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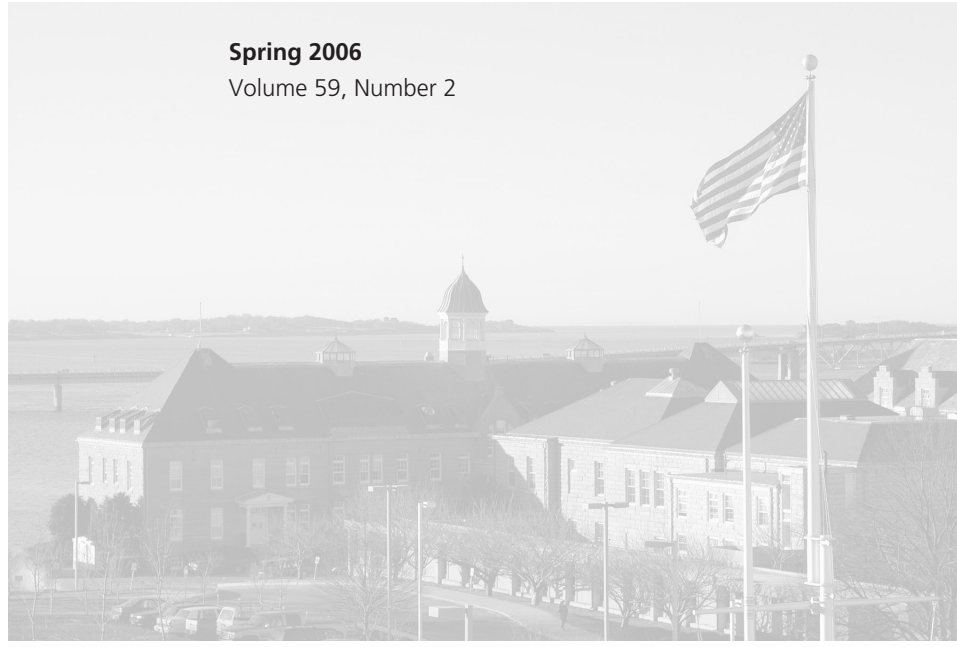
Cover

The shadowy vessel is a surfaced 092 Xia-class submarine, China's only first-generation nuclear ballistic-missile submarine. The first of China's second-generation 094 SSBNs, a type that is set to enhance vastly China's sea-based nuclear deterrent, was reportedly launched in 2004. The image is inspired by poster art produced by the Naval War College Visual Communications Division for the College's "China's New Nuclear Submarine Fleet" Research Symposium, held 26–27 October 2005—a conference that produced a study, appearing in this issue, of "China's Maturing Navy," by Rear Admiral Eric A. McVadon, U.S. Navy (Retired).

Cover art by Cristina A. Hartley, Naval War College Visual Communications Division.

NAVAL WAR COLLEGE REVIEW



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FROM THE EDITORS

This issue of the *Naval War College Review* completes the transition to a new editor—joined as of the previous issue, as readers may have noted, by a newly minted Editorial Board. A few remarks about this panel and, more generally, the future editorial direction of the *Review* are therefore appropriate.

The new Editorial Board is a working group, representative of all of the major teaching and research departments of the Naval War College. As such, it signals our intention that the *Review* be more comprehensively reflective of the intellectual life of this institution than has sometimes been the case in the past. The board reaches out as well to the broader intellectual community throughout the United States (and, it should be noted, in the United Kingdom) interested in and conversant with naval and maritime affairs and strategic studies more generally. The overall composition of the panel highlights the *Review*'s long-standing commitment to scholarly standards of a high order in this field, and the centrality to its overall mission of the naval and maritime dimension of international security. Matters of current (and historical) interest to the sea services of the United States will have the first claim on our editorial attention. At the same time, mindful as we must be of the increasingly joint and interagency character of contemporary warfare, we will continue to pay due attention to military and security issues of relevance across the services as well as to the framework of national policy that shapes and is shaped by them.

The lead article of this issue nicely exemplifies this broader focus. In "Transforming the U.S. Global Defense Posture," Ryan Henry, currently Principal Deputy Under Secretary of Defense for Policy, provides an authoritative overview of the unprecedented effort undertaken by the U.S. government over the last several years to review and realign its overseas basing structure and associated alliance relationships. The implications of these developments have yet to be fully assessed, especially as they affect the Navy and Marine Corps, but they are likely to be far-reaching. Mr. Henry's paper also appears in a collection of essays on this subject, *Reposturing the Force: U.S. Overseas Presence in the Twenty-first Century,* which was prepared in parallel by the Naval War College Press for publication as the twenty-sixth monograph in its Newport Papers series.

With this issue, the *Review* introduces what we expect to become a regular feature, articles under the rubric "Asia Rising," this time on India and China's emerging navy. Our particular focus on the People's Republic of China will be supported by innovative analyses currently being carried out within the Center for Naval Warfare Studies of the rapidly burgeoning Chinese military literature. Admiral Eric McVadon's overview of Chinese naval capabilities is based on a paper he delivered at a conference on the Chinese nuclear submarine force held in Newport in October 2005 under the Center's auspices.

War gaming has a long and honorable history in the U.S. Navy and is a core competency of the Center for Naval Warfare Studies. But the historical and analytical literature on this subject is surprisingly thin. Robert Rubel, currently director of the Wargaming Department of CNWS, provides in his "The Epistemology of War Gaming" a valuable insider's analysis of the conceptual underpinnings of this arcane subject and, in particular, of the many misconceptions that too often compromise its value. This article is the first of a regular feature, "Research, Analysis, and Gaming," that will explore various aspects of the methodologies of military-oriented research.

With this issue, the *Naval War College Review* marks the passing of one of our institution's most distinguished recent presidents, Vice Admiral Arthur M. Cebrowski. Admiral Cebrowski led the Naval War College (and the Navy Warfare Development Command, which had recently relocated to Newport) from July 1998 through August 2001; he retired from the Navy in October 2001 after thirty-seven years of service. Shortly thereafter, he was appointed by the Secretary of Defense as Director, Office of Force Transformation, and served there until January 2005. Admiral Cebrowski passed away on 12 November 2005 at the National Naval Medical Center in Bethesda, after a long struggle with cancer, and was buried in Arlington National Cemetery on 9 January 2006. We are fortunate to be able to publish a retrospective essay on Admiral Cebrowski's life and his intellectual contributions to the Navy and the Department of Defense by Mr. James Blaker, who worked closely with him for some fifteen years.

SURFACE NAVY ASSOCIATION LITERARY AWARD

At its eighteenth annual symposium, held 10–13 January 2006, the Surface Navy Association announced the newest winners of the awards it confers each year for the best professional articles addressing surface Navy or surface warfare issues. Two of the awards this time went to *Naval War College Review* authors—to whom our sincerest congratulations. The overall winner was Thomas Wildenberg, for his "Midway: Sheer Luck or Better Doctrine?" in our Winter 2005 issue. Honorable mention went to John R. Benedict, for "The Unraveling and Revitalization of U.S. Navy Antisubmarine Warfare," in the Spring 2005 issue.

NEWPORT PAPER 26

Reposturing the Force: U.S. Overseas Presence in the Twenty-first Century, edited by Carnes Lord, is available from the editorial office and online. It provides a snapshot of the ongoing reconfiguration of America's foreign military "footprint" abroad—a process that is likely to prove of the most fundamental importance for the long-term security of the United States yet that has so far received little systematic attention. Its essays combine rigor and authoritativeness. Ryan Henry and Lincoln Bloomfield, Jr., have been central figures in the Global Defense Posture Review; their papers were specially commissioned for this volume (Mr. Henry's appears also in this issue of the *Review*). Robert Harkavy places current developments in a larger historical and strategic framework. Andrew Erickson and Justin Mikolay provide an in-depth analysis of the role of Guam in the posture of the U.S. military in the western Pacific. Finally, Robert Work examines the emerging concept of "sea basing."

Rear Admiral Jacob L. Shuford was commissioned in 1974 from the Naval Reserve Officer Training Corps program at the University of South Carolina. His initial assignment was to USS Blakely *(FF 1072). In 1979, following a tour as Operations and Plans Officer for Commander, Naval Forces Korea, he was selected as an Olmsted Scholar and studied two years in France at the Paris Institute of Political Science. He also holds master's degrees in public administration (finance) from Harvard and in national security studies and strategy from the Naval War College, where he graduated with highest distinction.*

After completing department head tours in USS Deyo *(DD 989) and in USS* Mahan *(DDG 42), he commanded USS* Aries *(PHM 5). His first tour in Washington included assignments to the staff of the Chief of Naval Operations and to the Office of the Secretary of the Navy, as speechwriter, special assistant, and personal aide to the Secretary.*

Rear Admiral Shuford returned to sea in 1992 to command USS Rodney M. Davis *(FFG 60). He assumed command of USS* Gettysburg *(CG 64) in January 1998, deploying ten months later to Fifth and Sixth Fleet operating areas as Air Warfare Commander (AWC) for the USS* Enterprise *Strike Group. The ship was awarded the Battle Efficiency "E" for Cruiser Destroyer Group 12.*

Returning to the Pentagon and the Navy Staff, he directed the Surface Combatant Force Level Study. Following this task, he was assigned to the Plans and Policy Division as chief of staff of the Navy's Roles and Missions Organization. He finished his most recent Pentagon tour as a division chief in J8—the Force Structure, Resources and Assessments Directorate of the Joint Staff—primarily in the theater air and missile defense mission areas. His most recent Washington assignment was to the Office of Legislative Affairs as Director of Senate Liaison.

In October 2001 he assumed duties as Assistant Commander, Navy Personnel Command for Distribution. Rear Admiral Shuford assumed command of Cruiser Destroyer Group 3 in August 2003. He became the fifty-first President of the Naval War College on 12 August 2004.

PRESIDENT'S FORUM

Our Sailors must be empowered to operate and fight in a vast array of environments. . . . They must be equipped with the tools and skills to meet these challenges and to develop as leaders. We must . . . encourage and reward continuing education and training. . . [and] institutionalize executive development.

ADMIRAL MIKE MULLEN, USN, CHIEF OF NAVAL OPERATIONS

EARLIER THIS YEAR, the Chief of Naval Operations articulated eight tenets that guide his vision for the twenty-first-century Navy. In the excerpt above (from his "What I Believe," in the U.S. Naval Institute *Proceedings* of January 2006), he cites the need for all members of the Navy manpower team (officer, enlisted, and civilian) to develop the skills and competencies needed to succeed in the wide array of circumstances they will encounter in the decades ahead. The Naval War College (NWC) is now actively engaged in helping the Navy's leadership to define an approach to Navy professional development that, first, empowers and enables individuals to manage their own career growth, and second, provides them with the critical guidance and milestone data they need to craft personalized paths of lifelong learning. This is vital work, since our greatest strength as a military service comes from the hard work and genius of the men and women who transform our Navy into an effective instrument of national power.

Since the service's founding over two centuries ago, Navy personnel have gained the maritime skills needed to serve at sea and ashore through a combination of *training, education,* and *experience.* As technology progressed from sail to steam to nuclear power, this process became more formalized, but the primary components remained the same: *training* to develop basic skills, *education* to enhance critical thinking abilities, and *experience* to put the knowledge gained through study into practical application.

It is highly appropriate that much of the current thinking about Navy lifelong learning is taking place in Newport, since it was here in 1875 that then-Captain Stephen B. Luce established the U.S. Navy's apprentice training program (aboard USS *New Hampshire,* anchored off the city of Newport), and that ultimately the headquarters of the apprentice training squadron was established (on

Coasters Harbor Island, which in 1884 would also become the home of the Naval War College).

Today, faculty and staff from the Navy's most senior school for officers, the Naval War College, and its most senior school for enlisted personnel, the Senior Enlisted Academy, are working closely together to develop a Professional Military Education (PME) Continuum that will serve as the armature for developing leaders from seaman to admiral. The creation of the PME Continuum will be facilitated by the establishment of processes and procedures that foster effectiveness, collaboration, alignment, and efficiency among the Navy's flagship educational institutions that will ultimately be tasked with executing the program. Efforts are well under way to harness the collective intellectual energy of these institutions in a manner that maximizes their positive impact on the development of our future leaders at all levels.

The Professional Military Education Continuum

Developing sailors begins with the accession process, and considerable time and money go into ensuring that sailors are as prepared as possible when we "pull the trigger" and send them to their first assignment. But just as midcourse guidance is necessary to keep a modern cruise missile on track, we must be prepared to provide our men and women with the additional learning opportunities they need to help them adjust to the changing environment as they progress in their careers. The evolving PME Continuum will be an orderly and prescribed series of learning opportunities, spread over an entire career, that will provide personnel with the skills and competencies necessary to serve effectively in positions of increasing responsibility and complexity. The challenge of managing this continuum belongs to the Naval War College.

In a November 2004 general message to the Navy, the Chief of Naval Operations directed the establishment of the PME Continuum, to be a career-long series of educational opportunities that are relevant to accomplishing the Navy's missions and also supportive of the professional and personal growth of all sailors. He stated, "We must adopt a more comprehensive approach to education that fully acknowledges the relevance of education to combat effectiveness and mission success." The continuum applies to the Total Force, including all officers and enlisted personnel in both the active and reserve components. Professional Military Education will: (1) equip all sailors with the right knowledge and skills at the right time; (2) be a key factor in billet assignment and career progression; and (3) use the Five Vector Model and the Integrated Learning Environment to deliver blended learning options.*

* The Five Vector Model is a pictorial representation of an individual's career, with key milestones identified along five different developmental vectors. The Integrated Learning Environment includes both resident and nonresident education and training opportunities, blended together in an integrated learning program.

The Naval War College is now responsible for coordinating the creation and maintenance of the educational content and for sequencing the delivery of the various elements of the PME Continuum. The generic term "PME" has been defined to include:

- *Navy Professional Military Education* (NPME), educational content that teaches sailors about the various Navy warfare communities and the individuals and organizations that support them. It provides a broad and common understanding of the Navy and its full capabilities, thereby preparing our sailors to perform their mission effectively across the full spectrum of naval and joint military operations.
- *Joint Professional Military Education* (JPME), education about the capabilities and limitations of the various military departments within the Department of Defense and other governmental agencies that work together in "joint warfare." This education will enhance the ability of naval leaders to provide unique and complementary warfighting from the sea to joint commanders.

Primary-Level Professional Military Education. In collaboration with a number of Navy subject-matter experts (from such institutions as the Naval Postgraduate School, the Naval Academy, the Navy Historical Center, the Naval Justice School, the Navy Warfare Development Command, and the various warfare community schools), we have developed an integrated multimedia course to provide graduates with:

- A basic understanding of the tenets of naval science
- An introductory-level understanding of service capabilities and the fundamentals of joint warfare
- A primary-level ability to function as maritime advocates and spokespersons.

The course, to be delivered over the Internet from the Navy Knowledge Online (NKO) portal, will be a self-paced course consisting of approximately sixty-five hours of instruction, organized into five general themes: The Culture of the Navy, Governance of the Navy, How the Navy Thinks about War, How the Navy Plans Its Operations, and Technology and Warfare in the Maritime Domain.

Enrollment is planned to start in May 2006. Consistent with the notion of the continuum as a series of related learning opportunities that build upon one another, it is expected that completion of this course will become a requirement for promotion to lieutenant commander and a prerequisite for enrollment in an

Intermediate-Level College (ILC) program. Course completion may also become a prerequisite for attendance at the Senior Enlisted Academy. With the establishment of the Primary PME course, and for the first time in the Navy's history, all individuals (regardless of commissioning source, designator, or career subspecialty) moving toward leadership positions will have common and integrating educational experiences that provide a unifying vision of the capabilities, limitations, and goals of the institution they have sworn to serve.

Intermediate-Level PME. Once the new Primary PME course has commenced, the College of Naval Command and Staff (CNC&S), which has always been officially designated by the Joint Staff as an Intermediate-Level College, will become an intermediate course in fact, falling between the primary and senior-level programs offered by NWC. Since all sailors will now report to NWC as graduates of the Primary course, we have been able to restructure the CNC&S curricula to focus more tightly on the competencies appropriate to the midgrade professional.

It is expected that graduates of both the resident and nonresident versions of the CNC&S course will be skilled in applying operational art to maritime, joint, multi-agency, and multinational warfighting; skilled in the joint and Navy planning processes; capable of critical thought with operational perspectives; prepared for operational-level leadership challenges; and expert in conveying the maritime perspective. Over the past twelve months, a great deal of work has gone into revising the intermediate curricula, but I am convinced—and our fleet commanders have confirmed—that we are on the right track toward helping our students prepare themselves confidently and effectively to support, drive, and lead joint, multinational, and interagency processes both in Washington and in major headquarters staffs and activities around the world.

Senior-Level PME. The third level of the PME Continuum is provided by the College of Naval Warfare curriculum. This curriculum, which is currently only available to resident students on our home campus in Newport, provides students with executive-level preparation for higher responsibilities as senior captains/colonels and flag/general officers and members of the Senior Executive Service (SES). In contrast to the outcomes expected from the intermediate-level graduates just discussed above, senior-level graduates will be skilled in formulating and executing strategy and U.S. policy; skilled in joint war fighting, theater strategy, and campaign planning; capable of strategically minded critical thinking; and capable of excelling in positions of strategic leadership. These desired outcomes are clearly focused on the skills needed by senior leaders, which most graduates will either become or closely support those needed at the executive level.

Flag-Level Education. In previous issues of the *Review,* we have discussed our efforts to establish the Joint Force Maritime Component Commander (JFMCC) course (see, particularly, Winter 2006). The leadership of our Navy has recently embraced the JFMCC concept as the way to optimize the employment of naval and other military capabilities within the joint force. The JFMCC is the joint force commander's maritime war fighter, reporting to and advising the commander on the proper employment of maritime forces. Our newly developed course provides flag and general officers hands-on exposure to the issues involved in directing maritime forces in a joint, multinational, and interagency context. The JFMCC course also improves the ability of its graduates to analyze and clearly articulate how maritime forces can help achieve the joint commander's objectives, so that the commander is fully aware, at all levels and stages of planning and execution, of the effects—critical to campaign objectives—that naval capabilities and unique modes of employment from the sea can yield. The JFMCC course will be offered several times during the remainder of calendar year 2006.

Next Steps

In the year ahead, the College will be working closely with the Senior Enlisted Academy and others to develop the components of the PME Continuum applicable to the junior and midlevel enlisted ranks. Actions are well under way to formulate the myriad of elements that will constitute a complete PME Continuum and to put into place the administrative processes needed to manage the program. The resources expended in this effort are indeed investments in the future, and the return on investment will be seen in the level of improved leadership and decision making that result. This is an ever-changing environment, and the professional development of our people will always be a work in progress. The full intellectual capacity of the College's faculty and staff will remain engaged in providing our students with the tools, skills, and competencies they will need to succeed in the future.

J. L. SHUFORD
Rear Admiral, U.S. Navy
President, Naval War College

The Honorable Ryan Henry has served as Principal Deputy Under Secretary of Defense for Policy since February 2003. Mr. Henry's professional career spans twenty-four years of military service, including tours as an aviation squadron commander, congressional staffer, experimental test pilot, and technology/warfare architect. Prior to appointment as Principal Deputy, Mr. Henry was Corporate Vice President for Technology and Business Development at Science Applications International Corporation (SAIC). He graduated from the U.S. Naval Academy in 1972 and from the National Defense University in 1992. He has also earned advanced degrees in aeronautical systems (University of West Florida, 1974) and systems management (University of Southern California, 1982). Mr. Henry is a coauthor of The Information Revolution and International Security *(1998).*

This article appears also as a chapter in Newport Paper 26, a collection of studies of issues related to the U.S. worldwide basing posture.

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TRANSFORMING THE U.S. GLOBAL DEFENSE POSTURE

Ryan Henry

At the end of 2004, the world was witness to an event that no one could have foreseen. Even more startling than the shock of the Indian Ocean tsunami itself was the scale of its impact. But the very suddenness and speed with which the tsunami struck gave a glimpse of how valuable it is to posture our forces for uncertainty. Had the tsunami occurred in 1985, at the height of the Cold War, it is difficult to imagine that the United States could have surged the forces and logistical support needed to deliver food and water to the areas of the eastern Indian Ocean that were the hardest hit. It is even more difficult to imagine that the United States could have depended on an extensive network of partner nations to assist us in exercising our global responsibility to act. Only through the transformation of the U.S. military's capabilities and the growing flexibility of our overseas posture was the United States able to respond as quickly and effectively as it did during this crisis.

The security environment at the start of the twenty-first century is perhaps the most uncertain it has been in our nation's history. This article focuses on the strategic realities that are driving the transformation of the American global defense posture to contend with that uncertainty, and the resultant changes the Department of Defense is working to bring about in our relationships and partnership capabilities around the world.

NEW STRATEGIC LANDSCAPE

The impetus for the transformation that put us in a position to respond quickly and effectively to the Indian Ocean tsunami was the emergence of a new strategic landscape. Since 2002, the U.S. military has been adapting the posture of its forces to address the key security challenges that our country will face in the

twenty-first century. Traditional, state-based military challenges—for which our Cold War posture was optimized—will remain, but as the 11 September 2001 attacks revealed, a broader range of security challenges has emerged. The events of 9/11 showed the destructive potential of terrorists and the vulnerability of the United States and of its allies to unwarned attack. It showed the effectiveness of asymmetric methods in countering U.S. conventional military superiority and sounded an early warning of the approaching confluence of terrorism, state sponsorship of terrorism, and proliferation of weapons of mass destruction (WMD) enabled by globalization. It focused our attention on a hostile ideology that openly advocates the killing of innocents for political gain, and it proved that globalization has made failed states and ungoverned areas in the most remote corners of the world grave dangers to our security.

The Secretary of Defense's 2005 *National Defense Strategy* provides a conceptual framework for understanding this new strategic landscape, which may be said to span four types of security challenges: *traditional, irregular, catastrophic,* and *disruptive.*

- Traditional: states employing military forces in well-known forms of military competition and conflict (such as major combat operations employing conventional air, sea, and land forces)
- Irregular: nonstate and state actors employing "unconventional" methods to counter stronger state opponents (for instance, terrorism, insurgency, civil war, and other methods aimed to erode influence and political will)
- Catastrophic: terrorists or rogue states employing WMD or WMD-like effects against American interests (for example, massive attacks on the homeland, collapsing global markets, or loss of key allies that would inflict a state of shock upon political and commercial activity)
- Disruptive: competitors employing breakout technologies or methods that counter or cancel our military superiority (e.g., advances in bio-, cyber-, or space war, ultra-miniaturization, directed energy).

As recent experience has shown, these challenges often converge and overlap. Our adversaries in Iraq and Afghanistan have employed both traditional and irregular approaches, and terrorist organizations like al-Qa'ida are posing irregular threats while actively seeking catastrophic capabilities.

THE BROAD VIEW OF "TRANSFORMATION"

President Bush came to office in 2001 with an aggressive agenda for defense transformation. He charged Secretary of Defense Donald Rumsfeld with transforming the Defense Department for the challenges of the twenty-first century.

The administration's sense of the changed strategic landscape led to a new assessment of our needed global defense posture. What is emerging from that assessment is the most profound reordering of U.S. military forces overseas since World War II and the Korean War. The key to understanding this realignment effort is transformation.

When he arrived at the Pentagon, Secretary Rumsfeld recognized the need for change. He understood that the strategic and operational environment today is defined by uncertainty, that the world is changing in relation to that environment, and that we need to view that world as it is and adapt to it as necessary. The threat-based planning system prevalent in the Cold War—through which we could project a seemingly predefined and predetermined Soviet threat and how to posture against it—had become obsolete. Overcoming our preconceptions of that era, Secretary Rumsfeld led the department in taking the first step of transformation by shifting away from threat-based planning and toward a capabilities-based approach that addresses the full spectrum of feasible threats. This approach posits that unlike in the Cold War, we no longer know precisely what threats we will face in the future, who will pose them, and where, much less when. However, we do believe there will be future challengers to American interests and to the interests of our allies and partners, and that we must plan against the kinds of capabilities potential adversaries may employ to exploit our vulnerabilities.

Revisiting the framework of the four security challenges, this approach means first recognizing that the Defense Department's (and the nation's) comfort zone has long been in the realm of "traditional challenges." Through transformation, the department has moved beyond this traditional focus and begun applying its thinking and capabilities to the other three sets of challenges—irregular, catastrophic, and disruptive. Our global defense posture realignment will leave us in much better shape to face the uncertainty that inheres within these nontraditional challenges.

Our sense of the new strategic landscape—and the opportunities opened up by emerging technologies—has led to a new way of measuring military effectiveness. Numbers of troops and weapon platforms are no longer the key metrics. Rather, military effectiveness is now a matter of capabilities—speed, stealth, reach, knowledge, precision, and lethality. Thus, our defense planning should place less emphasis on numbers of forward forces than upon capabilities and desired effects that can be achieved rapidly.

Transformation also calls for increased effectiveness and efficiency. Within the Defense Department, it has strengthened jointness among military services through joint presence policy, as well as smarter business practices for managing the day-to-day workings of the institution. At the interagency level, it has improved transparency and generated new approaches to problem solving.

Transformation has also strengthened momentum for changing the relationship between the department and its people, by keeping faith with their expectations of quality of life in a time of increased operational tempo.

If changing relationships is a hallmark of transformation, the greatest impact of all has been on American relationships with allies and partners. The administration understands that the United States cannot "go it alone" in world affairs. Among our country's key strategic assets is the network of alliances and partnerships that allows us to enjoy the benefits of international cooperation in virtually every endeavor we undertake. This network is the most vital asset we have as a nation in the Global War on Terror. It is instrumental in developing a common understanding of shared threats and in working jointly to contend with them, particularly through partnership capacity building.

We call the relationships dimension of transformation *security cooperation*. It is important to understand that this term is not synonymous with "engagement"—or with showing the U.S. flag overseas as an end in itself. Rather, security cooperation is the means by which the Department of Defense encourages and enables allies and partners to work with us to achieve common strategic objectives, thereby building the capability and capacity of the partnership.

In a sense, security cooperation is capabilities-based planning as applied to relationships with our allies and partners. Whereas during the Cold War we supported our NATO and Pacific Rim allies against threats to their borders, today we work with allies and partners who share our sense that security challenges transcend specific borders and threaten societies on a global scale. Just as capabilities-based planning positions the United States to contend with adversarial capabilities in an uncertain environment, security cooperation enables the United States to confront a spectrum of threats to its own security and that of allies and partners—anywhere, at any time. This invokes an important, symbiotic relationship between security cooperation and our global defense posture. Global posture serves as the platform for implementing security cooperation activities. Conversely, security cooperation activities help develop and maintain the access needed for posturing our forces to contend with future uncertainties.

In sum, transformation is far more dynamic than the common conception of applying high technology in war. For the Defense Department, it is about:

- A command climate that swept away preconceived notions of strategic affairs and of the department's traditional role in those affairs
- The shift from a threat-based to a capabilities-based approach
- The need for increased efficiency and effectiveness
- The shift from engagement to security cooperation.

Transformational thinking respects the facts, rejects fixed ideas, and promotes new and necessary relationships and capabilities that position us to contend with the uncertainty of the new strategic landscape.

THE GENESIS OF THE U.S. GLOBAL DEFENSE POSTURE

Before turning to how this transformation has helped drive the strategy for realigning our global defense posture, a bit of history is in order. In 1985, at the height of the Cold War, the United States had 358,000 military personnel deployed in Europe, 125,000 in East Asia, and nine thousand in the Persian Gulf. In Europe, ground, air, and naval forces were stationed in support of NATO from Iceland in the northwest to Turkey in the southeast. In the Pacific region, forces were stationed in Korea, the Philippines, and Japan. Our defense posture at that time was the product of the collective legacy of the wars of the mid-twentieth century, but our basing and operating patterns were relatively well matched to the challenges of the Cold War era. Forces in Europe and Asia were primarily designed to fight in place—potent for defensive operations close to garrison, but difficult to deploy outside of the theater where they were stationed. Essentially, we maintained forward-deployed forces that served as defensive tripwires.

The end of the Cold War dramatically altered the global landscape. As a result, during the first half of the 1990s the United States closed or turned over to host governments about 60 percent of its overseas military installations and returned nearly three hundred thousand military personnel to the United States. During the 1990s the United States also closed large military facilities in the Philippines, Spain, and Panama.

By the mid-1990s, although we had dramatically reduced the overall numbers of forward-stationed military forces, they remained concentrated largely in Western Europe and Northeast Asia. After the end of the Cold War, however, our operating patterns had diverged from our basing posture. Western Europe and Northeast Asia had become springboards for operations in the Balkans, the Persian Gulf, and later, Central Asia. The result was a shift in the rationale for our forward posture—forces were no longer expected to fight in place. Rather, their purpose was to project into theaters that were likely to be some distance away from their garrisons. In other words, while a primary purpose of forward presence was to provide for the direct territorial defense of treaty allies, this could no longer be the sole purpose. Threats to the security of our nation and that of our allies had begun emerging in unexpected and faraway lands.

However, new necessities of geopolitics and operational flexibility overseas were not the only motivations for transforming our global posture. The other major impetus was domestic in nature. Stresses on our military forces and their families also dictated that we review our posture globally. "Accompanied tours"

(in which families moved with the service members) designed in an era of static deployments had become more of a hardship for families as service members deployed more frequently from their forward stations. In increasing numbers, accompanying dependents faced "double separation"—separated both from their loved ones in uniform and from their communities and extended families back in the United States.

In his 2001 review of our defense strategy and capabilities, Secretary Rumsfeld challenged the Department of Defense to change how it conceptualized and projected American presence overseas so as to contend with uncertainty and surprise. Some remained unconvinced of the need for change, but the terrorist attacks of 11 September 2001 abruptly dispelled any doubt. No one foresaw this catastrophic event, but our administration had already made the mental leap—expect uncertainty and surprise—inherently necessary to respond effectively. The attacks coincided in a tragic manner with the defense transformation already under way.

The confluence of these transformational factors—the president's sense of the new strategic landscape, the mandate for change from the 2001 review, and the shock of 9/11—galvanized the forces of change. In the midst of these coalescing events, the secretary of defense initiated the Global Defense Posture Review, a comprehensive, strategy-based reassessment of the size, location, types, and capabilities of our forward military forces. We surveyed the new strategic landscape and developed a global posture strategy that hinged upon achieving geopolitically sound relationships and a disposition of relevant capabilities forward to contend with uncertainty. This strategy was developed through a wide range of consultations—with policy makers and military leaders throughout the department, within the interagency realm, and with defense intellectuals. The secretary then turned to his combatant commanders* to devise specific proposals for posture changes to implement the strategy. This ensured that what seemed strategically sound could be made operationally feasible. The development of these proposals largely revolved around three general areas of realignment:

- Adjusting our presence in Europe by shifting away from legacy Cold War structures
- Reforming our posture in the Pacific, with increased emphasis on key capabilities to assure allies more effectively, dissuade potential competitors, deter aggressors, and defeat adversaries if called upon to do so

* The combatant commanders, who report through the chairman of the Joint Chiefs of Staff to the secretary of defense, are currently those of the U.S. Central, European, Joint Forces, Northern, Pacific, Southern, Special Operations, Strategic, and Transportation commands. See www.jcs.mil.

- Developing the operational flexibility and diversity in options needed to contend with uncertainty in the "arc of instability"—the vast region from North Africa across the Middle East and South Asia to Southeast Asia.

In 2002, the president confirmed the change of direction in defense planning in the *National Security Strategy of the United States:* "To contend with uncertainty and to meet the many security challenges we face, the United States will require bases and stations within and beyond Western Europe and Northeast Asia, as well as temporary access arrangements for the long-distance deployment of U.S. forces."

The Defense Department's strategy was exported to the U.S. government as a whole, so that the Global Defense Posture Review would not be driven just by military considerations. The Defense Department collaborated closely with its interagency partners—particularly the State Department—from the start. The National Security Council, as the body overseeing posture changes, provided high-level guidance and input. Thus the global defense posture realignment became the strategy of the U.S. government.

The Defense Department also consulted extensively with allies and partners. In November 2003 the president formally announced intensified consultations with allies and partners on the Global Defense Posture Review. Subsequently, senior Defense and State officials held joint consultations in over twenty foreign capitals, many of which are still going on in various forms.

GLOBAL POSTURE STRATEGY UNVEILED

On 16 August 2004, in a culminating point for Defense Department planners, the secretary's new global defense posture strategy, molded by interagency input, was adopted by the president in an announcement of the administration's intention to move forward: "Today I announce a new plan for deploying America's armed forces. . . . The new plan will help us fight and win the wars of the 21st century. It will strengthen our alliances around the world while we build new partnerships to better preserve the peace."

While the global posture strategy does not comprise everything the American defense establishment is doing overseas, its implementation serves as the foundation for changing U.S. defense policy abroad. It is the department's vehicle for translating transformation into relevant and effective defense relationships and capabilities for the emerging security environment. The global defense posture strategy is composed of five key themes, which emerged from the review and the evolving transformational thinking of the department described earlier. These themes now serve as the measures of effectiveness for global posture changes.

Improve Flexibility to Contend with Uncertainty. Much of our existing overseas posture was established during the Cold War, when we thought we knew

where we would have to fight. Today, however, we often have to deploy to places that few people, if anyone, would have predicted. Thus, we should plan in ways that mitigate surprise. Our goal is to have forces positioned forward on a continual basis, with access and facilities that enable them to reach any potential crisis spot quickly.

Strengthen Allied Roles and Build New Partnerships. Changes to our global posture aim to help our allies and friends modernize their own forces, strategies, and doctrines. We are exploring ways in which we can enhance our collective defense capabilities, ensuring that our future alliances and partnerships are capable, affordable, sustainable, and relevant. At the same time, we seek to tailor our military's overseas "footprint" to suit local conditions, reduce friction with host nations, and respect local sensitivities. A critical precept in our global posture planning is that the United States will place forces only where those forces are wanted and welcomed by the host government and populace.

Create the Capacity to Act Both within and across Regions. In the Cold War years, we focused on threats to specific regions and tailored our military presence to those regions. Now we are dealing with security challenges that are global in nature, relationships that must address those challenges accordingly (e.g., Japan's involvement in Operation IRAQI FREEDOM, or NATO's involvement through the International Security Assistance Force in Afghanistan), and defense capabilities that must be global in reach. We need to improve our ability to project power from one region to another and to manage forces on a global basis.

Develop Rapidly Deployable Capabilities. We no longer expect to have to fight in place. Our forces need to be able to move smoothly into, through, and out of host nations. This puts a premium on establishing flexible legal and support arrangements with our allies and partners. It also strengthens the demand for capabilities that provide increasingly global reach, such as the Army's Stryker brigade combat teams, the worldwide disposition of key prepositioned materials and equipment, and improvements to global en route infrastructure and strategic lift.

Focus on Effective Military Capabilities—Not Numbers of Personnel, Units, or Equipment. Our key purpose is to push relevant capabilities forward—capability being defined as the ability to achieve desired effects under certain standards and conditions. We now can have far greater capabilities forward than in the past, even with smaller permanently stationed forces. The Cold War practice of "bean counting" numbers of personnel in administrative regions is no longer the case. Capabilities matter, not numbers.

A COMPLEX UNDERTAKING

The implementation process for realigning our global defense posture is an enormously complex undertaking. These changes are not happening in a static environment. Global posture is a dynamic, rolling process that incorporates the transformational mind-set described earlier—continuously assessing the geopolitical environment, incorporating new ideas into the strategy, and making adjustments as necessary.

The key to understanding this dynamic undertaking is the recognition that global posture is not monolithic—not just a matter of the physical military footprint of bases and personnel overseas. It includes:

- Our *relationships* with host nations
- The *presence* of activities overseas
- The *legal arrangements* needed to support that presence
- Our *capacity* to surge forces
- Our *prepositioned equipment*
- The *global sourcing* (or "force management") needed to meet competing demands.

The interrelationship among these posture elements is akin to an ecosystem. This "ecosystem" (see figure) is defined by interdependent layers of political, geographic, and operational access that enable security cooperation and prompt global military action when needed. Changes on one level can have secondary and tertiary effects on others. For example, changes in the legal arrangements (an element of political access) that we have with one host nation can affect our freedom of action (geographic access) throughout a theater and, consequently, our ability to push relevant capabilities forward for operations. Achieving and sustaining good political access through our relationships with host-nation partners ensures the desired geographic access and, subsequently, the desired operational access to rotate forces in theater for security cooperation activities or to surge forces when needed in support of contingency operations. The challenge for global posture, which is akin to adjusting that ecosystem deliberately, is in striking the right balance between our relationships and capabilities overseas on the one hand and the dynamics of the complex and changing security environment on the other.

