as the Armed Forces should be ready to execute the necessary contingency plans, crisis management, and resource allocation. Such capabilities for civilian agencies require major improvements. Moreover, both civilian and military organizations should strengthen interagency planning, crisis management, and combined surge capabilities. At present, there are variations in knowledge, planning, and assets among agencies, often resulting in improvisation in the field, with the military taking on what were assumed to be civilian missions.

The United States is the only military power that can meet the eventualities of any peace operation on its own, and it is the most capable nation in the world when it comes to assuming the lead in orchestrating effective coalitions. Capabilities developed over the years for other missions, including major regional as well as low intensity conflicts, are directly relevant to peace operations. Thus when a decision is made to participate in such operations the Nation does not lack the military capacity. Instead, there is a problem of generating political will (including allocation of resources) and then determining the level of the commitment and selecting the appropriate forces. In addition, it is necessary to effectively coordinate the appropriate civilian and military assets, including those of both international organizations and other countries.

However, the poor use of the Armed Forces negatively impacts on public support, morale, operating tempo, and readiness for all missions across the board. Thus basic U.S. capabilities for conducting actual peace operations must be refined and augmented, not diminished to give priority to contingency preparations for possible larger conflicts. The critical requirement for the United States is fielding a wide variety of combat support assets (including aviation) from the active and Reserve components. Over the past five years these elements have been placed under severe stress in terms of their operating tempo, whereas regular combat units have been much less utilized. Looking ahead, one can see the need to augment combat support elements.

At the same time, every effort must be made to minimize the demands on forces without reducing the prospects for success. For instance, experience has revealed that a decision not to deploy any personnel for participation in a coalition peace operation means that such a coalition is unlikely to be formed, or if it is, that it will be much less effective than with the inclusion of even a small U.S. contingent such as a headquarters element, logistical units, and SOF. Limited involvement by the United States can be justified in terms of obtaining greater overall benefits from other participants.

The U.S. strategy for military involvement should be premised on mobilizing a coalition to share political and resource burdens while ensuring capacity and credibility. That means getting on top of an opponent—either political or military—and staying on top, even while minimizing the use of force and preserving an even-handed approach to minimize casualties and avoid an unnecessary armed clash. Initial forces must have an overpowering edge in firepower, C^3I, logistics, and SOF, including psychological operations (PSYOP). It also means political, diplomatic, and intelligence support from civilian agencies. Military action must be linked to effective, early humanitarian and economic support from national and international civil resources. PSYOP and public information programs intended to solidify political support at home and abroad should be implemented rapidly, as an essential part of the overall operation.

Our political-military strategy should be premised on plans to exit completely as well as on interim measures to replace active forces with Reserve units, foreign forces, or civilian assets after initial stabilization. It should include long-term, systematic assistance to the U.N. and regional bodies (such as the North Atlantic Treaty Organization, the Organization of American States, and the Organization of African Unity) as well as selected governments to improve both individual and collective capabilities. This will enable others to operate absent U.S. participation or with greatly reduced U.S. transport, logistics, and equipment. (When the forces of other nations have not been adequately prepared in advance, however, providing last-minute training and some basic support can also alleviate burdens on U.S. forces by making coalition operations more effective.) International and military education and training, foreign military sales, and other forms of military engagement such as joint/combined exercises should be targeted for this purpose—which clearly falls under the policy of "preventive defense" articulated by the Secretary of Defense. Experience proves that this approach improves long-term military-to-military relations as well as the capabilities of coalition partners to conduct peace operations.

Coalitions

Establishing coalitions can reduce demands on U.S. resources as well as add to the political effectiveness of an operation. There are international and domestic advantages when other nations contribute forces to peace operations, thus forming a "coalition of the willing." Placing a coalition under the Security Council or regional organization such as NATO provides a forceful legitimizing endorsement, considerably increasing the prospects that other states will contribute to the coalition. But while such participation eases fiscal, personnel, logistics, and materiel burdens, it complicates command and control. Differences will occur in doctrine, training, readiness, and other capabilities, as well as C^3I (since many coalition members have not entered the computer age). The advantage of superior regional political influence and expertise by some partners, as well

as greater international participation, tends to compensate for the lower level of their military capability. The broad, longer-term implications of such combined action for U.S. global and regional policy also militate in favor of accepting some units with lower capabilities as part of a coalition.

The United States should thus minimize but not exclude less-qualified countries and work out in advance the least troublesome, most effective distribution of duties among coalition partners as well as C^3I and liaison arrangements (which require diplomatic and military talent). It should also determine coalition needs for additional logistic support, transport, training, and equipment and be prepared to provide it to partners if other sources are not available.

if participation includes sizable land forces, the United States should lead the military side of operations

The United States has shown its ability to manage coalitions in Somalia, Haiti, and Bosnia, in some instances employing unorthodox arrangements (such as Russian participation in IFOR). Assessing and covering gaps in essential capabilities of partners will usually involve, at a minimum, providing added personnel and support for C^3I (such as radios and computers) and aviation (such as helicopters and C–130s). The Armed Forces should usually provide units trained in the use of less-than-lethal weaponry and PSYOP assets. This is often critical in dealing with civilian demonstrations or armed aggressors hiding behind a screen of unarmed civilians. (The outcome of such confrontations can either make or break the success of a mission because of its impact on public opinion both in the country where the operation is being conducted and at home.)

The command and control of peace operations is also critical. If participation in a mission includes sizable land forces, the United States should lead at least the military side of operations (as in Haiti). Both dual-key and separate-but-related operations (similar to the U.N. Protection Force in Bosnia) should be avoided. Command and control will not be identical to that exercised when the Armed Forces operate unilaterally. However, coordination, cohesion, and unity of purpose can be attained if the United States uses its leverage in the Security Council and other methods to ensure advanced coalition understanding and support a precise mandate, mission, and rules of engagement on the political as well as the operational and tactical levels. This understanding should be reviewed and verified periodically, lest subsequent developments cause an erosion in coalition cohesion as happened in Somalia during UNOSOM II.

Contingency planning for coalitions should provide for integrated and coordinated activities with national and international civilian agencies and NGOs. Absent such coordination—and even with it—there will be unexpected, unplanned, and unbudgeted demands on military capabilities, and operations will not be as effective. There also will be longer periods of U.S. military engagement before an operation is transferred to civilian agencies and organizations. This requires continued efforts by the United States to strengthen the impact of U.N., international, and regional organizations and improve cooperative international planning and operations.

U.N. Operations

Substantial improvements have been made in the capability of the Peacekeeping Division at U.N. headquarters to manage small- and mid-sized operations, even to coordinate diverse elements such as military and police forces, relief efforts, human rights, civil administration, and elections.[1] However the United Nations itself recognizes that it is unable—even with outside support—to rapidly mobilize a sizable force or conduct operations in a hostile environment (that is, to carry out peace enforcement).

Haiti offers an instructive lesson in the effective use of the United Nations in conjunction with a U.S.-led coalition legitimized under the U.N. banner, and of superior advanced planning by the interagency community in Washington, a theater command (U.S. Atlantic Command), and the U.N. Secretariat. The multinational force (MNF) that was deployed to Haiti restored public order, reinstalled the legitimate government, organized an initial round of elections, started an indigenous police force, and demobilized local forces. After six months, the United States handed off the lead to the U.N. Mission in Haiti (UNMIH) and was then able to significantly reduce its presence, and even more notably to reduce costs (roughly one-third of the U.S. share for MNF). After one year, UNMIH was extended but without the U.S. military contingent. UNMIH was able to maintain momentum generated by MNF with a much smaller force and Canada assuming the lead in providing and commanding the multinational force with only indirect U.S. support.

Core Competencies

The variety of potential humanitarian and peace operations is vast. Each will be different and require careful assessment of the situation and the strategies and resources required to meet it. This will involve at least initial decisions on the period

and extent of international intervention. Also, if the objective is to alleviate unrest and violence or correct their basic causes, on the magnitude and mix of available multinational military and civilian assets, and on the degree to which the U.S. military will participate. In addition to basic preparations for military commitments, some special aspects of U.S. core competencies warrant consideration. The emphasis is on agility and the adaptability of fundamental training and resources.

Maintain forces trained for peace operations. Experience has shown that operations have a greater likelihood of success when there is at least some American participation. In many situations ground combat units can come from elsewhere. There should be a nucleus of highly capable forces from a very few countries, with other forces assigned duties commensurate with their capabilities and suitability (including their culture sensitivity) for the mission. This Nation should be prepared to provide personnel with the skills needed for peace operations.

For purely humanitarian emergencies with little threat of violence, the Armed Forces should be prepared to furnish initial, urgent transport (usually air) plus logistics support in cases when that of international relief agencies is too limited or slow to mobilize. When the humanitarian operation envisaged is faced with a serious danger of armed conflict, the United States should be prepared to deploy SOF and even helicopter gunships or C–130s as well as protection for airports and aircraft.

U.S. forces deployed should have some unique training in peace operations, or those units committed (especially headquarters staffs) should have recent experience in such operations. There is no need for personnel to be designated and trained for peace operations as a primary or exclusive role. Active forces, particularly infantry, can handle most contingencies provided that officers and NCOs have specialized training or recent experience and that units have pre-deployment training for the country in question. Some units such as military police, engineers, PSYOP, and medical and logistical support have even less need for special training, although they also need officers and NCOs with either special training or recent experience in peace operations. Army Special Forces and Marine expeditionary units are ideal for this purpose because their training includes most activities required for peace operations. Experience has shown in situations such as Haiti or Bosnia that Reserve units—as well as individual Reservists—can operate as effectively as active forces once an initial intervention has taken place and a degree of stability has been achieved. Many combat support units rely heavily from the outset on the Reserve components which have proven their effectiveness.[2]

military commands should be reinforced by civilian agency representatives

Allies such as France, Britain, Canada, and Holland as well as the Scandinavian countries have routinely incorporated peace operations in their military doctrine and training. Such emphasis also is emerging among Latin American and Asian countries and taking hold within the Partnership for Peace (PFP). Their mutual participation in peace operations exercises provides advantages for all those involved. Combined training by PFP members with both U.S. and other NATO forces in Germany, the United States, and elsewhere prepared them to participate in Bosnia.

Given the experiences of the last few years and projections for the next decade, it appears that a limited number of combat forces as well as specialty units will be used in peace operations. However, the anticipated need for units well trained in such operations as a secondary mission need not exceed two or three regular Army brigades (together with SOF and Marines)—particularly if our Armed Forces provide special skills to boost the capabilities of other countries. To minimize an erosion of conventional combat skills, intensive training could be merged with combat training as is now done during most Joint Readiness Training Center (JRTC) peace enforcement rotations, and be conducted at least every two years, with "just-in-time" training done prior to deployment.

Additionally, there should be a designated cadre of officers and senior NCOs with training, experience, and proven performance in conducting peace operations. Assignments could include observers for U.N. missions, providing "just-in-time" training, staff positions for headquarters of coalition operations, liaison with civilian agencies, and advisors or augmentees to normal staff of those units about to deploy under JTFs or CJTFs.

Operate in conjunction with civilian agencies and nongovernment organizations. Peace operations training for military personnel should include working with civilian agencies and NGOs on contingency planning for civil-military operations and support for humanitarian operations and human rights activities. While such training has been conducted by the Marines, JTRC, and both U.S. Pacific Command (PACOM) and U.S. Southern Command (SOUTHCOM), it requires more emphasis. Units with specific skills such as military police, SOF, engineers, and air support also should conduct brief periodic training together with civilian agency and NGO representatives as well as larger exercises which include Army and Marine ground combat units.

U.S. Air Force (Val Gempis)

Refugee camp in Goma, Zaire.

Given the civil-military complexities of most peace operations, need for area and language expertise, and relevance of coordinating humanitarian and political activities in multinational peace operations and vis-à-vis the countries where operations are conducted, military commands should be reinforced by civilian agency representatives with the requisite skills when an operation enters the active planning phase. In country, a well-staffed embassy can assist once proper coordination is established, but it will often be required to augment embassy staffs for this purpose. Moreover, reinforcement will usually be needed at CINC level for the Department of State political adviser and by liaison officers from the Agency for International Development and from its autonomous Office of Foreign Disaster Assistance. In addition, civilian liaison officers may be needed with military units below CINC level. Military liaison officers serving with civilian organizations such as U.S. embassies, U.N. field headquarters, the U.N. High Commissioner for Refugees, et al., have also proven to be valuable.

Public Security. A peace operation will often require supervising, assisting, retraining, or even establishing an indigenous civil police or constabulary force to provide basic law and order or public security in troubled states. This will usually take place in conjunction with demobilization, reorganization, and/or other restraints on local military forces. Without this measure, it is very difficult to complete the mission successfully enough to execute the exit strategy. Furthermore, its absence contributes to the burden imposed on and risks to U.S. and other military forces involved.

Establishment of a relatively effective civilian police force may well require military as well as civil police assistance, given the likelihood of unsettled or potentially violent conditions. There is also the possibility that indigenous police will not initially have the training, discipline, or structure to command minimal obedience and follow appropriate standards in dealing with the local people, even with the help of civilian international police monitors. The latter do not ordinarily have a mandate to conduct direct police functions or carry arms and, if they did, could be dangerously over-matched by militias, bandits, or the local police force itself. Moreover, recruiting international police contingents is slow work; and the recruits are usually of uneven quality. All this argues for initial assistance by military police and SOF (including PSYOP) to international police monitors as well as local police.

Without the early creation of an indigenous force capable of public order functions, military personnel will have to carry out those functions alone, putting them at greater risk and requiring additional personnel. In Haiti, the United States quickly realized that military police and SOF were needed to provide direct liaison and support for international police monitors as well as for both the interim public security forces (IPSF) and the Haitian national police which replaced them.

Once this occurred, policing proceeded satisfactorily, public security was maintained, the elections took place peacefully, and indigenous police had time to be trained properly and to gradually assume their duties with the confidence of a backup force. This created conditions conducive to the U.S. exit strategy, replacing MNF with UNMIH.

In Bosnia, the IFOR mandate did not include direct support for the international police task force (IPTF), except in the event of an emergency. IPTF arrived slowly and was of uneven competence and had a weak mandate. Its members, along with the local police that they were to assist, were of marginal utility in the face of political intimidation and armed gangs. Public security outside the zones of separation patrolled by IFOR was often inadequate. This made it very difficult to achieve critical civilian mission objectives such as public order, freedom of movement, refugee return, and free elections—and thereby created serious problems for the U.S. exit strategy and timetable.

Army military police together with the much smaller Marine Corps military police and SOF have demonstrated in Panama, Somalia, and Haiti that they can provide the initial assistance needed to train indigenous police/constabulary to take control of public security. Moreover, supplemented by civil affairs personnel, they were able to help initially with judicial and prison administration. Questions regarding the legal status and some other aspects of employing military police and SOF to carry out these activities should be resolved, so that their use can be planned for in advance and they can be employed at the outset of an operation.