Each of these layers of access deserves a closer look.

Political Access

Building and sustaining political access—that is, the will of host-nation allies and partners to support U.S. military action when needed—require two posture

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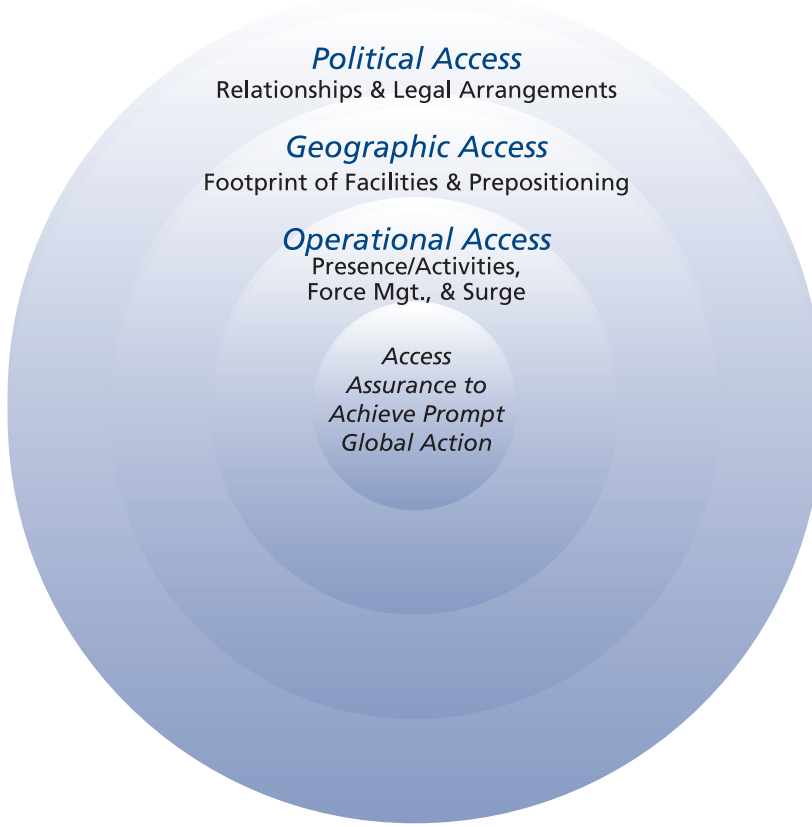

elements: relationships and legal arrangements. Our ability to act around the world is supported by key security relationships with allies and partners. These relationships involve interactions at all levels—from heads of state to students studying together in the schoolhouses that we and our allies provide. Changes in global posture seek both to strengthen our existing relationships and to help cultivate new relationships founded upon common security interests and common values. These are critical to enhancing allied and partner military capabilities in key areas, such as counterterrorism.

The set of bilateral and multilateral legal arrangements pertaining to our military personnel and activities worldwide constitutes the formal framework for our military presence, access, and activities in other countries. It defines the rights and obligations of the parties, sets the terms for military access and activities, and provides protections for American personnel. Some of our planned posture changes require a foundation of new and more flexible legal arrangements. Our new legal arrangements tend to be more concise than the elaborate arrangements we entered into after World War II, addressing only key things the United States needs for an expeditionary (rather than permanent) presence. These

include operational flexibility, training, logistics, financial arrangements, and status coverage for our forces. Critical to our success in this effort has been close collaboration by the State and Defense departments to develop a solid interagency team and a good diplomatic structure for consultations and negotiations.

Geographic Access

Geographic access means having the necessary en route infrastructure to maintain our freedom of action globally; in posture planning it requires considerable versatility in overseas facilities where our forces live, train, and operate. The realignment of our global defense posture combines a network of traditional and new facilities to enhance our capacity for prompt global action. This network consists of three types of facilities—*main operating bases* (MOBs), *forward operating sites* (FOSs), and *cooperative security locations* (CSLs).

Main operating bases, with permanently stationed combat forces, have robust infrastructures such as family support facilities and strengthened arrangements for force protection. Examples include Ramstein Air Base in Germany, Kadena Air Base in Okinawa, and Camp Humphreys in Korea. We are retaining and consolidating many of our MOBs in Germany, Italy, the United Kingdom, Japan, Korea, and elsewhere. We also rely heavily on forward operating sites, expandable "warm facilities" maintained with a limited U.S. military support presence, and, possibly, prepositioned equipment. Greater use of prepositioned equipment, strategically located and globally managed, will support training with our allies and partners and facilitate the rapid deployment of forces where and when they are needed. FOSs largely support rotational rather than permanently stationed forces and are focuses for bilateral and regional training. Examples include the Sembawang port facility in Singapore and Soto Cano Air Base in Honduras.

We also will need access to a broader range of facilities with little or no permanent American presence. Relying instead on periodic service, contractor, or host-nation support, cooperative security locations provide contingency access and serve as focal points for security cooperation activities. A good example is Dakar, Senegal, where the Air Force has negotiated contingency landing, logistics, and fuel contracting arrangements, and which served as a staging area for the 2003 peace operation in Liberia. A June 2005 *Atlantic Monthly* article by Robert Kaplan discusses presence in the Pacific in a way that captures the idea behind CSLs:

> We will want unobtrusive bases that benefit the host country much more obviously than they benefit us. Allowing us the use of such a base would ramp up power from a country rather than humiliating it. . . . Often the key role in managing a CSL is

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> played by a private contractor[,] . . . [u]sually a retired American noncom. . . . He rents his facilities at the base from the host country military, and then charges a fee to the U.S. Air Force pilots transiting the base. Officially he is in business for himself, which the host country likes because it can then claim it is not really working with the American military. . . . [T]he very fact that a relationship with the U.S. armed forces is indirect rather than direct eases tensions.

Operational Access

Finally, operational access comprises the presence, global management, and surging of our forces overseas, all enabled by the political and geographic access we enjoy with host-nation partners. Presence is defined by the permanent and rotational forces that conduct military activities (training, exercises, and operations) worldwide, from security cooperation to crisis response. That presence consists of both small units working together in a wide range of capacities and major formations conducting elaborate exercises to achieve proficiency in multinational operations. Second, our posture supports our new approach to force management, which seeks both to relieve stresses on our military forces and their families and to manage our forces on a global, rather than regional, basis. Combatant commanders no longer "own" forces in their theaters; rather, forces are managed according to global priorities. Third, managing our military forces globally also allows us to surge a greater percentage of the force wherever and whenever necessary.

Tempo of Global Posture Changes

There is another dimension of global posture that underscores its multidimensional nature: the cycle of interdependent processes at work in the Defense Department—a cycle that sets the pace for posture changes, including institutional transformation within the services, the U.S. government's deliberations with host-nation partners, and the Base Closure and Realignment (known as BRAC) process. Global posture's flexible, rolling decision-making process must ebb and flow with these three processes.

Specifically, the process of consultations and negotiations with allies and partners establishes a tempo for bringing American forces home. Over the next ten years, from sixty to seventy thousand military personnel (along with approximately a hundred thousand family members and civilian employees) are to return to the United States from overseas installations. This realignment will also entail a net reduction of approximately 35 percent in our overseas facilities.

The pace for these changes is set through a deliberative diplomatic process with current and potential host-nation partners in which we achieve common understandings of the security environment, develop plans that ensure mutual benefits and reliable defense commitments, and work to reduce any frictions

attending upon the U.S. military presence. Multiple variables in negotiations—such as host-nation stability and sensitivity to American presence, security challenges in the region, and existing levels of host-nation infrastructure and cost sharing—are weighed across a diverse range of countries and regions.

U.S. forces that relocate as a result of this diplomatic process will be affected by the absorptive capacity of service transformation efforts and by BRAC. The planned posture changes directly support service initiatives—such as the Army's modularity and unit rotation concepts, the Navy's Fleet Response Plan, and the Air Force's ongoing force management improvements—designed to facilitate personnel management, provide predictability in scheduling, and offer more stability at home. Returning forces meet the services' need to refit their units for increased modularity. These transformed units then provide the combat power for prosecuting operations in the Global War on Terror, including Operations IRAQI FREEDOM and ENDURING FREEDOM. Of course, the absorptive capacity of returning units is also directly impacted by BRAC, which sets the pace for reconstitution of those forces in the continental United States.

Thus, a symbiotic relationship exists among global posture consultations/negotiations overseas, service transformation, and BRAC, in which each informs and dictates the pace of the others. Imagine a clock running on three wheels, each wheel's gears interlocked with the others. Slowing one wheel would slow the entire clockwork, thereby impeding the pace of transformation to support the war on terror and enable our long-term realignment effort.

REGION-BY-REGION SYNOPSIS

Europe

Peace in Europe is no longer threatened by an enemy with tens of thousands of armored vehicles poised to invade across the North German plain. We no longer need heavy maneuver forces as the central element of our defense posture in Europe. A transformed posture—one that supports NATO's own transformation goals—requires forward forces that are rapidly deployable for early entry into conflict well beyond Europe. Such forces will continue to train alongside other NATO forces to improve interoperability for twenty-first-century operations.

There are two basic components to posture changes in Europe: increasing rotational presence toward the south and east of Europe, and pushing the most effective and relevant capabilities forward for expeditionary presence and spurring allied transformation. Our future posture in Europe will be characterized by lighter, more deployable ground capabilities (for example, Stryker and airborne forces). Such ground forces will have leaner command and support structures than they have today. They will rely on existing advanced training

facilities (such as in Grafenwoehr, Germany) and high-capacity mobility infrastructure (in Ramstein, Germany, for instance). Special Operations forces will play an increasingly important role in our future European posture. They will be repositioned in the theater for training and operational efficiencies and for ease of movement. Our naval and air capabilities in the theater will remain very robust and will enable rapid movement of forces into, through, and from Europe. They too have already undergone transformations to leaner and more deployable command structures.

The Asia-Pacific

In the Asia-Pacific region, we seek to strengthen our ability to execute the National Defense Strategy and to solidify relationships that can help win the Global War on Terror. We want to improve our ability to meet our alliance commitments by strengthening our deterrent against threats such as that posed by North Korea while helping our allies strengthen their own military capabilities. The forward deployment of additional expeditionary maritime capabilities and long-range strike assets in Alaska, Hawaii, and Guam will increase both our deterrent effect and our capacity for rapid response. In this region—in light of the vast distances that military forces must traverse in crises—deterrence also means increasing our ability to project military forces rapidly and at long ranges, both to the region and within it. Where appropriate, we also will consolidate our facilities and headquarters for more streamlined command and control and increased jointness. This facilitates a more expeditionary posture, as is the case with the transformation of the U.S. Army's Japan headquarters into a deployable joint task force–capable headquarters. Finally, we seek to reduce the number of American military forces in host nations where those forces abut large urban populations. We will strengthen our relationships by reducing the frictions—accidents, incidents, and the like—associated with normal military activities in urban settings.

In a related initiative, over the past two years we have engaged with our Japanese hosts in a series of sustained security consultations. These talks were aimed at evolving the U.S.-Japan security alliance to reflect today's rapidly changing global security environment. The Defense Posture Review Initiative (DPRI) has focused on alliance transformation at the strategic and operational levels, with particular attention to the posture of U.S. and Japanese forces in Japan. In the DPRI, we have negotiated several important force realignment initiatives designed to relieve stresses in our relationship with Japan while strengthening our deterrence and global flexibility. Among the more significant of these initiatives are the consolidation of carrier jet aircraft based on mainland Japan, and a significant reduction and reorganization of the Marine Corps posture on Okinawa.

Our current ground, air, and naval access throughout the Asia-Pacific region serves as a basis for a long-term presence that will be better structured for more effective regional and global action. For example, the Army's modular transformation will streamline headquarters elements and strengthen joint capabilities. The forward-deployed Air Force Strike ISR (intelligence, surveillance, and reconnaissance) task force in the Pacific will also enable greater regional and global reach. We also are establishing a network of forward operating sites and cooperative security locations to support better the war on terror and to provide multiple avenues of access for contingency operations. Such facilities will serve to expand U.S. and host-nation training opportunities, helping our partners build their own capacities in areas such as counterterrorism.

On the Korean Peninsula, our planned enhancements and realignments are intended to strengthen our overall military effectiveness for the combined defense of the Republic of Korea. Stationed forces are relocating away from the increasing congestion and sprawl of the greater Seoul area and consolidating into two major hubs in the central and southern sections of the country. Rotational and rapidly deployable combat capabilities such as Stryker units and air expeditionary forces will complement these permanently stationed units. We seek to retain a robust prepositioned equipment capability in Korea to support rapid reinforcement.

The Middle East

In the Middle East, we seek to maintain a posture of "presence without permanence"—prosecuting the Global War on Terror and assuring our allies and partners, but without unduly heavy military footprints. Cooperation and access provided by host nations during ENDURING FREEDOM and IRAQI FREEDOM provide us with a solid basis for long-term, cooperative relationships in this region. We seek to maintain or upgrade—and in isolated cases establish—forward operating sites and cooperative security locations for rotational and contingency purposes, along with strategically placed prepositioned equipment and forward command-and-control elements. Our posture also aims to strengthen our capabilities on the peripheries of this region, including in the Horn of Africa and in Central and South Asia. In addition, we continue to identify advanced training opportunities with our regional partners for capacity building in such areas as counterterrorism and for broader military interoperability.

Africa and the Western Hemisphere

Our aims in Africa and the Western Hemisphere are to broaden relationships, build partnership capacity, obtain contingency access, and facilitate practical security cooperation activities, without creation of new bases or permanent military presence.

Ungoverned and undergoverned areas in vast swaths of sub-Saharan Africa and South America can serve as breeding grounds not just for domestic insurgents but for international terrorists and other transnational threats that increasingly find their "home bases" disappearing in other regions. We therefore seek an array of CSLs in these regions for contingency access into remote areas. Often this access will take the form of "gas and go" operations, as has been recent practice as formalized in the Air Force's Africa Fuels Initiative. Such CSLs will not require a permanent combat presence. They will be focal points for combined training with host nations and other allies and partners, and they will have the capacity to expand and contract on the basis of operational needs.

Though much work remains, the realignment of the U.S. global defense posture is well under way, particularly through the ongoing strengthening of American military capabilities in Europe and the Pacific. The 1st Infantry Division has commenced its redeployment from Germany. A brigade from the 2nd Infantry Division in the Republic of Korea will redeploy to the United States upon completion of its rotation in Iraq. In Japan, the DPRI process has resulted in an agreement on specific force posture realignments that will have far-reaching, beneficial impacts for the U.S.-Japanese alliance. Also, the services are undergoing expansive transformation and consolidation of their headquarters structures, the better to support expeditionary operations.

The new U.S. global posture strategy is set to emerge as one of the most far-reaching of the national defense legacies of this administration. It reflects the American commitment to a global insurance policy for an emerging security landscape. Collectively, proposed posture changes provide a framework for our alliance and defense commitments overseas and for harmonizing our forces' skill sets with the shifting uncertainties of that new landscape. Global, geopolitical circumstances will continue to change, our relationships with allies and partners will evolve, and our capabilities will mature. Well beyond the tenure of this administration, our new global defense posture will provide a foundation upon which the U.S. military and its supporting defense establishment can build adaptively for decades to come.

THE PROLIFERATION SECURITY INITIATIVE

Cornerstone of a New International Norm

Commander Joel A. Doolin, JAGC, U.S. Navy

Chemical, biological and nuclear weapons, along with ballistic missile technology," are the means by which "small groups could attain a catastrophic power to strike great nations."[1] Preventing terrorists from obtaining such weapons of mass destruction (WMD) has inspired a dramatic shift in U.S. strategy, from deterrence to preemption: "We must take the battle to the enemy, disrupt his plans and confront the worst threats before they emerge."[2] The legal hurdles in the path of a preemptive strategy, however, were revealed by the *So San* incident of December 2002.

THE *SO SAN* INCIDENT AND THE PROLIFERATION SECURITY INITIATIVE

In late 2002 U.S. intelligence had collected evidence of money transfers from Yemen to North Korea. Satellite footage showed Scud fuel oxidizer being loaded into shipping containers. Analysts narrowed identification of the merchant vessel carrying the Scuds themselves to one of "three likely ships," including the North Korean–flagged *So San.* That vessel was pinpointed because of two actions that might seem innocuous in themselves but were suspicious if taken together. First, it zigzagged; merchant vessels ordinarily follow a steady course on the rhumb line, the shortest track between two points on the globe. Second, the crew of *So San* lowered and raised the vessel's flag; this is unusual, because the national ensign must be displayed continuously while under way.[3]

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Surveillance of the ship in international waters of the Indian Ocean produced a legal basis for boarding—the fact that "So San" was freshly painted on the stern, the customary location for a ship's name, whereas no vessel of that name was registered under the North Korean flag. That made the vessel "stateless" under international law, permitting U.S. warships to invoke a peacetime right to approach and visit.[4] The master of the vessel declined to give consent for boarding and ignored warning shots; special operations forces rappelled aboard by helicopter to stop and search the vessel. The master claimed his cargo was cement, but the boarding team discovered fifteen Scud missiles.[5] Dialogue between the United States and Yemen followed, fueling speculation that political considerations would reverse the interdiction: Yemen was a prospective partner in the war on terror, and escalation of tension with a nuclear-capable North Korea was to be avoided. Indeed, *So San* was allowed to proceed.

The situation is frustrating in operational terms. The U.S.-led maritime-interdiction coalition had mastered the factors of time, space, and force; prompt intelligence had correctly identified a Scud carrier; warships had intercepted before it could deliver its cargo and had apprehended it with sufficient force. Yet there was no gain—the Scuds were permitted to arrive at their destination, due to the lack of legal power to seize them. Or was it the political will to argue there was, or should be, legal justification for seizure that was lacking? In the event, operational success, international law, and politics could not be synchronized, and so the interdiction failed.

Legal debate on the incident begins with the premise that proper authority in two respects must be present if maritime interdiction is to be effective. First, there must be authority to visit and search a particular vessel. This was satisfied in the *So San* case by its status as "stateless." Second, there must be authority to seize, detain, or divert cargo found aboard. This did not exist here.[6] Conventional missiles are not contraband subject to seizure. No United Nations resolution imposes a weapons embargo against Yemen. Neither North Korea nor Yemen are signatories to the Missile Technology Control Regime, which might have authorized seizure.[7] Accordingly, there was no unquestionable legal authority to seize the Scuds.

The *So San* case illustrates the close intertwining of politics and international law. Less than a month before, the United Nations Security Council had passed Resolution 1441, giving Iraq a "final opportunity to comply with its disarmament obligations."[8] The decade-old embargo against Iraq was not used as authority to board *So San,* because its destination was clearly Yemen. Though USS *Cole* (DDG 67) had been in Aden, Yemen, when it was attacked two years earlier, the United States did not now make a self-defense claim. Arguments for seizing Yemeni ballistic missiles would have divided international political opinion on weapons of mass destruction precisely when solidarity was desired for a future

resolution authorizing "all necessary measures" to dismantle Iraqi programs. The price of solidarity was allowing Yemen to keep the Scuds and declining the opportunity to use *So San* as a precedent for interdiction of WMD on the high seas.

Five months later, the United States started to close the gap in international law through which *So San* had sailed. On 31 May 2003, President Bush launched the Proliferation Security Initiative (PSI) at a G-8 summit in Krakow, Poland. PSI "builds on efforts by the international community to prevent proliferation" of biological, chemical, and nuclear weapons, "their delivery systems, and related materials worldwide."[9]

Over time, PSI will make seizure of weapons of mass destruction at sea an international norm. This article examines that component of PSI, in particular the inherent operational and legal issues.[10] The operational factors of space, time, and force create strengths and weaknesses for WMD-interdiction operations; similarly, legal provisions relevant to WMD interdiction offer both utility and limitations. Analysis and supporting tables set forth legal options created by customary international law and treaty for interdiction at sea. The article offers specific recommendations to enhance operations, based upon what is legally feasible, with a focus on source countries and drug trafficking. The article then briefly discusses the advantages and challenges of using NATO architecture and combined exercises and deployments, as well as improved intelligence sharing among PSI participants, at the interagency and international levels.

THE FEW, THE RICH: THE PSI CORE MEMBERS

The United States and fifteen other nations are core members of PSI and participate in regularly scheduled meetings.[11] In September 2003, participating nations issued a "Statement of Interdiction Principles," which call for the use of diplomatic, information, and military instruments of power. "More than sixty countries have signaled that they support PSI and are ready to participate in interdiction efforts."[12]

PSI appeals to the common interest of states to support counterproliferation: secure borders uninterrupted by the catastrophic consequences of a WMD attack, with its human suffering and economic chaos. This is a strong mutual interest among the sixteen core members, which also have in common wealth, previous interest in counterproliferation, and existing security arrangements with the United States.

As table 1 shows, nine of the sixteen core members are G-8 or G-8/G-20* countries. All PSI core participants are signatories to the Biological Weapons

* The G-20, or Group of Twenty, established on 20 August 2003, focuses on agriculture. The members are developing countries: Argentina, Bolivia, Brazil, Chile, China, Cuba, Egypt, Guatemala, India, Indonesia, Mexico, Nigeria, Pakistan, Paraguay, Philippines, South Africa, Tanzania, Thailand, Venezuela, and Zimbabwe. See *G-20*, www.g-20.mre.gov.br/index.asp.

TABLE 1
PSI CORE MEMBERSHIP PROFILE

	G-8/G-20	NATO	NSG	ZC	MTCR	WA	REMARKS
Australia	G-20	No	Yes	Yes	Yes	Yes	1
Canada	G-8/G-20	Yes	Yes	Yes	Yes	Yes	
Denmark		Yes	Yes	Yes	Yes	Yes	
France	G-8/G-20	Yes	Yes	Yes	Yes	Yes	2
Germany	G-8/G-20	Yes	Yes	Yes	Yes	Yes	
Italy	G-8/G-20	Yes	Yes	Yes	Yes	Yes	
Japan	G-8/G-20	No	Yes	Yes	Yes	Yes	3
Netherlands		Yes	Yes	Yes	Yes	Yes	
Norway		Yes	Yes	Yes	Yes	Yes	
Poland		Yes	Yes	Yes	Yes	Yes	
Portugal		Yes	Yes	Yes	Yes	Yes	
Singapore		No	Yes	Yes	No	Yes	4
Spain		Yes	Yes	Yes	Yes	Yes	
Turkey	G-20	Yes	Yes	Yes	Yes	Yes	
United Kingdom	G-8/G-20	Yes	Yes	Yes	Yes	Yes	
United States	G-8/G-20	Yes	Yes	Yes	Yes	Yes	

NPT = Nuclear Non-Proliferation Treaty
NSG = Nuclear Suppliers Group
MTCR = Missile Technology Control Regime
WA = Wassenaar Arrangement
BWC = Biological Weapons Convention
ZC = Zangger Committee
CWC = Chemical Weapons Convention

Remarks:
1. Australia and the United States have a bilateral security treaty.
2. France is a signatory to the North Atlantic Treaty but not a member of NATO.
3. Japan and the United States have a bilateral security treaty.
4. Singapore is a host for U.S. military forces.

Convention (BWC), the Chemical Weapons Convention (CWC), and the Nuclear Non-Proliferation Treaty (NPT). Fifteen of the sixteen are also signatories to four other international agreements against WMD: the Missile Technology Control Regime (MTCR), the Nuclear Suppliers Group (NSG)*, the Wassenaar Arrangement (WA), and the Zangger Committee (ZC).[13] Thirteen of the sixteen PSI core members are also NATO members. Two others, Australia and Japan, have bilateral security treaties with the United States. The sixteenth, Singapore, has cordial military relations with the United States and is strengthening them.[14] These criteria constitute a potential formula for recruiting future PSI participants.

Table 2 identifies fourteen countries that support all seven WMD agreements but are not PSI core members. Ten more subscribe to at least four agreements,

* NSG, founded in 1974, is a forty-nation group that controls exports of nuclear weapons and nuclear-related items. WA, comprising thirty-three nations and founded in 1996, deals with the export of conventional armaments and dual-use technologies. ZC, with thirty-five nations, concentrates on aligning the Non-Proliferation Treaty with International Atomic Energy Agency (IAEA) export standards.

TABLE 2
MEMBERSHIP OF MAJOR WMD CONVENTIONS

	MTCR	BWC	CWC	NPT	NSG	ZC	WA	NATO/PfP
Argentina	●	●	●	●	●	●	●	
Australia	●	●	●	●	●	●	●	
Austria	●	●	●	●	●	●	●	PfP
Belarus		●	●	●				PfP
Belgium	●	●	●	●	●	●	●	NATO
Brazil	●	●	●	●	●			
Bulgaria		●	●	●	●	●		NATO
Canada	●	●	●	●	●	●	●	*NATO*
China		●	●	●	●			
Cyprus		●	●	●				
Czech Rep	●	●	●	●	●	●	●	NATO
Denmark	●	●	●	●	●	●	●	*NATO*
Finland	●	●	●	●	●	●	●	PfP
France	●	●	●	●	●	●	●	*NATO*
Germany	●	●	●	●	●	●	●	*NATO*
Greece	●	●	●	●	●	●	●	NATO
Hungary	●	●	●	●	●	●	●	NATO
Iceland	●	●	●	●				NATO
Ireland	●	●	●	●	●	●	●	PfP
Italy	●	●	●	●	●	●	●	*NATO*
Japan	●	●	●	●	●	●	●	
Kazakhstan			●	●			●	PfP
Latvia		●	●	●	●			NATO
Luxembourg	●	●	●	●	●	●	●	NATO
Netherlands	●	●	●	●	●	●	●	*NATO*
New Zealand		●	●	●	●		●	
Norway	●	●	●	●	●	●	●	*NATO*
Philippines		●	●	●				
Poland	●	●	●	●	●	●	●	*NATO*
Portugal	●	●	●	●	●	●	●	*NATO*
Romania		●	●	●	●	●	●	NATO
Russia	●	●	●	●	●	●	●	PfP
Singapore		●	●	●				
Slovakia		●	●	●	●	●	●	NATO
Slovenia		●	●	●	●	●		NATO
South Africa	●	●	●	●		●	●	
South Korea	●	●	●	●	●	●	●	
Spain	●	●	●	●	●	●	●	*NATO*
Sweden	●	●	●	●	●	●	●	PfP
Switzerland	●	●	●	●	●	●	●	PfP
Turkey	●	●	●	●	●	●	●	*NATO*
Ukraine	●	●	●	●	●	●	●	PfP
United Kingdom	●	●	●	●	●	●	●	*NATO*
United States	●	●	●	●	●	●	●	*NATO*
	[3]	[167]	[180]	[187]	[40]	[35]	[33]	[26/20]

Notes: Figures in brackets are the number of participants in each convention. PSI Core Members are italicized. Fourteen countries are signatories to all seven WMD agreements but are not yet in the PSI core: Argentina, Austria, Belgium, the Czech Republic, Finland, Greece, Hungary, Ireland, Luxembourg, Russia, South Korea, Sweden, Switzerland, and Ukraine.

including NPT, CWC, and BWC.[15] Russia is the only G-8 member that is not a core PSI member, and it is a signatory to all seven WMD agreements. Argentina, South Africa, and South Korea are G-20 countries that support at least six WMD agreements and have good or improving security ties with the United States.[16] Other G-20 members not in the PSI core are Brazil, China, India, Indonesia, Mexico, and Saudi Arabia. Saudi Arabia has the same characteristics as core member Singapore: military ties with the United States and signatory status for the three main WMD conventions. PSI nations account for 50 percent of NATO's members. Five NATO members and seven Partnership for Peace members (PfP) support all seven major WMD conventions but are not yet in the PSI core.[17]

Table 3 depicts the supermajority of United Nations members that support three major WMD conventions outlawing nuclear, chemical, and biological weapons. PSI builds upon this enormous political consensus. The next section argues that all PSI participants, core and noncore members alike, can use their collective sovereignty to achieve counterproliferation objectives.

HOW SOVEREIGNTY POWERS THE PROLIFERATION SECURITY INITIATIVE

Every nation that participates in PSI will apply resources of territory, airspace, waters, and laws to the coalition objective of nonproliferation. PSI interlinks the sovereign powers of many states by asking participants to follow four interdiction principles (the "PSI Principles").

- Interdict "chemical, biological or nuclear weapons, their delivery systems and related materials to and from states and non-state actors of proliferation concern."[18]
- Streamline procedures for the "rapid exchange of relevant information" concerning WMD proliferation.[19]
- Strengthen national legal authorities to accomplish the two objectives above.
- Prevent the transport of WMD within geographic areas and by vessels subject to their jurisdiction, by taking specific actions consistent with both their national and international laws.[20]

Territorial Seas and Contiguous Zones. The PSI Principles further call on participants to take the following specific actions: refrain from transporting weapons of mass destruction; require vessels to undergo inspections as a condition of entry and departure; stop and search vessels that are reasonably suspected of carrying WMD cargoes at their ports, in internal waters, in territorial seas, and in contiguous zones; and seize WMD cargoes found.[21]

TABLE 3
CONVENTIONS AGAINST WMD

Year[a]	Convention	Participants[b]	Coverage
1968	NPT	187/191	Prohibits transfer of nuclear weapons, nuclear explosive devices, and items that would assist in the manufacture of nuclear weapons (NPT Art. 1)
1972	BWC	167/191	Prohibits microbial or other biological agents, or toxins and weapons, equipment or means of delivery (BWC Art. 1)
1974	NSG	040/191	Controls export of nuclear materials and equipment, including technologies applicable to peaceful uses, without International Atomic Energy Agency (IAEA) safeguards
1974	ZC	035/191	Harmonizes NPT with IAEA export requirements for special fissionable material and equipment for processing, use, or production of special fissionable material
1987	MTCR	033/191	Controls export of 300 km–range missiles capable of carrying a WMD payload and their essential technologies (MTCR)
1993	CWC	180/191	Prohibits a total of 19 chemicals and 28 precursors (CWC Schedules): • Eight highly toxic chemicals and four precursors • Three lethal chemicals and eleven precursors • Four toxic commercial chemicals and thirteen precursors • Three unscheduled discrete organic chemicals (phosphorus, sulfur, and fluorine)
1996	WA	033/191	Prevents destabilizing accumulations of seven types of conventional weapons, including missiles and missile systems, and three tiers of goods and technologies
2004	UNSCR[c] 1540		Criminalizes the proliferation of WMD and delivery systems to nonstate actors and for terrorist purposes

Notes:
a. Agreement reached and signatures begun.
b. Signatories and parties to the convention, regardless of ratification status, over the total United Nations (UN) membership (since 24 April 2003 there have been 191 members).
c. UN Security Council Resolution.

Under international law, a nation's sovereignty extends seaward twelve nautical miles from its baseline, forming a belt called the state's "territorial sea."[22] In its territorial sea a nation enjoys law enforcement rights identical to those that it exercises on land within its borders. Ships "enjoy the right of innocent passage for the continuous and expeditious traversing" of a foreign territorial sea, but this right is not absolute.[23] The coastal nation may "take affirmative actions in its territorial sea to prevent passage that is not innocent, including, if necessary, the use of force."[24] The vessel conducting innocent passage is subject not only to the laws of the coastal nation but to the enforcement of those laws.[25] Accordingly, the coastal nation can approach, visit, and search any vessel in its territorial sea.

The next twelve miles can be declared by the coastal nation as a "contiguous zone," where the state is permitted to exercise its customs, fiscal, immigration, and sanitary laws.[26] Weapons of mass destruction are by definition dangerous materials, transportation of which must be consistent with customs laws. Thus,

every nation has the authority to prevent illegal WMD "imports" by enforcing its customs laws within twenty-four nautical miles of its coast. PSI leverages this national sovereignty to accomplish nonproliferation objectives.

Consent of the Flag Nation. The PSI Principles invoke national jurisdiction and authority over vessels flagged by that country, regardless of location. Participants agree to board and search any vessel flying their flags "beyond the territorial seas of any state," either based upon a reasonable suspicion the vessel is carrying WMD "or at the request and good cause shown by another state";[27] to "seriously consider providing consent" for other states to board and search vessels flying their flag;[28] and to seize WMD cargoes found pursuant to the two tasks above.

Nationality provides the legal basis for "same flag" boardings and for obtaining consent from flag nations to search their vessels in international waters. As codified by Articles 92 and 110 of the 1982 United Nations Law of the Sea Convention (UNCLOS*), warships and military aircraft have the peacetime right to approach and visit in international waters vessels of the "same nationality as the warship" or aircraft.[29] PSI participants also bring the sovereign power to authorize inspection by other countries of vessels flying their flags in international waters. The commercial fleets of six PSI core members are among the world's fifteen largest, accounting for 12 percent of all merchant vessels.[30] Significantly, however, current PSI participants all together own only a fraction of the world's merchant vessels.

Bilateral agreements under the PSI rubric between nations can produce rapid flag-nation consent for searches. Numerous bilateral agreements enable consent boardings in support of counternarcotics interdiction. Recently, the United States used this type of agreement as the model for the first bilateral agreements facilitating consent for WMD interdiction. Bilateral agreements between the United States and the flag nations of the two largest merchant fleets, Panama and Liberia, can in a matter of hours authorize boardings of suspect vessels by U.S. personnel in international waters to search for WMD cargoes. These bilateral agreements and others with Belize, Croatia, Cyprus, and the Marshall Islands raise the percentage of vessels accessible to consent boardings by PSI nations to well over half.[31]

The Air Picture. The PSI Principles ask participating nations to deny aircraft entry into their airspace or require transiting aircraft to land for inspection if there is a reasonable suspicion that their cargo includes weapons of mass destruction.[32] These procedures are consistent with existing international law, under which national airspace extends seaward twelve nautical miles from the country's

* So known, as a collective shorthand, for the Third UN Convention on the Law of the Sea, or UNCLOS III, 1973–82, at which the legal instruments were negotiated, formulated, and issued for signature.

baseline.[33] On the ground, nonmilitary aircraft of any nationality can be searched by the host nation.[34] States also have the right to refuse entry of foreign aircraft into their national airspace, unless that airspace is also an international strait or the state is party to an international agreement to the contrary.[35]

The Peacetime Right of Approach and Visit. Vessels in international waters are generally immune from the jurisdiction of other nations. Stopping a vessel at sea means interfering with its fundamental right of freedom of navigation. Warships have the unique power to abridge free navigation by legally approaching and visiting vessels. During such an "approach and visit" the vessel's master may consent to a search, but even a brief delay costs merchants time, inconvenience, and money. The extent of a warship's power to "approach and visit," then, depends on the situation.

In peacetime, the presumption is in favor of free navigation. As codified by the UNCLOS, warships may impede it only if there are reasonable grounds to suspect a vessel is engaged in one of six categories of illegal activity: piracy, slave trade, unauthorized broadcasting, operation without nationality, deception regarding nationality (if the vessel is actually of the same nationality as the warship), and illegal narcotics trafficking.[36]

It is important to emphasize, with regard to operational planning, that the illegal-activity exceptions cannot be employed against the vast majority of legally registered vessels. Facts and circumstances will arise where an exception can be invoked, but only against particular vessels, not the entire fleet of that country. Under current international law, there is no authority to stop vessels on the high seas solely because of what they are suspected of transporting.

Authority to Seize WMD. The PSI Principles, however, presume that weapons of mass destruction are subject to seizure. This presumption is based on the reality, reflected in table 3, that the overwhelming majority of nations have signed treaties outlawing the proliferation of nuclear, chemical, and biological weapons. The United Nations has 191 member states. The Treaty on the Nonproliferation of Nuclear Weapons (NPT) has been accepted by over 188 of them, nearly the entire UN membership.[37] The Chemical Weapons Convention (CWC) has been signed by 180 nations. The Biological and Toxin Weapons Convention (BWC) has been accepted by 176 nations, over 87 percent of the UN membership.

Normally, a treaty binds only nations that agree to it. However, the doctrine of customary international law holds that a well established and widespread practice is evidence of the existence of a duty binding on all nations.[38] Accordingly, the NPT, CWC, and BWC are arguably enforceable against nonsigners. The implication for military operations would seem to be that seizure of WMD items found aboard foreign ships or aircraft may be authorized. The

counterargument is that no interpretation is permitted when the text of a treaty is clear—and none of the WMD or terrorism conventions authorizes maritime interdiction.[39] Each treaty was the product of negotiation by states, and subsequently changed security needs, however compelling, cannot add a right to maritime interdiction that does not exist in its language.

Conventional weapons, explosives, and ballistic missiles are not illegal per se. It is within the sovereign rights of nations to possess and transfer them, or to agree not to transfer them. Two initiatives against conventional weapons are the MTCR and the Wassenaar Arrangement. Both are supported by roughly the same plurality—thirty of the thirty-three signatories for MTCR and WA are identical.[40] Six other nations support either MTCR or WA but not both.[41] The bottom line is that only 17 percent of the UN membership supports MTCR and WA, and less than 15 percent support both. Neither can be assumed customary; therefore, MTCR and WA are enforceable only against signatories, absent additional and specific authority against a nonsignatory.

HOW PSI CAN MASTER THE FACTORS OF SPACE, FORCE, AND TIME

International law provides a framework for operational design. The law empowers every nation that participates in PSI to conduct maritime interdiction operations (MIO) in its national waters and against its own vessels. Successful PSI military operations, however, will require unity of effort. The participation of many countries and their collective capability in command and control will determine what can be seized, where, and by whom. Intelligence services will be required to detect the production and shipment of potentially small WMD packages over enormous distances. Intelligence data can justify an "approach and visit" under one of the six UNCLOS exceptions for illegal activity; in rare cases, it may also reveal grounds for self-defense actions. The law, for its part, can fill in gaps when intelligence is incomplete, so long as the facts give reasonable grounds to suspect certain illegal activities. The link between intelligence and legal authority for maritime interdiction means that PSI nations need to enhance their awareness about vessels approaching their national waters.

The Factor of Space

PSI participants have the sovereign power to inspect any vessel or aircraft present in their territories, territorial seas and airspace, and to a lesser extent, in their contiguous zones. Making national space less porous to WMD transport is an enormous operational challenge. For example, the American coastline stretches ninety-eight thousand miles and includes "3.5 million square miles of ocean area" (that is, inside twelve nautical miles) and 185 deepwater ports.[42] International trade involves at least a hundred thousand registered merchant vessels of a

hundred gross tons or more, flying the flags of two hundred countries.[43] Focus on the world's largest ports compresses the space problem. Sixteen "superports" handle 99 percent of the world's trade volume, and 90 percent of this volume passes through nine choke points.[44]

By identifying major sources of weapons of mass destruction, intelligence can help operational planners prioritize counterproliferation efforts. Table 4 is an overview of WMD programs and terrorist presence in fourteen countries that have the most of each. Purchase and theft are presumably easier ways for terrorists to obtain WMD than developing their own. Large-scale production of weapons of mass destruction requires substantial facilities, as well as time and expense. Still, and although large programs are generally detectable by national intelligence networks, they cannot be detected with absolute reliability—as Saddam Hussein's WMD programs are a pointed reminder.[45] Further, modest quantities of biological or chemical weapons are fairly easy to produce, and the radioactive

TABLE 4
WMD THREAT MATRIX

Country[a]	Nuclear	Bio	CW	Missiles	Terror[b]	Remarks
North Korea	Y	Y	Y	Y	*	BWC, CWC, NPT, WMD negotiations
Iran	Y	Y	Y	Y	1*	BWC, CWC, NPT, WMD negotiations
China	Y	Y	Y	Y		BWC, CWC, NPT
Russia	Y	Y	Y	Y		BWC, CWC, NPT, MTCR
Syria		Y	Y	Y	*	WMD negotiations
Libya	Y	Y		Y	*	BWC, WMD negotiations
Pakistan	Y	Y		Y	5	BWC, CWC
India	Y	Y		Y		BWC, CWC
Israel	Y			Y	8	CWC
Vietnam			Y	Y		BWC, CWC, NPT
Sudan				Y	*	BWC, CWC, NPT, terror negotiations
Egypt				Y	2	BWC, NPT
Yemen				Y	1	BWC, CWC, NPT
Cuba				Y	*	BWC, CWC, NPT

Bio = biological weapons CW = chemical weapons

Notes:
a. Omitted is Iraq, in the process of disarmament as a consequence of Operation IRAQI FREEDOM; and Afghanistan, whose sponsorship of terrorism was ended by ENDURING FREEDOM. Six other nations have at least one terrorist group but no WMD: Algeria, Colombia, Lebanon, Philippines, Turkey, and Uzbekistan. Britain and France, both nuclear powers, are not listed.
b. Number of known terrorist groups that operate in that country. Asterisk means the country was considered a state sponsor of terrorism in *National Strategy for Combating Terrorism* (2003).

Sources: Kenneth Katzman, *Terrorism: Near Eastern Groups and State Sponsors, 2001*, CRS Report to Congress (Washington, D.C.: Congressional Research Service, 10 September 2001); and James Fitzsimonds, "Weapons of Mass Destruction" (unpublished paper, Naval War College, Newport, R.I., 2000).

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material needed to make a small but lethal "dirty bomb" (radiological dispersal device or RDD) could be obtained from more than "22,000 machines worldwide," located at "hospitals, universities, factories, construction companies and laboratories."[46] Therefore, table 4 is only the starting point for prioritizing WMD sources and potential threats.

Increase Participation in PSI. U.S. joint doctrine presumes that maritime interdiction operations have both military and political purposes.[47] The desired end state for PSI is elimination of WMD proliferation to the maximum extent possible. The political objective is to encourage proliferating nations to conform to PSI; the military objective is interdiction of weapons of mass destruction between source countries and terrorist organizations. International law, as we have seen, makes it easier for PSI participants to seize WMD in their own territorial seas and contiguous zones than on the high seas. PSI operations in national territory, water, and airspace enhance the legitimacy of the entire undertaking. The existence of a superport in a PSI nation accounts for a possible transit point for WMD shipments; a threat nation's acceptance of PSI removes a proliferation source or recipient and adds space where PSI is followed. Compliance expands cooperation with PSI beyond the situations where international law permits military interdiction, and it permits assets to be devoted to other threats. Libya's renunciation of WMD programs is a recent example.[48]

Table 5 (which overlays threat data from table 4 with PSI participants, chokepoints, superports, and merchant ship registration) shows that current PSI participation produces favorable space-force relationships in NorthCom and EuCom but poor ones in CentCom and PaCom. Bilateral agreements for consent boardings, using the Liberia agreement as a model, with three more countries (the Bahamas, Greece, and Malta) will bring EuCom and NorthCom ship ratios to 100 percent. EuCom has many PSI partners to track threat nations, and PSI countries control all three superports in the theater; Russian participation in PSI would eliminate a WMD source. In CentCom, Egypt stands out, because that country controls the Suez Canal, one of the choke points. In PaCom, threat nations outnumber PSI partners, which account for less than a third of the superports. China is a decisive point in that region; it is a WMD source nation, has a superport, and owns a large merchant fleet. China, however, shares to some degree the interests of the PSI core nations in economic stability and nonproliferation.[49]

Focus on WMD Source Countries. PSI targets a center of gravity for terrorist groups: their ability to receive weapons of mass destruction. Terrorist groups are numerous, covert, and mobile. It can be difficult to identify their lines of communication or predict where they could receive WMD. By contrast, countries have

TABLE 5
THE GEOGRAPHY OF PSI

Commander	PSI Nations	Threat Nations	Ratio[a]	Choke Points	Super Ports[b]	Ship Ratio[c]
CentCom	0	Egypt *Iran *Pakistan[d] Sudan Yemen	0:5	Strait of Hormuz Suez Canal	0 of 1	0:0
EuCom	Denmark, Neth., Spain, France, Norway, (Cyprus),[f] Turkey, Germany, Poland, U.K., Italy, Portugal, (Liberia)[f]	*Israel *Libya[e] *Syria *Russia	11:4	Dardanelles English Channel Strait of Gibraltar	3 of 3	5:7
NorthCom	U.S., Canada	Cuba	2:1	None	5 of 5	1:2
PaCom	Australia, (Marshall Is.),[f] Japan, Sing.	*China *India * N. Kor. *Vietnam	3:4	Straits of Malacca Taiwan Strait Tsushima Strait	2 of 7[g]	2:4
SouthCom	(Panama)[f]	None	0:0	Panama Canal	1 of 1	1:1

Notes:
* Threat nations, major WMD sources.
a. Compares PSI and threat nations (as given in left columns).
b. Number of "super ports" in PSI nations versus the total number in the commander's area of responsibility.
c. Number of largest merchant fleets under PSI flags versus the total number in the commander's area of responsibility. Those PSI countries are: Singapore, Norway, U.S., Japan, Italy, and Germany. Nations with the largest vessel registries are also grouped by AOR: EuCom—Greece, Malta, Cyprus; NorthCom—Bahamas; PaCom—China, Marshall Islands; SouthCom—Panama.
d. Pakistan is investigating and has denounced alleged transfers of atomic program information to Iran.
e. Libya has recently renounced its WMD programs, making the ratio even more favorable in EuCom.
f. Bilateral agreement with the United States.
g Taiwanese cooperation in detaining in Kaohsiung Harbor the North Korean vessel *Be Gaehung*, which was carrying chemical precursors.

Sources: "General Denies Letting Secrets of A-Bomb out of Pakistan," *New York Times*, 27 January 2004, p. A6; "Libya: No More Weapons of Mass Destruction," *Newport Daily News*, 20–21 December 2003, sec. 1, p. 1; "Ship's Seizure Sends Signal to North Korea," *Christian Science Monitor*, 12 August 2003; U.S. Transportation Dept., *MARAD 2001: Maritime Administration's Annual Report to Congress* (Washington, D.C.: Maritime Administration, 2001), p. 41.

fixed seaports, and most countries value their economic and political relationships with the international community. The fact that major WMD sources are countries, then, is a critical vulnerability for terrorists. Combatant commanders can, therefore, in their theater security cooperation plans consider WMD source countries as critical vulnerabilities of terrorists and synchronize military interdiction with political, economic, and information instruments.

Stop Drug Money That Buys WMD. Drug trafficking produces "vast sums of money for international organized crime syndicates and terrorist organizations."[50] Diminishing drug traffic that funds terrorist groups impairs their ability to purchase or develop WMD. International law makes this connection a critical vulnerability—PSI nations may legally conduct interdiction operations on the high seas against suspected drug traffickers. Counterdrug operations can harm terrorist networks while observing the principles of legitimacy and restraint.

In the peacetime legal framework, operational commanders have discretion as to how often to approach and visit vessels. A risk-averse option is to approach and visit only when there is tangible evidence about a particular vessel, such as intelligence that narcotics were loaded as cargo. A more assertive concept uses the 1982 UNCLOS standard of "reasonable grounds."[51] The facts that a vessel is visibly low in the water and is on a possible drug route would permit the inference that it may be engaged in drug trafficking.

The Factor of Force

Each PSI participant brings forces to counterproliferation, of varying size and quality. These forces collectively have a critical weakness and a critical strength in concentrating to detect and intercept a WMD carrier. The weakness is that they simply cannot be everywhere at once. Thus, it is necessary to achieve information superiority and exercise command and control to focus PSI forces and surveillance assets where they are required. This task is made easier by the fact that U.S. sea-based forces are routinely positioned ninety-six hours away from major shipping routes.[52]

The critical strength PSI forces enjoy is that when a threat is detected, participants can muster sufficient force to overpower any potential WMD carrier. The typical scenario is of a warship or one of its small boats approaching an unarmed or lightly armed vessel. In most cases the ship receives the master's consent to board and search. Gunfire is usually not required; should a forcible boarding be necessary, however, the warship can disable the vessel with its own weapons or send an embarked "visit board search seize team" (VBSST) to take control of it. The capabilities of a VBSST, of naval or Coast Guard personnel, would usually be sufficient to deal with an unarmed or lightly armed crew. If not, Marines or special operations forces could be requested from the combatant commander. Once aboard, a VBSST can face a difficult task if the crew, even if unresisting, does not actively aid the search. Ships have hundreds of compartments. Voids and tanks can go undetected if welded shut. On board a large container ship, the contents of perhaps thousands of sealed containers, each the size of a truck trailer, are described by lengthy bills of lading, which must be carefully examined. These realities require proficient and properly equipped VBSST, especially since WMD contraband may be very small.[53]

Use NATO Architecture for Large-Scale Exercises with PSI Nations. Thirteen of the current PSI participants are also NATO members.[54] This heavy proportion of NATO countries yields operational advantages for the Proliferation Security Initiative—the NATO command structure, rules of engagement (ROE), and information assurance agreements can (and should) be used for PSI operations.[55] In this way valuable time can be saved, and new PSI members incorporated

more easily. Operations with non-NATO teammates will require the use of standardization agreements for information assurance—that is, the protection of NATO-classified material.[56] NATO rules of engagement can be "sanitized" to safeguard them from compromise. The NATO standardization agreement can also be the basis for memoranda of understanding with appropriate foreign agencies, to foster the sharing of intelligence on WMD matters throughout the PSI membership.

Continue Combined Exercises and Deployments. On PSI's second anniversary, its leaders boasted that "over 40 countries have participated in fourteen training exercises."[57] Command and control is critical if PSI participants are to focus surveillance assets and determine where interdiction is required. Mastery of it will leverage their advantage in force and facilitate unity of effort. The tasks of command and control, communicating and disseminating, and using intelligence for large-scale maritime interdiction operations must be exercised in order to make forces ready for contingencies. Combined exercises and deployments will allow PSI participants to practice these skills; determine tactics, techniques, and procedures for the host of operational and legal issues that would arise from actual WMD seizures; and validate planning for UN-sanctioned actions against WMD source countries.[58]

Multinational warships on PSI taskings could be deployed with U.S. strike groups. Deployment of a foreign warship on a regular basis with a battle group would enhance its capabilities for PSI operations. A warship from another nation brings that nation's sovereign power for "same flag" boardings. Many navies have law enforcement authority in their nations' contiguous zones and territorial seas, expanding the potential area of operations. Further, such combined deployments would test the integration of command and control in varied environments and over extended periods.[59]

When the United States hosts PSI exercises, inclusion of the Coast Guard would repair a seam between the American sea services. The Coast Guard has law enforcement authority and is the lead federal agency for interdiction in U.S. territorial seas and contiguous zones; the Navy has more surveillance assets but no law enforcement authority. Any American response to a shipment of WMD toward the homeland would likely involve both services. Exercises are needed, therefore, to test contingency planning for Navy–Coast Guard interdiction of WMD.

Share Intelligence among PSI Participants. The peacetime justifications for interdiction on the high seas, based on the six kinds of illegal activities enumerated above, highlight the relationship between intelligence and legal authority. If operational commanders have evidence of a vessel's illegal activity or the threat of an imminent attack, legal justification for interdiction may be possible.

Interagency and international resources can improve awareness concerning WMD movements and the effectiveness of searches. Sharing intelligence among the armed forces and civilian agencies of PSI countries about WMD shipments will further promote unity of effort.

Use Interagency Resources. Each combatant commander has an intelligence team, including interagency professionals, that can tap into the national structure that monitors WMD activities. "Critical information requirements" to support PSI operations are different from traditional concentration on an enemy's order of battle. Data is needed on merchant vessels, storage capabilities, and normal operations. Maritime shipping expertise is required to decipher bills of lading. It may not be possible to add maritime shipping experts to combatant commanders' staffs, but liaison with them is essential. American customs inspectors and the Coast Guard foreign port liaison officers are other resources for critical intelligence or training. The Coast Guard has four "maritime safety and security teams" (MSSTs), of approximately a hundred active-duty and reserve personnel each, that protect domestic ports in the homeland. One MSST specialty is WMD detection.[60] If maritime agency resources and maritime training safety and security teams were tapped to train VBSST, improvement in the ability to detect weapons of mass destruction on board merchant vessels would almost certainly result. In such ways, interagency cooperation can bring new knowledge and state-of-the-art procedures to shipboard searches.

Use International Resources. The State Department is the lead agency for international law enforcement academies (ILEA), which, with the departments of Justice and Treasury as partners, have "trained over 8,000 officials from 50 countries."[61] Alumni of these academies represent a potentially valuable pool of international talent, on which defense attachés could call for answers about a nation's maritime companies and procedures. International law enforcement academy graduates might assist combatant commanders' staffs as liaison or interpreters to increase the effectiveness of shipboard searches.

The Factor of Time

As we have seen, no counterproliferation convention has created the right to interdict the shipment of weapons of mass destruction on the high seas. Under some circumstances, however, international law permits interdiction of WMD and conventional weapons in international waters without consent of the flag nation. With such authority PSI nations would not have to wait until the vessel entered their contiguous zones and make the interdiction in that narrow area. There are three possibilities. First, during armed conflicts belligerent warships can "visit" merchant vessels in international waters to search for contraband. Second, the Security Council can authorize an arms embargo as a

"partial interruption of economic relations" against a member state and enforce it with a "blockade."[62] Finally, and precariously, the inherent right of self-defense may authorize interdiction. Each of these legal avenues has political requirements and risks.

Do Not Invoke the Belligerent Power Universally. The United States does not in general claim belligerent status in the global war on terrorism to "visit and search," but some military operations under that rubric qualify as armed conflicts under international law; current examples include operations IRAQI FREEDOM and ENDURING FREEDOM. Broader belligerent status would require an enabling resolution or formal declaration of war by the Congress. Aside from the political issue of mustering domestic support, the legal issue would be whom or what to declare war against. Traditional practice assumes that one state declares war on another state, putting all on notice that, inter alia, the declaring state intends to exercise the wartime power of visit and search. This is impractical against a stateless threat. To cover all flag nations that might be a host for al-Qa'ida cargo the United States would have to declare itself in at least a technical state of belligerence against at least eleven countries that the 9/11 Commission lists as potential sanctuaries.[63] (The commission itself recommended instead garnering support for PSI.)[64] It would be far better policy to reserve the belligerent right of visit and search to cases of actual armed conflict.

Use Security Council Resolution 1540 to Request Flag-Nation Consent. Resolutions of the Security Council can authorize maritime interdiction. This authority is reactive, not preventive, in that the state must have committed acts justifying the resolution. Often it is embodied in two resolutions, one for the embargo and the second for maritime interdiction operations to enforce the embargo.[65] Again, this power has always been exercised against states, making it legally and politically difficult to obtain specific authority against a country simply because it is perceived as a WMD threat, and there is no standing resolution to authorize interdiction at sea to enforce WMD conventions.

However, UN Security Council Resolution 1540 of 28 April 2004 imposes a duty on all member states to "refrain from providing any form of support to non-State actors," including weapons of mass destruction and delivery systems, such as missiles.[66] Its rationale was to correct a "gap" in international law regarding nonstate actors.[67]

Resolution 1540 received unanimous support, even from countries that had opposed American preemptive action against Iraq—China, France, Germany, and Russia. Also significant was the fact that Spain's support was unaffected by the 11 March 2004 terrorist attacks in Madrid. Two of the four PSI Principles are imbedded in Resolution 1540. In language similar to PSI Principle 1, pledging

interdiction, UNSCR 1540 calls on states to "detect, deter, prevent and combat" illicit WMD trafficking within their own borders.[68] PSI Principle 3 (strengthen national legal authorities for counterproliferation) becomes a requirement that states make and enforce domestic laws prohibiting WMD acquisition and possession "for terrorist purposes."[69]

Resolution 1540, though it added no maritime interdiction authority, can be cited as the legal basis to persuade a flag state to cooperate with counterproliferation activities. At sea, that means it should "seriously consider providing consent" for vessel searches if there is a reasonable suspicion that WMD cargo is aboard.[70]

Use Article 51 Selectively as a Trump Card. Article 51 of the United Nations Charter refers to actual "armed attack" as the threshold for national self-defense. The article is incorporated by reference into numerous security agreements.[71] It cannot be invoked merely to restrict the growth of an opponent's capabilities, because actions in self-defense must be consistent with the international principles of necessity and proportionality. Article 51 may be thought of as a trump card that can be played only when a threat becomes an imminent attack.

The status in law of maritime interdiction as a measure of "anticipatory" self-defense has historical roots. On 29 December 1837, the American steam vessel *Caroline* was burned in U.S. waters by the British, who suspected the ship was carrying arms to Canadians engaged in rebellion.[72] The case is frequently cited as the basis for the legal elements of anticipatory self-defense (which the British did not follow regarding *Caroline*): "(a) its exercise must be in response to actual or threatened violence, (b) the actual or threatened violence must create an instant and overwhelming necessity to respond, and (c) the self-defense measures taken must not be excessive or unreasonable in relation to the threat."[73] Scholars debate whether this doctrine was codified or eradicated by Article 51, and how much of it still has force.[74]

Like the rest of the UN Charter, Article 51 was devised to govern affairs between states, an arena where deterrence can be a useful tool. Article 51 is insurance when deterrence fails, authorizing force in self-defense in response to attack until the Security Council acts to remedy the matter. The UN Charter outlaws preventive attacks between states, such as those committed by Nazi Germany and imperial Japan. The Security Council has authorized military intervention on two occasions in response to territorial invasion by one state upon another, reversing the invasion of South Korea in 1950 and of Kuwait in 1990. But lack of unanimity among the permanent five members paralyzes the Security Council, as evidenced by its inaction following the report by the United States of the Soviet Union's shipment of nuclear missiles to Cuba in 1962.[75]

The Cuban missile crisis in 1962 illustrates how the combination of resolve, diplomacy with regional allies, and seapower can interdict weapons of mass destruction. Although the Security Council did not act on the American charge that the Soviets were transporting WMD, the Organ of Consultation of the American Republics, convened by the Organization of American States, resolved to ensure that Cuba did not receive them. This resolution, which did not rely upon Article 51, was the legal basis cited in President John F. Kennedy's proclamation of a defensive quarantine.[76] A brief look at the legal reasoning in that case demonstrates, however, that interdiction of weapons of mass destruction in international waters is consistent with state obligations under the UN Charter.

The United States, as we have seen, did not invoke Article 51 or the wartime doctrine of blockade to justify the "quarantine."[77] Rather, it used as its legal basis the 1947 Rio Pact, which provided for the collective security of the Western Hemisphere, using the Article 51 standard.[78] The United States was obliged to interdict the Soviet weapons on its own because its report to the Security Council was not acted upon. However, the Rio Pact, to which it appealed, incorporates the Article 51 standard in its own Article 3. Further, President Kennedy's Proclamation 3504 of 23 October declared that interdiction of offensive weapons and materials, conventional missiles as well as nuclear materials, would be conducted at a "reasonable distance from Cuba" and along "prescribed routes" to that country.[79] Also, the military force employed was proportional to the threat, in that it was directed against ships carrying weapons to Cuba. The decision represented the use of minimum force and caused the briefest possible interruption of other nations' right to free navigation. It is clear, then—especially in light of the alternatives, destroying the vessels or attacking deployed weapons systems—that the quarantine was consistent with U.S. responsibilities under the UN Charter.[80] The interdiction has stood as a permissible measure for over forty years and is cited today as a valid precedent.[81]

Other recent examples are available. Israel and Spain have each conducted at least one interdiction of a conventional weapons shipment in international waters, apparently without censure. On 3 January 2002, Israel, in Operation NOAH'S ARK, captured in the Red Sea *Karine-A,* a Palestinian Authority freighter. The vessel's cargo included twelve-mile-range Katyusha rockets, antitank missiles, and high explosives.[82] In July 2003, Spain seized a South Korean vessel navigating the high seas toward Senegal to deliver a shipment of conventional arms.[83] Neither action was condemned by the Security Council.

Preemptive action in self-defense lowers military risk, but it does so by raising political risks, as demonstrated in the U.S. quarantine of Cuba in 1962. There are numerous other historical examples where the interdiction of vessels at sea raised political tensions among states or contributed to the outbreak of war.[84]

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Universal condemnation of weapons of mass destruction and terrorism cannot be used as justification for the violation of another state's sovereignty. Intercepting aircraft in foreign airspace without the host nation's express consent risks adverse international reaction, as Israel learned in 1973 when it intercepted an aircraft in Lebanese airspace that it believed to carry a Palestinian responsible for a hijacking; the Security Council condemned Israel's action in Resolution 337. It was for that reason that the United States did not claim jurisdiction over the *Achille Lauro* hijackers whom it captured by diverting an Egyptian aircraft in Sicilian airspace.[85] In 1981, UNSCR 487 condemned an Israeli attack on an Iraqi reactor.[86] The record, then, confirms that while some states have interdicted weapons shipments on the high seas without sanction, these instances were exceptions and not the general rule. Therefore, states take a political risk if they do so; the prudent approach is to use Article 51 sparingly—only when it can be justified with compelling facts.

National self-defense could be used to justify maritime interdiction if the facts established that the transport of weapons of mass destruction toward the coastal nation constituted an imminent threat of armed attack. If the United States learned, for instance, that WMD was being transported illegally toward its shores aboard a vessel capable of releasing the payload during transit, the imminence of armed attack could be inferred. The release of biological or chemical weapons in a territorial sea would risk damage to vessels and islands within that territorial sea, as well as parts of an exclusive economic zone (discussed below) and even the mainland. Detonation of a nuclear device could easily do damage within the twenty-four-mile radius embracing the territorial sea and contiguous zone. Interdiction on the high seas would therefore be justified as both necessary to prevent the attack and proportional to the threat. National self-defense, as formally defined by the United States, could be invoked under such circumstances.[87]

ESTABLISHING THE RIGHT TO SEIZE WMD ON THE HIGH SEAS

Stopping a vessel at sea means interfering with a fundamental right, that of freedom of navigation. Yet this right is not absolute. A coastal state's interest in law enforcement can overcome another country's right to unmolested freedom of navigation. Contiguous zones are international waters, but they are subject to the laws of the coastal state in situations constituting "hot pursuit."[88] The balance of interests twenty-four miles from sovereign territory has been conclusively presumed to be in favor of the coastal nation. There is no distinction between a point mere yards past the territorial sea and one twenty-four nautical miles from the baseline, the outer range of the contiguous zone—both are in international waters, and the coastal nation has equal power at either.

Even beyond the contiguous zone, international law gives a coastal nation influence over foreign vessels, if it has an exclusive economic zone (EEZ). In its EEZ, which would extend as far as two hundred nautical miles from its baseline, the state has jurisdiction over the scientific exploration, economic exploitation, and environmental management and conservation.[89] The legal regime of the EEZ expresses another balancing of interests, the upshot of which is that the state may interfere with free navigation far from its coast. The paradox is that in the EEZ the permissible reasons for interrupting free navigation are of less gravity than in the contiguous zone, though the EEZ is a much larger expanse of sea and extends farther out. Here it is economic reasons that justify intrusion; those of law enforcement stop at the twenty-four-mile line.

Yet as we have seen, international law permits some temporary interference with the right of free navigation well out on the high seas. Warships have a unique, but limited, right to abridge free navigation by approaching and visiting vessels anywhere, if the situation justifies the expense and inconvenience for the owner. In peacetime, the balance heavily favors freedom of navigation. In accordance with Article 110 of the 1982 UNCLOS agreement, warships may impede a vessel without regard to proximity to the coast only if there is reason to suspect that it is engaged in one of six categories of illegal activity.[90]

Each of these six exceptional categories was part of international practice before codification in the law of the sea. Each expresses a rule for the balancing of interests between coastal states and a transiting nation's freedom of navigation. All six accept the interruption of navigation as a trade-off for enforcement of the law. Without them, piracy, illegal broadcasting, and trafficking in narcotics or slavery would have safe havens in the world's oceans. All nations that respect and depend upon laws to maintain peace and security benefit from UNCLOS Article 110. One hundred forty-five nations have ratified UNCLOS, while other nations observe it as a matter of policy.[91] There is widespread recognition, then, that the law enforcement interest of a state can trump the right to freedom of navigation in some circumstances. Conventions against weapons of mass destruction carry even wider international support.[92]

National legislation reaches into international waters. The United Kingdom prosecutes piracy on the basis of its 1688 antipiracy and illegal-privateering statute.[93] The U.S. Congress has also made law reaching the high seas: "Whoever, on the high seas, commits the crime of piracy as defined by the law of nations, and is afterwards brought into or found in the United States, shall be imprisoned for life."[94] National legislation could be passed to interdict WMD and terrorists in international waters. The state interest in doing so is easily argued; states already legislate against criminal operations on the high seas—pirates and drug/slave traders. Where such criminals could harm individuals and small groups,

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terrorists, especially if armed with weapons of mass destruction, threaten much larger numbers of people. Interdiction on the high seas would clearly aid the enforcement of international conventions prohibiting WMD proliferation; failure to permit interdiction would render the conventions unenforceable.

But the remedy is amendment, not reinterpretation. The UNCLOS exception categories emerged for specific historical reasons. Many elements of the law of the sea began as domestic laws, and some had been taken up in treaties prior to UNCLOS. Specific treaties created duties or granted rights between states on the high seas. Some of these, over time, became customs, the original documents forgotten, only to be recodified in later treaties, including the 1982 convention, which constituted written recognition of norms, uniform rules for their practice, and notice to other countries. UNCLOS Article 110, then, cannot be read collectively as a universal endorsement of "approach and visit," as a single principle justifying interruptions of navigation for reasons not enumerated.[95]

BUILDING A NEW INTERNATIONAL NORM

So San showed that international law and politics can be decisive in the outcome of maritime interdiction. PSI participants have legal authority to visit and search vessels in their territories, territorial seas and airspace, and, to a lesser extent, their contiguous zones. In international waters, warships can visit and search merchant vessels flying their countries' flags.

Existing legal authority makes it easier to seize weapons of mass destruction than other items that would strengthen terrorist groups, such as ballistic missiles or conventional weapons. Biological, chemical, and nuclear weapons are almost universally seen as "contraband" and so are arguably subject to seizure, which, say, ballistic missiles would not be. Resolutions of the Security Council and considerations of belligerence and self-defense can authorize maritime interdiction in unusual circumstances. But their legal underpinnings make them reactive in nature and unsuited to a preventive strategy that requires broad international support. The 1982 UNCLOS convention offers only a patchwork of authority, exceptions to the right of free navigation. These exceptions, however, grew out of domestic law and treaties, codified after years of practice in the suppression of internationally condemned activities into accepted reasons for warships to approach and visit vessels on the ocean. The Proliferation Security Initiative may represent the birth of a new such exception, by which, over time, the combination of law and seapower may close the oceans as a safe haven for proliferators of weapons of mass destruction.

PSI activities, exercises, and operations will make maritime searches for WMD more common, the first steps toward a change in international practice. PSI will slowly change customary international law as more countries accept the

boarding of vessels on the high seas to search for weapons of mass destruction. Security Council Resolution 1540 and bilateral agreements will strengthen this evolution. It might be possible to negotiate a multinational instrument more quickly than separate bilateral agreements with the over two hundred nations that register merchant vessels. The supermajority of nations that already support WMD conventions could amend UNCLOS Article 110 to include trafficking in weapons of mass destruction as a reason for a warship to approach and visit another state's vessel in international waters. Perhaps such an amendment would finally win U.S. Senate ratification, which has been pending since 1994, for the 1982 UNCLOS agreement as a whole. But even absent such an overarching instrument in the short term, the proliferation of bilateral agreements granting the right to approach and visit vessels on the high seas to search for WMD will steadily increase the number of countries accepting this practice, gradually establishing it as an international norm and then as creating a perceived duty, a matter of customary law. Ultimately the effect would be the same: codification in an amendment to Article 110 to the 1982 law of the sea agreement, making international recognition of the customary duty explicit and the rules for its practice uniform. Reasonable suspicion that a vessel is carrying cargo or terrorists associated with WMD would then be one of the formally enumerated reasons for interrupting the freedom of navigation on the high seas.

The journey from custom to codification must be intertwined with politics. If the warning of the *So San* case has been heard, the nations participating in the Proliferation Security Initiative will, in one way or the other, obtain "fast-track authority" for maritime interdiction to enforce counterproliferation on the high seas, as they do now in coastal waters. If it has not been heard, the international community may wait for a seaborne WMD attack by terrorists before putting pen to paper.

NOTES

1. *National Security Strategy for the United States* (Washington, D.C.: White House, September 2002), p. 13.
2. U.S. State Dept., *National Strategy for Combating Terrorism* (Washington, D.C.: February 2003) [hereafter NSCT], p. 11, quoting President Bush.
3. Article 92 of the United Nations Convention on the Law of the Sea, 1982 [hereafter UNCLOS], codifies the rule about maintaining nationality while under way.
4. UNCLOS, article 110, codifies this authority.
5. The narrative is based upon three news accounts: Carla A. Robbins, "Why U.S. Gave UN No Role in Plan to Halt Arms Ships," *Wall Street Journal,* 21 October 2003, p. 1; Jong-Heon Lee, "North Korea: Ship Interception 'Piracy,'" *Washington Times,* 13 December 2002, dynamic.washtimes.com; and "Yemen Claims Scuds, Protests to U.S.," MSNBC.com, 11 December 2002.

6. Professor Ruth Wedgewood has opined that seizure of piracy cargo—or alternatively, Yemen's previous written "pledge" not to import Scuds—should have justified confiscation. See Ruth Wedgewood, "A Pirate Is a Pirate," *Wall Street Journal,* 16 December 2003. These arguments are tempting but easily countered. There was no evidence *So San* was involved with piracy, and the facts leading to its "stateless" categorization justified boarding and search only. Treaties or consent at the time of seizure are the usual standards for impressing cargo.

7. U.S. State Dept., *Fact Sheet on Missile Technology Control Regime* (Washington, D.C.: Bureau of Nonproliferation, 9 October 2001), available at www.state.gov/t/np/rls/fs/2001/5340.htm.

8. United Nations Security Council Resolution [hereafter UNSCR] 1441, 8 November 2002.

9. U.S. State Dept., *Statement of Interdiction Principles* (Washington, D.C.: Bureau of Nonproliferation, 4 September 2003), available at www.state.gov/t/np/rls/fs/23764.htm. The Group of Eight was established in October 1975 to facilitate economic cooperation among the developed countries that had participated in the Conference on International Economic Cooperation, held between December 1975 and 3 June 1977. Its members are Canada, France, Germany, Italy, Japan, Russia, the United Kingdom, and the United States. See *CIA World Factbook,* www.cia.gov/cia/publications/factbook/index.html.

10. The current Unified Command Plan makes combatant commanders "the single DOD point of contact within the assigned geographic AOR [area of responsibility] for countering the proliferation of weapons of mass destruction in support of non-proliferation policies, activities and tasking." U.S. Defense Dept., *Unified Command Plan* (Washington, D.C.: 30 April 2002), para. 12j.

11. As of the original announcement of PSI, there were eleven participating nations: Australia, France, Germany, Italy, Japan, the Netherlands, Poland, Portugal, Spain, the United Kingdom, and the United States. By 17 December 2003, there were five additional countries: Canada, Denmark, Norway, Singapore, and Turkey. The five initial meetings of the core PSI membership were in Madrid, June 2003; Brisbane, July 2003; Paris, September 2003; London, October 2003; and Washington, D.C., December 2003. U.S. State Dept., *Nuclear Weapons and Rogue States: Challenge and Response* (Washington, D.C.: Bureau of Nonproliferation, 2 December 2003), available at www.state.gov/t/us/rm/26786pf.htm.

12. Under Secretary of State John R. Bolton, testimony before the House International Relations Committee, 30 March 2004. The Statement of Interdiction Principles may be found on the State Department website, www.state.gov.

13. The remaining member, Singapore, is party to only BWC, CWC, and NPT. Table 3 describes each, and table 2 lists the membership.

14. Notably, Singapore offered to host U.S. Marine antiterrorist patrols in the Straits of Malacca. "U.S. Plans to Deploy Marines in Southeast Asian Waterway," Agence France-Presse, 5 April 2004.

15. The fourteen countries are listed on table 2. The three countries that support six of the major conventions are Bulgaria, Slovakia, and South Africa. Seven countries support BWC, CWC, and NPT plus only one of the four other conventions: Belarus, Brazil, China, Cyprus, Iceland, Kazakhstan, and Latvia. New Zealand supports MTCR, NSG, and WA but not ZC.

16. Argentina recently deployed a warship with the USS *Enterprise* (CVN 65) battle group. Jack Dorsey, "Navy Developing Plans to Deploy, Train Overseas with Foreign Fleets," *Virginian Pilot,* 15 August 2003. Last year, South Africa received three million dollars in anticrime and antiterrorism funding and $1.2 million in International Military Education and Training (IMET). U.S. State Dept., *Fact Sheet: U.S. Assistance to South Africa* (Washington, D.C.: 3 September 2002).

17. The five NATO members are Belgium, the Czech Republic, Greece, Hungary, and Luxembourg. The seven PfP countries are Austria, Finland, Ireland, Russia, Sweden, Switzerland, and Ukraine. Another NATO member, Iceland, is a signatory to four of the seven major WMD conventions. Three PfP members—Finland, Switzerland, and Sweden—have pledged funding toward the G-8 global partnership "to commit up to $20

billion to a global partnership against proliferation" (*National Security Strategy,* p. 14). Russia is a beneficiary of this G-8 program. *Fact Sheet: Broadening the Partnership to Stop the Spread of Weapons of Mass Destruction* (Washington, D.C.: White House, 2 June 2003).