Humanitarian/Human Rights. This element of peace operations requires close coordination and sometimes direct support from military forces. The key support functions include:

- delivering relief supplies to and inside a problem state (logistics, transport, engineers, and possibly protection), assisting with refugees, and responding to natural disasters
- establishing coordinated civil-military communications and coordinating systems (such as radio frequencies and possibly equipment, joint civil-military operations center, exchange of liaison officers, and use of civil affairs personnel)
- providing assistance for human rights observers and elections (logistics and protection)
- rehabilitating local institutions and infrastructure (civil affairs, logistics, and engineers)
- creating effective police or constabulary forces
- clearing mines.

Experience has indicated that there must be coordinated pre-operation planning with regional, international, and nongovernmental organizations, as well as U.S. civilian agencies in all the above areas to ensure success of an overall operation. This can reduce civil-military confusion, enhance coordination, and minimize the operational tasks of the military by more effective use of civilians. It may be necessary for the military to contribute transport, radios, or computers before civilian assets arrive, but such support should be transferred to civilians as soon as possible. Jointly staffed civilian-military operational coordination cells and an exchange of liaison officers will be needed, from the planning stage to the completion of the exit strategy. As in the case of peace operations, multinational humanitarian operations require planning and exercises conducted with other military organizations to prepare for coalition action. Unified commands, notably PACOM and SOUTHCOM, have already begun to do so.

Peace operations are clearly not a panacea for the problems of troubled states and have been the subject of increasing criticism for wasting resources on less than vital interests and diverting the assets of the Armed Forces from more important missions. However, it is equally clear that the troubled-state phenomenon is far from over, that peace operations will occur in the future, and that U.S. forces will often be involved. It is also evident from the score of operations conducted over the last five years—which have included successes as well as failures—that some approaches work better than others. Important lessons have been learned.

The United States must draw upon and apply these lessons, in practice and theory, so that our Armed Forces (and civilian agencies) are prepared to mount peace operations effectively. This means ensuring that doctrine, training, planning, and resources are appropriate for the diverse tasks which such operations demand—as unpleasant or onerous as they may be—even while submitting critical decisions on U.S. participation and support to careful scrutiny and minimizing their impact on joint warfighting capabilities. **JFQ**

NOTES

[1] Cambodia, Angola, El Salvador, and Haiti are examples of successful U.N. peace operations.

[2] Earlier seasoning in Somalia plus brief pre-deployment training prepared the 10th Mountain Division to lead the multinational force in Haiti. The 25th Infantry Division and the 2d Cavalry were able to replace the 10th Division without a hitch because of prior intensive JTRC training, plus pre-deployment training. The 1st Armored Division profited from training at the Combat Maneuver Training Center in Hohenfels, Germany, before going into Bosnia.

Garuda XII:
Indonesian Peacekeeping in Cambodia

By JOHN B. HASEMAN

As the number and magnitude of peace operations around the world have grown in recent years, vigorous debates have raged in Congress and elsewhere on prerequisites for U.S. military involvement in U.N. and non-U.N. peace operations, even whether the United States will support such operations. Recent American experiences have had varied success, adding fuel to the debate on the future role of the Armed Forces in peace operations.

Washington is uneasy with military operations in which decisive force is not an option and no solution to complex social, political, and security issues is apparent. Peace operations doctrine, which is still evolving, stresses jointness. It is an realm in which the United States is not adept. Thus it is imperative to learn from other countries with experience in peacekeeping. Many of these states are located in the less developed world. Their national policies back such U.N. operations, and they have the military doctrine and training to execute them.

Indonesia, one of the most experienced supporters of peace operations, learned vital lessons while preparing for and executing a difficult mission in Cambodia during the largest and most costly U.N. peacekeeping mission to date.

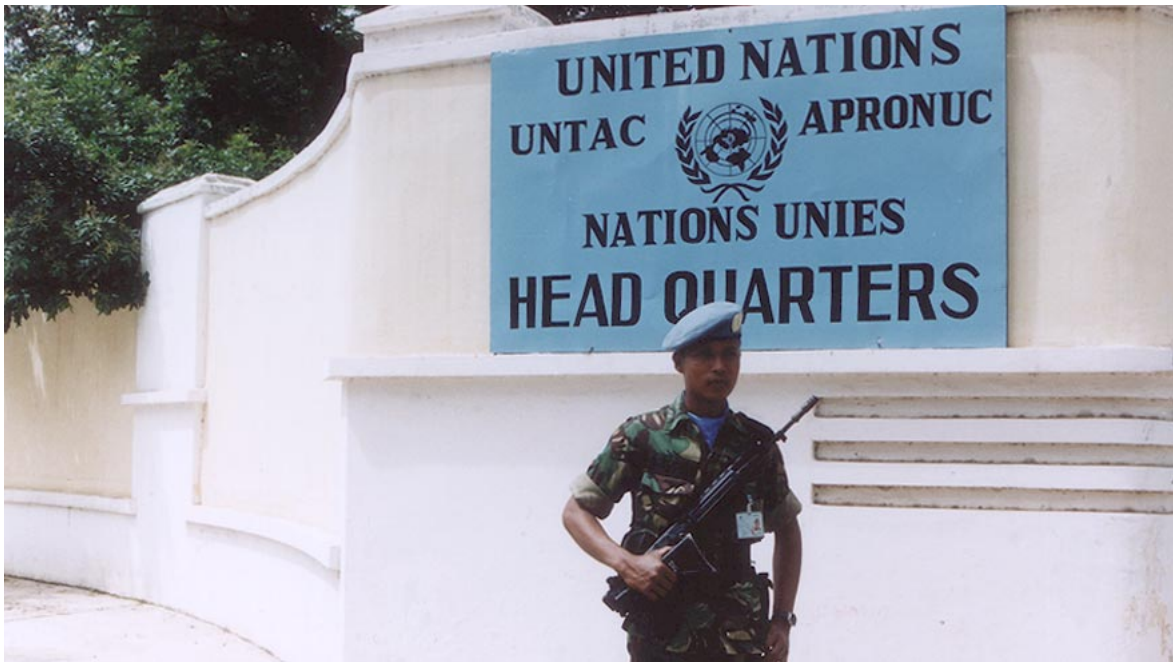
Colonel John B. Haseman, USA (Ret.), is a consultant on southeast Asian affairs and served as defense attaché in Jakarta.

Jakarta has provided forces for U.N. peacekeeping missions for almost forty years. While each numbered operation—designated *Garuda*—has varied, Indonesia has evolved a system which integrates preparation and execution in both standard doctrine and training. Its first U.N. operation was mounted in the Sinai in 1957 and the twelfth in Cambodia. In recent years Indonesians have served on the Iran-Iraq and the Iraq-Kuwait borders as well as in Namibia, Somalia, and Bosnia.

The preamble to the Indonesian constitution of 1945 provides for "maintaining world order based on freedom, eternal peace, and social justice." National policy thus assumes a responsibility for peace not only in Indonesia but also in other nations, including the elimination of colonialism and restoring harmony around the world. The country recognizes that peace requires both military action and nonmilitary support for development.

The Indonesian armed forces have a unique dual mission called *dwi-fungsi*, which includes traditional military roles as well as a nonmilitary role in national development. It is this nonmilitary role that has prepared Indonesia exceptionally well for peace operations. The military is considered a representative of the entire nation through its involvement in such efforts.

In responding to any request for peacekeeping forces, the Indonesian military (*Angkatan Bersenjata Republik Indonesia* or ABRI) tailors contingents to the mission, situation, requirements for logistical support, and equipment. Garuda



United Nations (P.S. Sudhakaran)

Indonesian guarding UNTAC headquarters, Phnom Penh.

contingents can be made up of individuals, teams for limited activity or missions, or organic military units reinforced as necessary.

Garuda XII

The Indonesian peacekeeping mission in Cambodia, known as Garuda XII, consisted of four army airborne infantry battalions reinforced with combat support and combat service support units. This was a joint operation that included elements from the army, marines, national police, and air force as required. (The national police are a branch of the armed forces with equal status; the marines are subordinate to the navy.) Each contingent served nine months in country including an overlap period with successive contingents.

the Indonesian peacekeeping mission in Cambodia was a joint operation

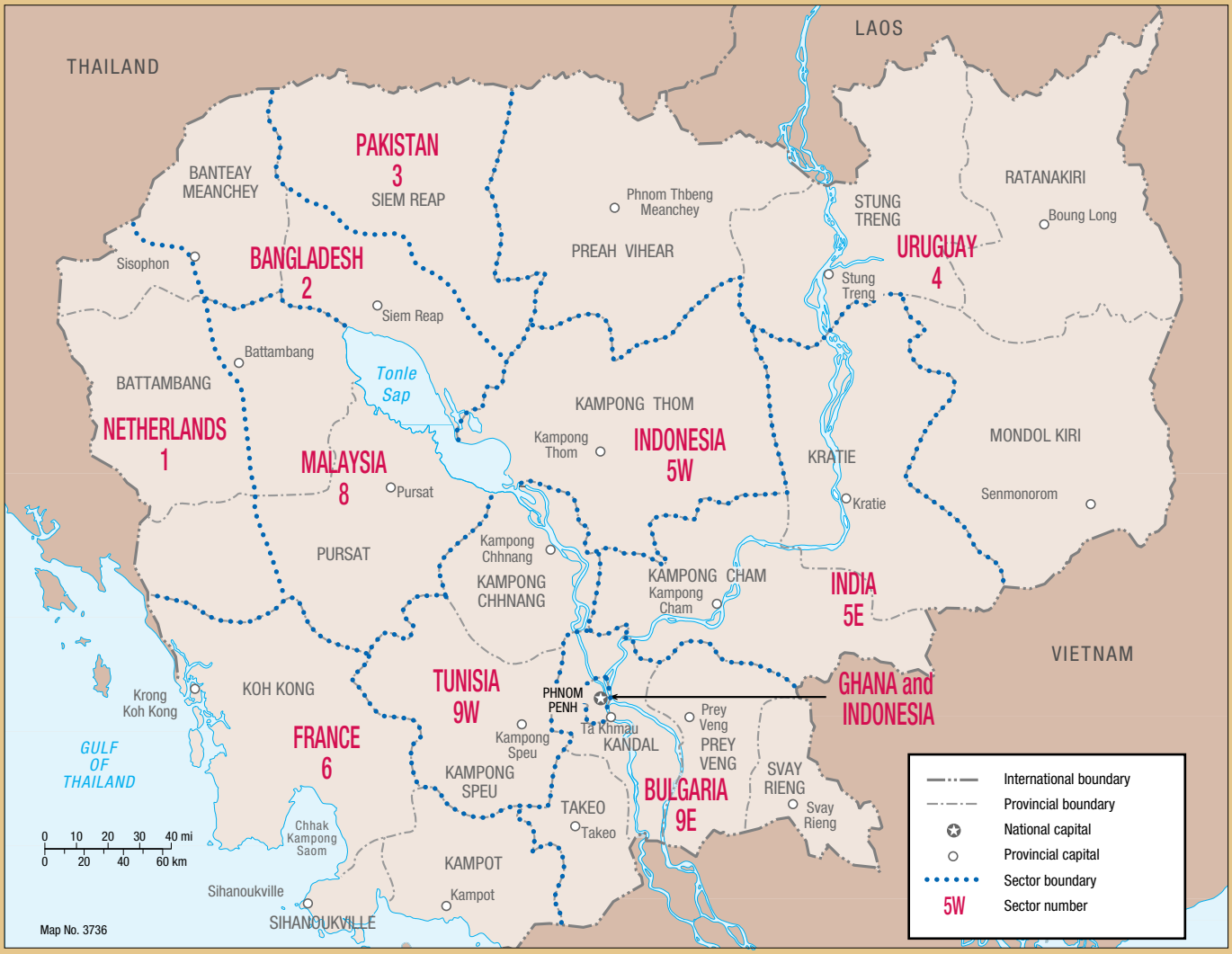
Unlike deployments for smaller U.N. operations, Cambodia required battalion sized units and augmentation rather than individual soldiers. Indonesia's task was to identify well trained and led infantry battalions that resulted in a decision to respect unit integrity when possible in providing reinforcements. In such situations ABRI deploy units drawn from the elite Army Strategic Reserve Command (KOSTRAD), a two-division primary tactical formation. Military personnel assigned to KOSTRAD are recruited selectively, ensuring quality leaders and units.

Indonesian doctrine stresses small unit and guerrilla warfare to defend the country against invasion. One of its key concepts is "territorial doctrine" and territorial operations that assign units and individuals in a geographically-oriented command system which places military personnel at all levels throughout the country. The closest recent U.S. comparison is the role which district senior advisors played in Vietnam where Army officers functioned tactically at the local level as well as in pacification missions.

Territorial operations in Indonesia provide detailed information about every corner of the country in the event of war. The concept is to cohesively meld army and people to resist an invasion, as occurred during the Indonesian struggle for independence in the late 1940s. Almost everyone in the military spends part of their career in territorial units through routine personnel assignments. It is ideal preparation for overseas peacekeeping because it provides person-to-person experience at the local level. The U.S. military has no equivalent seasoning: the closest experience is disaster relief in which servicemembers provide domestic support when emergencies strike local communities.

Senior ABRI leaders stress that there is no standard peacekeeping preparation training. Ordinary proficiency for territorial and tactical operations is the prime mechanism for training units designated for overseas peacekeeping. Unit readiness and proficiency in individual military skills are the keys to preparing for deployment.

UNTAC Sectors of Cantonment and Demobilization



Initial UNTAC deployment was designed for phase II of the ceasefire, in which the forces of the four factions were to gather separately in cantonment areas, relinquish their weapons, and begin their reintegration into civil society. (Names of U.N. member countries indicate which troop contributor was in command of a given sector.)

Source: United Nations, *The United Nations and Cambodia, 1991–1995.*

Such training is augmented by location-specific specialty training. Area studies familiarize personnel with conditions in the peacekeeping area of operations (AO). This includes lectures on the differences between their home base and the foreign operational area and focus on geography, demography, and socio-economic conditions. Area orientation covers familiarization with climate, weather, and terrain; religion, history, culture, language, and customs; the background of the U.N. mission; operational objectives and rules of engagement—what soldiers should and should not do; and stern indoctrination with respect to local beliefs and mores.

In preparing for Cambodia, key officers and NCOs received instruction in English. There was also a unique opportunity for Cambodian language instruction. Cambodian asylum-seekers at a refugee center on Galang Island in Indonesia provided a pool of instructors on language, culture, and history. Selected Cambodians were brought from Galang Island to teach at unit base camps. They also helped compile a simple Cambodian-Indonesian dictionary for use by peacekeepers.