18. Statement of Interdiction Principles.
19. Ibid., Interdiction Principle 2.
20. Ibid. Interdiction Principle 4 itemizes the specific actions, which are discussed below.
21. Ibid.
22. UNCLOS, arts. 1, 2, reprinted in *Annotated Supplement to the Commander's Handbook on the Law of Naval Operations* (Newport, R.I.: Naval War College, International Law Dept., 1997), para. 1.4.2.
23. *Annotated Supplement,* para. 2.3.2.1; UNCLOS, arts. 17–21.
24. Ibid.
25. UNCLOS, arts. 21(1), 21(4); *Annotated Supplement,* para. 2.3.2.1.
26. UNCLOS, art. 33; *Annotated Supplement,* para. 2.4.1.
27. Statement of Interdiction Principles, Interdiction Principle 4b.
28. Statement of Interdiction Principles, Interdiction Principle 4c.
29. UNCLOS, art. 110 [emphasis supplied]. Article 92 establishes the flag nation's exclusive jurisdiction, while Article 110 codifies a warship's right to approach and visit. Text of the convention, by article, is available at www.globelaw.com/LawSea/lsconts.htm.
30. The statistics about world shipping registries use 2001 data. In that year, the following nations, which are now PSI members, registered the largest merchant fleets: Singapore, Norway, the United States, Japan, Italy, and Germany. U.S. Transportation Dept., *MARAD 2001: Maritime Administration's Annual Report to Congress* (Washington, D.C.: Maritime Administration, 2001), p. 41.
31. U.S. State Dept., "Proliferation Security Initiative Ship Boarding Agreement Signed with Liberia," 12 February 2004, available at www.state.gov/r/pa/prs/ps/2004/29338pf.htm. Agreements identical to the U.S.-Liberia bilateral agreement were signed with Panama and the Marshall Islands on 12 May and 13 August 2004, respectively. In 2005, the United States signed agreements with Croatia (1 June), Cyprus (25 July), and Belize (4 August). The six PSI nations with the largest fleets registered a total of 3,661 vessels; Liberia had the second-largest shipping registry, with 1,735 vessels. The six PSI nations and Liberia accounted for 5,396 registrations of the worldwide total of 30,293, or 17.8 percent. Panama flagged 5,120 vessels in 2001, making it the largest registry. Its participation as a PSI nation nearly doubles the number of vessels available for consent boardings and raises the fraction of the world's merchant ships accessible to the PSI coalition to 34 percent. No data was available from *MARAD 2001* on the size of merchant fleets for the other ten PSI nations.
32. Both prongs are taken from Statement of Interdiction Principles, Interdiction Principle 4e.
33. UNCLOS, art. 2; *Annotated Supplement,* paras. 1.8, 2.5.1.
34. Convention on International Civil Aviation (1944) ("The Chicago Convention"); *Annotated Supplement,* paras. 2.2.2, 2.5.2.1.
35. UNCLOS, art. 2; Chicago Convention, art. 1; *Annotated Supplement,* paras. 2.5.1, 2.5.1.1.
36. These exceptions are codified in UNCLOS, arts. 108 and 110.
37. Of note are the four nonsignatories to NPT: Cuba, India, Israel, and Pakistan. The eleven nonsignatories to CWC include Iraq, Kazakhstan, and North Korea.
38. For discussion of the doctrine, see Michael Akehurst, "Custom as a Source of International Law," *Sources of International Law,* ed. Martti Koskenniemi (Burlington, Vt.: Ashgate, 2000), pp. 251–303.
39. P. K. Menon, *The Law of Treaties between States and International Organizations* (Lewiston, N.Y.: Edwin Mellen, 1992), p. 73. The "textual school" of treaty interpretation is generally accepted; ibid., chap. 7.
40. The thirty nations are: Argentina, Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Luxembourg, the Netherlands, New Zealand, Norway, Poland, Portugal, Republic of Korea, Russia, Spain, Sweden, Switzerland, Turkey,

Ukraine, the United Kingdom, and the United States.

41. Brazil, Iceland, and South Africa signed MTCR but not WA. Bulgaria, Romania, and the Slovak Republic signed WA but not MTCR.

42. Guy Thomas, "A Maritime Traffic-Tracking System: Cornerstone of Maritime Homeland Defense," *Naval War College Review* 56, no. 4 (Autumn 2003), p. 139.

43. Lloyd's Maritime Information Unit lists a hundred thousand vessels of that minimum weight in its "confidential directory," available at www.seaway.co.uk. The U.S. Coast Guard maintains a database of its contacts with vessels in the Port Information State Exchange (PISX), which recognizes over two hundred jurisdictions for which a vessel may be flagged; see cgmix.uscg.mil/pisx/pisx/psix2.

44. Naval War College, *U.S. Navy Capabilities Brief,* CD-ROM (Newport, R.I.: Joint Military Operations Dept., 2002). Five of the sixteen superports are within the United States, and three are in Europe. Others are located in China, Hong Kong, India, Japan, Singapore, South Korea, and Taiwan. The choke points are the Panama Canal, English Channel, Strait of Gibraltar, Dardanelles, Suez Canal, Strait of Hormuz, Straits of Malacca, Taiwan Strait, and Tsushima Strait.

45. "American intelligence officials failed to detect that Iraq's unconventional weapons programs were in a state of disarray." James Risen, "CIA Lacked Iraq Arms Data, Ex-Inspector Says," *New York Times,* 26 January 2004, p. 1. Underestimating the maturity of WMD programs is also a risk. In the summer of 2003, North Korea "surprised" the world with more advanced ballistic missile and nuclear capabilities than it had been previously believed to possess.

46. Central Intelligence Agency, *Terrorist CBRN: Materials and Effects,* 17 December 2003, p. 5, available at www.cia.gov/cia/reports/terrorist_cbrn, discusses possible locations of radioactive materials. The figure of twenty-two thousand is from James Fitzsimonds, "Weapons of Mass Destruction" (unpublished paper, Naval War College, Newport, R.I., 2000), p. 16.

47. *Joint Doctrine for Military Operations Other than War,* Joint Pub 3-07 (Washington, D.C.: Joint Staff, 16 June 1995), p. III-3.

48. U.S. State Dept., *United States Initiatives to Prevent Proliferation* (Washington, D.C.: Bureau of Nonproliferation, 24 May 2005), p. 5, available at www.state.gov.

49. See table 2 and the discussion above.

50. NSCT, p. 22.

51. "Reasonable grounds" is the legal standard for a visit and search, per article 110 of UNCLOS.

52. Naval War College, *U.S. Navy Capabilities Brief,* CD-ROM (Newport, R.I.: Joint Military Operations Dept., 2004).

53. Dirty bombs, or "radiological dispersal devices" (RDD), could be as small as a backpack, potentially requiring VBSS teams to conduct a very thorough search (CIA, *Terrorist CBRN,* p. 5). Chemical weapons usually "require bulk application," but some biological weapons need only "ten grams" to accomplish the same effect. Compare Stephen Rose, "Soft Weapons and Hard Choices" (unpublished research paper, Naval War College, Newport, R.I., 1989), p. 6, with Guy Roberts, "The Counterproliferation Self-Help Paradigm: A Legal Regime for Enforcing the Norm Prohibiting the Proliferation of Weapons of Mass Destruction," *Denver Journal of International Law and Policy* 27 (1999), pp. 493–94 and note 49.

54. As table 1 shows, the thirteen NATO nations that are also PSI participants are Canada, Denmark, France (treaty signatory only), Germany, Italy, Netherlands, Norway, Poland, Portugal, Spain, Turkey, the United Kingdom, and the United States.

55. The 9/11 Commission specifically recognized the advantages of using these features of NATO infrastructure: "The PSI can be more effective if it uses the intelligence and planning resources of the NATO alliance." National Commission on Terrorist Attacks upon the United States, *9/11 Commission Report* (New York: W. W. Norton, 2004), p. 381, available at www.9-11commission.gov/report/911Report.pdf.

56. This will simplify information assurance, permitting combatant commanders to use the NATO standardization agreement "as a basis

for establishing rules and policies for conducting joint intelligence operations" (*Doctrine for Intelligence Support to Joint Operations,* Joint Pub 2-0 [Washington, D.C.: Joint Staff, 9 March 2000], p. vii). "The appropriate U.S. geographic combatant commander should issue clearly stated guidelines for the release of classified U.S. information to the MNF (Multi-National Force)" (*Joint Doctrine for Multinational Operations,* Joint Pub 3-16 [Washington, D.C.: Joint Staff, 5 April 2000], p. IV-3). The instruction also provides that guidelines will be "based on existing policy directives and any applicable approved exceptions to the national disclosure policy. These guidelines should be issued to U.S. participants only and should be specific enough to allow implementation down to the tactical level" (Joint Pub 3-16).

57. U.S. State Dept., *The Proliferation Security Initiative (PSI): Second Anniversary* (Washington, D.C.: Bureau of Nonproliferation, 26 May 2005), available at www.state.gov.

58. Actual execution of an MIO embraces several legal issues: the conduct of the physical search, diversion of the suspect vessel so that a proper or safe search may be done, detention of persons interfering with the search, and use of force by the VBSS. If the VBSS is successful in locating WMD or terrorists, additional issues arise: What is to be done with captured WMD materials? Where will persons be detained, and to what authorities will they be handed over? What sort of prosecution and due process must be guaranteed for them? These concerns are beyond the scope of this article. However, they are all valid and will arise during operations; exercises in which policy, doctrine, and procedures can be developed would be beneficial.

59. As OEF demonstrated, secure communications for all naval coalition participants are needed (Phil Wisecup and Tom Williams, "Enduring Freedom: Making Coalition Naval Warfare Work," U.S. Naval Institute *Proceedings* [September 2002], p. 52). In August 2003, USS *Enterprise* and its battle group deployed with an Argentine vessel (Dorsey, "Navy Developing Plans to Deploy, Train Overseas with Foreign Fleets").

60. U.S. Coast Guard, *Fact Card on Maritime Safety and Security Teams,* 23 January 2004, www.uscg.mil/hq/g-cp/comrel/factfile/Factcards/MSST.htm.

61. U.S. State Dept., *Fact Sheet: International Law Enforcement Academies* (Washington, D.C.: Bureau for International Narcotics and Law Enforcement Affairs, 7 May 2004), available at www.state.gov/g/inl/rls/fs/20280pf.htm.

62. UN Charter, arts. 41 and 42, respectively.

63. *9/11 Commission Report,* pp. 365–67.

64. "PSI membership should be open to non-NATO countries. Russia and China should be encouraged to participate." Ibid., p. 381.

65. Historic examples of such pairing are: UNSCR 661, 665 (1990) sanctions against Iraq after its invasion of Kuwait; UNSCR 713 (1991), p. 757 (1992) weapons against FRY after fighting began. It is a matter of debate whether separate UNSCR authority is required to implement an embargo with military force, or whether MIO authorization should be implied by the embargo authorization. See Richard Zeigler, "Ubi Sumus? Quo Vadimus? Charting the Course of Maritime Intercept Operations," *Naval Law Review* 43 (1996), pp. 27–31, and Jane G. Dalton, "The Influence of Law on Seapower in Desert Shield/Desert Storm," *Naval Law Review* 41 (1993), pp. 34–45.

66. UNSCR 1540, para. 1, available at www.un.org/Docs/sc/unsc_resolutions04.html and www.state.gov/p/io/rls/fs/2004/31963pf.htm.

67. Representatives who spoke in favor of UNSCR 1540 after the unanimous vote were: Algeria, Brazil, Chile, China, France, Germany, Pakistan, Philippines, Romania, the Russian Federation, Spain, the United Kingdom, and the United States. Six whose rationales included closing a "gap" in international law were: cosponsor France, Pakistan, Chile, Spain (which used the phrase "legal vacuum"), Romania, and the Philippines.

68. UNSCR 1540, para. 3(c).

69. Ibid., quoting paras. 2, 3.

70. Statement of Interdiction Principles, Interdiction Principle 4.

71. The North Atlantic Treaty, the Inter-American Treaty of Reciprocal Assistance (Rio Pact), and the Security Treaty between the United

States and Japan all incorporate Article 51 by reference.

72. Thomas A. Bailey, *Diplomatic History of the United States*, 3rd ed. (New York: Appleton-Century-Crofts, 1946), pp. 204–207.

73. Ziegler, "Ubi Sumus? Quo Vadimus?" p. 19.

74. The facts of *Caroline* and its precedential value on this point are noted by Roberts, "The Counterproliferation Self-Help Paradigm," p. 483 notes 107–108, and discussed in Yoram Dinstein, *War, Aggression and Self-Defense,* 3rd ed. (Cambridge, U.K.: Cambridge Univ. Press, 2001), pp. 218–19.

75. The United States reported the matter to the Security Council on 22 October 1962: "The Council met even before the Organ of Consultation under the Rio Treaty adopted its resolution of October 23rd and before the proclamation of defensive quarantine was issued or carried into effect." Leonard Meeker, "Defensive Quarantine and the Law," *American Journal of International Law* 57 (1963), pp. 515–24, esp. 522.

76. Ibid.

77. See ibid.

78. Ibid.

79. U.S. President, Proclamation 3504, 23 October 1962, 27 *Federal Register* 10401, reprinted in *American Journal of International Law* 57 (1963), p. 512.

80. Specifically Articles 1(1) and 2(4).

81. *Annotated Supplement,* art 4.3.2; George P. Politakis, *Modern Aspects of the Laws of Naval Warfare and Maritime Neutrality* (New York: Columbia Univ. Press, 1998), pp. 151–52; Dinstein, *War, Aggression and Self-Defense,* p. 169. For a contrary view see Wright Quincy, "The Cuban Quarantine," *American Journal of International Law* 57 (1963), pp. 546–65.

82. "IDF Seizes PA Weapons Ship," www.us-israel.org/jsource/Peace/paship.html.

83. Both incidents were reported by Intellibridge.com, 18 September 2003.

84. Among these examples are the *Essex* case in 1805, the *Chesapeake* Affair of 1807, and the *Trent* Affair of 1861. See Bailey, *Diplomatic History of the United States,* chaps. 8–9, 21.

85. Gerald McGinley, "The Achille Lauro Case," *Legal Responses to International Terrorism: U.S. Procedural Aspects,* ed. M. Cherif Bassiouni (Dordrecht, Neth.: Nijhoff, 1988), pp. 323–25, 351–53.

86. For discussion, see Timothy L. H. McCormack, *Self-Defense in International Law: The Israeli Raid on the Iraqi Nuclear Reactor* (New York: St. Martin's, 1996).

87. Chairman of the Joint Chiefs of Staff Instruction 3121.01B of 13 June 2005 provides the standing guidance on self-defense, including national self-defense, which may be justified in response to a hostile act or intent toward the United States. Enclosure A defines "national self-defense" in paragraphs 5a, 5b, 5f–5h, and appendix A.

88. UNCLOS, art. 111, codifies the doctrine of hot pursuit by the coastal nation.

89. This specifically includes artificial islands, installations and structures with economic purposes, scientific research, and environmental protection within the EEZ. See UNCLOS, arts. 56, 58, and 60, also *Annotated Supplement,* art 2.4.2.

90. The categories are: piracy, slave trade, unauthorized broadcasting, without nationality, deception regarding nationality (when true nationality is the same as the warship's), and illegal narcotics trafficking.

91. See "Chronological List of UNCLOS Ratifiers," 16 January 2004, www.un.org/Depts/los. The United States has not ratified but follows UNCLOS as a matter of policy.

92. Compare tables 2 and 3 and their accompanying discussion with UNCLOS support by 145 countries.

93. Donald A. Petrie, *The Prize Game: Lawful Looting on the High Seas in the Days of Fighting Sail* (Annapolis, Md.: Naval Institute Press, 1999), pp. 68–82.

94. 18 USC 1651. Congress has made the Coast Guard the lead maritime agency in the enforcement of customs laws and created specific statutory authority for interdiction to accomplish that mission both "on the high seas and waters subject to the jurisdiction of the United States" (14 USC 20). This separation by the United States of maritime law enforcement from the naval service is unique. Many states, such as Australia, have made law enforcement a naval mission. Others, like Chile, have a law-enforcement specialization

within the naval service. International law considers high-seas interdiction for law enforcement a task of warships; U.S. Coast Guard are "warships" under international law. See UNCLOS, art. 29.

95. Four UNCLOS exception categories are rooted in the historical struggles against piracy, the slave and opium trades, and illegal broadcasting in ways that illustrate this process. See Suzanne Miers, *Britain and the Ending of the Slave Trade* (New York: Africana, 1975), pp. 3–20, 315–19; "1958 Convention on the High Seas," art. 22, reprinted in Burdick Brittin and Liselotte Watson, *International Law for Seagoing Officers,* 3rd ed. (Annapolis, Md.: Naval Institute Press, 1973); and *Annotated Supplement,* note 38.

INDIA IN THE INDIAN OCEAN

Donald L. Berlin

One of the key milestones in world history has been the rise to prominence of new and influential states in world affairs. The recent trajectories of China and India suggest strongly that these states will play a more powerful role in the world in the coming decades.[1] One recent analysis, for example, judges that "the likely emergence of China and India . . . as new global players—similar to the advent of a united Germany in the 19th century and a powerful United States in the early 20th century—will transform the geopolitical landscape, with impacts potentially as dramatic as those in the two previous centuries."[2]

India's rise, of course, has been heralded before—perhaps prematurely. However, its ascent now seems assured in light of changes in India's economic and political mind-set, especially the advent of better economic policies and a diplomacy emphasizing realism. More fundamentally, India's continued economic rise also is favored by the scale and intensity of globalization in the contemporary world.

India also is no longer geopolitically contained in South Asia, as it was in the Cold War, when its alignment with the Soviet Union caused the United States and China, with the help of Pakistan, to contain India. Finally, the sea change in Indian-U.S. relations, especially since 9/11, has made it easier for India to enter into close political and security cooperation with America's friends and allies in the Asia-Pacific.[3]

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Much of the literature on India has focused on its recent economic vitality, especially its highly successful knowledge-based industrial sector. The nature and implications of India's strategic goals and behavior have received somewhat less attention.[4] Those implications, however, will be felt globally—at the United Nations, in places as distant as Europe and Latin America, and within international economic institutions. It also will be manifest on the continent of Asia, from Afghanistan through Central Asia to Japan. Finally, and most of all, the rise of India will have consequences in the broad belt of nations from South Africa to Australia that constitute the Indian Ocean littoral and region.

For India, this maritime and southward focus is not entirely new.[5] However, it has been increasing due to New Delhi's embrace of globalization and of the global marketplace, the advent of a new Indian self-confidence emphasizing security activism over continental self-defense, and the waning of the Pakistan problem as India's relative power has increased. Other, older, factors influencing this trend are similar to those that once conditioned British thinking about the defense of India: the natural protection afforded the subcontinent by the Himalayan mountain chain, and the problem confronting most would-be invaders of long lines of communications—the latter a factor that certainly impeded Japan's advance toward India in World War II.[6]

The December 2004 tsunami that devastated many of the coasts of the Indian Ocean (IO) turned the world's attention to a geographic zone that New Delhi increasingly sees as critically important and strategically challenging.[7] The publication of India's new *Maritime Doctrine* is quite explicit on the central status of the Indian Ocean in Indian strategic thought and on India's determination to constitute the most important influence in the region as a whole. The appearance of this official paper complements a variety of actions by India that underscore New Delhi's ambitions and intent in the region.[8]

WHY THE OCEAN IS INDIAN

Why does New Delhi care about the Indian Ocean region? India is, after all, a large nation, a subcontinent in itself. Why is it driven to exercise itself in a larger arena, one larger in fact than the South Asian subregion?

The reality is that while India is a "continental" power, it occupies a central position in the IO region, a fact that will exercise an increasingly profound influence on—indeed almost determine—India's security environment. Writing in the 1940s, K. M. Pannikar argued that "while to other countries the Indian Ocean is only one of the important oceanic areas, to India it is a vital sea. Her lifelines are

concentrated in that area, her freedom is dependent on the freedom of that water surface. No industrial development, no commercial growth, no stable political structure is possible for her unless her shores are protected."[9] This was also emphasized in the most recent *Annual Report* of India's Defence Ministry, which noted that "India is strategically located vis-à-vis both continental Asia as well as the Indian Ocean Region."[10]

From New Delhi's perspective, key security considerations include the accessibility of the Indian Ocean to the fleets of the world's most powerful states; the large Islamic populations on the shores of the ocean and in its hinterland; the oil wealth of the Persian Gulf; the proliferation of conventional military power and nuclear weapons among the region's states; the importance of key straits for India's maritime security; and the historical tendency of continental Asian peoples or powers (the Indo-Aryans, the Mongols, Russia) to spill periodically out of Inner Asia in the direction of the Indian Ocean.[11] The position of India in this environment has sometimes been compared to that of Italy in the Mediterranean, only on an immense scale. To this list may be added the general consideration that, in the words of India's navy chief, Indians "live in uncertain times and in a rough neighborhood. A scan of the littoral shows that, with the exception of a few countries, all others are afflicted with one or more of the ailments of poverty, backwardness, fundamentalism, terrorism or internal insurgency. A number of territorial and maritime disputes linger on. . . . Most of the conflicts since the end of the Cold War have also taken place in or around the [Indian Ocean region]."[12]

Confronted by this environment, India—like other states that are geographically large and also ambitious—believes that its security will be best guaranteed by enlarging its security perimeter and, specifically, achieving a position of influence in the larger region that encompasses the Indian Ocean. As one prominent American scholar recently noted, "Especially powerful states are strongly inclined to seek regional hegemony."[13]

Unsurprisingly, New Delhi regards the Indian Ocean as its backyard and deems it both natural and desirable that India function as, eventually, the leader and the predominant influence in this region—the world's only region and ocean named after a single state. This is what the United States set out to do in North America and the Western Hemisphere at an early stage in America's "rise to power": "American foreign policy throughout the nineteenth century had one overarching goal: achieving hegemony in the Western Hemisphere."[14] Similarly, in the expansive view of many Indians, India's security perimeter should extend from the Strait of Malacca to the Strait of Hormuz and from the coast of Africa to the western shores of Australia. For some Indians, the emphasis is on the northern Indian Ocean, but for others the realm includes even the "Indian Ocean" coast of Antarctica.[15]

In this same vein, one—probably not atypical—Indian scholar judges that "a rising India will aspire to become the regional hegemon of South Asia and the Indian Ocean Region, and an extraregional power in the Middle East, Central Asia and Southeast Asia. *Ceteris paribus*, a rising India will try to establish regional hegemony just like all the other rising powers have since Napoleonic times, with the long term goal of achieving great power status on an Asian and perhaps even global scale."[16]

India's strategic elite, moreover, in some ways regards the nation as the heir of the British Raj, the power and influence of which in the nineteenth century often extended to the distant shores of the Indian Ocean, the "British Lake." Writing about the hill station and summer capital of Simla in that period, historian James Morris has observed:

> The world recognized that India was a great Power in itself. It was an Empire of its own, active and passive. Most of the bigger nations had their representatives at Simla,

> and the little hill station on the ridge cast its summer shadow wide. Its writ ran to the Red Sea one way, the frontiers of Siam on the other. Aden, Perim, Socotra, Burma, Somaliland were all governed from India. Indian currency was the legal tender of Zanzibar and British East Africa; Indian mints coined the dollars of Singapore and Hong Kong.
>
> It was from Simla, in the summer time, that the British supervised the eastern half of their Empire. Upon the power and wealth of India depended the security of the eastern trade, of Australia and New Zealand, of the great commercial enterprises of the Far East. The strength of India, so many strategists thought, alone prevented Russia from spilling through the Himalayan passes into Southeast Asia, and the preoccupations of generals in Simla were important to the whole world.[17]

Historian Ashley Jackson is even more explicit in highlighting the Indian dimension in all of this. He writes that

> India under the Raj was a subimperial force autonomous of London whose weight was felt from the Swahili coast to the Persian Gulf and eastward to the Straits of Malacca. There was, in fact, an "Empire of the Raj" until at least the First World War, in which Indian foreign policy interests were powerfully expressed and represented in the Gulf and on the Arabian and Swahili coasts, often in conflict with other British imperial interests.[18]

Perhaps unsurprisingly, this imperial "Indian" posture in the Indian Ocean reflects the strategic vision of many influential Indians today.[19]

A second motive for India, and one obviously related to the foregoing, stems from anxiety about the role, or potential role, of external powers in the Indian Ocean. The late prime minister Jawaharlal Nehru summed up India's concerns in this regard: "History has shown that whatever power controls the Indian Ocean has, in the first instance, India's sea borne trade at her mercy and, in the second, India's very independence itself." This remains India's view. The *Indian Maritime Doctrine* asserts: "All major powers of this century will seek a toehold in the Indian Ocean Region. Thus, Japan, the EU, and China, and a reinvigorated Russia can be expected to show presence in these waters either independently or through politico-security arrangements." There is, moreover, "an increasing tendency of extra regional powers of military intervention in [IO] littoral countries to contain what they see as a conflict situation."

India's concern about external powers in the Indian Ocean mainly relates to China and the United States. The Sino-Indian relationship has improved since India's war with China in 1962 and the Indian prime minister's 1998 letter to the U.S. president justifying India's nuclear tests in terms of the Chinese "threat."[20] Most recently, the Chinese premier paid a state visit to India in April 2005, during which the two sides agreed to, among various other steps, the establishment

of a "Strategic and Cooperative Partnership for Peace and Prosperity." Chinese and Indian naval units also exercised together for the first time in November 2005.

However, and notwithstanding the probably episodic progress registered of late, China and India likely will remain long-term rivals, vying for the same strategic space in Asia. Beijing, according to former Indian external affairs minister Jaswant Singh, is the "principal variable in the calculus of Indian foreign and defense policy."[21] In the words of one Indian scholar, China's "rise will increasingly challenge Asian and global security. Just as India bore the brunt of the rise of international terrorism because of its geographical location, it will be frontally affected by the growing power of a next door . . . empire practicing classical balance-of-power politics."[22]

Another observer has recently judged that "there is no sign of China giving up its 'contain India' strategy which takes several forms: an unresolved territorial dispute; arms sales to and military alliances with 'India-wary countries' (Pakistan, Bangladesh, Burma and now Nepal); nuclear and missile proliferation in India's neighborhood (Pakistan, Iran and Saudi Arabia); and opposition to India's membership in global and regional organizations."[23] Most recently, India's defense minister said in September 2005 that the Sino-Indian "situation *has not improved*. Massive preparations and deployments by China in the Tibetan and Sikkim border areas near Arunachal Pradesh and the Aksai Chin . . . has created an alarming situation."[24]

Narrowing its focus to the IO, India cannot help but be wary of the growing capability of China's navy and of Beijing's growing maritime presence.[25] In the Bay of Bengal and Arabian Sea, especially, New Delhi is sensitive to a variety of Chinese naval or maritime activities that observers have characterized collectively as a "string of pearls" strategy or a "preparation of the battlefield."[26] For Beijing, this process has entailed achieving the capability, and thereby the option, to deploy or station naval power in this region in the future. A key focus in this connection is Burma (Myanmar), where Chinese engineers and military personnel have long been engaged in airfield, road, railroad, pipeline, and port construction aimed at better connecting China with the Indian Ocean, both by sea and directly overland.

Some of this activity, moreover, spills over onto Burma's offshore islands, including St. Matthews, near the mouth of the Malacca Strait, and the Coco Islands (Indian until their transfer to Burma in the 1950s), in the Bay of Bengal. On the latter, China is suspected of maintaining a communications monitoring facility that collects intelligence on Indian naval operations and missile testing. In addition to this "presence" in Burma, China is pursuing a variety of infrastructure links with Southeast Asia through the Greater Mekong Subregion program and is building container ports in Bangladesh at Chittagong, and in Sri

Lanka at Hambantota—directly astride the main east-west shipping route across the Indian Ocean. Elsewhere, and perhaps most ominously for India, China is constructing a large new naval base for Pakistan at Gwadar.[27]

India also remains somewhat nervous about the large U.S. military presence in the Indian Ocean to India's west—in the Arabian Sea and the Persian Gulf. India's *Maritime Doctrine* observes that "the unfolding events consequent to the war in Afghanistan has brought the threats emanating on our Western shores into sharper focus. The growing US and western presence and deployment of naval forces, the battle for oil dominance and its control in the littoral and hinterland . . . are factors that are likely to have a long-term impact on the overall security environment in the [Indian Ocean region]." In similar fashion, the *2004–2005 Annual Report* of India's Defense Ministry states, "The Indian Navy maintained its personnel and equipment in a high state of combat preparedness due to the continued presence of multinational maritime forces in the Indian Ocean Region resulting in a fast pace of activities in the area."[28]

On the other hand, the continuing development of ties with the United States lately seems to have moderated Indian sensitivity to the U.S. presence in the Arabian Sea. In September and October 2005, for example, the two sides conducted their first naval maneuvers—MALABAR 05—employing U.S. and Indian aircraft carriers, and this occurred in the Arabian Sea. Many Indians, moreover, also recognize that because of Washington's desire to draw closer to India in response to overlapping "China" and "terrorism" concerns, the increased American role in the Indian Ocean region lately has increased India's "strategic space" and political-military relevance. Any decrease in the level of U.S. involvement in the region also would increase pressure here from China. Wariness about China also is a factor in recent Indian efforts to increase Japan's profile in the IO. This was most recently made manifest by the March 2005 Indo-Japanese agreement to develop jointly natural gas resources in the strategically sensitive Andaman Sea.[29] In any case, as one retired Indian diplomat recently commented, "asking outside powers to stay away is a pipe dream."

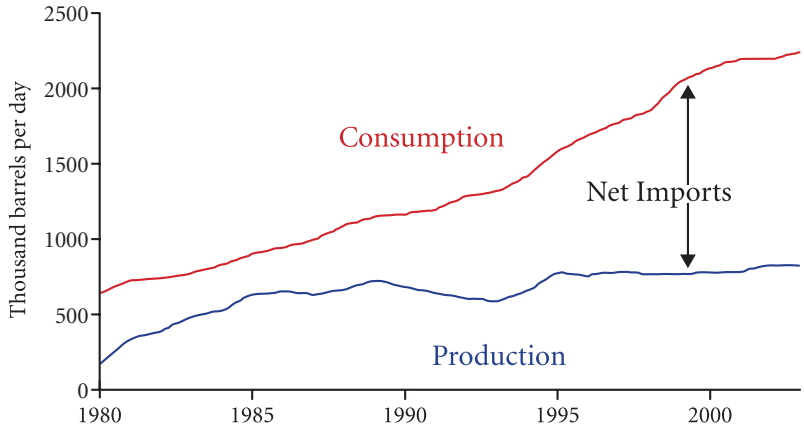
Of particular note, this last realization has led New Delhi to discard its traditional rhetoric about the Indian Ocean as a "zone of peace." That language, along with "nonalignment" and a diplomatic approach marked by preachiness and a "moral" dimension, were the policies of an India that was weak. That India now belongs to history: "India has moved from its past emphasis on the power of the argument to a new stress on the argument of power."[30]

A third factor animating Indian interest in the Indian Ocean region is anxiety about the threat posed by Pakistan and, more broadly, Islam in a region that is home to much of the world's Muslim population. Formerly this may not have been an important consideration. Today, however, Islamic civilization often

finds itself at odds with the West and with largely Hindu India, and this conflict frequently will play out in the Indian Ocean region. India's *Maritime Doctrine,* for example, observed "the growing assertion of fundamentalist militancy fueled by jihadi fervor are factors that are likely to have a long-term impact on the overall security environment in the [Indian Ocean region]." In a similar vein, India's naval chief recently declared that the "epicenter of world terrorism lies in our [India's] immediate neighborhood."[31] India, however, will approach these matters pragmatically, as illustrated by New Delhi's close ties with Iran.

A fourth motive for India in the Indian Ocean is energy. As the fourth-largest economy (in purchasing-power-parity terms) in the world, and one almost 70 percent dependent on foreign oil (the figure is expected to rise to 85 percent by 2020), India has an oil stake in the region that is significant and growing (see figure). Some Indian security analysts foresee energy security as India's primary strategic concern in the next twenty-five years and believe it must place itself on a virtual wartime footing to address it. India must protect its offshore oil and gas fields, ongoing deep-sea oil drilling projects in its vast exclusive economic zone, and an extensive infrastructure of shore and offshore oil and gas wells, pumping stations and telemetry posts, ports and pipeline grids, and refineries. Additionally, Indian public and private-sector oil companies have invested several billion dollars in recent years in oil concessions in foreign countries, many of them in the region, including Sudan, Yemen, Iran, Iraq, and Burma. These investments are perceived to need military protection.

INDIAN OIL PRODUCTION AND CONSUMPTION, 1980–2003



Source: U.S. Energy Dept., "International Petroleum Information," Energy Information Administration, www.eia.doe.gov/emeu/cabs/india.htm.

The foregoing considerations are the primary ones for India in the region. However, there also are important commercial reasons for New Delhi to pursue a robust Indian Ocean strategy. In the Indian view, "the maritime arc from the Gulf through the Straits of Malacca to the Sea of Japan is the equivalent of the New Silk Route, and . . . total trade on this arc is U.S. $1,800 billion." In addition, large numbers of overseas Indians live in the

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region—3.5 million in the Gulf and Arab countries; they, and their remittances, constitute a factor in Indian security thinking.[32]

In light of these interests, India is pursuing a variety of policies aimed at improving its strategic situation and at ensuring that its fears in the theater are not realized. To these ends, New Delhi is forging a web of partnerships with certain littoral states and major external powers, according to India's foreign secretary, to increase Indian influence in the region, acquire "more strategic space" and "strategic autonomy," and create a safety cushion for itself.[33] One observer states: "To spread its leverage, from Iran . . . to Myanmar and Vietnam, India is mixing innovative diplomatic cocktails that blend trade agreements, direct investment, military exercises, aid funds, energy cooperation and infrastructure-building."[34] In addition, India is developing more capable naval and air forces, and it is utilizing these forces increasingly to shape India's strategic environment.

THE U.S. RELATIONSHIP

India's pursuit of closer ties with its neighbors in the region and with key external actors in the region is not haphazard. Rather, and as one would expect, India is systematically targeting states that will bring India specific and tangible security and economic benefits.

The relationship with the United States is intended to enhance and magnify India's own power, and it constitutes perhaps the most important measure that is intended, inter alia, to promote the realization of India's agenda in the Indian Ocean. The United States, of course, is the key external actor in the IO and has a more significant military presence there—in the Persian Gulf and Arabian Sea, Pakistan, east and northeast Africa, Singapore, and Diego Garcia—than it did even a few years ago. Thus, America's raw power in the region has made it imperative that New Delhi, if it is to achieve its own regional goals, court the United States—at least for some time. The U.S. connection, of course, also promotes Indian goals unrelated to the Indian Ocean.

This developing relationship has been abetted by common concerns about international terrorism, religious extremism, and the rise of China. It also is a fundamental departure from the past pattern of Indian foreign policy. Since President William Clinton's visit to India in 2000 (the first visit by a president in decades) and, more recently, the realization by the George W. Bush administration of the importance of a rising India, as well as the 11 September 2001 terrorist attack on the United States, the two nations have embarked on a broad program of cooperation in a variety of fields, especially security. This cooperation has included Indian naval protection of U.S. shipping in the Malacca Strait in 2002, a close partnership in responding to the 2004 tsunami, combined military exercises, U.S. warship visits to India, a dialogue on missile defense,

American approval of India's acquisition of Israeli-built Phalcon airborne warning and control systems, and an offer to sell India a variety of military hardware, including fighter aircraft and P-3 maritime patrol planes.

Indo-U.S. ties recently have advanced with particular speed. In March 2005, notably, an American government spokesman stated that Washington's "goal is to help India become a major world power in the 21st century. We understand fully the implications, including military implications, of that statement."[35] This declaration was followed, in June 2005, by a bilateral accord, a ten-year "New Framework for the U.S.-India Defense Relationship," that strongly implies increasing levels of cooperation in defense trade, including coproduction of military equipment, cooperation on missile defense, the lifting of U.S. export controls on many sensitive military technologies, and joint monitoring and protection of critical sea lanes.[36]

George Bush hosted a summit with Prime Minister Manmohan Singh in July 2005, promising to strive for full civil nuclear cooperation with India. In effect, the president recognized India as a de facto, if not de jure, nuclear-weapon state and placed New Delhi on the same platform as other nuclear-weapon states. India, reciprocating, agreed to assume the same responsibilities and practices as any other country with advanced nuclear technology. These include separating military and civilian nuclear reactors and placing all civilian nuclear facilities under International Atomic Energy Agency safeguards; implementing the Additional Protocol (which supplements the foregoing safeguards) with respect to civilian nuclear facilities; continuing India's unilateral moratorium on nuclear testing; working with the United States for the implementation of a multilateral Fissile Material Cut-Off Treaty; placing sensitive goods and technologies under export controls; and adhering to the Missile Technology Control Regime and to Nuclear Suppliers Group guidelines. The American and Indian delegations also agreed to further measures to combat terrorism and deepen bilateral economic relations through greater trade, investment, and technology collaboration. The United States and India also signed a Science and Technology Framework Agreement and agreed to build closer ties in space exploration, satellite navigation, and other areas in the commercial space arena.

Notwithstanding this dramatic advance in relations, which—assuming eventual congressional approval of implementing legislation—establishes a very close United States–India strategic relationship, some bilateral problems will persist. One is Pakistan.

The U.S. administration's policy now is to expand relations with both India and Pakistan but to do so along distinct tracks and in differentiated ways, one matching their respective geostrategic weights. From New Delhi's perspective, this is a distinct advance. Nonetheless, there will remain a residual Indian suspicion that any American efforts to assist Pakistan to become a successful

state will represent means, potential or actual, of limiting Indian power in South Asia and the Indian Ocean.[37] Such concerns have been diminishing; nonetheless, New Delhi will try to weaken or modify U.S. policies intended to strengthen United States–Pakistan ties, including continuing plans to sell the latter a large package of military equipment.[38]

Other lingering problems in Indo-U.S. relations include New Delhi's close ties to Iran, apparently continuing Indian reservations about the large U.S. military presence in Southwest Asia and the Persian Gulf, India's pronounced emphasis on preserving its "strategic autonomy," and a persistent disinclination on India's part to ally itself with American purposes. In the latter regard, India, like China, Russia, and the European Union, will remain uncomfortable with a unipolar world and will do what it can to promote a multipolar order—in which it is one of the poles.[39] New Delhi, therefore, will need to proceed adeptly to ensure that ties with the United States continue to develop and expand in such a way that its own policies and ambitions in the Indian Ocean are buttressed and advanced.[40]

TOWARD THE ARABIAN SEAS AND THE AFRICAN LITTORAL

In addition to the U.S. relationship, New Delhi is seeking to increase India's profile almost omnidirectionally from India's shores. These efforts are intended to advance broad economic or security interests, including the "security" of the various "gates" to the Indian Ocean, and to cultivate ties with the nations adjacent to these choke points: the Strait of Hormuz (Iran), the Bab el Mandeb (Djibouti and Eritrea), the Cape of Good Hope and the Mozambique Channel (South Africa and Mozambique), and the Singapore and Malacca straits (Singapore and Thailand), among others. Certain Indian strategic and diplomatic initiatives also are aimed at gaining partners or client states once having strong ties with colonial or precolonial India.[41]

As noted above, India's *Maritime Doctrine* underscores the importance of the Arabian Sea region in the Indian view and highlights a growing attentiveness to challenges and opportunities arising there. Efforts by New Delhi to advance the Indian cause to its "near West" and in the "Arabian Seas" subregion have focused mainly on Pakistan, Iran, Israel, and several African states.

Indo-Pakistani relations have improved since early 2003, when Prime Minister Atal Bihari Vajpayee extended a "hand of friendship" to Pakistan; in January 2004, the two sides launched a peace process. India's aims in the current diplomatic interchange are to lessen the likelihood of an Indo-Pakistani military conflict, reduce pressure in Kashmir, and—especially—increase India's freedom to pursue great-power status and to maneuver elsewhere in South Asia, the region, and the world.

India does not expect an end, for a very long time at best, to difficulties in its relations with Pakistan. It is hoping, however, to manipulate the relationship in a manner that will leave India stronger and Pakistan weaker at the end of the day. As India is inherently the stronger party, any "closer" relationship between India and Pakistan will, in the long run, increase Indian leverage with respect to Pakistan and decrease Islamabad's ability to disregard Indian interests. As one Indian observer recently said, "India's long-term interest lies in changing Pakistan's behavior."[42] The termination of support for perceived anti-Indian terrorism and more restraint in Islamabad's embrace of China, and eventually even the United States, are among India's goals.

Elsewhere in the Arabian Sea, India already has enjoyed considerable success in wooing Iran. That state, with its Islamic government, seems a strange partner for democratic India, but the two lands have long influenced each other in culture, language, and other fields, especially when the Mughals ruled India. India and Iran also shared a border until 1947. Iran sees India as a strong partner that will help Tehran avoid strategic isolation. In addition, economic cooperation with New Delhi (and Beijing) dovetails with Iran's own policy of shifting its oil and gas trade to the Asian region so as to reduce its market dependence on the West. For India, the relationship is part of a broader long-term effort, involving various diplomatic and other measures in Afghanistan and Central Asia, to encircle and contain Pakistan.

Obviously, New Delhi also regards the Iranian connection as helping with its own energy needs. Deepening ties have been reflected in the growth of trade and particularly in a January 2005 deal with the National Iranian Oil Company to import five million tons of liquefied gas annually for twenty-five years. An Indian company will get a 20 percent share in the development of Iran's biggest onshore oil field, Yadavaran, which is operated by China's state oil company, as well as 100 percent rights in the Juefeir oil field. India and Iran also have been cooperating on the North-South Transportation Corridor, a project to link Mumbai—via Bandar Abbas—with Europe. There also is discussion of the development of a land corridor that would allow goods to move from India's Punjab through Pakistan, Iran, and Azerbaijan, then on to Europe.[43] India and Iran also have been pursuing an ambitious project to build a 2,700-kilometer pipeline from Iran through Pakistan to India that would allow New Delhi to import liquefied natural gas. If finalized soon, the pipeline would be operational by 2010.[44] (The United States has warned India and Pakistan that the project could violate the Iran and Libya Sanctions Act of 1996.)[45]

Security ties with Iran have been advancing as well. The parties have forged an accord that gives Iran some access to Indian military technology. There are reports—officially denied—that it also gives India access to Iranian military

bases in the event of war with Pakistan. Other recent developments include the first Indo-Iranian combined naval exercises and an Indian effort to upgrade the Iranian port of Chahbahar, a move that could foreshadow its use eventually by the Indian Navy. This latter initiative presumably also responds to China's development, noted above, of a Pakistani port and naval base at Gwadar, a hundred miles east of Chahbahar.[46]

The Indo-Iranian relationship is not without problems. Iran, of course, has never been happy about India's close ties with Israel. Most recently, Iran also was angered by a 24 September 2005 vote cast by India in support of an International Atomic Energy Agency (IAEA) resolution that potentially refers the Iranian nuclear weapons issue to the United Nations Security Council. The IAEA vote—passed despite one "no" vote and abstentions from Russia, China, and Pakistan, among others—follows several earlier hostile comments from India on the Iranian nuclear issue, including one calling on Tehran to "honor the obligations and agreements to which it is a party."[47]

The Indian vote was a blow to New Delhi's relations with Tehran. However, while it may augur a more circumscribed future for this connection, it is more likely that the long-term effects of India's vote will be limited. The bilateral relationship is too important for both parties, and New Delhi and Tehran will do their best to ensure that ties remain on an even keel.[48]

India, however, recently has tried to reduce its vulnerabilities in the oil-rich but unstable Persian Gulf by moving beyond Iran and attempting to cultivate a broader and more diverse set of relationships there. The most significant recent development has been the new warmth in New Delhi's ties with Saudi Arabia, Iran's traditional foe in the Gulf and India's largest source of petroleum imports. Reflecting the change in the temper of Indo-Saudi ties, the new Saudi king was scheduled to be the main guest in New Delhi at the January 2006 Republic Day celebration. This is a measure of the importance India attaches to its developing connection to Riyadh and an initiative undoubtedly noticed by the leadership in Iran.

Moving farther westward, another key nexus is with Israel. While formal diplomatic ties date only from 1992, the two states have had important connections at least since the early 1980s. In recent years, numerous senior Israeli and Indian officials have exchanged visits, and military relations have become so close as to be tantamount to a military alliance. In 2003, following Pakistan's shoot-down of an "Indian" unmanned aircraft manufactured (and perhaps operated) by Israel, President Pervez Musharraf complained "that the cooperation between India and Israel not only relates to Pakistan, but the Middle East region as a whole." Israel is now India's second-largest arms supplier after Russia, and India is Israel's largest defense market and second-largest Asian trading partner (after Japan).[49] According to one estimate, India will purchase some fifteen billion dollars'

worth of Israeli arms over the next few years.[50] The two sides recently agreed to a combined air exercise pitting Israeli F-16s against Indian Su-30MKIs (an advanced derivative of the Soviet Su-27 Flanker).[51]

Israel possesses an Indian Ocean footprint that apparently encompasses the Bab-el-Mandeb, the southern entrance to the Red Sea and a key choke point, and probably points beyond.[52] India's aim here is to link itself with another powerful state whose sphere thus intersects its own. At the same time, New Delhi also seeks the advanced military equipment, training, and other help—probably including technology and advice on nuclear weapons and missiles—that Israel can sell or provide. The official publication of the Chinese Ministry of Foreign Affairs, *World Affairs,* claims that India is acquiring technology from Israel for its Agni-III missile as well as for a miniature nuclear warhead—which India would need were it to deploy a sea-based (i.e., Indian Ocean–based) strategic nuclear deterrent.

Elsewhere in the western Indian Ocean, India forged its first military relationship with a Gulf state in 2002 when New Delhi and Oman agreed to hold regular combined exercises and cooperate in training and defense production. They also initiated a regular strategic dialogue and, in 2003, signed a defense cooperation pact. The pact provides for the export and import of weapons, military training, and coordination of security-related issues. India and the Gulf Cooperation Council (GCC) also have signed a Framework Agreement for Economic Cooperation and have begun negotiations on a free trade pact. New Delhi's connections with Oman and the five other GCC states, however, still are relatively undeveloped. As one Indian observer noted recently, "With our growing dependence on imported oil and gas, stability in this region is crucial for our welfare and well-being. Around 3.7 million Indian nationals live in the six GCC countries. They remit around $8 billion annually. . . . The time has, perhaps, come for us to fashion a new and more proactive 'Look West' policy to deal with the challenges that we now face to our west."[53] A month earlier, India's commerce minister offered the same view: "India has successfully pursued a 'look-east' policy to come closer to countries in Southeast Asia. We must similarly come closer to our western neighbors in the Gulf."[54]

Farther afield, India's ties with the states of Africa's Indian Ocean coast still are limited but are expanding. Reminiscent of India's precolonial relationship with coastal Africa, New Delhi's key connections today are with some of the states in the Horn of Africa, South Africa, Tanzania, Mozambique, and especially the so-called African Islands, including Mauritius and the Seychelles. In the Horn, India is providing the force commander and the largest contingent of troops in the UN mission in Ethiopia and Eritrea. India also just concluded significant naval maneuvers in the Gulf of Aden, featuring drills with allied Task Force Horn of Africa units and a port call in Djibouti.

At the other end of the continent, a noteworthy connection is developing with South Africa, through bilateral arrangements and a trilateral (India–Brazil–South Africa) relationship. Developments in the security arena are striking and were underscored in late 2004 when the Indian Air Force conducted a combined air-defense exercise with its South African counterpart (and with participating American, German, and British elements)—the first combined air exercise ever conducted by India on the African continent. The participating Indian Mirage 2000 fighters deployed from north central India and flew—with help from newly acquired Il-78 aerial tankers—to South Africa via Mauritius.[55] India and South Africa conducted combined naval drills off the African coast even more recently, in June 2005.

A visit by India's president to Tanzania in 2004 led to an agreement for increased training of Tanzanian military personnel in India and more frequent calls by Indian warships at Tanzanian ports.[56] Farther south, Mozambique and India recently agreed to continue the joint patrols off the Mozambican coast begun during the African Union summit in Maputo in 2003. The governments also have begun to negotiate a defense agreement. New Delhi's links with the African Islands also are deepening. Since early 2003, India has been patrolling the exclusive economic zone of Mauritius, and it is negotiating a "comprehensive economic cooperation and partnership" agreement with what an Indian spokesperson calls this "gateway to the African continent."[57] In an April 2005 state visit, the Indian prime minister also reiterated India's commitment to "the defense, security and sovereignty of Mauritius." India also has initialed a memorandum of understanding with the Seychelles on defense cooperation: patrols of that nation's territorial waters, training of Seychelles military personnel, and—in early 2005—Indian donation of a patrol vessel to help with coastal defense. India, finally, has been very active in forging a close relationship with the Maldives, a connection undoubtedly reinforced by India's considerable material and other assistance in the aftermath of the December 2004 tsunami.

These island-nation initiatives were strengthened in September 2005 by the creation of a new defense ministry office headed by a two-star admiral charged with assisting such states. According to the Indian naval chief, these are "vital to India" and "friendly and well disposed," but their security remains fragile, and therefore India cannot afford to see any hostile or inimical power threaten them.[58]

IN THE BAY OF BENGAL AND "FURTHER INDIA"

Complementing its westward orientation, India also has been diligent in cultivating closer relations with a variety of states in the Bay of Bengal and in Southeast Asia, often under the aegis of New Delhi's "Look East" policy.[59] That approach, initiated in the early 1990s against the backdrop of a struggling Indian

economy and the sudden disappearance of the Cold War framework, has been a stunning diplomatic success. As a consequence, India's ties with most of the states of the Bay of Bengal and Southeast Asia, except possibly Bangladesh, are better than they were only a few years ago.

India has built a strong relationship with its immediate neighbor to the south, Sri Lanka. "India and Sri Lanka have forged new, close bonds. There is a new respect for India," according to one Sri Lankan observer.[60] This "respect," moreover, is sometimes reflected in reluctance in Colombo to challenge New Delhi, even on issues, such as the Sethusamudram Canal project, that could adversely affect important Sri Lankan interests. The Indo–Sri Lankan connection was solidified most recently by disaster relief in the aftermath of the 2004 tsunami, but a string of developments had already promoted close relations. A free trade agreement that came into force in 2000 has doubled bilateral commerce and increased significantly India's share of Sri Lanka's trade. In addition, the two neighbors are moving steadily toward a Comprehensive Economic Partnership Agreement (CEPA). A defense cooperation agreement will soon expand Indian training programs for Sri Lankan troops, strengthen intelligence sharing, supply defense equipment (including transport helicopters) to Colombo, and refit a Sri Lankan warship. These states' first combined military exercise, EKSATH, took place in December 2004 and involved the Indian Coast Guard and Sri Lankan Navy. (New Delhi, however, has apparently rejected a Sri Lankan request for combined naval patrols against the Tamil "Sea Tigers.")[61]

A memorandum provides for Indian help in reconstructing the vital Palaly airstrip on the Jaffna Peninsula in northern Sri Lanka. Colombo has rebuffed an Indian request that the field be reserved for use solely by Sri Lanka and India; however, taken in conjunction with a recent maritime surveillance pact, the accord could imply Indian utilization of that base eventually.[62] New Delhi also has agreed to build a modern highway between Trincomalee, a Sinhalese pocket in the Tamil north and east, and Anuradhapura, in the Sinhalese heartland. It will be named after former Indian prime minister Rajiv Gandhi, who was killed by a suicide bomber of the Liberation Tigers of Tamil Eelam (LTTE) in 1991. India likely also is contemplating the possibility of eventually using Trincomalee's legendary harbor. In a quiet deal in 2002, the Lanka Indian Oil Corporation, a wholly owned Indian government subsidiary in Sri Lanka, was granted a thirty-five-year lease of the China Bay tank farm at Trincomalee as part of its plan to develop petroleum storage there. Also suggestive of wider Indian aims is the possible construction of a Trincomalee offshoot of the proposed pipeline between the southern Indian cities of Chennai and Madurai and Sri Lanka's capital, Colombo.

Another of India's immediate neighbors is Bangladesh. The relationship has long been strained by such issues as illegal Bangladeshi migration, trade, and water use (notably New Delhi's "River-Linking Project"), but some improvement may be under way. Agreement by India and Bangladesh in January 2005 to move forward with an "Eastern Corridor Pipeline" to bring gas from Burmese fields through Bangladesh to India now appears to have been shelved. Notwithstanding this setback, Indian prime minister Manmohan Singh visited Dhaka in conjunction with the thirteenth summit of the South Asian Association for Regional Cooperation in November 2005 and has invited Bangladeshi prime minister Kaleda Zia to visit India. One Bangladesh newspaper observed that "an improvement in the bilateral ties is seemingly an important foreign policy . . . [goal] that New Delhi wishes to achieve. . . . If India could put confidence building measures in place with Pakistan, its nuclear rival, we see no reason why Bangladesh's outstanding problems with India cannot be put behind."[63]

The "Look East" policy also has produced gains with the Association of Southeast Asian Nations (ASEAN). India became a sectoral partner in 1991, a full dialogue partner in 1995, and a member of the ASEAN Regional Forum in 1996. In late 2004 India and ten ASEAN countries—meeting at the tenth summit in Vientiane—signed a historic pact for peace, progress, and shared prosperity. They also pledged to cooperate in fighting international terrorism and proliferation of weapons of mass destruction. The four-page accord and nine-page action plan envisage cooperation in multilateral fora, particularly the World Trade Organization; in addressing the challenges of economic, food,

human, and energy security; and in boosting trade, investment, tourism, culture, sports, and people-to-people contacts. The pact commits India to creating a free trade area by 2011 with Brunei, Indonesia, Malaysia, Thailand, and Singapore, and by 2016 with the rest of ASEAN—the Philippines, Cambodia, Laos, Burma, and Vietnam.

Within ASEAN, India has focused particularly on developing close ties with Burma, Singapore, and, most recently, Thailand. Progress with Burma has been significant since New Delhi began to engage that nation about a decade ago, partly from concern about Chinese influence there. The emphasis now, however, is not mainly defensive but reflects India's regional ambitions, desire to use Rangoon from which to compete with China farther afield in Southeast Asia (including the South China Sea), and interest in Burmese energy resources, as well as its need to consolidate control in its own remote northeastern provinces. Most recently, India's position in Burma was strengthened when strongman Khin Nyunt, known for pro-China inclinations, was deposed in October 2004 and placed under house arrest. Less than a week later, Than Shwe, head of Burma's ruling military junta, visited India and signed three agreements, including a "Memorandum of Understanding on Cooperation in the Field of Non-Traditional Security Issues." The general also assured New Delhi that Burma would not permit its territory to be used by any hostile element to harm Indian interests. Soon thereafter, India and Burma launched coordinated military operations against Manipuri and Naga rebels along the frontier.[64]

Indo-Burmese ties also are advanced by both countries' membership in the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC), the first setting in which two ASEAN members have come together with three countries in South Asia for economic cooperation. Significantly, neither China nor Pakistan is part of this grouping. These steps and others—resumption of arms shipments to Burma, New Delhi's acquisition of an equity stake in a natural gas field off Burma's coast, the proposed India-Burma Gas Pipeline, the reopening of the Indian and Burmese consulates in Mandalay and Kolkata, and a recent India-Burma naval exercise—all reflect a significant deepening in Indo-Burmese relations in recent years.

Burma ties as well into larger Indian agendas, to which eastward transportation is vital. New Delhi is building a road—the India-Myanmar-Thailand trilateral highway, a portion of the projected Asian Highway—connecting Calcutta via Burma with Bangkok. India also is building roads to connect Mizoram with Mandalay and has extended a fifty-six-million-dollar line of credit to Burma to modernize the Mandalay-Rangoon railroad.[65] New Delhi is likely also to carry out port and transportation improvements at the mouth of the Kaladan River (the Kaladan Multi-modal Transport Project) in western Burma, opening trade

opportunities with Burma and Thailand and expanding access to India's northeast. In addition, New Delhi has begun to study the feasibility of building a deep-water seaport at Dawei (Tavoy), on the Burmese coast, possibly allowing access from the Middle East, Europe, and Africa to East Asian markets without transiting the Malacca Straits. Taken together, these eastward transportation plans will give India an alternative route to the Malacca Straits subregion as well as land access to the South China Sea. They reflect a land-sea strategy for projecting Indian influence to the east—a strategy intended to counter China's strategic ambitions in Southeast Asia and toward the Indian Ocean.

India's perceived need to compete with China in Southeast Asia, particularly in its littoral nations, has helped produce a courtship of Singapore. It also underscores the importance India attaches to key choke points—that it may need to block a Chinese move toward or into the Indian Ocean (the principal mission of the Indian bases in the Andaman and Nicobar Islands). Singapore is ideally situated to supplement the infrastructure in the Andamans; facilities there could, by the same token, allow India to project power into the South China Sea and against China. The Singapore relationship is modest but deepening. Trade has been growing rapidly, surging by nearly 50 percent in 2004; a Comprehensive Economic Cooperation Agreement in June 2005 should boost trade further. In addition, a security pact in 2003 extended an existing program of combined naval exercises to encompass air and ground maneuvers and initiated a high-level security dialogue and intelligence exchange. Singapore and India held their first air exercise late in 2004 and their first ground exercises from February to April 2005, in India.[66] Notably, in February and March 2005 their annual naval maneuvers took place for the first time in the South China Sea (vice "Indian" waters). New Delhi also has stated willingness—in principle—to allow the Singapore Air Force to use Indian ranges on an extended basis.

The developing Indian relationship with Thailand, finally, is a recent one and has been fed by, among other factors, Bangkok's growing concern with Islamic militants in Thailand's south: "The Thais know they are in a difficult situation and are looking left, right and center to see who is in the game on their side." A team of Indian intelligence officials visited Bangkok in November 2004; Thailand's National Security Council chief reciprocated the following month. In addition, India's military has been coordinating closely with Thailand's navy and coast guard in and near the Malacca Strait, signing a memorandum of understanding in May 2005. Thailand also has been cooperating more than previously on matters related to the various insurgencies in India's northeast.[67] More broadly, Bangkok welcomes the "rise of India," given Thailand's historical preference that no single power—not Britain or France in the nineteenth century, and not China today—achieve hegemony in its neighborhood. In any case, says

one Thai pundit, "Our ancestors taught us to enjoy noodles as well as curry dishes."[68] To this end, Bangkok is pursuing what it calls a "Look West" policy, and Thai officials have welcomed the Indian efforts to cultivate influence—potentially at China's expense—in Burma.

STRENGTHENING AND USING INDIA'S ARMED FORCES

Supplementing its diplomatic and political initiatives, India is shaping its growing military capability. These forces should be able, should the need arise, to: keep China's navy out of the Indian Ocean; enter the South China Sea and project military power directly against the Chinese homeland; project military power elsewhere in the Indian Ocean—at key choke points, on vital islands, around the littoral, and along key sea routes; and—in a presumably altered strategic environment—pose an important potential constraint on the ability of the U.S. Navy to operate in the IO. At present, the overall thrust is to get weapons to project power, especially systems with greater lethality and reach. To this end, India ordered $5.7 billion in weapons in 2004, overtaking China and Saudi Arabia and becoming the developing world's leading weapons buyer. Likewise, India stands as the developing world's biggest arms buyer for the eight-year period up to 2004.[69] The drive toward improved military capabilities is reflected in a variety of ongoing developments.[70]

The most significant development will be a strengthened nuclear-weapon strike capability relevant to the Indian Ocean as a whole. While land-based missiles may yet assume significance in this regard, New Delhi mainly is focused on equipping its navy and air force with nuclear capabilities that could be employed in a contingency.

India's intention to add a sea-based leg to its nuclear posture is longstanding and was a prominent feature of the Draft Nuclear Doctrine promulgated by India's National Security Advisory Board in 1999. The Cabinet Committee on Security also implicitly endorsed this goal in its 2003 restatement of many of the Doctrine's key points. Most recently, the new *Indian Maritime Doctrine* and the naval service chief, Admiral Arun Prakash, affirmed in September 2005 the importance of a sea-based leg.[71]

Indian Airpower

Another key development is the acquisition of an air force with longer range. A critical advance was the purchase in 2003 of Il-78 aerial tanker aircraft, New Delhi's first of the type. These tankers have supported the deployment of fighter and transport aircraft to a variety of far-flung locations, including South Africa and Alaska. Refueling also has recently allowed nonstop flights of Su-30s from Pune, their main operating base southeast of Mumbai, to Car Nicobar in the Bay

of Bengal, a potential staging location adjacent to the Strait of Malacca and the South China Sea approaches to China's populous heartland. A second airpower force multiplier will be the acquisition in 2007 of three Phalcon airborne warning and control system (AWACS) aircraft. These AWACS platforms, designed for 360-degree surveillance out to 350 nautical miles, will detect aerial threats and direct strike aircraft to targets. Like the tankers, the AWACS will not have a mainly passive, defensive role; rather, they will allow other air assets to strike targets at greater distances and with much more effect. New Delhi also is developing an indigenous AWACS system, to be deployed by 2011. In addition, India's Tu-142M and Il-38 maritime surveillance/antisubmarine warfare aircraft all are receiving upgrades. Finally, the Navy is raising three squadrons of Israeli-built Heron II unmanned aerial vehicles (UAVs) and probably will acquire P-3C Orions from the United States.[72]

India's air force also will achieve greater range and lethality with the acquisition of a variety of new combat aircraft—many of them clearly intended for strategic strike operations. In this regard, the planned acquisition of 190 long-range and air-refuelable Su-30 fighters (140 of which will be built from kits in India) through 2018 is particularly striking. New Delhi also has begun upgrading its fleet of Jaguar aircraft. The package—an almost definitive sign that these aircraft will continue to have a nuclear strike mission—includes more modern navigation systems, new electronic countermeasures gear, and new armament pods.[73] As these aircraft are capable of air-to-air refueling, the Il-78s significantly enhanced their radius of action. New Delhi also has ordered additional Jaguars (seventeen two-seat and twenty single-seat) from Hindustan Aeronautics Limited.

In addition, India plans to get 126 new multirole combat aircraft from a foreign supplier, either Lockheed Martin (the F-16), Boeing/McDonnell-Douglas (F-18 Hornet), Russia (MiG-35), Dassault Aviation of France (Mirage 2000-5), or Gripen of Sweden. Some of these airframes will be assembled in India. If Moscow and New Delhi can come to terms, at least four Tu-22M3s may be leased from Russia. These Backfires have a range of almost seven thousand nautical miles and can carry a payload of about twenty-five tons—the equivalent of two dozen two-thousand-pound bombs, or a large number of standoff air-to-ground missiles. India and Russia also are discussing the development and coproduction of a fifth-generation fighter aircraft.

Many of these strike platforms will be equipped eventually with powerful, long-range cruise missiles. The joint Indo-Russian Brahmos, with a 290-kilometer range and supersonic speed, will be deployed first on Indian warships, but an aerial version is planned. As one observer comments, "India's co-development with Russia of the Brahmos missile for India's air (and naval) forces introduces . . . a

highly lethal, hybrid (cruise plus ballistic) missile that is most likely to be used as a conventional counterforce weapon against naval ships, ordnance storage facilities, sensitive military production facilities, aircraft hangars, military communication nodes and command and control centers."[74]

A final aviation-related development, one reflecting the new over-the-horizon focus of the Indian Air Force, is the expected formation—with Israeli help—of an aerospace command that will feature a ground-based imagery center, intended to leverage India's growing space "footprint" for air force and missile targeting and battlespace management.[75] The new command will be linked to a military reconnaissance satellite system, expected to be operational by 2007.[76]

Indian Seapower

India's surface navy is to become more capable and lethal than today. India's first naval buildup occurred in the 1960s; there followed a period of robust growth in the mid-1980s. The latter expansion, marked by a focus on power projection, grew out of a perception of threat from the U.S. Navy, which was increasing its presence in the Indian Ocean. Prime Minister Indira Gandhi warned, "The ocean has brought conquerors to India in the past. Today we find it churning with danger."[77] However, between 1988 and 1995 a retrenchment occurred, due to the disintegration of the USSR, a financial crisis in India (and East Asia), demands for social investment, and a virtually worldwide deemphasis on military expenditures; the Indian Navy did not acquire a single principal surface combatant, either from abroad or from domestic shipyards.[78] The environment had changed again by the mid-1990s—as the international situation grew darker and the Indian economy strengthened—and the prospect is now for a navy that, if still modest in size, about forty principal combatants, will be significantly improved in quality.

The surface navy currently consists primarily of a single vintage aircraft carrier, three new and five older destroyers, four new and seven vintage frigates, three new tank landing ships (LSTs), and assorted corvettes and patrol craft. Within five years, this force likely will comprise instead two new (that is, to India) aircraft carriers, six new and only a few vintage destroyers, twelve new and a few older frigates, corvettes and patrol craft, five new LSTs, and a refurbished seventeen-thousand-ton ex-U.S. landing platform dock. All of the new warships, including the projected two aircraft carriers, will be much more formidable than their respective predecessors. For example, the Type 15A frigates now under construction in Mumbai will be equipped with sixteen vertical-launch Brahmos cruise missiles. In addition, some warships are likely to be equipped eventually with U.S.-supplied Aegis radar systems.[79]

The carriers are particularly suited and intended for force projection. Moreover, with their aircraft and other weapons, they will constitute a quantum

advance over the present carrier, INS *Viraat,* which is scheduled for decommissioning in 2010. One of the future carriers will be the 44,500-ton Soviet-built *Admiral Gorshkov,* now INS *Vikramaditya,* to be delivered in 2008. The refitted ship will carry at least sixteen MiG-29Ks and six to eight Ka-31 antisubmarine and airborne-early-warning helicopters. India also has the option of acquiring, at current prices for up to five years, another thirty MiG-29Ks—a substantial increase in capability over the Harriers currently on the *Viraat*. Also, *Vikramaditya*'s range of nearly fourteen thousand nautical miles—vice the five thousand of *Viraat*—should represent a massive boost in reach.

The other new aircraft carrier will be indigenously constructed, India's first; it was laid down in April 2005. The forty-thousand-ton vessel, designated an Air Defense Ship (ADS), is designed for a complement of fourteen to sixteen MiG-29K aircraft and around twenty utility, antisubmarine, and antisurface helicopters. This will potentially equip the navy with two aircraft carriers by about 2010 (*Vikramaditya* and the ADS), thus allowing the service to maintain a strong presence along both the eastern and western shores. Indian naval leaders, however, envisage the navy as a three-carrier force—one on each coast and one in reserve—by 2015–20.

India continues to upgrade its existing submarine fleet while also developing or acquiring newer, more advanced boats. Many of these submarines are being fitted with cruise missiles with land-attack capabilities, reflecting the service's emphasis on littoral warfare. Over time, these cruise missiles almost certainly will be armed with nuclear warheads.

The Indian Navy's principal subsurface combatants currently are four German Type 1500 and ten Russian-produced Kilo submarines. The Kilos are undergoing refits in Russia, including the addition of Klub cruise missiles, believed to have both antiship and land-attack capabilities at ranges up to two hundred kilometers. The five boats already refitted with these weapons constitute the first Indian submerged missile launch capability. New Delhi is similarly upgrading one of its Type 1500s. The Indian government also recently authorized the purchase of six French-designed *Scorpene* submarines, with the option of acquiring four more. The first three boats will be conventional diesel-electric submarines, with subsequent ones incorporating air-independent propulsion. The design reportedly allows for the installation of a small nuclear reactor. The *Scorpene* contract apparently also provides for Indian acquisition of critical underwater missile-launch technology.[80] Other expected Indian submarine acquisitions include four to six Amur 1650 hunter-killer boats (SSKs) and two each of the more advanced versions of the Kilo and *Shishumar* submarines.

India also has lately accorded higher priority to the construction of an indigenous nuclear-powered missile submarine, the Advanced Technology Vessel.

Fabrication of the hull and integration (with Russia's assistance) of the nuclear reactor could already to be under way. In the long run, its main armament will be nuclear-armed cruise missiles. Finally, New Delhi seems likely to lease from Russia two Akula II nuclear-powered attack submarines. Reportedly, Indian naval officers will begin training for these submarines at a newly built center near St. Petersburg in September 2005.[81] These boats are normally configured with intermediate-range cruise missiles capable of mounting two-hundred-kiloton nuclear warheads, but India is expected instead to use the Brahmos cruise missile—eventually with a nuclear warhead—as their principal weapon.

Basing and Presence Ashore

A better network of forward military bases is in prospect. One of the most important of its elements is INS (Indian Naval Station) Kadamba, a naval and naval air base—slated to be Asia's largest—under construction at Karwar (near Goa) on the Malabar Coast and recently inaugurated by Defense Minister Pranab Mukherjee. More centrally located with respect to the Indian Ocean than Mumbai, the site of India's longtime Arabian Sea naval complex, this facility will be India's first exclusive naval base (others are colocated with commercial and civilian ports). INS Kadamba will be able to receive India's new aircraft carriers; it is to become the home of several naval units beginning late in 2005 and, ultimately, of the headquarters of India's Western Naval Command. It will reportedly serve as the principal base for the nuclear submarines that the Indian Navy is to lease from Russia and some that it will build indigenously. The construction of a naval air station will begin this year.

Farther south, India has been enhancing the infrastructure at Kochi (Cochin) in Kerala, where India's first full-fledged base for unmanned aerial vehicles recently was established. The UAVs are providing the Navy a real-time view of the busy sea-lanes from the northern Arabian Sea to the Malacca Strait. As Kochi also is India's key center for antisubmarine warfare, the UAVs almost certainly also are employed for that purpose. One observer, commenting on the strategic significance of this site, notes that "its situation, close to the southern tip of India's west coast and the central Indian Ocean, makes Cochin more than any other base a regional guard (see, for example, its proximity to the Maldives and the rich fishing grounds off India's west coast); a challenge to the United States in Diego Garcia [*sic*]; and the terminus of the trans-oceanic link with Antarctica."[82] In addition to Kochi, the Indian Navy is establishing UAV bases at Port Blair, the site of India's Andaman and Nicobar Command, and in the Lakshadweep Islands.[83] The latter archipelago, off India's west coast in the Arabian Sea, is a key choke point between the Persian Gulf and the Malacca Strait that has until now received little attention from military planners.

New Delhi sees as even more strategically significant the Andaman and Nicobar Islands. It was to strengthen India's military presence in the Bay of Bengal that the unified Andaman and Nicobar Command was established in 2001. The islands had been recognized by the British as early as the 1780s as dominating one of the key gateways to the Indian Ocean.[84] One analyst, writing from Port Blair, has claimed that "India was double-minded about retaining the islands until the 1998 Pokhran nuclear tests. Top officials say the original plan was to abandon the Andaman and Nicobar Islands after exploiting its natural resources." India, for example, transferred the Coco Islands to Burma in 1954.[85] However, by 1962—in the aftermath of the war with China—New Delhi clearly was becoming sensitive to the archipelago's value, and in 1998 or before "the Vajpayee government woke up to the islands' huge strategic importance."[86]

Whether or not India ever doubted its worth, the archipelago likely will have importance in the future—notwithstanding damage to infrastructure from the recent tsunami. India's navy chief has stated that "this theater will steadily gain importance . . . in the coming years."[87] Another Indian has characterized the new Andaman and Nicobar command as "India's ticket to strategic relevance" and "India's Diego Garcia."[88] In this connection, New Delhi almost certainly intends to use the islands as forward bases for cruise-missile-launching submarines, eventually with nuclear weapons. The islands also will play a key role in Indian efforts to parry Chinese inroads in Southeast Asia and to advance the "Look East" policy.[89]

Indian assistance in upgrading and developing the Iranian port of Chahbahar, the headquarters of Iran's third naval region, has been noted. A construction initiative of another kind is the Sethusamudram project, also mentioned above, to cut through the Palk Strait and so permit Indian intercoastal shipping to avoid the long trip around Sri Lanka. Aside from its potential economic importance, such a route will enable warships from India's eastern and western fleets to quickly reinforce one another. In those terms the project is analogous to the 1914 completion of the interoceanic Panama Canal by the United States.[90]

"Military Diplomacy"

Supplementing the foregoing new weapons and military infrastructure advances, New Delhi also will use India's navy and air force, through "military diplomacy," to advance the Indian agenda in the Indian Ocean. India's new *Maritime Doctrine* declares, "Navies are characterized by the degree to which they can exercise presence, and the efficacy of a navy is determined by the ability of the political establishment of the state to harness this naval presence in the pursuit of larger national objectives." To this end, "the Indian maritime vision for the first quarter of the 21st century must look at the arc from the Persian Gulf to the Straits of Malacca as a legitimate area of interest."[91]

India's navy and air force were indeed utilized in this manner in response to the December 2004 tsunami, perhaps the world's first global natural disaster. India was quick to extend help to Sri Lanka, the Maldives, and Indonesia. Indian relief operations were fully under way in Sri Lanka and the Maldives by day three of the tsunami (28 December), and the Indian military reached Indonesia by day four. The subsequent relief operation was the largest ever mounted by New Delhi, involving approximately sixteen thousand troops, thirty-two naval ships, forty-one aircraft, several medical teams, and a mobile hospital.[92]

Other recent instances of Indian military diplomacy include a continuing program of coordinated patrols with Indonesia in the Malacca Strait, naval surveillance of the Mauritius exclusive economic zone since mid-2003, and patrols off the African coast in connection with two international conferences in Maputo, Mozambique—the African Union summit in 2003 and the World Economic Forum conference the next year. An Indian Navy spokesman asserted that in these patrols the "Indian warships [were] demonstrating the Navy's emergence as a competent, confident, and operationally viable and regionally visible maritime power."