In addition to a solid base of military readiness and area studies training, Indonesian units also received more specialized instruction. For the Cambodian operation, deploying contingents had extensive training on mine detection, mobile patrolling, and the tactics and doctrine employed by the Cambodian political factions which they would encounter. Moreover, unit leaders received intensive training on negotiating skills, intelligence collection, interpersonal communications, and psychological operations.

United Nations (P.S. Sudhakaran)

Indonesian peacekeepers at Pochentong Airport.

The Cambodia Connection

Indonesia had a vested political interest in Cambodia based on the key role which it played in negotiations among the warring factions that led to agreement on deploying peacekeepers under the United Nations. Jakarta began informal meetings in 1988 with the four factions as well as the other international players. With France, it co-hosted the 1989 Paris conference of the Cambodian factions and 20 nations which led to the signing of a peace agreement.

Kampong Thom was important for historical, political, economic, strategic, and tactical reasons

ABRI saw several reasons for Indonesia being asked to assume a leading role in providing manpower for the U.N. Transitional Authority in Cambodia (UNTAC) that resulted from the Paris conference. First, both Cambodia and Indonesia were former colonies and, in an earlier period of Southeast Asian history, there had been extensive contacts between the ancient kingdoms on Java and in Cambodia. Moreover, Indonesians noted a common skin color and shared social-cultural systems. Despite key differences in language, national history since independence, and religion, Indonesian familiarization programs with regard to its own people stressed building on similarities and minimizing deviations.

By the time the UNTAC mission was completed in 1993 Indonesia had provided the largest contingent. Its four reinforced battalions plus observers totalled some 3,400 of the 15,000 troops assigned to UNTAC. Two Indonesian brigadier generals served as chief of staff of the UNTAC military component. One battalion served at headquarters in Phnom Penh while another served in the crucial province of Kampong Thom (see map). Indonesians believe that their most important contribution was the operation in Kampong Thom which was a barometer for all aspects of politics and security in Cambodia because all factions maintained a powerful presence there. Most central government infrastructure was nonexistent, which made ABRI territorial operations significant to reestablishing government services and forging communications both among the four factions and between UNTAC and the people. The number of weapons held by the warring factions required a sizeable force to collect arms and demobilize units.

Kampong Thom was an important province for historical, political, economic, strategic, and tactical reasons. Centrally located and bordering eight other provinces, its economic potential was great even by Cambodia's wretched post-war conditions, with extensive fishing on Tonle Sap and fertile rice fields. Its strategic advantages included lake ports, a river system for north-south transportation, a large airport, and two national highways. Each of the factions wanted control of Kampong Thom, with the Khmer Rouge being in a particularly strong position. Both Pol Pot and Khieu Sampan were born there, and it was a Khmer Rouge stronghold during the Indochina War.

Provincial Operations

An airborne battalion reinforced by a marine infantry company, a national police team, and specialists—850 members overall—were assigned to Kampong Thom. (Infantry battalions have an authorized strength of 699 with five line companies—four organic army and one marine.) Each company in turn deployed its platoons geographically. The 14 districts of Kampong Thom made unit deployment easy, with one platoon assigned to each district and one at battalion headquarters in Kampong Thom City. Special purpose teams (such as intelligence, medical, and riverine) were deployed as needed throughout the province.

Faction Forces (Kampong Thom Province)

	Strength
Khmer Independence National Army [Leader: Norodom Ranarith]	2,800
Khmer People's Liberation National Armed Forces [Leader: Son San]	400
National Army of Democratic Kampuchea [Leader: Pol Pot; controlled most rural areas within province]	5,000
Cambodian People's Armed Force (CPAF) [Leader: Heng Samrin; controlled towns and main highways]	3,600

Transportation was possible by both land and water, and U.N. helicopters were on call when other forms of transport were not feasible.

The primary challenge for the Indonesian contingent was to establish credibility with each armed faction, then to build on that to demobilize them and their weapons. With 12,000 factional fighters in the province (see figure) the task was daunting. All four factions saw the importance of Kampong Thom province to their varying political and military agendas, and all had considerable capabilities. Based on the past record and strength, the Khmer Rouge were particularly feared and hated. The Indonesians, as part of a deliberate policy, treated each faction the same, including the Khmer Rouge and the Cambodian People's Armed Forces.

Employing territorial operations doctrine, the Indonesians concentrated first on winning the confidence of the population. "We were already very similar in skin color and cultural traits," one battalion commander observed, a factor which he believed was a key to success in the field. The Indonesians felt that the system of territorial operations used for rural development at home would also work in Cambodia.

Once settled, operations in the province began at the lowest practical level, usually platoon. Commanders emphasized local culture and social systems. Indonesian military camps were open to locals, and they mingled freely with soldiers. Discussions began with small groups of villagers and townspeople through which all factions were contacted. Patience was important in exchanging views and approaches to more recalcitrant groups. Gradually the Indonesians gained information on the various factions. Communications emphasized mutual respect and understanding. Soldiers were keenly aware that even one man could have great impact on the mission.

Informal contacts worked the best. Indonesian commanders sought key communicators such as village leaders, faction chiefs, and unit commanders. "Coffee shops first, formal meetings later," noted a young officer. The junior officers—platoon and company commanders—mediated small local disagreements. Indonesian soldiers celebrated their holidays, traditions, and customs and invited Cambodians to observe or take part. They also encouraged Cambodian cultural events and ceremonies and sometimes took part.

Cambodians were attracted to Indonesian activities such as medical and dental care, video broadcasts, sports events, and village construction projects planned and executed with the people. Priorities included village sanitation and cleanliness, school repair and construction, and teaching done by rank and file Indonesian soldiers. Daily ABRI needs were met by local purchases at fair prices and no rear area supply system was used to obtain food, water, and other necessities.

While such cooperative efforts were with the people rather than armed factions, since all the people were members or supporters of one faction or another these approaches were very effective. Indonesian troops conscientiously conducted development projects in areas controlled by all of the factions including the Khmer Rouge. As one battalion commander said, the most difficult problem was constantly emphasizing that factions were not the enemy but instead people with other ideas. This emphasis gradually won acceptance by the Khmer Rouge.

The results were important. The Indonesians were always able to enter, visit, and operate in areas controlled by all four factions, a situation not achieved by many other national contingents. "Everything had to be accomplished by repetitious efforts and patience," one commander stated.

Phase one of the operation was to establish communications and relations with all factions. Phase two was to create a climate in which the U.N. mission and its personnel could be accepted. The Indonesians found that even being conciliatory to the Khmer Rouge did not bring compliance. Often all factions would comply with U.N. instructions save for the Khmer Rouge. Indonesian battalion end-of-tour reports all cautioned that the Khmer Rouge would remain a threat throughout and after the UNTAC period.

While Indonesians saw their efforts as balanced, some other national contingents felt that they were consistently too close to the Khmer Rouge. Indonesian reports noted such concern

but their ability to mediate the release of other U.N. personnel seized by the Khmer Rouge indicated that their policy provided them with access which other UNTAC elements lacked.

One incident illustrates the degree of Indonesian effectiveness. When the Khmer Rouge seized six UNTAC members in Anlung Ranh and another two in Osala, a mixed UNTAC military working group in Phnom Penh was unable to resolve the crisis since Khmer Rouge demands could not be met. An UNTAC officer subsequently flew to Kampong Thom to negotiate the release of the hostages but could not land because his helicopter was fired on. The UNTAC commander then called on the Garuda contingent.

the success of Garuda XII can be attributed to implementation of doctrine and tactics

The Indonesians agreed to help on condition that no other national contingents be involved. They prepared a negotiating team and special operations quick reaction force for use if bargaining failed. Negotiations were tense, with the Indonesians placed under armed control. But following some highly emotional exchanges, the Khmer Rouge released the hostages.

Lessons Learned

Major General Tamlicha Ali, Indonesian army—who served as UNTAC military chief of staff for more than a year—has outlined six lessons from the Indonesian experience in Cambodia.

- Develop broad knowledge of the area of operations, including geography, demography, socio-economic conditions, culture, customs, and religion.
- Maintain vigorous standards in selecting personnel and units, including psychological testing.
- Require high standards of personal and unit discipline since soldiers routinely face situations requiring great restraint.
- Besides English, key contingent leaders should master the language of the area and individual soldiers should have a basic vocabulary in both English and the local language.
- Train officers in negotiation techniques and other diplomatic skills.
- Ensure that civic action and humanitarian assistance are an integral part of military doctrine. While not always thought of as integral to peace operations, they proved successful in Cambodia and were the basis for winning popular support and thus cooperation from the various factions.

Overall, the success of Garuda XII can be attributed to deliberate and detailed preparation and implementation of both doctrine and tactics. As the largest force deployed to Cambodia with peacekeeping expertise, Indonesians were the logical trainers of other national militaries, including the United States, in the intricacies of international peacekeeping operations.

Senior Indonesian officers credit their success to training, discipline, and professionalism. One key to their success was a willingness to quickly establish good relations with the Cambodian people and members of all political factions. There was no "enemy." This is a difficult concept for Americans who are used to "good guys and bad guys" to accept. Somalia was a poignant example of an inability to maintain evenhanded relations with all sides in a conflict.

Indonesia cross-attached elements of three services—army, navy, and national police—in its unit deployment. While joint units may not be appropriate in all peace operations, it is essential that skills, requirements, and the environment be considered in tailoring forces for an operation.

Finally, Indonesian success can be attributed to a national policy that fosters participation. A willingness to support international peacekeeping was critical in the national-level commitment to the Cambodian mission. Within ABRI, participation in U.N. peace operations is an organizational and personal plum. Units take pride in such deployments and officers view their involvement in them as career enhancing. In short, commitment to peace operations is integrated at the national and individual level in Indonesia. This is a dimension of peace operations that is obviously lacking in the debate within the U.S. policymaking and doctrinal development communities. **JFQ**

Supplying War:

Supply Line in Kunming, China (November 1945) by Loren Russell Fisher.

U.S. Air Force Art Collection

Interservice and Interallied Cooperation in China-Burma-India

By LEO J. DAUGHERTY III

The China-Burma-India (CBI) theater, perhaps the most political front in World War II, has been largely ignored by students of military history. One reason for this inattention is the bitter interservice as well as interallied friction that nearly led to a collapse of cooperation between Great Britain and the United States in the southeast Asian theater of operations. The squabbles were over the best strategy for defeating Japan, the command and control of forces and resources in theater, postwar decolonization, and U.S. policy toward China.[1] Finally, CBI was a backwater, receiving little in the way of men and equipment despite the extent of the front and the number of Japanese on the Asian mainland. Only through the dogged determination of those who fought there, and the belated importance attached to CBI after the Trident conference of May 1943, was the theater given resources for a three-pronged offensive aimed at removing the Japanese threat to British-controlled India as well as driving them from Burma, China, and Indochina.

Leo J. Daugherty III, a military historian and former Marine Corps intelligence analyst, currently serves as associate editor of *Marine Corps Gazette*.

Alexander McVean

On the road to China.

One vital aspect of fighting in the CBI theater were the efforts between December 1941 and June 1944 by air and ground-based logistic forces to support the Chinese nationalist field armies under Generalissimo Chiang Kai-shek, the British Fourteenth Army under General William Slim, and the Fourteenth Air Force—formerly American Volunteer Group (AVG)—under General Claire Chennault. This dimension of the war in CBI illustrates the complexities of both interservice and interallied cooperation that existed until the theater was reorganized after the Trident conference and the Anakim decision to retake northern Burma. Much of the bickering then can be traced to the failure of both the Combined Chiefs of Staff (CCS) and the Joint Chiefs of Staff (JCS) to agree on a sound policy regarding CBI and the Japanese threat there. The U.S. inability to formulate a solid strategy led to postwar breakdowns in policy whereby Allied interests gave way to "recolonization" instead of "decolonization." Ultimately, failing to prioritize support for CBI as well as relegating the theater to minor importance was directly linked to the political and military failures in Indochina in 1946–54 and again in 1965–73.

experiences in CBI influenced post-war joint and combined warfighting

Students of World War II, Korea, and Vietnam should not ignore the obstacle which faced American and British planners in southeast Asia as they fought both among themselves and against the Japanese, all in the name of joint and combined operations. Thus, it is relevant to examine not only the Anglo-American command—later Southeast Asia Command (SEAC)—but also the often acrimonious Army-Air Force relations in supplying China. The lessons of the airlift and military assistance conducted in the CBI theater to interservice cooperation serve as important precedents for jointness. The experiences of the Army and the Army Air Forces in CBI, as well as between the United States and Britain, influenced post-war joint and combined warfighting.

Background

Before the United States entered the war in the Pacific on December 7, 1941, China and Japan had been fighting for four and a half years, with the Chinese forces under Chiang Kai-shek being gradually pushed inland by the Japanese army. With the attacks on Pearl Harbor and Malaya the United States and Great Britain were drawn into the Sino-Japanese struggle. Even prior to the Japanese attacks on American and British forces across the south and southwest Pacific, however, U.S. lend-lease assistance had been flowing to embattled nationalist Chinese forces for a year and a half. AVG volunteers, led by Claire L. Chennault, a former Army Air Corps captain, at that time were fighting a desperate though successful air war against more experienced Japanese aviators. Chennault, an advocate of offensive airpower, accompanied the Chinese director of air operations, Major General Mao Pang-tzo, to Washington in December 1940 to plead China's case to President Franklin D. Roosevelt and Army chief of staff General George C. Marshall.

Along with a request from communist Chinese forces for 500 combat planes and crews, the nationalist Chinese government requested an additional lend-lease loan of $30 billion in ground force materiel. Mao Tse-tung as well as T.V. Soong, the governor of the National Bank of China, also received a credit extension of $100,000,000 in lend-lease assistance of which 25 percent was for armaments. Despite approval of this loan, the War Department, which was strapped by its own requirements, replied that it could not totally comply with the request. But Mao's plea for aircraft fared better. Stanley K. Hornbeck, who was on the Far East desk at the Department of State, and the President assured that no objections would be raised to a request for aircraft. The sale of 500 combat planes was dealt with by the War, State, and Treasury Departments without difficulty.

Alexander McVean

Burma, 1944.

The first serious War Department effort to develop a unified military policy for China came in July 1941 at the suggestion of the British military attaché to China, Major General L.E. Dennys. Fearing a Soviet collapse and subsequent release of thousands of Japanese troops in Manchuria for duty in China proper, he urged Washington to establish a military mission to coordinate lend-lease assistance. He argued that such a mission could serve as the basis for a theater command should the United States became involved in a war in the Pacific.

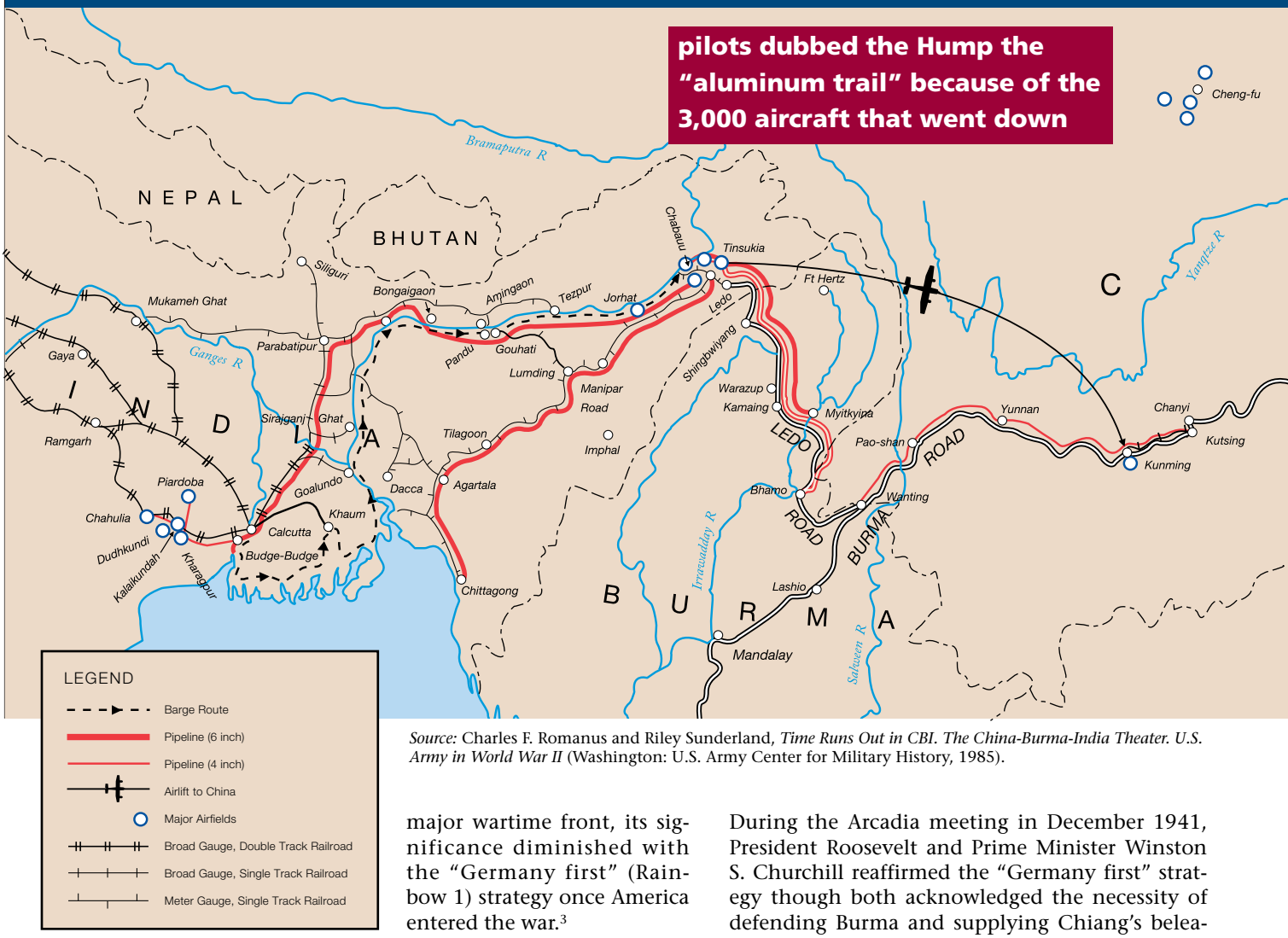
With Marshall's approval, the American Military Mission to China was to serve as a liaison for strategic planning and cooperation with China. Under Brigadier General John Magruder, the mission would coordinate lend-lease with the Chungking government to:

- advise and assist in all phases of aircraft procurement, transport, and maintenance
- advise and assist in the training, use, and maintenance of weapons and equipment
- when requested, assist the Department of State and other agencies in carrying out the Lend-Lease Act pertaining to China
- help obtain prompt and coordinated administrative action to ensure the orderly flow of war materiel to Chinese forces
- explore port, road, and railroad facilities with a view to establishing and maintaining an adequate line of communications.[2]

Shortly after our entry into the Pacific war, Washington put the 500 planes promised China on hold pending review largely because of immediate requirements by both the U.S. Army and the Royal Air Force (RAF). The availability of 100 of the latest P–40B fighters produced a tentative agreement among Air Vice Marshal Sir Robert Brooke-Popham, Chennault, and the U.S. military whereby the former would transfer P–40s to China while Britain would receive a similar number of the new fighters. In addition, Brooke-Popham agreed to rearm the aircraft and offered the use of RAF airfields in Burma to train Chinese pilots and crews as well as logistical support.

Pre-war discussions between Washington and London on China or the CBI theater pointed to differences in Anglo-American strategy on the defense of the vital natural resources of Southeast Asia. As early as October 1941, the Americans and British, fearing further moves by the Japanese toward Burma and Southeast Asia, discussed forming AVG into an Anglo-American organization. China likewise grew in importance since Washington and London saw the Sino-Japanese conflict as a large holding action to delay Japanese armies from being committed elsewhere in the Pacific. Despite various attempts to make China a

Supplying War in CBI: From Dockside in Calcutta to Airfields in China



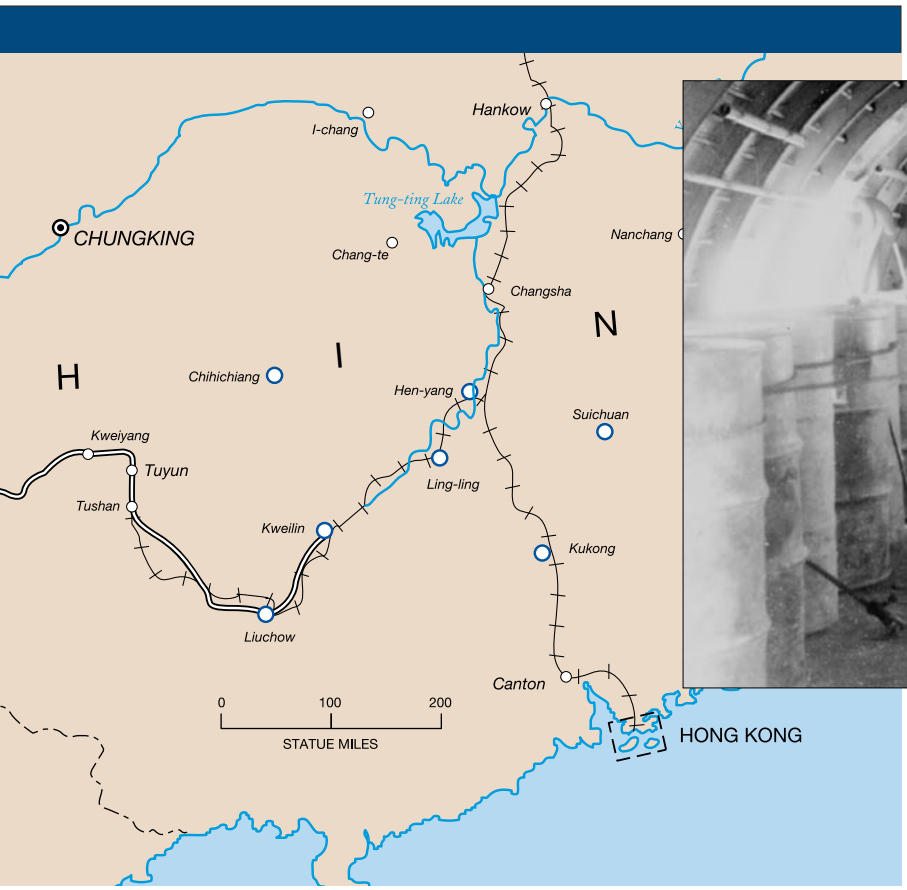
Source: Charles F. Romanus and Riley Sunderland, *Time Runs Out in CBI. The China-Burma-India Theater. U.S. Army in World War II* (Washington: U.S. Army Center for Military History, 1985).

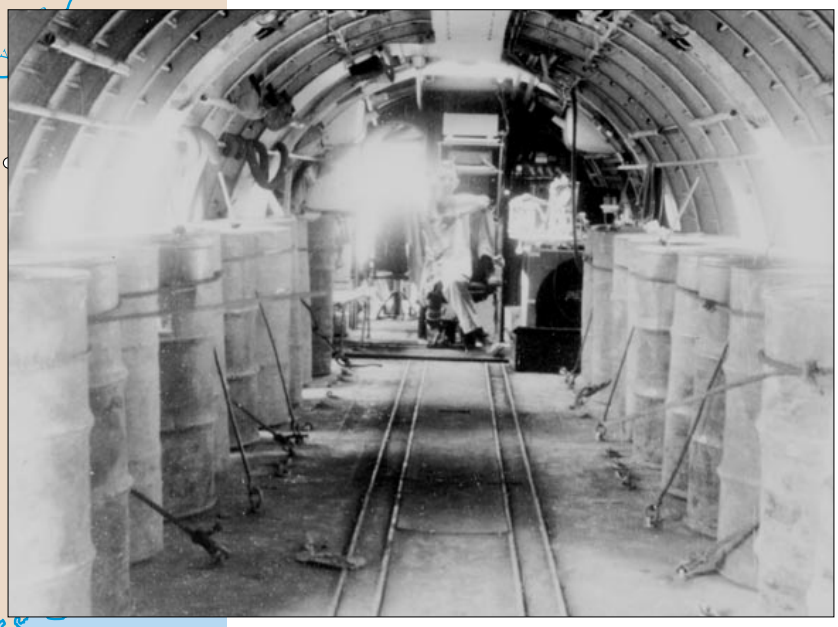
major wartime front, its significance diminished with the "Germany first" (Rainbow 1) strategy once America entered the war.[3]

The Arcadia Conference

Chiang Kai-shek, on the other hand, not surprisingly believed that China and Asia should be the Allied focal point. On the very day the Japanese attacked Pearl Harbor, he called a meeting of Allied representatives in Chungking to discuss creating a council which he would chair to direct the war in that theater. Besides calling for severing Japan's lines of supply and communications through strategic bombing, he proposed that he now be given control "and priority" over all lend-lease equipment. The Generalissimo rightly thought Britain would try to "preempt the lend-lease arms that were piling up in Burma on consignment to China . . . [and] wanted American leadership of the war council to keep the British from taking his goods."[4]

Chiang's "Asia first" strategy was quickly set aside at the first major interallied conference. During the Arcadia meeting in December 1941, President Roosevelt and Prime Minister Winston S. Churchill reaffirmed the "Germany first" strategy though both acknowledged the necessity of defending Burma and supplying Chiang's beleaguered forces. They agreed, moreover, that CBI was to remain solely defensive until Germany was defeated. Despite the low priority assigned to China, Roosevelt believed it crucial to not permit it to either pull out of the war (as Chiang hinted several times) or side with the Japanese. He likewise advocated that China be given great power status and permitted to direct the war in China from Chungking (later Kunming) instead of granting General Sir Archibald Wavell overall command. Roosevelt also believed the British and French hold over Asian colonies would not survive the war, and thus a strong China would be needed as a "policeman" to arrest any Soviet moves into the region. Churchill, who was in not in the mood to compromise Britain's postwar position in Asia, including India, told Roosevelt in effect that what went on in British colonies was none of his business.





David C. Hall

Fuel for Chennault.

The Allied leaders nonetheless formulated a strategy that was purely defensive and would continue supporting Chiang against Japan as well as holding the line against further advances into Burma and India. China's strategic and operational importance was as a base to defend Burma, India, and the Malay-Java barrier and possibly as a "jumping off" point for retaking Indochina. In order to reduce the friction between Chiang and the British (whom Chiang believed imperialistic), the War Department would take responsibility for China while Southeast Asia Command assumed responsibility for Burma. This separation of Burma and China disrupted regular logistic channels, leading to problems of command and control in CBI that threatened the conduct of the war against Japan on the Asian mainland. It was at this point that the questions of how to supply both China and British forces fighting in Burma, while also maintaining Chiang's forces in the field, arose. For Marshall and the War Department, the problem did not center on the need to supply CBI but on how to do it with the limited assets available during the first fourteen months after Pearl Harbor.

By Land or Air?

As long as Britain controlled Burma and the vital "Burma Road" from Mandalay to Lashio and on into China, the Allies could supply both Chiang and Chennault. During Arcadia, Churchill in fact had been pressured by Roosevelt to focus British efforts at defending the only land route to China, much to the disgust of General Sir Alan Brooke, chief of the Imperial General Staff, who considered the scheme wild and half-baked. Throughout early 1942, British, Commonwealth, and Chinese forces waged a rear-guard action after losing Rangoon to protect both the Burma Road and Yenangyaung oilfields and prevent the Chinese from being cut off in the northeastern Shan states.

Loss of Burma and the vital rail and road networks into China would force the Americans to undertake an aerial resupply effort over the Himalayas in northern Burma. Lieutenant General Joseph W. Stilwell, the War Department's personal emissary to Chiang, proposed that a new truck route running through northern Burma, from Ledo to Myitkyina, be constructed after the area was cleared of Japanese by a three-pronged Allied offensive. The British and Chinese saw the idea as time-consuming and wasteful. The British proposed instead a new offensive to recapture the port of Rangoon and reopen the old Burma Road from Lashio to Kunming. To meet short term needs the British and Chinese suggested a massive airlift. The Combined Chiefs reached a com-

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Drawing water, India.

promise: the Americans would undertake the airlift even as Allied forces launched a series of offensives to retake Myitkyina, opening the way to build a new land route to China.

Getting lend-lease to China even before U.S. involvement in the war was not simple. Prior to the fall of Rangoon in March 1942, ships carrying lend-lease supplies would dock and unload at Rangoon, then be trucked via the Lashio Road. The new Burma Road was to stretch from Ledo, India, through Fort Hertz and Myitkyina to Lung-Ling in China. Chiang optimistically believed it would take only five months to build the road while Washington estimated two and a half years. Support nonetheless came quickly from Marshall and presidential adviser Lauchlin Currie. In fact, Currie told Roosevelt that building such a road under American auspices would eliminate many of the problems between Chiang and the British, permitting lend-lease to flow relatively uninterrupted to Chinese forces. But as Chiang and the War Plans Division hammered out planning for the road, an interim route was found via Sadiya, India, and Kunming over a rough and forbidding stretch of terrain soon to be known as simply the "Hump."

getting lend-lease to China even before U.S. involvement in the war was not simple

The Chinese foreign minister, T.V. Soong, estimated that 100 C–47 Skytrains or Dakotas could fly 12,000 tons of supplies into China every month. Despite Roosevelt's concern that the unarmed transports would be easy prey for Japanese pilots, Soong assured him that "the supply route to China via India can be maintained by air even though there should be a further setback in Rangoon." Though Soong promised air support, many transports flew missions under a constant threat of attack. And much of the fighter cover provided came from Indian based RAF squadrons. It was not until 1944 when Merrill's Marauders retook the Japanese airbase in Burma at Myitkyina that the enemy air threat was eliminated.