The Indian military also has been very active in pursuing combined exercises with a variety of IO partners. These maneuvers underscore the new flexibility and reach of Indian military forces. A Chinese newspaper, for example, commented that in one two-month period early in 2004 New Delhi conducted seven consecutive and quite effective combined exercises: "The scale, scope, subjects and goals of the exercises are unprecedented and have attracted extensive concern from the international community." That instance was not unique; the Indian Navy conducted simultaneous combined exercises with Singapore in the South China Sea and with France in the Arabian Sea in late February and early March 2005. All this was followed immediately by a multiservice, combined planning exercise with the United Kingdom in Hyderabad; a naval exercise with South Africa and a port call by warships in Vietnam in June; and the deployment of a large flotilla to Southeast Asian waters in July. The agenda for late 2005 included naval maneuvers with the United States in the Arabian Sea in September, with Russia in the Bay of Bengal in October, and with France in the Gulf of Aden in November. In addition, New Delhi partnered with Russia in a combined air-land exercise near the Pakistan border in October, and with the United States in November in a COPE INDIA air exercise (that latter in a location that clearly suggests mutual strategic concern about China). New Delhi, moreover, is expecting the advent of combined exercises with Japan's navy in the Sea of Japan and the Bay of Bengal in the not-too-distant future.[93]

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WHAT CAN WE EXPECT OF INDIA IN THE INDIAN OCEAN?

Over the past few years, India has placed itself on a path to achieve, potentially, the regional influence in the Indian Ocean to which it has aspired. To this end, New Delhi has raised its profile and strengthened its position in a variety of nations on the littoral, especially Iran, Sri Lanka, Burma, Singapore, Thailand, and most of the ocean's small island nations. India also has become a more palpable presence in key maritime zones, particularly the Bay of Bengal and the Andaman Sea. Of equal or greater importance, India's links with the most important external actors in the Indian Ocean—the United States, Japan, Israel, and France—also have been strengthened. These are significant achievements, and they derive from India's growing economic clout and from a surer hand visible today in Indian diplomacy.

Gaps inevitably remain in India's strategic posture. New Delhi will need to strengthen further its hand in coastal Africa and the Arabian Peninsula. More work also will be required to upgrade still somewhat distant relationships with Australia and Indonesia.[94] At the same time, India will need to be more skillful than it has been in cultivating—or "compelling"—better relations with, and an environment more attuned to Indian interests in, Pakistan and Bangladesh. Further, much will depend on the performance of the Indian economy and on India's ability to avoid domestic communal discord. Another variable will be the extent to which other states—particularly China and the United States but also Pakistan and others in southern Asia—are willing or able to offer serious resistance to India's ambitions. The future of political Islam is another wild card. However, barring a halt to globalization—one of the megatrends of the contemporary world—the rise of India in the IO is fairly certain.

That will have a transforming effect in the Indian Ocean basin and eventually the world. In the region, the rise of India will play a key role in the gradual integration of the various lands and peoples of this basin. Whether in the Arabian Sea or the Bay of Bengal, this trend—while still nascent—is already evident. The long-term result will be a more prosperous and globally more influential region.

India's rise in the Indian Ocean also will have important implications for the West and China. Perhaps most significantly, New Delhi's ascent suggests strongly that the ongoing reordering of the asymmetric relationship between the West and Asia will be centered as much in the Indian Ocean as in East Asia. It was in the IO, moreover, that the effects of Western power first made themselves manifest in the centuries after 1500. On one hand, it would therefore not be surprising if it were here that the Western tide first receded. On the other, India's role will for a long time to come be no longer in opposition to the United States but in cooperation with it.

Moreover, its rise will be welcomed by the United States and other "Western states" to the extent that it counteracts the challenge posed by China, the world's other salient rising power. Seen from Beijing, the rise of India in the Indian Ocean will be an opportunity but, even more, a challenge. A strong and influential India will mean a more multipolar world, and this is consistent with Chinese interests. Nonetheless, as China increasingly regards India—not Japan—as its main Asian rival, India's rise in the Indian Ocean also will be disturbing. As has been the case with virtually all great powers, an India that has consolidated power in its own region will be tempted to exercise power farther afield, including East Asia.

NOTES

The views expressed in this article are those of the author and do not reflect the official policy or position of the Asia-Pacific Center, the Department of Defense, or the U.S. government.

1. On the "rise" of India, see Yasheng Huang and Tarun Khanna, "Can India Overtake China?" *Foreign Policy* (July–August 2003), pp. 74–80; "India and China: A Special Economic Analysis," *Morgan Stanley Equity Research,* 26 July 2004; Yevgeny Bendersky, "India as a Rising Power," *Asia Times,* 20 August 2004; Clyde Prestowitz et al., "The Great Reverse" (in three parts), *Yale Global Online* (September 2004); Stephen P. Cohen, "Introduction" and chapter 1, "Situating India," in *India: Emerging Power* (Washington, D.C.: Brookings Institution Press, 2001); Baldev Raj Nayar and T. V. Paul, *India in the World Order: Searching for Major-Power Status* (Cambridge, U.K.: Cambridge Univ. Press, 2003); C. Raja Mohan, *Crossing the Rubicon: The Shaping of India's New Foreign Policy* (New Delhi: Viking, 2003); and "India vs. China: Long Term Prospects" in National Intelligence Council, *Mapping the Global Future* (Washington, D.C.: December 2004), p. 53.
2. National Intelligence Council, *Mapping the Global Future*, pp. 3 and, especially, 6–7.
3. Analyses by the Central Intelligence Agency indicate that when countries are ranked by composite measures of national power—the weighted combinations of gross domestic product, defense spending, population, and technology growth—India is projected to possess the fourth most capable concentration of power by 2015 (after the United States, the European Union, and China) and to be the most important "swing state" in the international system. See Ashley J. Tellis, *India as a New Global Power: An Action Agenda for the United States* (Washington, D.C.: Carnegie Endowment for International Peace, 2005), p. 30.
4. There are, of course, important exceptions. Two of these are C. Raja Mohan's *Crossing the Rubicon* and Stephen P. Cohen's *India: Emerging Power*, both cited above.
5. Mihir K. Roy [Vice Adm. (Ret.)], "Emerging Maritime India," paper presented at a conference on India and the Emerging Geopolitics of the IO Region, Asia-Pacific Center for Security Studies, 19–21 August 2003. See also Rahul Roy-Chaudhury, "Maritime and Naval Dimensions of India's Security," in *India and the IO in the Twilight of the Millennium,* ed. P. V. Rao (New Delhi: South Asian), pp. 36–49.
6. See Integrated Headquarters, Ministry of Defence (Navy), *Indian Maritime Doctrine* (INBR 8), 25 April 2004, p. 50.
7. Ralph Peters, "Tsunami Ripples: A New Strategic Map," *New York Post,* 2 February 2005.
8. Integrated Headquarters, *Indian Maritime Doctrine.*
9. K. M. Pannikar, *India and the IO* (London: Allen and Unwin, 1945), p. 84.

10. See Ministry of Defence, *Annual Report 2004–2005* (New Delhi: n.d.), available at mod.nic.in/reports/welcome.html.

11. On mainly conventional military power, see the author's "The 'Great Base Race' in the IO Littoral: Conflict Prevention or Stimulation?" *Contemporary South Asia* (September 2004) and, on nuclear weapons, "The Indian Ocean and the Second Nuclear Age," *Orbis* 48, no. 1 (Winter 2004).

12. Arun Prakash [Adm.], "Submarine Building Capability Is a Void, Which We Hope to Address," 22 July 2005, as reported in *Force: The Complete Newsmagazine of National Security,* 8 August 2005.

13. See John J. Mearsheimer, *The Tragedy of Great Power Politics* (New York: W. W. Norton, 2001), p. 232.

14. Ibid., p. 236.

15. India has a long-standing involvement in Antarctica. In December 2004, for example, New Delhi announced it was planning to set up its third research station there. See "India to Set Up Third Station in Antarctica," *India News,* 16 December 2004, available at www.newkerala.com.

16. Marjeet Singh Pardesi, *Deducing India's Grant Strategy of Regional Hegemony from Historical and Conceptual Perspectives* (Singapore: Institute of Defence and Strategic Studies, April 2005), p. 55.

17. James Morris, *Farewell the Trumpets: An Imperial Retreat* (San Diego, Calif.: Harcourt Brace Jovanovich, 1978), pp. 129–30.

18. Ashley Jackson, "The British Empire in the Indian Ocean," in *Geopolitical Orientations, Security and Regionalism in the Indian Ocean,* ed. Dennis Rumley and Sanjay Chaturvedi (New Delhi: South Asian, 2004), p. 35.

19. On New Delhi's IO as reminiscent of Britain's "ring fence" strategy, see Ashley J. Tellis, "India's Naval Expansion: Reflections on History and Strategy," *Comparative Strategy* 6, no 2 (1987), and "Indian Security Tradition," in *Assessing Strategy and Military Capabilities in the Year 2000* (Santa Monica, Calif.: RAND, 1996), p. 2.

20. India's concerns about China are of long standing. See John W. Garver, "Asymmetrical Indian and Chinese Threat Perceptions," *Journal of Strategic Studies* 25, no. 4 (December 2002), pp. 109–34. See also Francine R. Frankel and Harry Harding, eds., *The India-China Relationship: What the United States Needs to Know* (Washington, D.C.: Woodrow Wilson Center Press, 2004), and John W. Garver, *Protracted Contest: Sino-Indian Rivalry in the Twentieth Century* (Seattle: Univ. of Washington Press, 2001).

21. Quoted in Strobe Talbott, *Engaging India: Diplomacy, Democracy and the Bomb* (Washington, D.C.: Brookings Institution Press, 2004), p. 84.

22. Brahma Chellaney, "Should India Consider China a Friend or Rival?" *Times of India,* 21 August 2005.

23. Mohan Malik, "China's Foreign Policy Is Still Dominated by the 'Contain India' Theory," *Force: The Complete Newsmagazine of National Security,* 14 April 2005. On the April 2005 visit of Premier Wen Jiabao and Chinese purchases of oil and natural gas, see Pramit Mitra, "Iran and India Extend Their Friendship," *South Asia Monitor,* 1 January 2005, available at www.csis.org. On China and Africa see Paul Mooney, "China's African Safari," *Yale Global Online*, 3 January 2005, and John Hill, "China Covets African Oil and Trade," *Jane's Intelligence Review,* 1 November 2004. The key work on Sino-Indian competition in the Indian Ocean is John W. Garver, "The IO in Sino-Indian Relations," in *Protracted Contest*, pp. 275–312.

24. "China Attack Forced India to Pile Up Arms," *Deccan Herald,* 6 September 2005, Foreign Broadcast Information Service [hereafter FBIS] [emphasis supplied].

25. See Eric A. McVadon, "The Asian Sea in Which Transformation Must Swim," paper presented at the conference on U.S. Defense Transformation: Implications for the Security of the Asia-Pacific Region, Asia-Pacific Center for Security Studies, 1–3 December 2004. See also James Brooke, "China's Navy Fans Out in the Pacific," *New York Times,* 30 December 2004, and Richard Halloran, "Chinese Sub Highlights Undersea Rivalries," *Japan Times,* 30 November 2004, available at www.japantimes.com. That the Chinese navy is currently operating, or planning to operate, submarines in or near the Bay of Bengal is suggested by "Three Submarines Damaged by

Earthquake" (30 December 2004) and "2 Chinese Spy Ships Seized off Andamans" (30 November 2004), both *NEWSInsight,* newsinsight.net.

26. See the author's discussion of China in "The Indian Ocean and the Second Nuclear Age" and "The 'Great Base Race' in the IO Littoral." On the "string of pearls," see Bill Gertz, "China Builds Up Strategic Sea Lanes," *Washington Times,* 18 January 2005. See also "China Expands Its Southern Sphere of Influence," *Jane's Intelligence Review* (23 May 2005).
27. Ziad Haider, "Baluchis, Beijing, and Pakistan's Gwadar Port," *Georgetown Journal of International Affairs* 6, no. 1 (Winter/Spring 2005), pp. 95–103.
28. Ministry of Defence, *Annual Report 2004–05,* p. 46, available at mod.nic.in/.
29. "Japan, India to Develop Natural Gas Resources," Reuters, 26 March 2005, available at www.inlnews.yahoo.com.
30. Mohan, *Crossing the Rubicon,* p. xxii. Chapter 2 of this work is entitled "Beyond Nonalignment."
31. Prakash, "Submarine Building Capacity Is a Void."
32. The Manmohan Singh government recently established a Ministry of Overseas Indian Affairs and promulgated purportedly new, simplified procedures to allow overseas Indians to acquire Indian citizenship alongside that of the nations in which they currently reside.
33. "Indian Foreign Secretary Says Delhi Wants 'Greater Strategic Autonomy,'" *Zee News Television* (in Hindi), 17 March 2005, trans. FBIS.
34. Anand Giridharadas, "Newly Assertive India Seeks a Bigger Place in Asia," *International Herald Tribune,* 12 May 2005.
35. Farham Bokhari and Ray Marcelo, "Washington Upgrades Ties with New Delhi," *Financial Times,* 29 March 2005.
36. See the press release signed by the U.S. defense secretary and the Indian defense minister in Arlington, Virginia, on 28 June 2005, "New Framework for the U.S.-India Defense Relationship," available at www.indianembassy.org.
37. See, for example, Manoj Joshi, "For a Flying Start," *Hindustan Times,* 1 April 2005, FBIS.
38. Manoj Joshi, "Wide Angle—Pak Gets Nanny: Virtually Becomes U.S. Protectorate," *Hindustan Times,* 12 December 2004. For the "prehistory" (in the British connection) of present-day Indians' concerns about U.S. employment of Pakistan to contain India, see Stephen Philip Cohen, *The Idea of Pakistan* (Washington, D.C.: Brookings Institution, 2004), p. 34.
39. See "Excerpts from Pentagon's Plan: 'Prevent the Emergence of a New Rival,'" *New York Times,* 8 March 1992, available at www.princeton.edu, and a discussion of this document in Nayar and Paul, *India in the World Order,* p. 224.
40. On Prime Minister Singh's congratulatory letter to President Bush on the latter's reelection, see John Cherian, "U.S. Elections: An Embarrassing Missive," *Frontline,* 20 November–3 December 2004, available at www.flonnet.com.
41. A classic on this topic is R. J. Barendse, *The Arabian Seas: The Indian Ocean World of the Seventeenth Century* (Armonk, N.Y.: M. E. Sharpe, 2002).
42. C. Raja Mohan, "Sale to Pak, Bigger Chance for India," *Indian Express,* 28 March 2005, FBIS.
43. Atul Aneja, "India and Iran: A Time for Reflection," *Hindu,* 25 August 2005, FBIS.
44. Khalid Mustafa, "Iran-Pakistan-India Gas Pipeline: Pakistan to Get about $80 Million in Transit Fee," *Daily Times* (Pakistan), 17 November 2004, available at www.dailytimes.com. Other pipeline projects in which India has shown interest include the Turkmenistan-Afghanistan-Pakistan pipeline and the Gulf–South Asia (GUSA) pipeline (with a possible extension to India) from Qatar.
45. The Iran and Libya Sanctions Act was signed into law on 5 August 1996 and was renewed in July 2001. The law imposes sanctions on foreign companies that invest $40 million or more in these two countries' energy sectors.
46. See the essays by C. Christine Fair, Jalil Roshandel, Sunil Dasgupta, and P. R. Kumaraswamy in *The Strategic Partnership between India and Iran* (Washington, D.C.: Woodrow Wilson International Center, April 2004). See also Donald L. Berlin, "India-Iran Relations: A Deepening Entente," in *Asia's*

Bilateral Relations (Honolulu, Hawaii: Asia-Pacific Center for Security Studies, June 2004), available at www.apcss.org.

47. M. K. Bhadrakumar, "South Asia in a Spot over Iran," *Asia Times,* 15 November 2004, available at www.atimes.com.

48. See Frederick Stakelbeck, Jr., "The Growing Tehran-Beijing Axis," *In the National Interest* (January 2005), www.inthenationalinterest.com.

49. Harinder Mishra, "India and Israel: Money Matters," *Asia Times,* 30 November 2004, available at www.atimes.com.

50. Siddharth Srivastava, "Gunning for Peace in South Asia," *Asia Times Online,* 13 August 2005.

51. "India-Israel Alliance Firming Up," *Jane's Intelligence Digest,* 2 March 2005.

52. See Donald L. Berlin, "The Indian Ocean and the Second Nuclear Age," pp. 64–67.

53. G. Parthasarathy, "India's Stakes in the Persian Gulf," *Tribune,* 8 September 2005.

54. "India for Trade Pact with Gulf Council in Six Months," *Hindustan Times,* 16 August 2005, FBIS.

55. "Indian Air Force to Participate in Multinational Exercise in South Africa," Press Trust of India [hereafter PTI], 13 September 2004, FBIS.

56. "India to Train Tanzanian forces," *Indo-Asian News Service,* 12 September 2004, available at www.hidustantimes.com.

57. "Indian PM Hopes to Strengthen Ties during Mauritius Visit," PTI, 30 March 2005, FBIS.

58. "Navy to Aid IO Island-Nations' Security," *New Kerala News Online,* 1 September 2005, www.newkerala.com.

59. The terms "East Indies" and "Further India," of course, are historical designations for the region now (mainly since World War II) generally characterized as "Southeast Asia."

60. Marwaan Macan-Markar, "India Shifts Regional Geopolitical Cards," *Asia Times Online,* 27 January 2005, available at www.atimes.com/atimes/South_Asia/GA27Df04.html.

61. Ajit Dubey, "Smooth Sailing," *Force: The Complete Newsmagazine of National Security,* 1 January 2005.

62. A senior Tamil insurgent leader commented in November 2004: "The Palaly airport is in the Tamil Homeland. India's plan to help upgrade it will upset the current peace process in Sri Lanka. The Palaly airport was built by taking over the Tamil people's lands." "LTTE Asks India to Consult It on Strategic Projects," *Hindustan Times,* 15 November 2004.

63. "Constructive Engagement with India; Hopefully, the First Steps Have Been Taken," *Daily Star,* 10 August 2005.

64. David Fullbrook, "So Long US, Hello China, India," *Asia Times Online,* 9 November 2004, www.atims.com. See especially Mohan Malik, "New Campaign for Myanmar," *Force: The Complete Newsmagazine of National Security* (January 2005)

65. Khelen Thokchom, "Train to Mandalay Gets Nod," *Telegraph* (Calcutta), 25 November 2004.

66. Gautam Datt, "Singapore F-16s Arrive for War Games," *Asian Age,* 10 October 2004, FBIS.

67. Anthony Davis, "Thailand Strengthens Security Ties with Israel," *Jane's Intelligence Review,* 16 December 2004, available at jir.janes.com. Malaysia apparently has complained loudly to India about the fast-developing Indo-Thai relationship; see "Malaysia Warns India against Thailand," *NEWSInsight,* 3 January 2005, available at www.indiareacts.com.

68. Dr. Sawai Bunma, "Samkok vs. Ramayana," *Krungthep Thurakit,* 17 June 2005, trans. FBIS.

69. See Richard F. Grimmett, *Conventional Arms Transfers to Developing Nations, 1997–2004* (Washington, D.C.: Congressional Research Service, 29 August 2005).

70. The Indian army probably has lagged a bit in this regard; see Bharat Karnad, "Shaping Indian Special Forces into a Strategic Asset," *Defense and Technology,* 1 December 2004, p. 48, FBIS.

71. Integrated Headquarters, *Indian Maritime Doctrine;* "Second Strike N-Capability Should Be Devastating: Prakash," PTI, 1 September 2005.

72. "Russia to Upgrade Tu-142 Warplanes," Agentstvo Voyennykh Novostei, 21 October 2002; Bulbul Singh, "India, U.S. Near to

Completing P-3 Orion Sale," *Aerospace Daily*, 28 August 2002.

73. Pulkit Singh, "India Bolstering Jaguar Fleet, Phasing Out Some Older MiGs," *Journal of Electronic Defense* (October 2002).
74. Rodney W. Jones, "Conventional Force Imbalance and Strategic Stability in South Asia," unpublished paper, 2004, p. 27.
75. Rahul Bedi, "Indian Conventional Defence Purchases Soar," *Jane's Defence Weekly,* 14 September 2005.
76. Huma Siddiqui, "Military Satellite to Give India 'Eyes in Space,'" *Financial Express,* 5 September 2005.
77. Indira Gandhi, address to the Commonwealth Heads of Government, Asia-Pacific Region, New Delhi, 4 September 1980, as quoted by Ashley Tellis, "The Naval Balance in the Indian Subcontinent: Demanding Missions for the Indian Navy," *Asian Survey* (December 1985), p. 1192.
78. See Rahul Roy-Chaudhury, *India's Maritime Security* (New Delhi: Knowledge World/IDSA, 2000), pp. 125–59, and James Goldrick, *No Easy Answers: The Development of the Navies of India, Pakistan and Sri Lanka 1945–1996* (New Delhi: Lancer, 1997), pp. 104–38.
79. "India-US Ties in Focus," *Jane's Intelligence Digest,* 29 July 2005.
80. Bharat Karnad, "Putting Bang in the Bomb," *Indian Express*, 13 November 2002.
81. Huma Siddiqui, "India to Get Subs on Lease from Russia," *Financial Express,* 31 August 2005.
82. Frank Broeze, "Geostrategy and Navyports in the IO since c. 1970," *Marine Policy* 21, no. 4 (1997), p. 358.
83. Josey Joseph, "Navy to Use UAVs to Spy on Sea-Lanes," *Rediff: India Abroad,* www.rediff.com/news/2003/jan/31uav.htm. See also Gautan Datt, "Navy to Set Up Base for UAVs in Andaman," *Asian Age,* 10 November 2003, FBIS.
84. Broeze, "Geostrategy and Navyports in the IO since c. 1970," p. 358.
85. Prakash Nanda and Zhao Nanqi, "Unified Command: Strategic Significance of the Andamans," *Statesman* (New Delhi), 18 October 2002.
86. A. B. Mahapatra, "Andaman Faces Kargil-Type Invasion," *NEWSInsight,* 23 October 2002, www.newsinsight.net. See also K. M. Panikkar, *India and the Indian Ocean: An Essay on the Influence of Sea Power on Indian History* (Bombay: George Allen and Unwin, 1961).
87. "Indian Naval Chief Satisfied with Performance of Unified Command at Andamans," *Hindu,* 6 July 2002, p. 8, trans. FBIS.
88. Vishal Thapar, "India Adopts Big Power Posture on High Seas," *Hindustan Times,* 27 August 2002.
89. See Berlin, "The 'Great Base Race' in the IO Littoral."
90. The project will also enhance Indian maritime security in the Palk Straits, which some observers regard as under the de facto control of the LTTE. See P. Venkateshwar Rao, "The Sethusamudram Ship Canal Project," paper presented at the third annual Indian Ocean Research Group (IORG) International Conference, Kuala Lumpur, Malaysia, 11–13 July 2005.
91. Integrated Headquarters, *Indian Maritime Doctrine*, p. 56.
92. Kalsoom Lakhani and Pramit Mitra, "Tsunami Disaster's Diplomatic Implications," *South Asia Monitor* (Washington, D.C.: Center for Strategic and International Studies, 1 February 2005).
93. Prasun K. Sengupta, "Looking East," *Force,* 1 November 2005.
94. Notably, it has been nineteen years since an Indian prime minister visited Australia. See the "Outcomes Statement" of the Australia-India Security Roundtable in Canberra, 11–12 April 2005, published by the Australian Strategic Policy Institute, and Jenette Bonner and Varun Sahni, *Australia-India Reengagement: Common Security Concerns, Converging Strategic Horizons, Complementary Force Structures* (Canberra: Australian Strategic Policy Institute, October 2004). See also D. Gopal and Dennis Rumley, eds., *India and Australia: Issues and Opportunities* (New Delhi: Authorspress, 2004). With respect to Indonesia, an important step was the November 2005 state visit to India by Indonesian president Susilo Bambang Yudhoyono.

CHINA'S MATURING NAVY

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The East Asia security environment in which China is emerging demands that the matter of a maturing Chinese navy be put in a political context. Tension across the Taiwan Strait has recently relaxed. In Beijing, the leaders of economically successful and internationally active China do not want to jeopardize the nation's prospects for a bright future by initiating military conflict with Taiwan and the United States—quite the contrary. In Taipei, despite profound disagreement with Beijing and a major stir in domestic politics, a cautious posture in relations with Beijing now prevails. So, remarkably, amid deep, persistent, and mutual distrust, the current prospects for avoiding conflict across the Taiwan Strait are good. Well-informed Chinese officials and prestigious Americans who have had exchanges with senior Chinese leaders confirm the relaxed circumstances and express the conviction that Beijing is confident about the situation as Chinese leaders see it developing and that Taiwan, again content with the status quo, will remain measured in its actions. War across the Taiwan Strait is not looming.

Nevertheless, Beijing is, by modernizing its military, ensuring that things will not go awry in Taiwan, that its policy of intimidation continues to work. The indisputable reality is that this military—the People's Liberation Army (or PLA), and particularly its naval component, the PLA Navy (or PLAN)—is growing greatly in capability; further, it is a growing concern

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to defense and naval leaders in Washington, D.C., and other capitals, including Tokyo and Taipei. In a time of American preoccupation with the global war on terrorism, it is appropriate to draw attention to the crucial features of this modernization of components of the PLA. Beijing, if the "Taiwan problem" were to suffer a dramatic reversal, would have available an impressive force acquired for this purpose. If that force were effectively deployed, it would be sufficient in terms of hardware to undertake a two-pronged, PLA Navy–led campaign, with a big maritime component, against Taiwan and U.S. forces in a fashion that could be termed "jointness with Chinese characteristics."

A MILITARY TO DEFEND AND DETER

When pressed on the subject, Chinese officials began some months ago to deliver both publicly and privately (to the author and undoubtedly many others) the consistent message that the military budget is not excessive, manpower is shrinking, and the newly modernized PLA is not a threat.[1] Chinese characterize the PLA instead as a deterrent force—as were U.S. forces during the Cold War, they are quick to remind. When pressed further, they accept unabashedly the retort that the modernization surge is, so far, narrowly focused on the Taiwan contingency. It is directed to deterring Taiwan's movement toward independence, which they consider the top "threat to Chinese sovereignty," and to curbing the ability of the United States to intervene rapidly and effectively were China compelled, as Beijing perceives it, to use military force against Taiwan.[2]

So the concern is that hard-liners in Beijing, obsessed by the "Taiwan problem," might not allow prudence to prevail in decision making in a crisis and, consequently, could order the use of military force because of what they perceive as intolerable "splittist" conduct by Taipei. In evaluating the risks of an imprudent decision by Beijing, it might be asked rhetorically whether the current Chinese Communist Party is capable of as bad a choice in a future Taiwan crisis as most observers think the party made with the Great Leap Forward, the Cultural Revolution, and the actions in 1989 now referred to simply as "Tiananmen." Some observers increasingly find reason to be optimistic, but it is hard to offer unqualified assurance that Beijing could not again make a very bad decision.

It is the result of decisions obviously made several years ago that a new, modern, and much more capable PLA Navy has, along with the Air Force and 2nd Artillery Corps (the ballistic- and long-range-cruise-missile force), been acquired and deployed. A stunning modernization effort continues. Regardless of how Beijing's intentions are viewed, the surge in PLA modernization has radically changed the military situation for Taiwan. Taipei is more than ever forced to look to Washington to cope with this more advanced, capable PLA, with the strategic depth of huge China behind it.

Moreover, the PLA now hopes to bring to reality concepts its strategists have written about, such as how an inferior force can prevail against a superior opponent—that is, China versus the United States. Specifically, the critical aspects of a new navy and the highly significant synergies that may develop between it and the missile and air forces warrant full attention, because they are directed specifically at deterring, delaying, or complicating timely and effective American access and intervention. U.S. forces must be able, should the Taiwan pot boil over, to turn the tables and deter Beijing from using its proclaimed deterrent forces—or to ensure a favorable outcome if mutual deterrence fails. The ultimate American goal, however, should be to make the chances of conflict even less than they are. Understanding the important developments described here seems a necessary step toward that goal.

STARTING WITH QUESTIONS

The following questions and answers may be an unusual way to begin probing the specific naval aspects of the issue, but they focus on an often neglected, but arguably the most surprising, single PLAN acquisition program—its bold move to build quickly a modern nuclear submarine force despite its troubled past in this arena. These incisive questions—posed to the author in 2005 by experts on the Chinese submarine force—are especially useful in that they take the PLA's Taiwan obsession fully into account but also look beyond. They reveal the layers of complexity and uncertainty inherent in the very rapid and impressive modernization of the PLA Navy—a navy that, it is worth emphasizing, is arguably the only one in today's world that the U.S. Navy must deter or be able to defeat, but also a navy that under different circumstances could become a high-seas partner.

- *How "mature" is China's navy? Does the PLAN have the requisite human capital, organizational practices, and exercise regimen to become a world-class fleet?* The PLAN is most nearly mature with respect to platforms and weapons but, approximately in the order listed, progressively less so in human capital, organizational practices, and exercise regimen. It is working to become better in each.
- *Are nuclear submarines a good fit for China's emerging naval strategy? Will the balance of forces (i.e., nuclear versus diesel submarines) change in the future?* The currently emerging balance is a good fit, especially vis-à-vis China's current set of potential adversaries. If the Taiwan problem were eliminated somehow, a shift toward nuclear submarines to protect more distant sea-lanes would be a logical option. This makes the PLAN nuclear submarine program a possible bellwether for future naval policy more generally.
- *What are the trends in undersea warfare and antisubmarine warfare (ASW) in the western Pacific region?* The superiority of the U.S. nuclear submarine

force will continue; however, the Chinese are apparently developing ballistic missiles with maneuvering warheads and terminal seekers to hit ships at sea. This capability to lob numerous accurate ballistic missile warheads high over the heads of all defenders could effectively circumvent the anticipated quiet and capable U.S. nuclear attack submarines. The PLAN has previously seen these submarines as all but impossible to penetrate with its own submarines (or surface ships) to reach the carriers and cruisers it wants to disable. Despite the PLAN's ineptitude at antisubmarine warfare, short of a (plausible) major breakthrough, the trend in submarine/ASW competition is going China's way: the PLAN's submarine numbers and diversity trump, or at least could saturate, likely ASW opposition for the foreseeable future, especially in case of the short war Beijing contemplates. With respect to Taiwan's ASW capability (almost an oxymoron now), the Republic of China (ROC) Navy would still have to learn to use its P-3C antisubmarine patrol aircraft after getting them; its prospective new submarine force of eight diesel submarines, if approved for acquisition (as currently seems unlikely), would be a decade or more from operational status and even then inadequate for antisubmarine warfare against what would by then have become a remarkably numerous, diverse, and advanced PLAN submarine force.

- *What strategic dilemmas might Washington encounter as a result of China's new nuclear submarine force?* Beijing's smug confidence that Washington must always keep in mind China's status as a nuclear power will be reinforced if the PLAN is successful with its ongoing program to build several modern Jin-class (Project 094) nuclear-powered ballistic-missile submarines (SSBNs). Its sequential construction of Shang-class (Project 093) nuclear-powered attack submarines (SSNs) adds the component of reach (range and speed) to the existing qualities of numbers of its nuclear and conventional submarines, as well as quietness for a growing portion of that force and potency of weapons for a similar portion—especially for the new Kilo-class diesel submarines from Russia, with their long-range, supersonic, sea-skimming antiship cruise missiles (ASCMs). A "new PLAN" with these new nuclear-powered submarines and stunning array of other new and modern platforms and weapons is highly likely to view itself in a different strategic light, as yet unrevealed, than has the "old PLAN."

A MATURING BUT STILL ADOLESCENT NAVY

Harking back to the title of this article, the PLA Navy might best be described as an adolescent rather than mature navy, with the caution that adolescents can

exhibit qualities across the range from juvenile to adult, often commit crimes that warrant treatment as adults, and mature unpredictably. To extend the adolescence analogy a bit more, the PLAN is growing remarkably in size and strength, even "bulking up" (in the American vernacular); all observers remark how it has grown since the last time they saw it.[3]

Simply fielding more modern units does not make the PLAN a truly modern operational force. The limits on how China's and the navy's leaders are able to employ their new capabilities represent significant shortcomings, and success in the effort to overcome them is far from assured. Put another way, the PLAN has matured remarkably insofar as acquiring platforms and equipment (ships, submarines, aircraft, radars, and so on) and weapons (antiship cruise missiles, air defense missiles, torpedoes, and the like) is concerned, but this "new PLA Navy" has not matured fully in exercising its forces and developing the command and control capabilities, coordination means, and intelligence and targeting support needed to make that force fully operational—especially in comparison with its most important and most capable potential adversary, the U.S. Navy.[4]

Better officers are on the way up—if they make it. The PLAN recognizes that to conduct complex joint operations, exercise greatly enhanced command and control, and effectively employ modern weapons it needs a better-educated, more worldly officer corps, and it is striving to do that, or so it says.[5] PLAN officers are taking more prominent positions in institutions that do strategic thinking; for example, in two recent firsts for naval officers, Admiral Zhang Dingfa headed the Academy of Military Science (he now serves as the commander of the PLAN), and Rear Admiral Yang Yi is still director of the Institute of Strategic Studies at the National Defense University in Beijing. The PLA Navy seeks officers educated in first-rate civilian universities.[6] The emphasis, however, appears to be on specific technical and scientific education;[7] this approach neglects, it seems, the parallel need for specialists in operations, security issues, strategic studies, and international affairs.[8]

Details aside, an important and yet unanswered question is whether the PLA Navy wants officers better educated or considers them better Red. That is, will competent, forward-thinking officers be selected for flag rank, or will party loyalty and personal connections continue to prevail as the paramount selection criteria?[9] This author has lectured and conferred at the National Defense University and other PLA institutions on several occasions at which junior officers asked all the questions and did all the talking while flag and general officers who were students remained silent—at least in part, it appeared, for fear of being outshone in these lively and insightful discussions. It would seem that at some point the demands of a modern PLA will force the promotion of more of the officers who have all the intelligent questions and original thoughts.

Organization is improving, but maybe not yet enough. The PLA Navy structure has been streamlined: naval aviation no longer stands alone as though an almost separate service; closer ties have been established with the PLAN's marine corps; and there are fewer layers in the chain of command.[10] Nevertheless, the author has observed and been told, there is still much deadwood at the top: individuals in green uniforms with two or more stars on their shoulders (PLA ground-force generals) who persist in treating the PLAN as mostly an adjunct to the army, and senior officers who, through lack of vision, fail to move decisively toward true joint operations. These generals represent obstacles at a time when real coordination with the 2nd Artillery Corps and the PLA Air Force would lead to enormous advances in the ability to polish off Taiwan, threaten American intervention capabilities, and keep Japan off balance.

China's navy is still failing to conduct exercises needed to develop its potential capability. It continues to steam in the littoral for the most part. However, the PLAN aspires to, and is erratically striving to conduct, training and exercises in more distant waters; to make its training more like combat; to challenge itself in exercises with active, maneuvering opposition forces; and otherwise to add realism to its training and exercise activity. It has even been so bold as to engage, in August 2005, in a major multiphased exercise with the Russian Navy, a notable advance beyond the minor, very basic exercises it has conducted with the French, British, Australian, Pakistani, and Indian navies in recent years.[11] A few years ago the PLAN would not have participated in such exercises at all, fearing not only prying (as well as spying) but embarrassment, that its shortcomings and backwardness would be revealed. Chinese naval leaders now seem sufficiently confident in their crews to seek international partners for exercises. (It will be interesting to see if several unflattering post-exercise Russian media reports rejuvenate concerns that bilateral exercises lead to ridicule and embarrassment.)[12]

Still, the import of the Russian-Chinese exercise should not be overstated. It was initially described by many as preparation for countering U.S. forces in the region. As later and more accurately described, however, it primarily demonstrated that Sino-Russian bilateral relations are strong, especially military-to-military relations and arms sales. The exercise itself, held in waters just off the Shandong Peninsula, was hardly a simulation of access denial against approaching U.S. forces. Its significance in that respect would seem to be less direct. The fact that it was held at all suggests that the Russians are more likely than we might have surmised to provide logistic and possibly intelligence support—specifically, to offer to resupply missiles and spare parts for the key Russian weapon systems that China would employ in combat with Taiwan and the United States.[13]

If it would be exaggeration, then, to assess this exercise as a sign of emergence as a fully mature force, the PLAN is creeping toward real blue-water exercises

with composite task forces including surface combatants, submarines, and aviation. So far, only in occasional and isolated distant submarine transits does it approximate the task of confronting an enemy, the U.S. Navy, that it might need to keep at arm's length, many hundreds of miles from the Chinese coast.[14] In short, the PLAN is not visibly conducting exercises, alone or with other services, that rehearse confrontation with approaching U.S. Navy forces. The United States should be alert to such a development with this new force, a force designed to have the capabilities that could make such operations feasible.