Washington instructed Stilwell, appointed in January 1942 to command U.S. personnel and lend-lease in China, to "set up the airline to China even though the Burma Road was held."

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Gurkas jumping into Rangoon.

Despite emphasis on building a land route, logistical and engineering problems as well as the drain of manpower and materiel to other theaters delayed construction, forcing the War Department to resupply the Allies with a massive airlift. This would establish a vital link with Chiang's forces in China and set the stage for the retaking of Burma in 1944.

CBI, 1942–44

Despite delays in building a road to China and the shortage of men and aircraft because of more pressing needs, the Army inaugurated Project 7A which requisitioned 25 American Airways transports for the Assam-Burma-China Ferry Command. Its mission was to deliver equipment and supplies to British, American, Chinese, and Indian soldiers as well as aiding fleeing refugees.

Despite Washington's desire to placate Chiang, operations in Europe were a constant drain on transport aircraft for the Ferry Command. American strategy in China thus became hostage to the European theater with regard to JCS and CCS priorities on both men and materiel. Chiang, on the other hand, insisted that by August 1942 "the monthly aerial support should be 5,000 tons," impossible given the build-up for Gymnast, later renamed Torch, and Sledgehammer, the invasion of northwestern France. In fact, troop and support problems plagued Stilwell and the American, British, Dutch, Australian Supreme Command (ABDACOM) throughout the theater. These same problems caused acrimonious debates among the Anglo-American leaders and China over strategy. Squabbling about who got which share of the little support reaching CBI strained tenuous relations between the Americans and British as well as between British and Chinese forces in Burma.

From the outset the British sought to have the airlift placed "at its disposal and under the air officer commander in chief (India)." Although JCS rejected this plan, Marshall personally assured Field Marshal Sir John Dill, the British liaison in Washington, that the Tenth Air Force would be turned over to British forces in India when necessary. Stilwell, suspicious of the lackluster British efforts in Burma and trying to placate Chiang's demands, drew up his own plans for a limited air and ground offensive that would keep the pressure on the Japanese and the Chinese fighting.

The center of Stilwell's program in summer 1942 was an air campaign to support a series of limited ground offensives in China and Burma. While Chennault's Fourteenth Air Force was to assist Chiang's forces inside China, Tenth Air Force, flying from bases in India, was to "bomb strategic targets in Burma and China" when they

U.S. Air Force Historical Center

Arriving in Kunming, China.

could be supported there. India Air Task Force, activated in October 1942, supplemented India-China Ferry Command. Leading the airlift to CBI was Air Service Command, under Brigadier General Francis M. Brady. His task was to "receive and train crews for combat and transport operations" flying back and forth into China. Working through Brady's American Air Service Command was its own Air Service Command. The group, based throughout northern India (Agra, Allahabad, Chakulia, Bangalore, Dinjan, and Chabua) and at Kunming in China, served as a maintenance and supply echelon. Directing the entire resupply effort for China was Major General Raymond A. Wheeler's Service of Supply (SOS). Depending on a 12,000-mile, four-month odyssey by ship from Los Angeles to Karachi and through India's vast interior to Assam on an antiquated rail and road network, SOS performed a miracle in getting supplies to Stilwell and Alexander.

Over the Hump

Missions across the Hump and into Burma were long and dangerous. The Hump portion of the flight averaged over 600 miles from either Assam or Delhi to Kunming. It began on leaving Myitkyina where pilots with oxygen masks flew at 17,000–20,000 feet. The transports, including converted B–24s, carried no armaments. Even machine guns in the rear of B–24s were removed to add room for cargo. "The old slow transports, not designed for such conditions, flew without aids to navigation or arms against Japanese pursuit."[5]

Pilots flew from 13 to 14 hours a day, round the clock, seven days a week, in all types of weather. The only "down time" was during the monsoon from May to late October when only limited flights took place. The C–46s carried 500-pound bombs, 50-gallon drums of 100-octane aviation fuel, small arms ammunition, and whatever else Chiang or Stilwell required. Loaded by British, American, Indian, and Chinese ground crews, the tightly-packed "gooney birds" flew off runways made of steel mats or concrete and crushed gravel on flights of up to five hours.

When flying through the monsoon and at night, pilots relied on "AI," or actual instrument flying. Chinese and American technicians likewise operated beacon radars to guide aircraft flying on instruments to Luliang and Kunming as

well as all major air installations in India. Pilots simply came to know the approaches and landing sites by heart.

Most problems with flying the Hump, however, were due to the weather. As one veteran, Lieutenant General William H. Turner, wrote:

Looking at the Hump weather on a year-round basis, it's easy to see that it was no picnic any time of the year. The combination of weather and terrain would have made the Hump airlift a difficult one even if the route had been over the middle of the United States.[6]

Pilots dubbed the Hump the "aluminum trail" because of the 3,000 aircraft that went down over the four years the Army Air Force ran the supply line, 85 percent of the losses due to weather.

Besides flying to Kunming and Luliang, 4th Combat Cargo Group supported the advance by Slim on Rangoon, ferrying and inserting into Burma radar teams and the long-range penetration units. The group also transported Chinese soldiers from bases in India and Burma to China. But the bulk of the flying before and after Trident was in support of Allied military operations in China and Burma. Slim wrote of the latter:

There were, of course, some anxious moments: we had some over air supply. The American and British transport aircraft were proving too few to meet our increasing demands. . . . This difficulty was met by Admiral Mountbatten obtaining the permission of the Combined Chiefs of Staff to borrow aircraft from the Hump. Twenty-five Commandos [C–46s] *were lent for three weeks, thus enabling Dakotas to be sent to* [Orde] *Wingate's force* [Chindits] *to tide over the peak demand.*[7]

In fact what made "flying the Hump" all the more successful was the flexibility of responding quickly to operational requirements which also has been typical of subsequent air relief operations. During Slim's advance down the Irrawady River in April–May 1945, American C–46s kept British forces supplied by flying round-the-clock during the battle for Kohima Ridge until relief came after two weeks of bitter fighting. Crews braved heavy antiaircraft fire by dropping ammunition, water, and food to the beleaguered British and Indian forces. Kickers pushed bundles from pallets onto drop zones usually designated by flares or coordinates. This system was repeated during the U.S. resupply of Chiang's forces during the Chinese civil war (1945–49) and the first Indochina conflict when American-hired transport crews helped French paratroopers at Dien Bien Phu in 1954.

Anakim

The pace of the war in both the Pacific and the Mediterranean increased after the Casablanca conference in January 1943. As Trident and Quadrant demonstrated, Stilwell's and Admiral Lord Louis Mountbatten's theaters became ever more dependent on an ever dwindling pool of logistical and air support. Even before Trident, JCS put forth a more aggressive plan, Anakim, for a series of offensives to reopen the Ledo Road into China. Marshall's motive for backing it met serious resistance from both the British and Chinese. The British maintained that any operation to open the Burma Road was a waste of resources that could better be used in the Mediterranean, for example. The Chinese, on the other hand, agreed to participate only if Britain provided adequate naval and air support. When Wavell informed the Generalissimo that Britain could provide only a "limited amount," the Chinese declined.

At Casablanca, Roosevelt and Churchill discussed problems confronting the Allies in the third full year of war. The President, aware that both the public and his chiefs wanted an expanded effort in the Pacific and China, sided with Churchill's desire to first secure the Mediterranean basin and prepare for an eventual "second front" in Europe (Bolero) to remove pressure from the Soviet army on the Eastern Front. Although they fought off suggestions for a major offensive in Burma, Marshall and Admiral Ernest J. King convinced the President to approve a limited Burma offensive for late 1943. Roosevelt and Marshall pledged that supplies expended in Burma would be replaced immediately from American stockpiles to placate Churchill's fears that CBI would drain lend-lease.

Marshall's desire for even a limited offensive was twofold. His first goal was to reopen the line of communications to China to secure bases for operations against Japan's home islands. The second, and more important to both him and JCS, was to obtain staging areas and airfields in north China for bombers to launch a strategic bombing campaign (Matterhorn) against Japan.

Despite Roosevelt's approval for a limited Burma offensive, Marshall and King stressed to Stilwell that priority must go to rebuilding the Chinese army into a credible offensive force. CBI was to get only enough logistical support to prevent collapse. In the end, Chennault's Fourteenth Air Force and not Stilwell's half-starved Chinese and American force received greater support due to the belief on the part of Roosevelt and a reluctant Marshall that airpower would be a "quick-fix" alternative to Stilwell's plan to refit 30 Chinese divisions. Despite this change of priorities in CBI, the impact of Anakim on SOS and Air Transport Command was immediate.

U.S. Air Force Historical Center

Going behind Japanese lines.

During the Trident conference in spring 1943, Roosevelt, Churchill, and their Combined Chiefs sought to finalize the agreements made at Casablanca the previous winter, particularly with regard to Anakim. Both Chennault and Stilwell, the latter representing Chiang Kai-shek, presented their plans on how to best defeat Japan in China. After a lengthy presentation by Chennault on the efficacy of airpower, Stilwell discounted airpower and Chennault's grandiose plan warning that if compelled the Japanese had more than enough power to march on both Chungking and Kunming. Stilwell maintained that defeating the Japanese on the mainland required 120 Chinese divisions.

The British, on the other hand, believed any offensive in Burma would divert manpower and logistics just when the war in Germany was entering its most crucial phase. In fact, Churchill and the British chiefs advocated bypassing Burma as the Americans were about to do in the south and central Pacific. The British favored a limited amphibious campaign to retake the northern tip of Sumatra and reoccupy Singapore. They likewise thought it impossible to airlift sufficient supplies over the Hump to sustain even a limited offensive in Burma given other priorities.

Supplying China

Any offensive to retake Burma or to assist Chennault in his proposed air campaign against Japan would demand flying increased tonnage over the Hump. Chennault based his requirements on 150 B–17 bombers; 32 B–24, B–25, and B–26 medium bombers; air and ground personnel; and 2,500–3,000 tons of supplies not only to protect air routes to China but to strike the Japanese along the Chinese and Burmese coasts. Despite Stilwell's opinion that airpower alone could not defeat the enemy, Marshall ordered the CBI commander in chief to give Chennault a "firm allocation" of 1,500 tons a month regardless of Chiang's needs. Stilwell complied and told JCS that Chennault would receive an added 1,000 tons per month. Chinese forces would still get 2,500 tons monthly, providing that in bad weather Chennault would "share equally with everyone else" no matter what it did to air operations. Chennault saw Stilwell's plan as undercutting his efforts to launch the air campaign against Japan. He not only insisted on priority in Hump tonnage but that he get enough "to fly and fight."

Aggravating Stilwell's command problems with Chiang and Chennault was interference by the President in theater operations. Roosevelt often circumvented the normal chain of command in Washington—Marshall and JCS—to conduct the war in the same ad hoc way that pre-war policy on China had been formulated. While Roosevelt's aim was to assure Chiang that "China was a full partner," his meddling frequently sent confusing signals, hampering the war effort. Moreover, his personal relationship with Chennault, which went back to 1937, hindered Stilwell in reforming the Chinese army into an effective force. In fact, it inhibited the war against Japan and later in creating a working coalition with the Chinese communists. Roosevelt's insistence that Chennault receive a "guaranteed monthly minimum" not only reduced the chance of Stilwell accumulating the requisite supplies, but forced a revision of the planned offensive into northern Burma. The decision to maintain the pressure on the Japanese via an air offensive also impeded an effective Chinese effort against the enemy in Burma and China.

Despite War Department pronouncements on the bravery and fortitude of Chinese soldiers, interallied squabbling and British mistrust of Chiang's pro-Indian sentiment slowed down efforts by Stilwell to build a Chinese army able to defeat the Japanese as well as the Chinese communists during the civil war (1945–49). Interallied friction over priorities, strategy, and operations likewise scuttled plans to resume the offensive in CBI in 1943. Not until the Quebec conference (Quadrant) in August 1943 and Mountbatten's appointment would the Allies resume a major offensive against the Japanese in Burma and China. In fact, Trident set in motion both the reconquest of Burma and the opening of the Burma Road in late 1944.

Cooperation at Last

The immediate result of the Trident conference was increased Hump tonnage reaching both Chennault and Stilwell in China. Chiang's approval of the Trident decisions meant that training and equipping Y-Force (the 30 refitted Chinese divisions) had to go forward, and tactical plans for Burma had to be updated. Decisions reached in Washington by Roosevelt, Churchill, and CCS on a limited offensive into Burma set in motion plans for Slim's reconquest and opening the Burma-Ledo Road in late 1944. Trident also gave more emphasis to Chennault's plan for an air campaign. Roosevelt's backing of Chennault diverted resources from road construction to airfields in India.

with the increase of Hump tonnage to 10,000 per month came expansion of Wheeler's SOS

With the increase of Hump tonnage from 4,000 to 10,000 per month came the expansion and reinforcement of Wheeler's SOS. After Trident, his first task was to get SEAC permission to build several airfields to enlarge the effort in China and Burma. Wavell readily agreed and flew to Assam to survey construction of four main bases: Chabua, Mohanbari, Sookerating, and Jorhat. The British commander gave Wheeler's engineers license to requisition materiel for the airfields. Mountbatten rushed trucks, steel matting, and gravel crushers and rollers to Assam to complete the airfields in time for the planned spring offensives.

Despite Anglo-American differences, CBI began to experience a steady influx of men and materiel by mid-1943. Acting on Marshall's request for added aircraft for the China-Assam ferry, the War Department rushed 30 C–46 transports to Wheeler. In order to not strip the planes from Sledgehammer, the Army requisitioned them from Trans World and Northwest Airlines. Marshall, recognizing that Roosevelt's air campaign could not be launched without more men and equipment, started to divert both from Britain and the United States to bolster Stilwell and Chennault. By mid-1943 the theater was receiving a quarter of all supplies coming off assembly lines at home.

By summer ACT had three more transportation groups and four airway detachments, with more personnel arriving monthly. Whereas before each transport had one crew they now had two, permitting round-the-clock flights. By August 1943, JCS had assigned 46 extra crews to the CBI theater, thus alleviating shortages in event of losses. Despite the additional personnel and materiel after Trident, it became clear that a goal of 10,000 tons a month would not be reached until British and American engineers completed all airfields and maintenance facilities then under construction and each one was fully manned by maintenance personnel.

It was only at the Quadrant conference that the Combined Chiefs of Staff decided when and where to strike the Japanese in the Pacific. While approving of the central Pacific drive by Admiral Chester W. Nimitz, the chiefs sanctioned a series of limited offensives which would not only link India to China by a new road network but expel the Japanese from all of Burma. The conference culminated two years of interallied and interservice disharmony over how to supply China while defeating the Japanese. It became apparent that the enemy would have to be defeated on the Asian mainland before the status of British and French colonies and U.S. policy toward China could be resolved. It was only the persistence of Marshall and Mountbatten that focused the Allies to fight the Japanese instead of one another. The China-Burma-India theater provides an illustrious case for the study of joint and combined operations conducted under divergent and conflicting political and military objectives. **JFQ**

NOTES

[1] The author based numerous depictions of operational details on interviews with veterans who served in CBI during the events recounted in this article, including Platoon Sergeant Robert Boehm (Army Quartermaster Corps), Captain Ed Goodman (Army Air Force), and Captain David C. Hall (4th Air Cargo Group Command). For a discussion of the controversy surrounding Allied strategy in the China-Burma-India theater, see "Grave of a Dozen Schemes," by H.P. Willmott in *Joint Force Quarterly*, no. 4 (Spring 1994), pp. 82–91.

[2] Charles F. Romanus and Riley Sunderland, *Stilwell's Mission to China. The China-Burma-India Theater. U.S. Army in World War II* (Washington: U.S. Army Center of Military History, 1987), p. 11.

[3] Mark S. Watson, *Chief of Staff: Prewar Plans and Preparations. The War Department. U.S. Army in World War II* (Washington: U.S. Army Center of Military History, 1985), pp. 367–410.

[4] Barbara Tuchman, *Stilwell and the American Experience in China, 1911–45* (New York: MacMillan, 1970), p. 234.

[5] Ibid., p. 303.

[6] William H. Tunner, *Over the Hump*, (Washington: Office of Air Force History, 1985), p. 75.

[7] William J. Slim, *Defeat into Victory*, 3d edition (London: MacMillan, 1988), p. 242.

General Hoyt Sanford Vandenberg

(1899–1954)

Chief of Staff, U.S. Air Force

VITA

Born in Milwaukee, Wisconsin; graduated from Military Academy (1923); flying school (1923–24); commander, 90th attack squadron (1924–27); instructor, flying school (1927–29); commander, 6th pursuit squadron (1929–31); instructor and flight commander, Randolph Field (1931–34); tactical school and command and general staff school (1934–36); Army War College (1936–39); plans division, Office of Chief of Air Corps (1939–41); operations and training officer, Air Staff (1941–42); assigned to United Kingdom to assist in organizing air forces in North Africa; chief of staff, 12th Air Force; chief of staff, Northwest African strategic air force (1942–43); deputy chief of Air Staff (1943); head, air mission to Russia (1943–44); deputy air commander in chief, Allied Expeditionary Forces, and commander of American air component (1944–45); assistant chief of Air Staff (1945–46); director of intelligence, War Department General Staff (1946); director, Central Intelligence Group (1946–47); deputy commander and chief of Air Staff (1947); vice chief of the Air Force (1947–48); and chief of staff of the Air Force (1948–53); died at Washington, D.C.

U.S. Air Force Art Collection

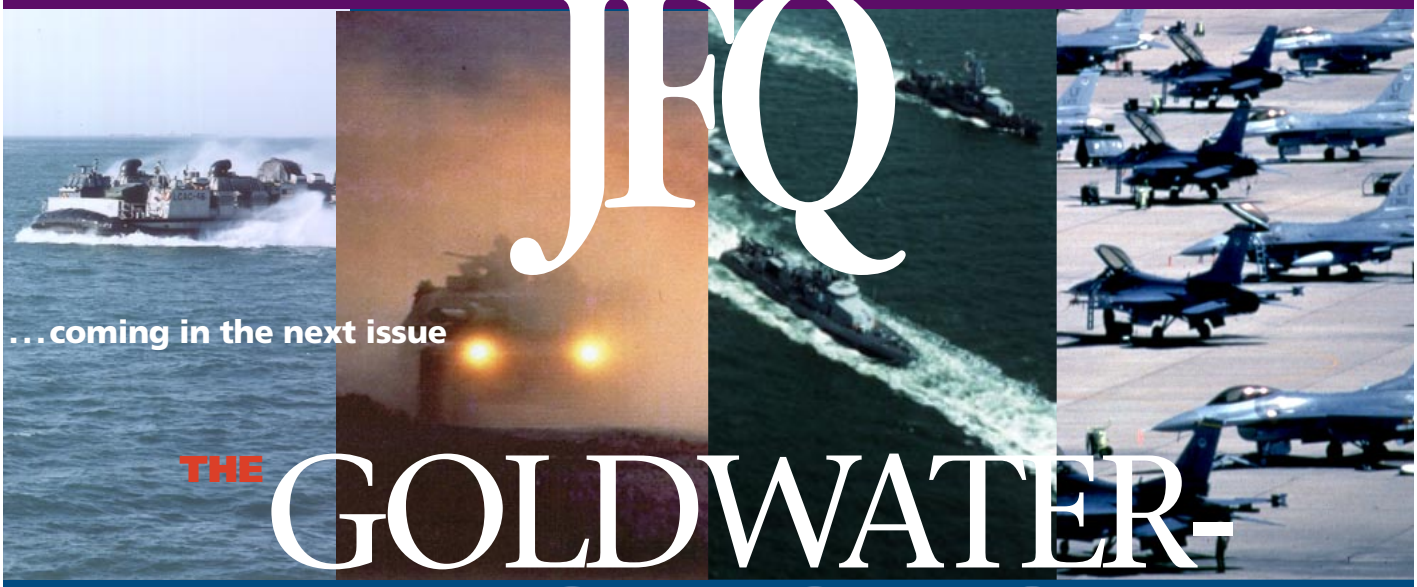
Portrait by Charles Baskerville.

. . . there is a difference of opinion as to whether the JCS, as a body, should determine the strategic concept for future war and establish the major elements of forces required to carry out such a concept. I firmly believe that law and precedent make this, together with the strategic direction of forces in the event of war, the primary function of the JCS.

—Letter from Hoyt S. Vandenberg to Secretary James V. Forrestal, November 1948

JOINT FORCE QUARTERLY

JFQ



...coming in the next issue

THE GOLDWATER-NICHOLS ACT

Ten Years Later

To mark the 10th anniversary of the passage of the Goldwater-Nichols Department of Defense Reorganization Act of 1986, the Autumn 96 issue of *JFQ* will feature a series of original contributions on various aspects of this law and its implementation by past and current government officials, senior military officers, and defense specialists, including the following:

Introduction—From the Chairman
General John M. Shalikashvili, USA
Chairman, Joint Chiefs of Staff

Taking Stock of Goldwater-Nichols
by The Honorable James R. Locher III
former Assistant Secretary of Defense

Defense Organization Today
by The Honorable John P. White
Deputy Secretary of Defense

Past Organizational Problems
by General David C. Jones, USAF (Ret.)
former Chairman, Joint Chiefs of Staff

The Chairman as Principal Military Adviser
An interview with General Colin L. Powell, USA (Ret.)
former Chairman, Joint Chiefs of Staff

Overseeing Cross-Service Trade Offs
by Admiral William A. Owens, USN (Ret.)
former Vice Chairman, Joint Chiefs of Staff,
and James R. Blaker
Visiting Fellow, National Defense University

Next Steps in Joint Force Integration
by General John J. Sheehan, USMC
Commander in Chief, U.S. Atlantic Command

Warfighting CINCs in a New Era
by Admiral Joseph W. Prueher, USN
Commander in Chief, U.S. Pacific Command

Emergence of the Joint Officer
by Lieutenant General Howard D. Graves, USA (Ret.)
former Superintendent, U.S. Military Academy,
and Don M. Snider
Visiting Professor, U.S. Military Academy

Prospects for the Military Departments
by The Honorable Michael B. Donley
former Assistant Secretary of the Air Force

Future Trends in Defense Organization
by The Honorable Sam Nunn
Committee on the Armed Services, U.S. Senate

A PROFESSIONAL MILITARY JOURNAL

Exercises

OSPREY '96

A NATO Partnership for Peace (PFP) exercise, Cooperative Osprey '96 (CO '96), was held from August 12 to 30 at Camp Lejeune, North Carolina. It focused on NATO marine training, including amphibious operations, tactics, and procedures. CO '96 increased interoperability and cooperation of NATO and its partners in both peace and humanitarian operations in a littoral operating environment.

A total of some 1,100 troops from 16 PFP countries—Albania, Austria, Bulgaria, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Poland, Romania, the Slovak Republic, Ukraine, and Uzbekistan—and three NATO nations—Canada, the Netherlands, and the United States—took part in the exercise. In addition, Azerbaijan, the Czech Republic, and Denmark participated as observers.

CO '96 was conducted by commanding general, Marine Corps Forces Atlantic, on behalf of NATO supreme allied commander, Atlantic. JFQ

Education

GOLDEN ANNIVERSARY

The Armed Forces Staff College (AFSC) marked the 50th anniversary of its founding this summer. Established after World War II, the college was mandated to train mid and senior level officers in "joint staff techniques" and "procedures in theatres and joint overseas operations." Announced by Secretary of the Navy James V. Forrestal on August 13, 1946, AFSC held opening ceremonies on February 3, 1947. Among the distinguished guests were Fleet Admiral Chester W. Nimitz, chief of naval operations; General Carl A. Spaatz, commander of Army Air Forces; Rear Admiral Walden P. Ainsworth, 5th Naval District; Rear Admiral James Holloway, U.S. Naval Academy; and Richard D. Cooke, mayor of Norfolk.

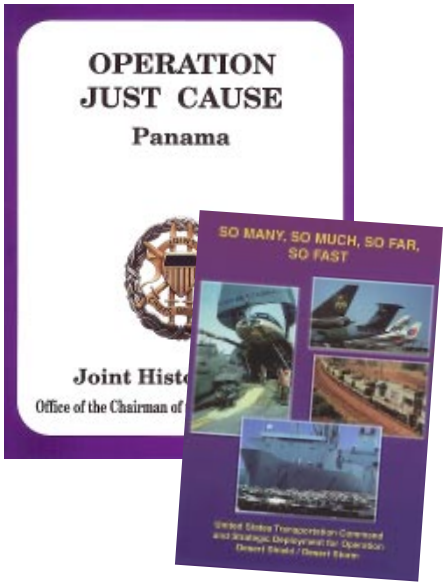
With the National War College and the Industrial College of the Armed Forces, AFSC is today one of three constituent PME institutions which comprise the National Defense University. Both the National War College and AFSC trace their origins back to the Army-Navy Staff College (ANSCOL) which was organized in 1943 on the recommendation of General Henry H. Arnold, commander of Army Air Forces, to address deficiencies in preparing officers for the conduct of joint and combined operations. ANSCOL trained its students "in the exercise of command and the performance of staff duties in unified and coordinated Army and Navy commands."

The anniversary was celebrated by a ceremony conducted on the campus at Norfolk Naval Base and cerebrated by a two-day symposium sponsored by the National Defense University on "Joint Warfighting into the 21st Century" on August 14–15 at the college. JFQ

History

THE JOINT BOOKSHELF

The Joint History Office has recently issued two new publications. The first, *So Many, So Much, So Far, So Fast*, is an account of the U.S. Transportation Command during Desert Shield/Desert Storm written by command historian James K. Matthews. The author concentrates on strategic mobility activities of the command and its components. The topically-organized narrative focuses on broad issues and problems of strategic deployment. Matthews provides details on airlift, sealift, land transportation, port



operations, containerization, and mission support activities. Copies may be requested from the author by writing: Command Historian, Headquarters TRANSCOM, Scott Air Force Base, Illinois 62225–7001.

The second publication is a monograph entitled *Operation Just Cause*, by Ronald H. Cole of the Joint History Office. It examines the role of the Chairman and Joint Staff in planning and directing combat operations in Panama. The narrative begins in February 1988 and concludes with the surrender of Manual Noriega. This study, originally prepared in January 1990, was recently declassified. It is available by contacting: Director for Joint History, Office of the Chairman of the Joint Chiefs of Staff, Room 1B707, The Pentagon, Washington, D.C. 20318–9999. JFQ

Missing an Issue?

Copies of back numbers of *JFQ* are available in limited quantities to members of the Armed Forces and institutions. Please send your request to the Editor at the address or FAX number listed on the masthead. JFQ

1996 CJCS ESSAY COMPETITION

The 15th annual Chairman of the Joint Chiefs of Staff Strategy Essay Competition was conducted on May 23 at the National Defense University. This event challenges students at intermediate and senior colleges to write on some aspect of international security, defense policy, or military affairs, with special emphasis on a joint topic.

CO-WINNING ESSAY

Major John N.T. Shanahan, USAF
(Naval War College)
"No-Fly Zones Operations: Tactical Success, Strategic Failure, and the Missing Link"

Lieutenant Colonel Frederick R. Strain, USAF
(Air War College)
"Discerning Iran's Nuclear Strategy: An Examination of Motivations, Strategic Culture, and Rationality"

DISTINGUISHED ESSAYS

Donna M. DiPaolo, Department of State
(Industrial College of the Armed Forces)
"Foreign Ownership Restrictions in Communications and 'Cultural Trade' "

Lieutenant Colonel Mark A. Gunzinger, USAF
(National War College)
"Beyond the Bottom-Up Review"

Lieutenant Colonel Gregory A. Roman, USAF
(Air War College)
"The Command *or* Control Dilemma: When Technology and Organizational Orientation Collide"

Lieutenant Colonel Randal K. James, USAF
(Air War College)
"The Islamist Challenge in the Middle East and North Africa"

Major Christopher M. Bourne, USMC
(Marine Corps Command and Staff College)
"Unintended Consequences: The Effects of Goldwater-Nichols on Civilian Control of the Military"

Lieutenant Colonel Billy J. Adams, USA
(Marine Corps War College)
"Defense Depot Maintenance Management for the 21st Century"

INSTITUTE FOR NATIONAL STRATEGIC STUDIES
NATIONAL DEFENSE UNIVERSITY

The Goldwater-Nichols DOD Reorganization Act: A Ten-Year Retrospective

This annual topical symposium will be held on December 3–4, 1996 at the National Defense University in Washington, D.C.

For details on future symposia or registration material on the above event, please contact:

National Defense University
ATTN: NDU–NSS–SY
300 Fifth Avenue (Bldg. 62)
Fort Lesley J. McNair
Washington, D.C. 20319–5066

Telephone: (202) 685–3857/DSN 325–3857

Fax: (202) 685–3866/DSN 325–3866

Internet: grahamj@ndu.edu

Further information on upcoming events, recent publications, et al. is available to Internet users via the National Defense University World Wide Web server. Access any Web browser (for example, Mosaic or Netscape) by addressing http://www.ndu.edu. Symposia programs and registration material are normally posted on the server 90 days prior to an event.