ATTACKS FROM SEVERAL AXES

A new aspect of budding maturity, what could facetiously be termed "socialization," is looming and demands attention—the prospect that the PLAN and the 2nd Artillery Corps could (and should) join hands to bolster the nation's capability to attack Taiwan and pose a significantly greater and more diverse threat to the ability of the United States to intervene in the region. The greatly increased number and highly improved accuracy of China's medium- and short-range ballistic missiles (MRBMs and SRBMs), plus strategic and technical writings, suggest strongly that senior Chinese military leaders have recognized the enhancement of naval capabilities that would result from support by ballistic and land-attack cruise missiles. China's MRBMs (the DF-21C) and SRBMs (DF-15 and -11), with conventional warheads, have capabilities well beyond the psychological intimidation of Taiwan.[15] Prospective synergies stem from the ability of these potent missile arsenals to suppress Taiwan's offensive and defensive air power, support amphibious and airborne assaults on the island, strike American bases in the region, and possibly damage heavily Taiwanese naval forces before they could leave port.

However, the most important aspect of the increasing ballistic-missile threat is the prospect that within a few years China may be able seriously to threaten not only American land bases but also carrier strike groups, with maneuvering reentry vehicles (MaRVs).[16] MaRVed missiles, with conventional warheads, would maneuver both to enhance warhead survival (defeat missile defenses) and home on mobile (or stationary) targets.[17] The implications for the PLAN of this prospective 2nd Artillery capability are, of course, profound; they include the ability to degrade U.S. air and missile defenses (including the Aegis systems and carrier flight decks). That would allow follow-on attacks by layered, diverse, and appropriately redundant PLAN submarine, air, and surface forces firing large numbers of very modern and capable ASCMs, torpedoes, and even their guns if the earlier attacks suppress most defenses.[18] This and what follows are in clear outline the sort of threat the PLA and PLA Navy wish to pose to U.S. Navy forces. The precisely focused force the Chinese have built and what they have

written about its use leave no doubt about the concept—although there are grave doubts about their ability to conduct it.

Whether, or how soon, the ballistic-missile threat becomes a factor in the ability of the PLAN to deter, confuse, and delay or, alternatively, confront approaching U.S. Navy forces, the ability to launch lethal antiship-cruise-missile attacks is an area where the PLAN is already near or at maturity—even if the targeting of American forces at which to launch them has not reached a mature state. The PLAN became early a cruise-missile navy, as a way of overcoming other deficiencies. Now it must be described as a *modern* cruise-missile navy, at least with respect to the platforms and lethal, evasive missiles it is deploying.[19] The PLAN's four newest classes of submarines, armed with potent ASCMs, fall just below MaRVed ballistic missiles in the hierarchy of potential or emerging threats to U.S. forces.

At the top of the submarine component of the overall threat are the eight new Kilo-class diesel-electric submarines from Russia that are now being successively delivered to China. These submarines threaten carrier strike groups through their ability to launch, while submerged over a hundred miles away, the SS-N-27B/Sizzler antiship cruise missile.[20] After a subsonic flight to the target area, the SS-N-27B makes a supersonic, sea-skimming, evasive attack.[21] It is described by its marketers and others as part of the best family of cruise missiles in the world and, in the opinion of some, as able to defeat the U.S. Aegis air- and missile-defense system that is central to the defense of carrier strike groups.[22]

Shang-class (Type 093) SSNs are possible partners for the new Kilos. The surprisingly rapid construction of successive units in this new class of nuclear-powered attack submarine implies special utility in a Taiwan contingency. The Shangs could, if they prove sufficiently quiet and fast and are properly equipped with sensors, be part of the net by which the PLAN locates and identifies approaching U.S. carrier strike groups.[23] If used this way, they could be part of a matrix composed of such detection and reporting means as satellites, merchant ships, and even fishing boats with satellite phones.

Having served as part of the matrix that detects targets for the ballistic missiles and Kilos, the Shangs could then join with the Song- and Yuan-class nonnuclear submarines (SSs) in attacks against selected U.S. forces that have, as expected in the sequenced PLA attack concept, suffered by that point significant degradation of their air and missile defenses.[24] These three classes of submarines could carry out, from several attack axes, submerged launches of large salvoes of subsonic, but still very capable, ASCMs. Of course, further follow-on attacks by torpedoes cannot be discounted if they appear to be needed.

China's other new nuclear-powered submarine program, the Jin-class (Project 094) ballistic-missile submarine, is primarily a part of China's strategic deterrent,

but it will necessarily play a role as backdrop for this Taiwan scenario.[25] As with China's modernized and augmented land-based intercontinental ballistic missiles, Beijing can act more confidently in bold undertakings vis-à-vis the United States when its strategic forces are more secure. With the Jins, Beijing is adding a layer of insurance that American missile defenses could be saturated—and that Washington would know it. Washington, of course, would have to take into account the fact that it is dealing with a capable nuclear power whose missiles have become very mobile and hard to detect.

A DAUNTING ASW CHALLENGE

The success of the described PLAN submarine attacks using submerged-launch antiship cruise missiles depends to some degree on thwarting or coping with U.S. antisubmarine warfare capabilities, primarily aircraft (P-3Cs and to a lesser extent shipborne helicopters) and SSNs. One method by which the Chinese might complicate the ASW picture for the Americans is to use large numbers of submarines, including the score or more older submarines—Han-class SSNs and Romeo- and Ming-class SSs—which may be noisy but cannot be ignored. In round numbers, the PLAN might, in a campaign where it has chosen the time to ready the crews and initiate operations, be able to deploy more than twenty modern SSNs and SSs and roughly the same number of older submarines.[26] The long range of the ASCMs carried by the new Kilos means that those submarines need not come within a hundred miles of the target ships, if targeting information can be obtained remotely—greatly expanding the areas that American SSNs and P-3Cs would have to search. The speed and practically unlimited underwater endurance of the new Shang SSNs could allow them to close targets promptly to launch their shorter-range ASCMs after the initial attacks by longer-range missiles have degraded defenses.

The role of Taiwan in antisubmarine warfare deserves some attention. Taiwan's current ASW capability is minimal. That capability might improve in the foreseeable future were Taiwan to obtain from the United States the much-discussed P-3Cs, but that will depend on how seriously the ROC Navy pursues the demanding task of learning how to do antisubmarine warfare with that aircraft. If it does that well, Taiwan's P-3Cs might offer a measure of help in the big ASW problem that the PLAN could create in the East China Sea and beyond.[27] The Japanese Maritime Self-Defense Force would offer another measure of assistance, if Tokyo were to make a political decision to involve its forces in that way. All this said, China's growing and improving submarine fleet has outpaced U.S., Japanese, and Taiwanese ASW in the difficult littoral waters of the region, which generally favor submarines seeking to escape detection.[28] Open-ocean areas may be a slightly riskier proposition for the PLAN's

submarines, unless they actually achieve the elusive new levels of stealth to which China aspires.

The previously described antisurface-warfare roles seem the most likely ones for the PLAN's new Shangs. It does not seem likely that the PLAN, inexperienced compared to the U.S. Navy in undersea warfare, would use its few new SSNs—precious to the Chinese but almost certainly not comparable to American SSNs in capability and stealth—in an effort to strip the carrier groups of their submarine protection. So far, China has conceded that aspect of the game to the United States and chosen to avoid dueling with the superior American submarines. By electing to develop a land-based ballistic-missile threat against ships at sea, China is pursuing a path that could keep U.S. submarines from blocking a critical initial attack on carrier strike groups. If in the event the ballistic-missile concept is not usable or fails in execution, the new Kilos with the SS-N-27B, the many other submarines with ASCMs, and the increasingly capable PLA naval air force B-6s, FB-7s, and Su-30MK2s (to be mentioned in more detail later) provide other alternatives that largely avoid American underwater-warfare superiority. The point is that as the Shangs are introduced into the fleet, it seems unlikely that they will be expected to take on American SSNs directly.

ENOUGH TO MAKE WASHINGTON PAUSE?

The intensity and persistence of PLAN attacks on U.S. Navy forces could well be affected by Beijing's perception of the fragility of a government on Taiwan subjected to a major assault from everything from ballistic missiles to aircraft to special forces—and much more. It should be remembered that the primary purpose of denying or delaying access by U.S. forces would be to convince Taipei that waiting for help is futile, that capitulation and negotiation—on Beijing's terms—are the only reasonable option. Success against U.S. forces is, therefore, important largely for its effect on Taipei's will to fight on. Success in such conflict would be sweetest for the PLA if the United States never became actively involved, concern about the capabilities of a modernized Chinese force having led American leaders to delay or withhold carrier strike groups.

Returning from strategic considerations to the fight itself, were one to occur, the Chinese can be expected next to deliver air-launched antiship cruise missiles once the air defenses of the U.S. strike groups, and possibly regional bases as well, are degraded. So this "layer" in the assault might be the PLA Navy Air Force, attacking several hundred miles out to sea from China (in some cases possibly much farther) with potent new air-launched ASCMs fired from new aircraft from Russia (the Su-30MK2) and indigenous long-range B-6s (a new version with new missiles) and FB-7 maritime interdiction aircraft, also with new ASCMs.[29] (Note how many times the word *new* appeared, correctly, in that

sentence.) Some PLA Air Force aircraft have similar capabilities. At a minimum, the U.S. Navy would have to be concerned about vulnerability to such an attack and, if it had, indeed, sustained damage, might feel it had to retreat. Beijing would make sure that such a development was not lost on Taipei—and we are seeking here to understand more fully how Beijing envisions a conflict with its modernized forces, not necessarily the reality.

Surface combatants would be a final layer if a supposedly casualty-averse Washington and teetering Taipei have not yet taken the point. Cleanup attacks might in such a case be intended, with very capable ASCMs from the several new or upgraded classes of destroyers and frigates. These warships are led, with respect to lethal firepower, by Russian *Sovremennyy*s (soon to increase from two to four) with supersonic, very evasive SS-N-22s.[30] China has built or is building enough new and modernized destroyers and frigates to form several modern surface action groups, each capable of long-range attacks with almost equally lethal, although subsonic, ASCMs. Also—and here it is finally beginning to overcome a long-standing shortcoming—the PLA Navy is on the way to acquiring good fleet air defenses using surface-to-air missile systems.[31]

To capture succinctly the scope of the modernization of the surface combatant force, it can be said that the Chinese are now building and dramatically upgrading more *classes* of modern destroyers and frigates (these combatants clearly outmatch those of Taiwan) than previous rates suggested they might acquire *ships* in this decade.[32]

The question that cannot now be answered is whether such a visible and slow-moving force, even with dramatically improved air defense, could actually engage even a damaged U.S. force and not be subject to devastating attack by other American strike forces. There are, however, broader uncertainties for the PLAN. As noted, the concepts outlined above emerge from the force Beijing is building and from PLA doctrinal and other writing. Beijing has made hard decisions and executed expensive programs in the ongoing surge in the modernization of the PLA, with great emphasis on naval, air, and missile forces for such operations as described. But surveillance and targeting support will be needed if this force is to deter or confront American intervention efforts. To that end, it appears that China is making significant efforts to gain a varied capability from space, land, sea (including undersea), and air to locate, identify, track, and target naval forces.[33] China is lagging in this arena—real success in the intelligence, surveillance, and reconnaissance (ISR) arena could take a decade—but one might make a guess that some rudimentary, if not reliable and consistent, capability could be cobbled together within a couple of years. In other words, there is impending danger that U.S. ships could be detected and effectively targeted. At least equally important is whether China will be able to coordinate, command,

and control such operations—that is, what of the C4* to go with the ISR? The PLAN, although now more realistic and somewhat bolder in its training and exercises, as mentioned above, has not, for example, touted or otherwise given evidence of rehearsals of encounters with simulated carrier strike groups hundreds of miles east of China, as it might do as part of a deterrence scheme.

There is, as described, no doubt about the acquisition of modern platforms and threatening weapons, but there remains puzzlement as to whether and how promptly the PLA Navy and the other crucial components of the PLA will make all this capability truly operational. There is, nevertheless, an additional serious corollary as to whether Beijing would feel compelled in some circumstance to initiate hostilities against Taiwan and to confront U.S. forces even if preparations were short of optimal. It is hard to relax with respect to Beijing and Taiwan, even if we think Chinese command and control is not up to the task.

This all adds up to a complex planning and execution challenge for an inexperienced PLA. In the scenario depicted above, it would be conducting two major campaigns simultaneously: one to subdue Taiwan and the other to delay effective American intervention. The campaign against Taiwan would likely include initial ballistic-missile and land-attack cruise-missile attacks; special forces, fifth-column sabotage, and other such actions; information operations; major air attacks; and amphibious and airborne assaults to secure lodgments to allow occupation and control of Taiwan. The campaign against the United States, in addition to being preceded by extensive efforts temporarily to cripple American C4ISR,† would, it should be remembered, consist of the described ballistic- and cruise-missile attacks on carrier strike groups and possibly regional U.S. bases, submarine attacks using various forms of antiship cruise missiles, and then selections from such follow-on options as ASCMs from air or surface forces. This would be an extraordinarily demanding undertaking against a daunting foe for a PLA leadership that has no experience in such combat.

The author's guess is that the PLA would quickly succeed against Taiwan but would probably falter against U.S. forces, against which it would encounter surprises, countermeasures, and other capabilities that would likely cause severe reversals. It must also be remembered, however, both that China's best strategic and military minds are working on these problems and that Beijing may feel it has to act against Taiwan regardless of how challenging the prospect may appear. Moreover, it is unlikely that the leaders of today's modernized PLA would tell the civilian leadership that their military is not ready. On the contrary, Beijing and

* C4: command, control, communications, and computers.

† C4ISR: command, control, communications, computers, intelligence, surveillance, and reconnaissance.

the military have reason to believe that their forces are of such a nature as to avoid American strengths, like SSNs and advanced C4ISR, and to make the most of China's strengths, such as its ballistic and cruise missiles and new conventional and nuclear submarine forces. The United States has the task not only to deter this modern military that could embolden Chinese leaders but also, irresistibly yet subtly, to lead those leaders to the conviction that a decision to attack Taiwan is not in China's interests and would not likely result in reunification.

BEYOND "THE TAIWAN PROBLEM"

The PLA, especially the PLAN, now seems almost wholly, even obsessively, focused on the Taiwan problem. Two other factors should be taken into account, however, and already seem to be intruding into Chinese strategic thinking. First, an emerging China wants to build a military appropriate to the country that it is becoming. Second, China's all-important national economic growth, which keeps the Communist Party in power, is dependent on ocean commerce. As the PLA Navy tries to look beyond Taiwan or to decide what, even now, it should be thinking about besides that, it sees a long-term capability to secure sea and land routes for the flow of oil and natural gas, as well as other commodities, as a leading priority for China.

Will we see an organic air capability and a shift to more nuclear submarines? A PLA Navy able to carry out that mission would almost certainly have some form of organic air, so that it could effectively operate beyond the range of land-based aircraft—far south in the South China Sea, the Strait of Malacca, even to the Indian Ocean. Current shipyard work on the incomplete aircraft carrier *Varyag* may be the start of a move in that direction, unlike so many Chinese aircraft-carrier rumors of past decades.[34] Another consideration could be a leaning toward submarines with greater range, speed, and independence from land bases. This could mean that nuclear-powered attack submarines, despite the added cost, might be preferred over diesel-electric or even air-independent-propulsion submarines.

SSNs are a possible bellwether of PLAN strategic thinking. China is now building and buying three classes of nonnuclear submarines: the Kilos, the Songs, and the Yuans (some speculate about the exact character of the Yuan propulsion system). These submarines, along with the older Mings and remaining Romeos, represent a major investment and will almost certainly constitute a majority of the submarine fleet for the next fifteen years or more. It will, nevertheless, be worthwhile to keep an eye on China's success with the Shang attack class, to ascertain whether it will feel the need suggested above for a faster, more independent force to protect distant sea lanes, and whether an emerging China will follow the American example and diversify its SSN fleet to include land-attack

cruise-missile capabilities and the ability to insert special forces—or possibly other, novel capabilities needed in emerging missions for an emerged China.

China's navy has developed in many remarkable ways, but perhaps the biggest test of maturity is the bold attempt to leap to a new status in the prestigious and unforgiving domain of nuclear submarines—where it had previously faltered. To a significant degree, the success or failure of its new nuclear-powered submarines, the Jin-class ballistic-missile class as well as the Shangs, is likely to determine future decisions for the Chinese submarine force. The American example in diversifying its nuclear submarines may also become a factor, in the form of an example. The outcome for the nuclear submarine force could set the tone for a navy that either comes to feel that it ranks with the best or, having "tried out for the pros," finds that once more it has faltered.

In any case, it is instructive to imagine a particularly intelligent and competent young Chinese naval officer just beginning his service. That junior officer must today see the prospect, at least, of a promising career ahead as a nuclear submariner in a globally capable "real navy"—the prospect of professional challenge and esteem comparable to that of an American counterpart. That in itself is a remarkable and telling change from a few years ago, when serving on troubled Chinese nuclear submarines was thought by some to be as much a joke as a job. Such success as the Chinese submarine force attains would tend to be infectious and to bolster the professionalism of other components of the modern PLAN, where newfound pride is thriving as well. The PLA Navy is not fully mature, but it has established its potential for that status in the air, on the sea, and, conspicuously, under the sea.

NOTES

This article is adapted from a paper delivered at the Naval War College's "China's New Nuclear Submarine Fleet" Research Symposium, 26–27 October 2005.

1. Previously, the author had been told privately that the PLA was surging in capability because it finally had the funds from Beijing, the technologies and assistance from Moscow, and the realization that Washington was not going to accept Beijing's position on Taiwan. Prominent in the recent public exchange was the Chinese response to three events: first, Secretary of Defense Rumsfeld's complaints about the large PLA budget, made at a conference sponsored by the International Institute for Strategic Studies in Singapore on 4 June 2005; second, his similar comments in Beijing in October 2005; and third, the 2005 annual Department of Defense report to the Congress on PRC military power. Typical of the strongly stated disagreement were the widely noted immediate objection expressed by Cui Tiankai, top Chinese representative at the Singapore conference, and the sharp retort of Vice Foreign Minister Yang Jiechi, the former Chinese ambassador in Washington, as quoted in the *Washington Post* on 21 July 2005, p. A24. He chastised the United States for "improper comments about China's defensive national defense policy and measures" and called the buildup "normal national defense building." Yang asserted that most of

the new spending went for improving living conditions for troops, noting, rather disingenuously, that the military also "updated some weapons equipment."

2. On 4 December 2005, while preparing this article, the author met with two longtime Chinese colleagues, a diplomat (senior foreign service officer) and a senior PLA Navy officer, both of them well informed and well connected. They agreed with each other (and unknowingly with American observers) that conflict with Taiwan and the United States was unlikely and that cross-Strait relations were relaxed. The diplomats said that Beijing's relaxed attitude stemmed in part from recently enhanced confidence with respect to political developments in Taipei favorable to Beijing and prospects for eventual peaceful resolution. They offered no apology or explanation for the fact that PLA modernization is focused on the Taiwan issue; both seemed to consider the unprecedented military buildup simply appropriately responsive to the task of deterring and being able to cope with China's most important contingency—the Taiwan-U.S. "threat."

3. For a description of this PLA Navy, Air Force, and 2nd Artillery modernization surge, see the author's testimony on Capitol Hill on 15 September 2005 before the U.S.-China Economic and Security Review Commission, available at www.uscc.org or at www.ifpa.org/pdf/mcvadon.pdf. For an exhaustive but illuminating description by a non-American source of the PLAN program, see Mikhail Barabanov, "Contemporary Military Shipbuilding in China," *Eksport Vooruzheniy,* 1 FBIS CEP20050811949014, August 2005. This piece (perhaps unexpectedly) is a remarkably accurate and uniquely comprehensive open-source reference on the recent stunning surge in modernization of the PLAN.

4. U.S. Defense Dept., *FY04 Report to Congress on PRC Military Power* (available at www.defenselink.mil/pubs/d20040528PRC.pdf), states on page 6: "China has continued to improve its potential for joint operations via development of an integrated command and control network, a new command structure, and improved C4ISR platforms. As in previous years, China's leaders realize that most of the PLA's C4ISR equipment lags generations behind that of the West and are encouraging a new generation of researchers, engineers, and officers to find ways to adapt to the demands of the modern battlefield. The acquisition of advanced C4ISR technology is one of the principal objectives of PRC collection activities."

5. David Shambaugh, *Modernizing China's Military: Progress, Problems, and Prospects* (Berkeley: Univ. of California Press, 2002), pp. 32, 46–47. "The PLA is still the party's army, all officers above the rank of senior colonel are party members, and the CCP still institutionally penetrates the military apparatus." "The rules of the game . . . have changed as a result of several developments: [among Shambaugh's listed developments]—Increased professionalism in the senior officer corps and a concomitant decline in the promotion of officers with backgrounds as political commissars."

6. Paul H. B. Godwin, "China's Defense Establishment: The Hard Lessons of Incomplete Modernization," in *The Lessons of History: The Chinese People's Liberation Army at 75*, ed. Laurie Burkitt, Andrew Scobell, and Larry M. Wortzel (Carlisle, Penna.: U.S. Army War College, Strategic Studies Institute, July 2003), p. 33. Godwin states: "Officer recruitment has been changed to an emphasis on college graduates rather than selecting from the ranks of serving enlisted men and women, and advancement in rank now requires attendance at the appropriate PME schools."

7. Bernard D. Cole, "The Organization of the People's Liberation Army Navy (PLAN)," in *The People's Liberation Army as Organization: Reference Volume v1.0*, ed. James C. Mulvenon and Andrew N. D. Yang (Santa Monica, Calif.: RAND, 2002), p. 476. "The PLAN is emulating the U.S. reserve officer-training corps (ROTC) programs for producing well-educated, technically oriented candidate officers."

8. Beijing *Xinhua,* 17 August 1999, translated in FBIS-CHI-99-0817: "The Chinese navy plans to recruit about 1,000 officers from non-military universities and colleges yearly beginning this autumn in an effort to meet its need for command and technical talent. . . . [these officers] will account for 40 percent of all naval officers by the year 2010." This was originally cited in Cole, "The Organization of the People's Liberation Army Navy (PLAN)," p. 477.

9. Elizabeth Hague, "PLA Leadership in China's Military Regions," in *Civil-Military Change in China: Elites, Institutes, and Ideas after the 16th Party Congress*, ed. Andrew Scobell and Larry Wortzel, eds. (Carlisle, Penna.: U.S. Army War College, Strategic Studies Institute, September 2004), pp. 247, 250. Two extracts from this chapter illustrate that party loyalty, *guanxi* (connections), and a reputation for not rocking the boat remain important in promotion decisions: "Several military region commanders have been promoted . . . to the national level. . . . [I]n all cases they involve a candidate . . . valuable for a national-level position—*even when other factors, such as connections, were a strong factor in a promotion*" [emphasis original]. Further, "Military leaders reflect PLA priorities, even in some cases when what the leader has to offer is continuity rather than new ideas or techniques."

10. The author and another longtime American specialist on the PLAN were separately told of these organizational changes by knowledgeable PLAN officers.

11. These exercises with foreign navies consisted of search-and-rescue drills, communications exercises, and even replenishment alongside in at least one case; however, conspicuously absent were tactical operations. The author has been told authoritatively that planned or proposed exercises with Thailand and other ASEAN countries will also have the goal of fostering bilateral relations, not of achieving operational capability.

12. Nikolay Petrov, "Moscow and Beijing Did Not Mention Their Loses [*sic*] That They Incurred during the Joint Maneuvers," *Moscow Kommersant,* FBIS CEP20051013330001, 8 September 2005. The following FBIS reports contain left-handed compliments and question PLA competence: "Chinese Army's 'Iron Discipline' Impresses Russian Defense Minister," Moscow RIA-Novosti, CEP20050825002002, 25 August 2005; "Russia: Results of Joint Military Exercise with China Assessed," Moscow Rossiya television, CEP20050927027016, 24 September 2005; "Russian TV Looks at Military Cooperation with China Post-Exercise," Moscow Zvezda television, CEP20050919027182, 19 September 2005.

13. "China-Russia: PRC Media on Sino-Russian Military Exercises Project Image of Converging Interests in Asia," FBIS Feature, FEA20050831007588, 31 August 2005. This analysis of the August 2005 Russian-Chinese exercise quotes the principal Chinese and Russian generals involved as saying the exercise represented "a major strategic decision of the Russian and Chinese leaders" aimed at deepening "strategic cooperative partnership"—a phrase described by the FBIS analyst as normally used to describe bilateral relations.

14. Richard Halloran, "Chinese Sub Highlights Underseas Rivalries," *Japan Times,* 30 November 2004, available at search.japantimes.co.jp/print/opinion/eo2004/eo20041130a1.htm.

15. U.S. Department of Defense, *Annual Report to Congress: The Military Power of the People's Republic of China 2005*, July 2005, pp. 12–13; available at www.defenselink.mil/news/Jul2005/d20050719china.pdf. On MRBMs, see Mark A. Stokes, "Chinese Ballistic Missile Forces in the Age of Global Missile Defense: Challenges and Responses," in *China's Growing Military Power: Perspectives on Security, Ballistic Missiles, and Conventional Capabilities*, ed. Andrew Scobell and Larry M. Wortzel (Carlisle, Penna.: U.S. Army War College, Strategic Studies Institute, September 2002), p. 113, available at www.strategicstudiesinstitute.army.mil/pdffiles/PUB59.pdf. The DF-21 family is also called the CSS-5. On SRBMs, see ibid., p. 116. The DF-15 and DF-11 families are also called the CSS-6 and CSS-7, respectively.

16. Stokes, "Chinese Ballistic Missile Forces in the Age of Global Missile Defense," p. 150 note 12.

17. See Eric A. McVadon, *Recent Trends in China's Military Modernization,* written statement prepared for testimony before the U.S.-China Economic and Security Review Commission, 15 September 2005, available at www.ifpa.org/pdf/mcvadon.pdf. The information was derived from many translated Chinese articles during recent years; sources can be identified for serious researchers.

18. Admiral Lowell E. Jacoby, Director, Defense Intelligence Agency, *Current and Projected National Security Threats to the United States,* statement (excerpted) to the Senate Select Committee on Intelligence, 24 February 2004, available at www.ransac.org/Official%20Documents/U.S.%20Government/Intelligence%20Community/492004113202AM.html.

19. See Barabanov, "Contemporary Military Shipbuilding in China," for an open-source catalogue of PLAN modernization efforts.

20. John R. Benedict, "The Unraveling and Revitalization of U.S. Navy Antisubmarine Warfare," *Naval War College Review* 58, no. 2 (Spring 2005). "The recent sale [to China] of eight additional Project 636 Kilos equipped with wake-homing antiship torpedoes and submerged-launch 3M54E Klub-S [the SS-N-27B] antiship cruise missiles is indicative of the transformation of this submarine force. The Project 636 Kilo 'is one of the quietest diesel submarines in the world' [quoting the Office of Naval Intelligence]; . . . the Klub-S missile has a 220-kilometer maximum range . . . and a terminal speed of up to Mach 3. Such a capability represents a very formidable threat to American and allied surface units" (p. 102).

21. "Klub (SS-N-27) ASCM," *Barat Rakshak: The Consortium of Indian Military Websites,* 12 September 2004, www.bharat-rakshak.com/navy/Klub.html. This and several of the following citations from public sources serve usefully to describe Chinese acquisitions and deployments; the varied character of these sources also illustrates that reasonably accurate descriptions of the ongoing PLA modernization are publicly available. The problem can be culling inaccurate reports; the author is often able to do so by asking knowledgeable PLA officers and through active exchanges with other diligent specialists.

22. "Russia to Deliver SS-N-27 to China," *Chinese Defence Today,* 29 April 2005, available at www.sinodefence.com/news/2005/news29-04-05.asp.

23. On quietness and sensors, see Zachary Moss, "Nuclear Submarines Worldwide: Current Force Structure and Future Developments," *Bellona Nuclear Naval Vessels,* 13 May 2004, www.bellona.no/en/international/russia/navy/northern_fleet/vessels/34070.html. On employment, see Globalsecurity.org, www.globalsecurity.org/military/library/report/2005/d20050719china.pdf. The U.S. Defense Department, in its 2005 *Annual Report to the Congress: The Military Power of the People's Republic of China,* states on page 33: "China is developing capabilities to achieve local sea denial, including . . . developing the Type-093 nuclear attack submarine for missions requiring greater at-sea endurance."

24. "Yuan Class Diesel-Electric Submarine," *Chinese Defence Today,* available at www.sinodefence.com/navy/sub/yuan.asp. For the Song class, "Type 039 Song Class Diesel-Electric Submarine," ibid., www.sinodefence.com/navy/sub/039.asp.

25. Jing-Dong Yuan, "Chinese Responses to U.S. Missile Defenses: Implications for Arms Control and Regional Security," *Nonproliferation Review* (Spring 2003), available at cns.miis.edu/pubs/npr/vol10/101/101yuan.pdf, p. 89.

26. This is an estimate based on the author's acquaintance over fifteen years with the PLAN submarine force and discussions in recent years with others who have extensive experience concerning that force.

27. With respect to Taiwan's ASW capability and potential, the author drew on numerous exchanges with ROC naval officers and think-tankers over many years, including numerous visits to Taiwan. For judgments on other aspects of the ASW environment, the author relied on his three decades of ASW experience flying P-2 and P-3 aircraft, the major portion of which was gained with the U.S. Seventh Fleet in western Pacific waters.

28. Benedict, "The Unraveling and Revitalization of U.S. Navy Antisubmarine Warfare," p. 97 fig. 2, where the ASW situation for 2003 is described as, "Few new ASW sensor & weapon capabilities fielded to counter diesel subs in littorals." Also, on pp. 99–100, the U.S. Navy vice admiral commanding Atlantic submarine and ASW forces is quoted as saying, "Our ASW capabilities can best be described as poor or weak," and the Pacific Fleet commander as warning, "We will need greater ASW capability than we have today. . . . [F]uture technologies are essential to counter the growing submarine threat."

29. For the Su-30, Charles R. Smith, "New Chinese Jets Superior, Eagle Loses to Flanker," NewsMax.com, 26 May 2004, at www.newsmax.com/archives/articles/2004/5/26/154053.shtml. This article illustrates that open sources were reporting this PLA naval air force acquisition and its antiship role soon after its purchase from Russia was consummated: "China is about to receive 24 advanced Sukhoi Su-30MK2 Flanker fighters from Russia. . . . The new Chinese fighters are reportedly equipped with enhanced anti-ship

strike capabilities including the Kh-31 Krypton supersonic anti-ship missile. . . . The PLA Naval Air Corps will deploy the latest batch of Su-30MK2 fighters." For the B-6, Robert S. Norris and Hans M. Kristensen, "Chinese Nuclear Forces, 2003," *2003 Bulletin of the Atomic Scientists* 59, no. 6 (November/December 2003), pp. 77–80, available at www.thebulletin.org/article_nn.php?art_ofn=nd03norris. Using the Chinese designation for B-6—that is, H-6—this article states: "Although increasingly obsolete as a modern strike bomber, the H-6 may gain new life as a platform for China's emerging cruise missile capability. The naval air force has used the H-6 to carry the C-601/Kraken anti-ship cruise missile for more than 10 years, and *Flight International* reported in 2000 that up to 25 H-6s would be modified to carry four new YJ-63 land-attack cruise missiles." For the FB-7, see "JH-7 [Jianhong Fighter-Bomber] [FB-7]/FBC-1," Globalsecurity.org, 27 April 2005, www.globalsecurity.org/military/world/china/jh-7.htm: "China reportedly is developing an improved version of the FB-7. The twin-engine FB-7 is an all-weather, supersonic, medium-range fighter-bomber with an anti-ship mission. Improvements to the FB-7 likely will include a better radar, night attack avionics, and weapons." For ASCMs, see Nuclear Threat Initiative (NTI), *China's Cruise Missile Designations and Characteristics,* 26 March 2003, www.nti.org/db/china/mimport.htm. This material is produced independently for NTI by the Center for Nonproliferation Studies at the Monterey Institute of International Studies.

30. "Naval Forces," *Strategy Page,* 20 March 2005, www.strategypage.com/htmw/htsurf/articles/20050320.aspx. This source states: "The primary weapon of the *Sovremennyy* is the SS-N-22 Sunburn, a high-speed sea-skimming missile with a huge 660-pound warhead. The Sunburn is probably the best anti-ship missile in the world." This article is cited primarily to illustrate the widespread reputation of the Sunburn missile as extremely lethal and evasive.

31. "Type 052c (*Lanzhou* Class) Air Defence Missile Destroyer," *Chinese Defence Today,* 27 August 2005, available at www.sinodefence.com/navy/surface/052c.asp: "Jiangnan Shipyard started to build two Type 052C destroyers . . . with more advanced weapon systems and sensors specifically for fleet air defence role. . . . The most notable feature is the four-array multifunction phased array radar (PAR) similar to the U.S. AN/SPY-1 Aegis system. Additionally, the destroyers are also fitted with the vertical launch system (VLS) for the indigenous HQ-9 long-range air defence missile system."

32. The U.S.-China Economic and Security Review Commission annual report for 2005, chap. 3, sec. 1, based on testimony of expert witnesses, available at www.uscc.gov/annual_report/2005/chapter3_sec1.pdf, states: "The PLA Navy (PLAN) is engaged in an unprecedented level of construction and acquisition of major surface combatant ships. It currently is deploying seven new major ship classes at one time, building up to two new ships in each class per year. These include the Project 956 *Sovremennyy*-class guided-missile destroyer (DDG); the Type 52B DDG; the Type 52C, Aegis-like DDG; the Type 54 guided-missile frigate."

33. U.S. Defense Dept., *FY04 Report to Congress on PRC Military Power,* states on pp. 43–44: "Acquisition of modern ISR systems remains a critical aspect of Beijing's military modernization. China is developing its ISR capabilities based on domestic components, supplemented by foreign technology acquisition and procurement of complete foreign systems. PLA procurement of new space systems, AEW [air early warning] aircraft, long-range UAVs [unmanned aerial vehicles], and over-the-horizon radar will enhance its ability to detect, monitor, and target naval activity in the western Pacific Ocean. It appears, from writings on PLA exercises, that this system currently lacks integration and that a fused, efficient ISR capability will not be achieved for many years." See also Richard A. Bitzinger, "Come the Revolution: Transforming the Asia-Pacific's Militaries," *Naval War College Review* 58, no. 4 (Autumn 2005), pp. 42–43, 46.

34. For the saga of China and aircraft carrier acquisition, see Ian Storey and You Ji, "China's Aircraft Carrier Ambitions: Seeking Truth from Rumors," *Naval War College Review* 57, no. 1 (Winter 2004).

THE EPISTEMOLOGY OF WAR GAMING

Robert C. Rubel

Anyone who has conducted or has studied actual warfare knows well its massive complexities.[1]

These complexities do not relieve humans from the responsibility for making decisions—difficult decisions—aimed at navigating their organizations successfully through campaigns, be they in a theater of war or in the halls of the Pentagon. Minds must be prepared beforehand, both in their general, educated functioning and in the specific, sophisticated understanding of conflict and the competitive environments they face. This preparation must be predicated on the internalization of "valid" knowledge about the conflict environment. There are many ways of gaining such knowledge: the study of history and theory, practical experience, and exposure to the results of various kinds of research and analysis. Each of these methods of developing knowledge has its own particular epistemology—formally, a "theory of the nature and grounds of knowledge, especially with reference to its limits and validity," or more practically, rules by which error is distinguished from truth. War gaming is a distinct and historically significant tool that warriors have used over the centuries to help them understand war in general and the nature of specific upcoming operations. The importance of war gaming demands serious examination of the nature of the knowledge it produces.