Coming next year . . .

Annual NATO/European Symposium
March 3–4, 1997
in Washington, D.C.

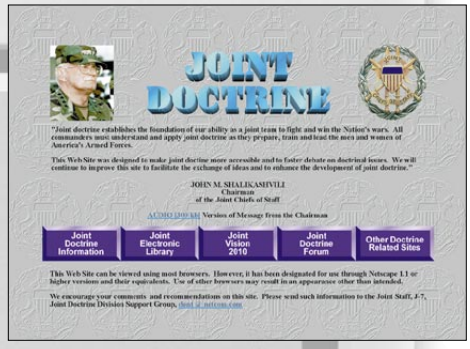
Annual Asia-Pacific Symposium
April 28–29, 1997
in Honolulu, Hawaii

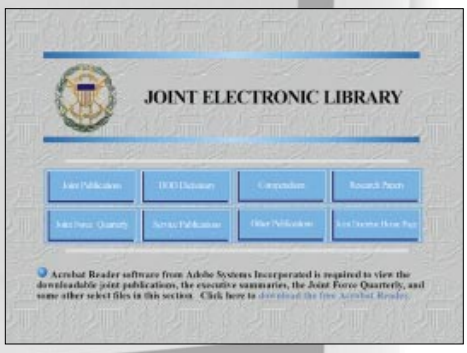
Beginning with this issue look for *JFQ* on the World Wide Web

http://www.dtic.mil/doctrine

In an effort to enhance the awareness of joint doctrine and other information related to jointness, the Joint Staff has established a Web site on the Internet. The Joint Doctrine server can be accessed through any Internet provider and viewed using most browsers. This allows users to:

- download all approved joint doctrine publications, key service publications, and related research material
- access the most current terminology approved for inclusion in Joint Pub 1-02, *DOD Dictionary of Military and Associated Terms* and all approved acronyms and abbreviations in the Joint Acronyms and Abbreviations Master Data Base
- view abstracts of all approved joint publications on-line
- participate in the "Joint Doctrine Forum" facilitating full discussion and open debate of doctrine
- provide instant access to other related Web sites
- and view the latest issues of *Joint Force Quarterly.*





For more information contact the Joint Doctrine Division, Operational Plans and Interoperability Directorate (J-7), at (703) 614–6469 / DSN 224–6469.

ARE WE REALLY READY FOR AN RMA?

A Book Review by
BRIAN R. SULLIVAN

Military Innovation in the Interwar Period
by Williamson Murray and Allan R. Millett
New York: Cambridge University Press, 1996.
428 pp. $64.95
[ISBN 0–521–55241–9]

As the debate over whether a revolution in military affairs is emerging in the United States continues, a relevant book has appeared. *Military Innovation in the Interwar Period* presents seven case studies on how new forms of warfare developed between the two World Wars. It also offers three chapters on the problems of radically changing the ways in which armed forces fight. Each case examines how three different militaries advanced warmaking developments that greatly determined the course and outcome of World War II: armored warfare, amphibious operations, strategic bombing, close air support, carrier aviation, improved submarine warfare, and radar. The book's editors, Williamson Murray and Allan R. Millett, each wrote several case studies and either authored or co-authored three interpretive essays. They were joined in creating *Military Innovations* by historians Richard B. Muller, Geoffrey Till, Holger H. Herwig, Alan Beyerchen, and Barry Watts. Each of their contributions is superb. Together, editors and authors have created a volume that is highly informative, filled with significant insights for our time, and written in a very literate and accessible style. Most importantly, it raises major questions about whether an American revolution in military affairs is really underway.

Military Innovation is the third collaborative effort by Murray and Millett which examines aspects of war in the period 1914–45. This series has been intellectually and financially supported by the Office of Net Assessment within the Office of the Secretary of Defense under the leadership of Andrew Marshall. Each includes case studies and analytical chapters by prominent historians that illuminate events and institutions of the past to inform warriors today. The first work, the three-volume *Military Effectiveness* (1988), considers myriad political, strategic, operational, and tactical strengths and weaknesses of great powers in both World Wars and the two decades between them. It was followed by *Calculations* (1992), more narrowly focused on how major powers conducted net assessment—for better or worse—in the years leading to World War II. *Military Effectiveness* received considerable attention and has come to be regarded as a classic. *Calculations*, appearing in the recession of the early 1990s, has been largely overlooked. But military professionals should read both collections. Moreover, these earlier works create the foundation for *Military Innovation*, the concept that while military technology and operational techniques change, basic political and strategic approaches to war endure, which is also the message of *Military Innovation*. While the latter details the creation and adaptation of certain military technologies, it concentrates much more on the processes than on hardware. That makes it very much a book for the present rather than just a historical study that many might consider irrelevant. In particular, it examines the role, as well as limitations, of new technology in changing the basic patterns of warfare.

Technology plays an enormous role in America, including the Armed Forces. In fact, for many Americans—inside and outside the military—technology appears to be *the* determining factor in war. *Military Innovations* argues otherwise. While the book discusses the development and manufacture of weaponry and equipment in detail, the case studies point out the

Naval Historical Center

USS Langley.

Brian R. Sullivan is a research professor in the Institute for National Strategic Studies at the National Defense University.

crucial cultural, psychological, strategic, bureaucratic, and political processes that led to the success or failure of a particular technology on the battlefield. After all, as Murray points out in the opening chapter, the British invented tank warfare and together with the French and Germans pushed the development of armored warfare technology in the interwar period. Furthermore, when *Blitzkrieg* erupted into France in May 1940, French tanks were generally superior to those of the *Wehrmacht*. But it was the way the British, French, and Germans employed armor that largely decided the outcome. Although Murray advances no single explanation for the defeat of British and French armor in the spring of 1940, he stresses the great influence of General Hans von Seeckt, head of the German army from 1919 to 1926. Seeckt improved an already excellent professional military education system. He directed a penetrating and objective study of the lessons of World War I and created an officer corps open to innovative thinking, lively debate, and unconventional problem solving. Within this environment, the army not only adopted tanks after Hitler threw off the restrictions of the Versailles Treaty but developed ways to use them as part of a highly effective combined arms approach to warfighting. These factors, not armored technology *per se*, brought victory in the Battle of France. The lack of such leadership, thought, training, and application—not the quality of combat vehicles—largely explains the Allied defeat. Technology was hardly irrelevant to the German success in 1940. But the intellectual approach to armored technology and the institutions that adapted it in the German army proved far more decisive.

Allan Millett describes a different story in his account of the development of amphibious warfare by the Japanese, British, and American militaries. He points out that both geography and strategy prompted all three countries to create the means to land large forces on hostile shores. Yet their forces also had other pressing military needs. In all three cases, amphibious warfare received less than the resources necessary for full realization of its potential in the interwar period. Both Japanese and British amphibious warfare theorists surpassed their American counterparts in terms of inventiveness. Nonetheless, by 1945 the United States had vastly superior amphibious capabilities. Millett indicates that in its Marine Corps the American military had a service dedicated wholeheartedly to amphibious warfare in the 1920s and 1930s. Moreover, after 1933 the United States and the Armed Forces had in Franklin Roosevelt a leader who considered himself an honorary marine. That proved an enormous advantage to the Corps when it competed with other services for scarce resources. Finally, the gigantic industrial capacity and wealth of the Nation allowed the Marines to tap resources after December 1941 which neither the British nor Japanese amphibious forces could duplicate. While the Marine Corps and their Army peers may have lagged behind the Japanese and British in amphibious warfare techniques and equipment at the time of Pearl Harbor, they could push developments at an ever-increasing pace until V–J Day. Normandy, Leyte Gulf, Iwo Jima, and Okinawa were bloody operations. But the ultimate American victories there hardly would have been possible with the amphibious vehicles and doctrine of three or four years earlier. These advances came about through human, not technological, factors. Political support in high quarters, fiscal and industrial largesse, and the single-minded devotion of a dedicated service that made the United States the leader in amphibious operations by war's end.

Space does not permit similar descriptions here of the five other historical case studies in *Military Innovation*. Each does provide an outstanding investigation of its topic. Nonetheless, this reviewer was disappointed that American, British, and German examples so dominated the studies, with Japanese and French efforts mentioned only once. Surely examples of innovation by other countries could have been chosen in order to base the book's conclusions on far broader ground. For example, an examination of Italian development of underwater assault could have been joined to studies of the American and British experiences. Soviet armored warfare and close air support case studies also might have been included. Even failures at innovation, such as the massive Japanese and Italian submarine programs, could have yielded useful lessons.

Much more significant, however, are the book's strengths, especially the final interpretive chapters. In "Innovation Past and Present" (a version of which appears in this issue of *JFQ*), Murray declares that brilliant individuals count far less than flexible organizations in pursuing innovation to a successful conclusion. He is concerned whether our Armed Forces allow for such advances and concludes that "without extensive cultural changes . . . and the moral parameters within which they view the world" they will not be able to carry out such sweeping changes. These insights raise significant questions about the so-called "American RMA."

In his general examination of in novation from 1919 to 1941, Millett stresses the complexity of the process wherever it took place. No single explanation suffices. However, he concludes by emphasizing the importance of nonmaterial influences:

The patronage of politicians and senior military leaders is essential. . . . Political intervention is especially crucial in innovations that cross or merge service specialties. Sheer technical innovation, as the Germans proved, does not win wars. Instead, the interaction of technical change and organizational adaptation within a realistic strategic assessment determines whether good ideas turn into real military capabilities.

In the final chapter, Barry Watts, a retired fighter pilot who is an analyst at Northrop Grumman, joins Murray in considering the essential issue of our time in a chapter entitled "Military Innovation in Peacetime." They pay deserved tribute to Andrew Marshall for his great assistance to the cause of successful military innovation in the United States over the past quarter-century. But they return to the theme that gifted individuals cannot carry their organizations into the future on their backs. Institutional support and an atmosphere conducive to free inquiry, iconoclasm, and daring imagination are far more important. In the concluding chapter Watts and Murray note that innovation is necessarily an untidy business that cannot be controlled or managed through a rigidly centralized system. In fact, efforts to eliminate such messiness are likely to stifle innovation. What senior civilian and military leaders can do is choose an imaginative and relevant vision of warfare in a period of change, thus indicating a general course for innovation to follow. However, while such long-term goals may be envisioned and set within the next few years, their realization may require far longer. During that time, leaders must create and preserve an intellectual as well as an institutional atmosphere to allow the innovatory process to succeed. It remains to be seen if the Armed Forces will enjoy such enlightened leadership over the coming generation. **JFQ**

CAMPAIGNING UNDER THE U.N. BANNER

A Book Review by
JEFF S. KOJAC

The Evolution of U.N. Peacekeeping
edited by William J. Durch
New York: St. Martin's Press, 1993.
509 pp. $19.75
[ISBN 0–312–10401–4]

The current administration's decision to deploy forces to Bosnia as peacekeepers illustrates not only the continued U.S. role as a security guarantor but the necessity for the Armed Forces to understand peace operations. Joint Publication 3–07.3, *Joint Tactics, Techniques, and Procedures for Peacekeeping Operations*; U.S. Army FM 100–23, *Peace Operations*; and the *Joint Task Force Commander's Handbook for Peace Operations* published by the Joint Warfighting Center address doctrinal considerations and supporting functions inherent to peace operations. Clearly, though, such missions should not be undertaken without historical perspective. Bridging the gap between theory and experience is *The Evolution of U.N. Peacekeeping*, a superb study of the operational level of U.N. peacekeeping operations edited by William Durch, a former foreign service officer.

The book recounts details of twenty U.N. missions in a case study format. The mandate, funding, planning, composition, and logistics of each operation are surveyed, and the actual field operations are lucidly described. The incisive assessment of what these operations accomplished and their benefits to local, regional, and global communities is compelling. The strategic context is discussed though not stressed. Tactical aspects are portrayed but only from the level of the force commanders and their staffs. Accompanying each case study are excellent maps of troop positions and charts displaying supporting data.

Besides providing a rich operational history, *The Evolution of U.N. Peacekeeping* offers lessons learned. Individual peacekeepers and observers must be able to negotiate as ombudsmen. Commanders need leadership skills to control subordinate multilateral forces of differing strengths. Political and military mission heads who run operations must function as a team in arbitrating with nongovernmental organizations as well as with local civilians and military forces. Moreover, the U.N. bureaucracy must support peace operations without hindering them, often a seemingly impossible task.

Despite its strengths, the book is limited in scope. There are only summary comments on U.N. missions in El Salvador, Cambodia, the former Yugoslavia, and Somalia since these operations were still in progress when the work appeared. In addition, the Multinational Force and Observers (MFO) group in the Sinai and the Multinational Force (MNF) for Lebanon are noted but not evaluated since the coverage is limited exclusively to operations conducted under the U.N. banner.

Overall, the contributions succeed in describing the complexities of peace operations. And while the case studies are sobering, they certainly are not grim. Collectively, the cases argue that such operations are imperatives since they allow protagonists to make peace without surrendering. Moreover, as various authors note, if the United Nations is to continue as a forum to defuse grievances in the interest of international stability, it must be able to succeed in the field and not turn into another ineffectual League of Nations.

After the Korean War, Moscow barred Washington from directly participating in peace operations. With the end of the Cold War, the Armed Forces have been repeatedly called upon to support missions undertaken by the United Nations. Undoubtedly, the United States will continue to be drawn into such missions. With that in mind, *The Evolution of U.N. Peacekeeping* is recommended as a reference that educates and provides perspective for warfighters charged with keeping peace. JFQ

Captain Jeff S. Kojac, USMC, is assistant operations officer, Marine Air Control Squadron 7.

Macedonian patrol.

U.S. Air Force (Charlie Parshley)

Notable and Quotable

The necessity for jointness is recognized today in American and British military cultures as never before. Nonetheless, the trail toward a truly unified vision of defense preparation and war has been long, sometimes interrupted by substantial roadblocks and diversions, and remains incomplete. The Goldwater-Nichols DOD Reorganization Act of 1986 was an important milestone on the jointness trail, as was the British decision in 1994 at long last to create a permanent joint headquarters for the armed forces. An important motive for this British innovation would appear to have been financial, but that apparent fact should not detract from appreciation of the strategic merit in the move. By way of the laying down of a professional marker of no small symbolic significance, in 1993 the National Defense University in Washington, D.C., launched a new journal, unambiguously titled *Joint Force Quarterly*.

— Colin S. Gray, *Explorations in Strategy*
(Westport, Conn.: Greenwood Press, 1996)

THE PACIFIC CENTURY AND FUTURE CAUSES OF WAR

A Book Review by
PATRICK M. CRONIN

Pacific Defense: Arms, Energy, and America's Future in Asia
by Kent E. Calder
New York: William Morrow and Company, 1996.
253 pp. $25.00
[ISBN 0–688–13738–5]

Wars, at least those involving great powers, occur when the international system and major actors on the world stage fail to integrate ascendant nations. This was exactly the wisdom imparted in hindsight by Thucydides in his account of the Peloponnesian War.

Without appealing to an oracle, political economist and Japan watcher Kent Calder cautions us in *Pacific Defense: Arms, Energy, and America's Future in Asia* to brace for a power shift in the next century. In almost Churchillian terms, he foretells the coming of a "new danger zone" and of a "great arc of crisis stretching from southwest to northeast of Tokyo." Such prognostications are not new: some 35 years ago Claude Buss published *The Arc of Crisis*, which identified Southeast Asia rather than Northeast Asia as the locus of conflict. Nonetheless, Calder presents a compelling case that new centers of power in Asia will transform, dislocate, and perhaps overturn the existing international order.

At the crux of his analysis is the tremendous growth of Asia and the potential cost of that growth, regionally and increasingly internationally. Calder does not simply assert Asian growth but documents it with measurable indices that place it in a global context. For instance, he notes:

> [Asia's] *economy already makes up a third of the global market and 41 percent of the global bank reserves, up from 17 percent in 1980. But with half of all the people on earth, high savings, ever more sophisticated technology, and explosive, often double-digit growth rates across much of its periphery, the region seems destined for an ever greater share of global product. Japan and Greater China alone hold two-thirds of the foreign exchange reserves on earth.*

Focusing on the impact of such growth, Calder argues that there is a "deadly quadrangle" of expansion, the energy required to fuel it, geostrategic insecurity among the major powers, and military modernization.

In essence, he relies on basic principles of supply and demand to get at the root problem of exponentially expanding consumption. Avoiding the neo-Malthusianism of Lester Brown, Calder fixes on energy consumption more than other resources such as arable land or the ozone layer. In addition, he is most attuned to China's consumption rather than India's or Indonesia's. Even so, by reducing the problem to rising use of energy resources in China over the next few decades, he captures and animates salient security challenges:

> *The problem for Asian stability, growing with each barrel of Chinese oil imports, is now clear. It is the danger that China's attempts to safeguard its oil supply lanes and defend its historical "sovereignty" in adjacent seas poses for other nations of Asia, especially for Japan.*

While Thucydides was not concerned about consumption in ancient Greece, one can find in *Pacific Defense* a shadow of the classical historian: "What made war inevitable was the growth of Athenian power and the fear this caused in Sparta." The author, who directs a program in U.S.-Japan relations at the Woodrow Wilson School at Princeton, begins by looking at just how little average citizens of China consume today. Then he turns to the sobering implications of growing energy demand in China if, for instance, its people consumed as much as South Koreans: oil needs would be double those of the United States.

This trend is well underway. The Asia-Pacific region overtook Western Europe in 1990 as the second largest oil-consuming area after the United States. Meanwhile, a booming auto market in East Asia alone will lead to further consumption.

Such an Asian "Achilles heel of energy" might become manifest in two ways, each with implications for the United States and the region. First, an expanding appetite for energy means that by 2000 some 87 percent of oil imported by East Asia will flow from the Middle East. This dependency is worrisome not only because of friction over control of sea lines of communication, but because of the subtle ways in which a dynamic and modernizing China could aid aggressive regimes in the Middle East. Thus energy, opines Calder, might be the catalyst for an "Islamic-Confucian embrace" by raising the specter of a "clash of civilizations" (a term coined by Samuel Huntington).

The second likely manifestation of growing Asian energy consumption would be equally distressing for U.S. or Asian security planners, nuclear proliferation. Unlike the United States and most of Europe, Asia is relying more on nuclear power. The Department of Energy forecasts that Asia may account for half of the entire increase in nuclear capacity between 1992 and 2010. Most of it would come in Northeast Asia, particularly Japan and Korea.

There is a disturbing link between the expansion of nuclear power plants and the potential to build and sell nuclear weapons. As Calder writes, "when a country develops a civilian nuclear capability, it also proceeds much of the way toward possessing a nuclear device." Enrichment and reprocessing procedures are potentially destabilizing, especially in a region marked by geostrategic insecurity. Thus, many Asians worry that Japan may amass 100 tons of plutonium by 2010—both through imports from Britain and France and from its own three breeder reactors expected to be in operation by then. That stockpile of fissile material would surpass the amount currently contained in all the nuclear warheads of both the United States and the former Soviet Union.

Given the lack of regional multilateral mechanisms for monitoring this increased reliance on nuclear power in Northeast Asia, Calder's idea of a sector-specific, subregional body—similar to what some call Pacific Atom (PACATOM)—seems to be a judicious multilateral response to help constrain nuclear proliferation in the 21st century.

But consumption is not without moderating influences. Indeed, it is inextricably related to classical liberal economic notions that increased commerce makes nations more pacific in outlook as they concentrate on producing wealth and become economically interdependent. This reassuring element is brought out in Calder's examination of the domestic political attitudes within Asia's two great powers, Japan and China.

Calder depicts Japan as an economic great power with latent great-power military potential. The question of whether it will develop defense-industrial strength

Patrick M. Cronin is a research professor in the Institute for National Strategic Studies, National Defense University.

and become a "normal" power is timely given the evolving debate over whether the Japanese constitution permits putting military forces in harm's way for anything other than pure self-defense (namely, for the right of collective self-defense). Impending political realignment within Japan could produce a more forceful policy line with regard to Tokyo's regional security responsibilities.

Japan's neighbors, especially the two Koreas and China, are set against any enlargement in its defense capabilities or missions. U.S. opinion on this point remains divided or ambivalent. Meanwhile, as Calder argues, Japan is defined by hawks (realists and Gaullists) and doves (traders and progressives). Ultimately, however, only a signal event, a serious regional crisis, would seem able to alter the present Japanese trajectory toward a very gradual assumption of responsibility for regional security: "Absent a potent external shock to set a new course for national policy, Japan seems unlikely in the balance of this century to radically realign itself in international affairs."

Likewise, an ascendant and ever-more-consuming China seems to be tempered by domestic political trends, according to Calder. For one thing, it has "never had a Hitler or a Napoleon." For another, it faces a number of significant challenges, including rising regionalism and a devolution of central authority, generational change, rapid urbanization, stresses on domestic infrastructure, uneven economic growth, reintegration of Hong Kong, and the thorny issue of Taiwan. Despite these, China is not likely to dissolve in chaos like the former Soviet Union: "Deng Xiaoping has not been China's Gorbachev, and none of his successors is likely to be either."

Nationalism will probably be the central force that enables China to cohere in the decades ahead, but it will not necessarily be a virulent form of nationalism. Calder's bottom line—at least for the next twenty years—is more reassuring: "Despite rising capabilities that could lead to more militant, nationalistic power projection, China most likely will be constrained in its militancy by deep—and still rising—economic interdependence with the world, especially the major advanced industrial nations."

Calder's survey of domestic trends in Japan and China at first appears somewhat at odds with his initial thesis of an "arc of crisis." However, one is then forced to contemplate the potential dynamic interaction within the evolving balance of power, globally and in the region. In Calder's world of a new seven powers (namely, the United States, Russia, China, Japan, India, a unified Korea, and Vietnam), the rhythm of world politics will be driven far more by the character and prerogatives of Asia than by the United States and the West (such as the current group of seven).

Not all players in this balance of power game are equal. First, China "is a clear case of a nation with strong incentives to play balance of power politics. It has the leverage of a large, rising power and the detachment of one without established allies." Moreover, at the "crux of the emerging power game" are Sino-Japanese relations. These two great Asian states have the capacity to polarize the region, initiate a new great power arms race, and contest influence on the Korean peninsula. Calder concludes:

Ultimately Asia's dangerous new power game, with the specter of a heavily armed and unified China and Korea on its doorstep that it presents in worst-case scenarios, threatens to destabilize Japan's traditional low-posture military orientation. It also threatens to provoke over the long run a serious arms race, centering on Japan and China, that could have global implications.

Given the enormity of Asia's growing power, can a relatively diminished United States expect to sustain its role as a regional balancer with its present level of commitment to the Asia-Pacific region? Clearly if Washington pursues a course advocated by isolationists who seek "the twilight of globalism," the answer is a resounding no. But even if it simply holds to a steady course in terms of its military, political, and economic presence in Asia, Calder implies the answer may also be no. While U.S. investment in the region rose some 40 percent to nearly $80 billion from 1989 to 1992, it was outstripped by Japanese investment. Similarly, how can the Nation expect to keep a lid on mounting Asian capabilities and competition with 100,000 troops deployed in the entire area? As Calder writes, referring to the debate over U.S. presence on Okinawa and in Japan more generally:

Whether Okinawa . . . in the globalism that it still symbolized, can assure a pacific future for Asia beneath the Eagle's wings, as the shadows of regionalism and intraregional rivalry continue to deepen, remains to be seen. Therein lie major consequences for both the strategy and tactics of an effective Pacific defense.

A central challenge to the United States is whether it will be as important in the next century as today. Calder underscores the yawning policy gap stemming from "American neglect of Asia" and dangers borne of disillusioned trade policy and populist calls for retrenchment. Most members of the bureaucracy remain Eurocentric, senior officials appear more eager to fly to the Middle East than Asia, economic and security issues are treated independently rather than comprehensively, and policymakers are hamstrung by legal micromanagement that hinders opportunities and leadership. Worse, the private sector is only slightly better than the public sector at formulating a creative, serious, and sustained U.S. approach to Asia.

Calder offers us a series of 10 policy prescriptions. Having devoted the lion's share of the book to a compelling description of the challenges facing the United States, however, his solutions seem somewhat unsatisfactory. As such, he starts the book writing like Zbigniew Brzezinski and concludes it more like Cyrus Vance. But among his prescriptions are four useful thoughts:

- The United States needs a more comprehensive and integrated approach to policy that simultaneously takes into account Asia's rising power and the interconnection among security, economics, and energy.
- The U.S.-Japan relationship is at the core of our long-term influence in the region. If it is curtailed, then all assumptions about future stability and security must be reexamined.
- The Korean peninsula will be increasingly important as the crossroads of great powers and as a major force in its own right.
- Washington must treat China "evenhandedly" like the great power it is. If America is to help integrate China, then it must hue to a more consistent and coherent policy. (While not saying so explicitly, the book suggests a felt need for a strategic framework for China. Failure of such a broad understanding has led to sharp fluctuations in U.S. policy toward China in recent years and could bring about a polarized Asian-Pacific region. As Henry Kissinger recently observed:

In the absence of overarching political or strategic objectives, stress on social issues as the principal objective of foreign policy is perceived as pressure and produces confrontations that undermine other interests, including geopolitical ones, or doom America to irrelevance.

In short, Calder offers a motherlode of insights for strategists to consider as they mull the next century—and none too soon. It was the rise of Athens that caused fears among Spartans and led to the Peloponnesian War. Similarly, rivalry between two ascendant Asian powers, China and Japan, could make the Pacific century much bloodier than the American century. JFQ

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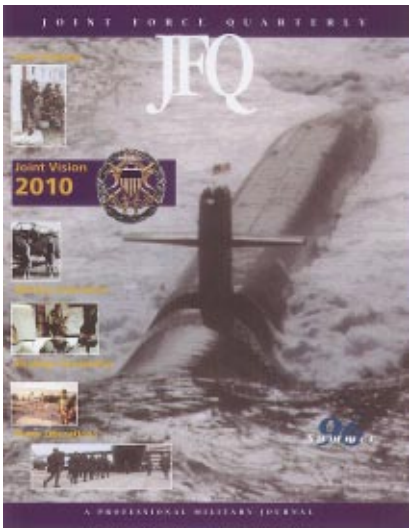

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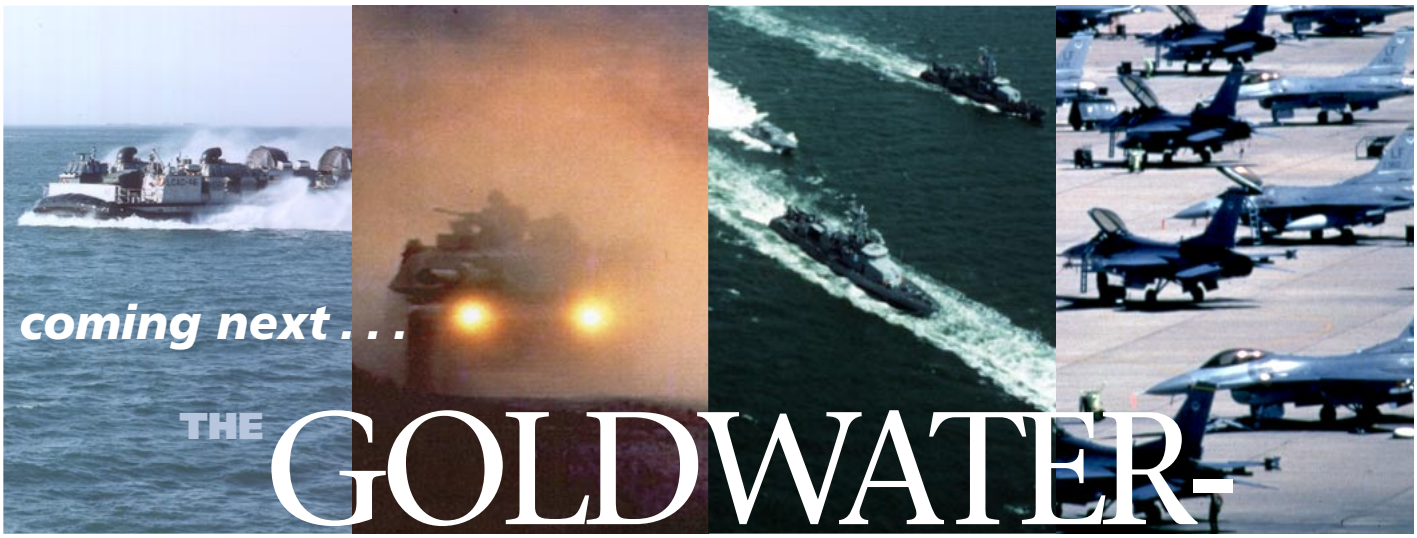

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Ten Years Later

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James R. Locher III, John P. White, David C. Jones,
Colin L. Powell, William A. Owens and James R. Blaker,
John J. Sheehan, Joseph W. Prueher,
Howard D. Graves and Don M. Snider, Michael B. Donley,
Sam Nunn,
and others in the Autumn 96 issue of **JFQ**

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