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Before going farther, it is worthwhile to define exactly what we mean by "war game." Peter Perla provides as good a definition as any: a war game is "a warfare model or simulation whose operation does not involve the activities of actual military forces, and whose sequence of events affects and is, in turn, affected by the decisions made by players representing the opposing sides."[2] War gaming, rightly considered, is inherently a method of research, regardless of how people apply it. The essence of war gaming is the examination of conflict in an artificial environment. Through such examination, gamers gain new knowledge about the phenomena the game represents. The purpose of a game is immaterial to this central epistemological element. Moreover, the gaining of knowledge is inherent and unavoidable, whatever a game's object. The real question is whether such knowledge is valid and useful. This question is all the more important because of the growing reliance on gaming techniques in an increasingly complex world.

This article will attempt to initiate a professional dialogue on the underlying logic structure of gaming by examining the epistemological foundations of gaming in general and ways in which the knowledge gained from specific games can be judged sound.

Perhaps the most compelling reason to conduct such an inquiry is the possibility of insidious error creeping into war games. War gaming, even after centuries of practice, is still more a craft than a discipline, and it is quite possible for rank amateurs, dilettantes, and con artists to produce large, expensive, and apparently successful but worthless or misleading games for unsuspecting sponsors. There is little incentive to apply incisive criticism to games in which heavy investments have been made, and persons or organizations inclined to do so are hampered by lack of an established set of epistemological theory and principle. This does not mean that the majority of games are fatally flawed; it does mean that there is no accepted set of criteria to determine whether they are or not. Judgment as to the success and quality of a war game, especially one of high profile and consequence, is too often the result of organizational politics.

EPISTEMOLOGY

Some elaboration of the meaning of this somewhat esoteric term is essential. To avoid getting sidetracked by philosophical complexities, we can adopt a convention based on current thinking. One widely accepted branch of modern epistemological theory holds that knowledge results from the building of simplified mental models of reality in order to solve problems. The "validity" of a model (or knowledge) emanates from its utility in problem solving.[3] This approach seems sufficient for our purposes. Knowledge is a practical human response to the challenges of our environment. Valid knowledge is that which has

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sufficient practical correspondence to our environment to be useful for problem solving.

Readers with knowledge of modeling and simulation will immediately find resonances in this definition with widely used definitions of computer simulation validity—for example, "substantiation that a computerized model within its domain of applicability possesses a satisfactory range of accuracy consistent with the intended application of the model."[4] Thus we are not so much concerned with the validity of knowledge in an absolute sense as with the practical utility of knowledge emanating from a game relative to the projected warfare environment in which it will be applied. Most war games are oriented in some way to the future, either explicitly or inherently; accordingly, the predictive value of knowledge emanating from a game is critical. At this point many veteran gamers will cry foul, as it is widely accepted that war games are not predictive (although there are some who will disagree). To untangle this knot, let us go back to our baseline definition of valid knowledge—that which is useful for problem solving. This presupposes that the environment can to some degree be shaped by decisions. If it were not, war gaming—in fact, any decision-support tool—would be irrelevant. If the environment is malleable, however, there are "right" and "wrong" decisions available to the decision maker.[5] Ignorant decision makers would be at the mercy of chance; their decisions would be shots in the dark, or worse. An informed decision maker—one who possesses valid knowledge about the environment and the potential consequences of alternate choices—could do better than that in a future situation. Valid knowledge is predictive to that extent. However, since life in general and war in particular are influenced by thousands of little happenstances that are beyond the control of any single decision maker (a true definition of Clausewitz's "friction"), "right" decisions do not guarantee success. If they did, war would be formulaic and gaming unnecessary. For that reason, although valid knowledge of the environment is inherently predictive—in that it indicates potentially valid cause-and-effect relationships through which decision makers can bring about their intent—a war game can never be truly predictive.

Setting aside, for now, arguments about certain war games in history that have seemed in some way predictive, we are left with the uncomfortable question of what games are good for if they cannot truly predict. Indeed, why do we game at all?

WHY GAME?

If we accept the notion that war gaming is inherently a research tool (a definition that includes the produced effects of education, training, experimentation, and analysis) and one that generates potentially valid knowledge, we must ask under

what conditions, or for what problems, it can have validity. Can it be used validly in lieu of other tools, or does it occupy a unique relationship to a class of problems for which it is the only valid tool?

Perhaps the deepest treatment of this question is that of John Hanley, who relates the inherent nature and structure of war gaming to the amount and kind of "fuzziness" (indeterminacy) attending a problem. Indeterminacy comprises those things we do not know about either the initial conditions of relevant elements of the problem or about the effects of our potential attempts to solve it. Hanley posits a spectrum of indeterminacy, as follows:

- *No indeterminacy.* The elements of the problem are known and amenable to engineering solutions.
- *Statistical indeterminacy.* The initial set of conditions is a random variable whose statistics we know, and the effects of our actions upon it can be determined. For instance, the chances of a submarine being in a particular area of ocean could be calculated from intelligence, and our search efforts would be shaped thereby.
- *Stochastic indeterminacy.* The initial set of conditions may be known, but the process by which new states of affairs (for instance, battle outcomes) are produced by our actions is subject to statistical variation—the "roll of the dice."
- *Strategic indeterminacy.* The initial set of conditions is known, but there are two or more competing "players" whose independent choices govern the end state.
- *Structural indeterminacy.* Significant elements of the problem are so little known or understood that we cannot define the problem in terms of the other forms of indeterminacy. Such elements might be "indeterminacy in current conditions, the kinematics of the process, acts of nature, the available response time, and the perceptions, beliefs and values of the decision makers."[6]

Hanley describes war gaming as a weakly structured tool appropriate to weakly structured problems.[7] Such problems are those so complex or poorly defined as to require a tool that can accommodate their considerable imprecision. Warfare in general and many of the problems subsumed within it are certainly weakly structured—that is, marked by structural indeterminacy. This adds up to the first part of the answer to our question: We war-game because we must. There are certain warfare problems that only gaming will illuminate.

This imprecision, or lack of solid structure, characterizes both the problem and the tool, and therefore governs the nature of the knowledge produced by a

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war game. That knowledge is not in the form of a solution to an engineering problem. It is commonly said that war games produce insights, not proofs. This conventional wisdom is correct insofar as it goes, but it is not sufficiently developed to stand as an epistemological principle. Following Hanley's line of thought, we can say that the knowledge emanating from a game is also weakly structured, meaning that such knowledge is conditional and subject to judgment in application. Our confidence in the structural calculations for a bridge can be very high if we combine accepted engineering formulae, accurate measurements, and building materials of the predicted quality. In contrast, however, our confidence in answers produced by population sampling cannot be 100 percent; further, any answers produced by game theory for a particular conflict situation must be understood to be conditional on the scope for free choice enjoyed by the opponent. Answers produced by war games are yet more conditional, due to the wide scope of significant variables attendant to warfare, whether or not incorporated into the game. Perhaps the best way to characterize this conditionality is to say that knowledge produced by war games is *indicative*—that is, at its best it can indicate the possibilities of a projected warfare situation and certain potential cause-and-effect linkages.

Insiders have a term for nongames masquerading as games: BOGSAT ("Bunch of Guys Sitting around a Table").

Indicativeness is no mean thing when dealing with a very complex or weakly structured problem. The primary mechanism through which war games produce such knowledge is visualization. Games allow players and observers to see relationships—geographic, temporal, functional, political, and other—that would otherwise not be possible to discern. Seeing and understanding these relationships prepares the mind for decisions in a complex environment. This holds true whether the purpose of the game is education or research.

While weak problem structure is a compelling reason to war-game, there are other equally compelling reasons, each of which has epistemological implications. A common reason for mounting a war game is socialization, either of concepts or people. Many organizations within the U.S. government sponsor games in order to get a wide and diverse set of stakeholders to "buy into" a set of concepts or doctrine. Military "Title X" games (that is, Title Ten, referring to the federal statute that directs the armed services to raise, maintain, and train forces) frequently have this as at least a tacit purpose. Knowledge emerging from such games is less conditional than in other settings, at least with respect to the consensus they are meant to generate. A recent joint war game revealed that none of the military services had invested sufficiently in the suppression of enemy air defenses to support an aggressive airborne assault early in a particular scenario.

That revelation was more than just indicative—it was usable intelligence. Such knowledge could be used to alter budgets or even service roles and missions.

Some games are used to acquaint organizations with each other. This has been an important aspect of homeland security gaming in the wake of 9/11. For instance, in a recent homeland security game, a state emergency management agency learned that it had formally to request federal assistance in a disaster, not just expect it to show up. That knowledge was not in the least conditional; the game provided to key officers of a state agency concrete knowledge of federal requirements.

SIMULATION

War games are inherently simulations of reality. By this we mean that they are simplified representations of a potential future (or perhaps past) warfare situation. Simulation has epistemological implications all its own. Most fundamentally, simulation is a calculation technique, and as such it is coupled to the phenomena it seeks to represent along Hanley's spectrum of indeterminacy. For instance, physicists use simulation techniques to explore subatomic interactions. They can do this with high confidence because the problem set they are dealing with contains no more than statistical indeterminacy. Naturally, then, simulation of war is less closely coupled to its parent phenomenon because of the high degree of structural indeterminacy involved. In other words, it is far less likely that any warfare simulation would be "valid" due to all the imponderables that are necessarily distilled out.

A war game is an artificial representation—that is, simulation—of war that is used to learn more about a particular situation. A common misconception is that computer simulations are war games. Computer programs are not in themselves war games, although they are frequently referred to as such; war games require human players, who may employ computer programs to assist them. In a broad sense, simulation is the attempt to represent reality to the degree necessary to explore the warfare phenomena in which we are interested. Thus when we talk of simulation in this article, it is in the general sense of war-game design and not the narrower sense of computer software.

Following Hanley, we can attack the issue of warfare simulation by establishing a vertical spectrum of sorts, based on the degree of fidelity a simulation possesses. At the bottom of the spectrum exist such games as Go and chess. These games are abstractions; all that is retained of reality is the essence of conflict. That does not mean that valid knowledge cannot be gained from these games; many wise generals have extolled their virtues in preparing the mind for actual battle. At the top of the spectrum are detailed simulations, attempts to capture as much reality as possible. In between exist what we will call "distillations"—

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games in which significant simplifications of reality are made for specific purposes. In a sense, all simulations are distillations, because a perfect representation of reality would *be* reality. To put it more practically, exact simulation of real warfare is not possible. Admiral Arleigh Burke illustrated the matter well when he said, "Nobody can actually duplicate the strain that a commander is under in making a decision during combat."

This distilling process has epistemological implications for simulation. Pursuing farther the logic we have been following, we could easily conclude that the knowledge produced by highly distilled games is more conditional and less predictive than that from simulations having greater fidelity. Such reasoning would force us to conduct nothing but elaborate and expensive games. Fortunately, such an epistemological blind alley can be avoided by linking purpose to predictiveness. All war games have explicit purposes, and rarely are these purposes so holistic as to demand unsparing investment in fidelity. Bringing the purpose of a game into focus leads quite naturally to distillation; many games are able to set aside significant aspects of reality. To the extent that distillation promotes clarity, highlighting relationships in the aspect of warfare we are studying, the epistemological damage of failure to include all possible factors is counterbalanced. Since knowledge gained from a war game is in the eye of the beholder (player or analyst), obfuscation caused by excessive comprehensiveness is at least as damaging as the omission of some significant element.

Epistemologically speaking, we conclude that a war game should be designed with as much fidelity as possible without including factors that, because they are not clearly related to its purpose, risk diluting or masking valid knowledge that might legitimately be gained.

There is another implication of simulation that must be addressed: the common wisdom holding that war games are not experiments, as they cannot prove anything. This is clearly true, in terms of John Hanley's logic, since knowledge emerging from games is conditional. The proposition is confirmed also by the nature of warfare simulation; the lack of close coupling with its parent phenomenon due to structural indeterminacy makes it always incomplete and defective in some, possibly unknown, way.

Nevertheless, there is an aspect of war gaming that can accommodate experimentation. Some war games focus on command and control. In them, players are organized into cells, each of which represents a command or perhaps an element of a staff organization. These cells are provided with communications devices (most recently networked computers) and command and control (C2) doctrine. The war game provides a venue in which command and control processes can take place. The point here is that within the context of the game, actual—not simulated—command and control occurs. Thus, knowledge gained from this

activity can be treated like experimental data, subject to all the epistemological principles and injunctions of the scientific method. One caveat is that war games are most commonly one-time affairs, so the data cannot be treated with the same confidence as that gained from experiments run a number of times. On the other hand, simple and appropriately distilled games have been used as substrates within multiple-run C2 experiments, the output of which constitutes valid statistical data.[8] However, in games featuring a significant command and control focus, information gained from the underlying simulation must be treated differently than that derived from the command and control "layer."

GAME ARTIFACTS

Games can easily produce information that is invalid. Commonly, such information is produced by what are termed "game artifacts," defects of simulation that corrupt a game's cause-and-effect relationships. If, for instance, a Control umpire somehow used the wrong weapons-effects table to look up the outcome of a tactical engagement, subsequent player decisions based on that assessment would be tainted. Similarly, defects in display may cause players to be artificially misled as to where units are. Simply ascribing such defects to the "fog of war" and allowing them to be folded into the game's flow is as much an epistemological mistake as assigning too much significance to game outcomes.

It is entirely reasonable to build the fog of war into a game, which can be done in various ways. These devices, such as revealing to players only that information which their reconnaissance assets could "see," normally place bounds on the nature of misinformation that may crop up. Players may, for instance, make unwarranted assumptions about the location of enemy forces due to a lack of information; they might equally do so in the real world, and such imperfection of information does no violence to the intellectual validity of cause and effect or critical analysis. However, if a computer-generated operational picture through some system defect placed a "Red" unit far out of position and thereby affected "Blue's" decision making, we cannot explain it away as the result of a Red computer attack or some sophisticated deception. Nor can it be chalked up to equipment failure that might happen in real life; unless it is known that the game's designers provided for this real-world factor, it cannot be assumed to be a part of the simulation.

A game artifact that is perhaps easier to understand but more difficult to detect or avert is invalid decision making by players. It is a fundamental, if tacit, assumption of war gaming that players will make the best decisions they can. They need not be the right decisions—after all, somebody has to lose—but they must not be capricious or negligent. Players are expected to try to win, or at least to carry out doctrine in a faithful way. When they do not, as a result of alienation,

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inattention, or malice, the game's results are contaminated. This can happen all too easily. In some games, Red is constrained by Control, in order to shape the game in some needed way, from certain otherwise reasonable actions it wants to take; if Red players react with disillusionment or cynicism, they may "mentally disengage" from the game and make very different decisions than if they were properly immersed and motivated. Another source of defective decision making is ignorance or improper training among players. If the goal of the game is to examine the efficacy of a particular concept or doctrine but the key players do not know or understand the material, the game results cannot be accepted.

Another player artifact, one that is harder to account for, crops up in games as well: players tend to be more aggressive than they would be in the real world with real lives at stake. There are several inherent reasons for this. First, it is just a game, and therefore real lives are *not* at stake. Second, depending on the extent of the simulation, there are no tactical commanders screaming bloody murder if the operational-level player puts them in a unnecessarily dangerous situation. One of the most common misfortunes to attend Blue players in Cold War games was the loss of amphibious groups because the Blue players had let them sit in exposed positions. Third, since every game has a defined end point or specific set of victory conditions, there is no "tomorrow" to be provided for by players after the last move. Game designers must therefore understand these tendencies and attempt to structure their games to minimize the likelihood and intensity of this player artifact.

THE WAR GAME AS MILITARY HISTORY

We have seen that knowledge gained from war games is conditional—that its validity is ultimately dependent on its effects on decisions made in real-world operations. But analysts examine games after the fact, and all participants have the opportunity to learn from their findings. How should this information be handled, sorted, and considered? How can it be converted into valid knowledge? Because it is not scientific data, it cannot be statistically reduced or otherwise treated in ways appropriate for "hard" data. Perhaps information produced by war games is best considered artificial military history. Game data can then be approached with the full array of methods available to the historian. Moreover, the trap of treating mere discussions as games can be avoided. Insiders have a term for nongames masquerading as games: BOGSAT ("Bunch of Guys Sitting around a Table"). If the data derived from an event consists solely of what participants said, it was not truly a war game, and its results should not be accorded the stature that knowledge gained from a real game should have.

Perhaps the best commentary on converting military history into useful knowledge is to be found in the writings of Carl von Clausewitz. Clausewitz

regarded history as a real-life laboratory of war, one that can be mined for information useful for preparing the minds of future commanders. His approach was what he called *Kritik,* or critical analysis: researching the facts, tracing effects back to their causes, and evaluating the means employed.[9] This process (which emerges from a close reading of Book Two, chapter 5, of his classic treatise *On War*) is as valid today as it was in Clausewitz's time. These three steps constitute more than a method; they establish a criterion for the extraction of valid knowledge from a war game. It is not enough simply to list the facts of what happened in the game; these are meaningless in themselves, because the game was a simulation. We must examine why these events occurred—the combinations of player decisions and umpire determinations that produced them.

Clausewitz himself, however, acknowledges the limits of the method: at some point, results must be allowed to speak for themselves. The critic, "having analyzed everything within the range of human calculation and belief, will let the outcome speak for that part whose deep, mysterious operation is never visible."[10] In other words, war cannot be completely understood in its full complexity; ultimately criticism must recognize that there are factors at work whose functioning can be revealed only by the actual victories or defeats of a commander being studied. This is perfectly reasonable with respect to real warfare. It might also be true for war games, but its usefulness is limited by the fact that they are simulations. For example, a common method of introducing uncertainty into battle-outcome calculations is rolling dice to represent the probabilistic nature of certain phenomena, like sonar or radar detection. Beyond this narrow use of stochastic indeterminacy, game designers frequently aggregate complex interactions of large combat forces with a combination of dice rolls and structured combat-results tables. Here the die simulates the effects of a wide range of variables that are not explicitly modeled.

A common reason for mounting a war game is socialization, either of concepts or people.

It would be easy enough, lacking any other good explanation of the cause-and-effect relationships between player decisions and outcomes, to sense here the presence of invisible factors. But if such "deep, mysterious" elements exist in war games, they are not those of which Clausewitz speaks. A roll of the dice is simply that. To say it simulates unmodeled portions of reality is going too far. The most one can say is that there are physical forces at play on the die itself that players cannot calculate and therefore cannot predict. This is different from admitting one does not understand all the complexities of a real battlefield. Thus, we cannot approach the results of a war game as a military critic would the outcome of a real battle or campaign. Results of a war game cannot be used to fill in

analytical blanks in the way Clausewitz describes, nor can theory or judgment be derived from them in the way historians do from real events.

Nevertheless, we can ascribe a certain significance to war-game outcomes. If the game is run according to a specific set of rules and those rules constitute a valid distilled simulation of reality, outcomes of individual "moves" or entire games can yield useful knowledge. To understand when this can be the case, we need to understand the difference between *rigidly assessed* and *freely assessed* war games. We describe as "rigidly assessed" those games that proceed strictly according to rules governing movement, detection, and combat. Such games produce situations governed by player decisions, the rules, and combat-results tables (manual or computerized). Assuming the absence of artifacts and within the limitations of dice rolls, we can in such a case ascribe significance to game, or even move, outcomes. The game goes where the rules take it; if the rules and the combat-resolution tables are good representations of reality, the outcome constitutes artificial military history, and one can usefully work backward from outcomes and look for reasons. This would be so whether the game is played by hand around a board or at computer workstations. Inputs are generated, and these, by means of a known system, produce results that cannot be predicted or influenced. The game goes where it goes.

Freely assessed games are somewhat different epistemological animals. In these, the flow of the game is governed by umpires and game directors. Instead of following game rules, players make plans and decisions as they would in real life, more or less, and umpires, collecting the interacting moves of all the players, translate them into force movements, detections, and combat results. The umpires may be aided by computers. The key difference is that the game's progress, including move results, are governed by the objectives of the game's sponsors, the time available, and sometimes the conflicting interests of stakeholders. Control may determine that a certain set of conditions must occur at a specific point if the game's objectives are to be met. This is most commonly the case in educational games, but it can also occur in research games. In such a case, Control defines in operational game terms the needed conditions, looks at the situation at the end of the previous move, and then figures out what—within the bounds of plausibility, given the players' new moves—*must have happened* in order to get from that situation to the desired condition.

That is, the umpires deduce tactical outcomes, the necessary inputs, by working backward from a set of desired results. This fact does not negate the validity or value of the game, but it does mean that its *outcome* does not have the same analytical weight as that of a rigidly assessed game. Freely assessed games can be valuable for discovery purposes—perceiving relationships or finding defects in

plans—but they cannot be used to see "who would win." Similarly, they cannot be regarded as artificial military history to the same extent as rigidly assessed games.

MONTE CARLO VERSUS DETERMINISTIC COMBAT RESULTS

A Naval War College elective course on war-gaming theory and practice recently designed and played an instructional board game. In the course of it, a Blue player exclaimed in frustration, "This is a dice game, not a capabilities game!" His observation was trenchant as well as accurate. In the game—which combined various types of dice and combat-results tables—a small Red force had just hammered a larger Blue fleet after four or five very lucky die rolls. The rules had attempted to reflect lower Red strength by awarding hits only on rolls of one or two on a ten-sided die, but five consecutive rolls of one or two now produced a David-slaying-Goliath result. How does one deal with such an outcome?

As we have seen, there are several reasons to roll dice—that is, to use Monte Carlo methods to produce uncertainty in outcomes. Perhaps the best reason is to simulate real-world phenomena that are in fact probabilistic. Some good examples are certain types of radar detections and the reliability of weapons systems. Epistemologically, there are few reasons to object to such an application of probabilistic simulation.

Another reason to roll the dice is to represent the aggregate performance of complicated systems that are at least partially dependent on human performance. If, for instance, we assign an 80 percent probability of a hit by an antiship missile and its purely mechanical reliability is on the order of 99 percent, the other 19 percent of uncertainty would consist of such things as operator error and, perhaps, brilliant maneuvering by the target ship. Here, epistemologically speaking, we start to get a bit uneasy, because the moment probability enters into the picture, we introduce the possibility of very-low-probability occurrences, such as the string of lucky rolls by Red just mentioned. Could such a thing happen? Of course it could—anything is possible—but we must ask ourselves if such an ascription of exceptional human incompetence or brilliance has any place in the intellectual architecture of game objectives. On some level, we may accept the validity of the knowledge produced by such simulation methodology, but the student's complaint haunts us: Is it a dice game or a capabilities game? To put it differently, does the introduction of Monte Carlo methodology distort the intellectual structure of the game?

We have previously asserted that it is not valid to substitute dice rolls for unmodeled aspects of reality. Here we see one reason why—that luck in dice rolling is a special phenomenon in itself. The actual likelihood of unmodeled factors all lining up in a way that would be represented by rolling five ones or twos in a row is likely to be far smaller than the roughly three-in-ten-thousand

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odds of such a string of rolls. It would be different if we contemplated a hundred or even a thousand iterations of the game; by looking at the most frequent outcomes, we might then place the "outliers" in their proper perspective. This is done in campaign analyses via computer simulations; scenarios are iterated very many times at high speed to produce a population of results that are subject to statistical reduction. However, most war games are conducted once, and thus the impact of outlying results arising from the peculiarity of Monte Carlo methods must be considered. What validity should we ascribe to a web of human decisions impacted by quirky dice rolls? From this point of view, it appears that invalid Monte Carlo methods can produce game artifacts.

The obvious alternative to Monte Carlo simulation is deterministic calculation, using algorithms. Playing pieces are assigned numbers to represent their capabilities on offense, defense, and perhaps other aspects of combat power. Combat-result tables based on some predetermined formula are consulted to determine outcomes. One simply compares offensive points to defensive points to find a ratio and enters the table with that ratio to look up the result. Every time that ratio arises, the same result ensues. For this methodology, game validity is a function of the accuracy with which the embedded algorithms describe real combat interactions. In a deterministic game, neither human idiocy nor brilliance exists, below the level of the game player; the impact of player decisions is sharply highlighted. This leads us back to the axiom that games should model reality with as much fidelity as possible without masking the phenomena we are trying to elucidate.

STRATEGY AND EFFECTS

Clausewitz extended his *Kritik* from the tactical and operational levels into the realm of strategy through the device of concentric analytic rings. He undertook to analyze and critique the decision of Napoleon Bonaparte (then a general in the field, under the French Directory) to make the peace of Campo Formio by examining the wider strategic context in stages, working from narrower to wider views. In other words, he examined the context for Napoleon's northern Italy campaign to ascertain whether the latter's decision to make peace with the Austrians when and where he did was justified.[11] Such analysis might be possible in war games, but the analyst must decide whether the strategic context of the game was established with sufficient detail and realism to stand as a criterion for judgment. Operational-level war games are frequently accompanied by unrealistic or truncated strategic contexts, in order to allow the fighting called for by game objectives to take place. Assessments of operational decision quality or utility based on such strategic criteria are likely to be invalid.

As an example, the Naval War College's Global War Game series (played annually from 1979 until 2001) focused on rapid, operational-level decision making, supported in later years by an advanced, networked collaboration environment and computer-analysis tools.[12] In 2000 the scenario featured a brink-of-war situation in which Blue players had to generate high "speed of command" in the conflict's first exchanges in order to avoid catastrophic casualties. The national-level command apparatus was played by Control, which assigned the role to a small cell of subject-matter experts. Pressure from the game's directorship resulted in quick, streamlined, and aggressive decision making by this cell (also recall the player aggressiveness artifact mentioned previously), allowing operational-level players to preempt and gain a smashing victory. The postgame judgment was that network-enabled speed of command was a very good thing.[13] However, in fact, the strategic-level command apparatus context had been so unrealistic as to invalidate any such assessment. In any case, games that incorporate detailed play at both the strategic and operational levels are uncommon, for a number of reasons, including the practical matter that free play at the strategic level tends to constrain or disrupt operational-level processes.

Strategic games have a long history, and they can produce knowledge as valid as that from games at the operational and tactical levels. It is possible to explore the strategic conflict environment in order to discern relationships between factors, including the structure of incentives that influence players. Sometimes these games are used as background for subsequent operational-level games. If so, consistency must be achieved between the scenarios, orders of battle, and player assumptions of the various games, or it will not be possible to relate their outcomes to each other—they will be "apples and oranges." Moreover, analysts must rigorously identify artifacts in the first game in order to prevent them from affecting player decisions or analysis in following games.

There is yet another issue related to strategic context and critical analysis that must be considered—"effects-based operations," or EBO. This concept, which is permeating the U.S. military lexicon today, has been an aspect of war gaming for the last few years. EBO focuses on the second- and higher-order effects of military actions, with an eye toward making these actions more effective and avoiding adverse side effects, in terms of broader purposes. At the tactical and operational levels, the prediction of battle effects is reasonably straightforward, at least in the physical realm. Consequently, assessing war-game move outcomes when players are using EBO planning methods is fairly straightforward. Even "moral" effects at these levels are possible to assess; for instance, units that are outflanked tend to lose cohesion, and generals faced with the cutting of main supply routes can be expected to withdraw their forces to avoid encirclement.[14]

However, at the strategic level, the degrees of freedom proliferate, and assessment of possible effects on populations and on national leaders is highly problematic.[15] If it is difficult in real war, as has been proven time and again, it is doubly hard in war games, which look to an uncertain future.

There is an epistemological solution. It lies in understanding that while war games are not crystal balls, they can highlight the relationships between factors. We could, for example, decide to explore the political terrain of war termination under given mind-sets or policies of the enemy leadership. Game designers would "script" a set of presumed conditions faced by enemy leadership—personal proclivities, influence distribution among top leadership, and the like—establishing a "moral context" for strategic decision making. Players would role-play and umpires assess strategic effects strictly within this context. Such a game would have a chance at generating indicative information concerning, say, the relationship between the course of one's own offensive operations and the willingness of an enemy leadership to negotiate. Iterative gaming involving different internal enemy conditions would at the very least prove educational.

COMPARING WAR GAMES

A large military organization with a mission of experimentation and concept development once developed a system for synthesizing the data gained from multiple war games so that it could capitalize upon the considerable investment in gaming by the services. The key to the system was correlation; the more frequently a particular result emerged, the more weight was ascribed to it. Epistemologically, there is potential validity to this approach, but it was implemented in a way that had serious defects. First, the system essentially captured and digested the comments of senior and experienced subject-matter experts who participated in the games and interpreted their results. However, that in effect reduced games to BOGSATs; the system processed people's opinions, not game results (i.e., plans, decisions, and move assessments). Second, since the same senior folks tend to be invited to games, one after another, an expert with a particular outlook or agenda is likely to make very similar comments at each game, thus lending these "findings" artificial weight. It is easy enough to pick apart such a correlation system, but less easy to establish a sound way of comparing results of different war games.

Experienced gamers, for instance, quite naturally on the basis of running many games, derive rules of thumb and gaming techniques; also, a number of phenomena tend to occur in similar and consistent ways even in games of very different kinds. One example is the tendency of players to "fight the scenario"—that is, to object to certain aspects of the game's story line, structure, or orders of battle and use these objections to hedge against the possibility of "losing." Such

underlying commonalities with respect to game process can lead gamers to assume that equivalent commonalities exist in terms of game substance. They believe that they can derive on that basis, in an essentially correlative way, synthesized lessons from the substantive outputs of multiple games. But such an attempt is intellectually unsupportable, on several grounds.

First, unless games are specifically designed to be analyzed in conjunction with other games, there are almost certain to be differences in objectives and design so fundamental as to prevent it. For instance, imagine two games producing results that, taken together, point to an apparent vulnerability of the littoral combat ship (LCS)—in both games several of that ship type are sunk. Closer scrutiny reveals, however, that whereas in one game the objective was indeed to examine the utility of the LCS in littoral warfare, with consequent close attention in move assessment to ship defenses, the other was meant to explore maritime command and control processes, with assessments focusing on the handling of various kinds of reports and orders by the C2 system. In the latter game, umpires in fact imposed ship losses specifically in order to generate reports and command responses. To attach significance to the fact that several LCSs were lost in both games distorts conclusions, since in the second game at least some of the losses were "artificial." This example is a bit contrived, in order to define the issue clearly; in reality, many games appear to offer numerous opportunities for comparison, because their methods and outputs appear comparable. Even then, however, there can exist subtle, disabling differences.

War gaming is still more a craft than a discipline, and it is quite possible for rank amateurs, dilettantes, and con artists to produce apparently successful but worthless or misleading games.

A second reason why correlation of seemingly similar events in different games fails at the substantive level (even inside the scenario) arises from the very nature of gaming. Games are not reality, and players are likely to do things they simply would not do in reality. A common manifestation, as previously discussed, is inadvertently leaving important forces unprotected, to be knocked off by the enemy. Controllers and umpires, however, rarely identify such instances, making it almost impossible to go back after the game and determine when this tendency was in play.

What then can be gleaned from comparing multiple games? First, we must remember what games can reliably produce: knowledge about the nature of a warfare problem, such as potential flaws in a plan, the potential importance of geographic features, gaps in command and control, logistical needs, etc. The familiar metaphor of blind men feeling around an elephant tells us that multiple games, almost regardless of their individual methodologies, can contribute

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incrementally to the understanding of a particular warfare problem. That problem may be a specific scenario, such as a war on the Korean Peninsula, or it may be a function, like close air support. If we avoid attaching significance to the number of times something happens, we can derive epistemologically sound knowledge. We can collect anecdotes of various game happenings, lessons learned, and analyses, to be pieced together into a more complete, qualitative understanding of the issue in which we are interested. In one game we may learn that command and control arrangements for close air support are flawed, in another that certain types of preferred weapons are in short supply. These specific outcomes can be combined to form a picture of the "elephant."

LISTENING TO WHISPERS

Our general thrust to this point has been to identify limitations on what can be said to have been learned from a war game. Still, there is an epistemological reason to wrest from a game all the valid knowledge it has to offer. If it is easy to overstate what was learned from a game, it is also easy to ignore what it did produce—all *too* easy, if that information or knowledge is either subtle or somehow threatening. Such information, being tempting to dismiss, might be called "whispers."

We have seen that the results of a war game are in the eyes of the beholder (player or analyst), because of conditionality. That is, game-generated knowledge, being merely indicative in itself, must be combined with judgment in order to have useful predictive value. But such application of judgment is rarely easy or straightforward. For example, in war games at the Naval War College in the 1920s and '30s, despite the repeated indications of the importance of the Mariana, Caroline, and Marshall island groups—then known as the Mandated Islands—as intermediate logistics bases in any campaign to relieve the Philippines and defeat Japan, it took many years for the U.S. Navy to abandon fully the idea of mounting a direct thrust on the Philippines from Pearl Harbor.[16] The games, apparently, were telling officers things many did not want to hear. Conditional knowledge can be a slippery thing. Games are complex affairs that almost always produce more information than their designers intended to generate. Moreover, game results are often equivocal, open to interpretation.

The subjective nature of game-produced knowledge is nowhere clearer than in games that generate information that is bureaucratically or politically threatening to players or sponsors. It is all too easy either to ignore or put a favorable spin on game events or results that do not fit comfortably into existing doctrines or accepted theories. A notable historical example of this phenomenon was a war game conducted by the Japanese Combined Fleet staff prior to the Midway operation. Historians have made much of the fact that the umpires resurrected a Japanese carrier that had been sunk by American aircraft operating out of

Midway, citing it as evidence of "victory disease." In fact, however, the Japanese umpires were perfectly justified—a dice roll had given a highly improbable hit to level-flying bombers (that is, as opposed to dive-bombers), which had proven generally ineffective in attacking ships. They were properly attempting to prevent a capabilities game from becoming a dice game. However, at another point during the game it was asked what would happen if an American carrier task force ambushed Vice Admiral Chuichi Nagumo's carrier force while it was raiding Midway, and that uncomfortable question seems to have been ignored. The existing plan was based on deception and surprise, tenets and war-fighting values dear to the Imperial Japanese Navy. To acknowledge the existence of an American task force northeast of Midway in a position to ambush Nagumo's carriers would have been to discount the possibility of surprise. The Japanese planners simply did not want to admit that—it would have negated their plans, and there was no time to start again from scratch. At the very least the game should have suggested more extensive searches in that sector, but the plan was not modified even to that extent. It was easier to ignore this particular game outcome.[17]

The "whispers" phenomenon has important implications for war-gaming policy. As the Japanese example shows, players and sponsors are almost never objective about their games. Games are played in a setting of institutional imperatives, such as budget justification, or the need to affirm a service's foundational theory and doctrine ("airpower is decisive," "the infantryman is the ultimate strategic weapon," and so on). Moreover, as in the Japanese case, games may be linked in some way to imminent deadlines. All of these factors tend to deaden ears to the whispers. But these whispers are frequently the most important outcomes of war gaming. How can an organization increase its ability to hear them?

The key is objective, disinterested sponsorship, or at least analysis. A sponsoring organization (the agency that "gives," or initiates, the game, as distinct from the facility that stages it) cannot realistically be relied upon, especially if constrained by time, political imperatives, or the dictates of theory and doctrine, to hear whispers from its own games. A frequent alternative is the use of civilian contractors; the difficulty is that contractors, paid for their services and generally hoping for follow-on contracts, have a built-in incentive, regardless of the talent or intellectual integrity of the individuals and companies involved, to tell sponsors what they want to hear, or at least not press them to hear whispers. Another option is academia. The service colleges frequently perform this role, and each has a war-gaming center. These facilities, however, must have a sufficient degree of autonomy—specifically, protection from firing of personnel or other sanctions for games that produce uncomfortable results. The gaming departments themselves must incorporate a culture of rigorous intellectual objectivity and commitment to the discipline of war gaming.

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Finally, the results of war games must receive proper handling. Perhaps most importantly, the heads of sponsoring organizations must commit themselves to receiving game results directly and personally from gaming organizations, and not after filtering and sanitizing by their own staffs.

A GUILD OF WAR GAMERS

In professional war gaming the stakes are high. Not only do games cost money and time, but their results can influence important operational and programmatic decisions. This holds true for the business as well as military worlds. Many organizations conduct war games, and even more consume their results, but few if any individuals involved have rigorous understanding of whether the games produce valid knowledge. As we have seen, it is entirely possible for games to produce valid-looking garbage. It is not easy to distinguish error from insight; it can be accomplished only if game design, execution, and analysis are conducted with discipline and rigor, and according to principles like those outlined here. Even then, however, wheat cannot be sifted from chaff with consistency and confidence unless another step is taken.

War gaming is currently a craft. There are a few highly experienced and skilled game designers and directors "out there," and these individuals each operate by rules of thumb they have learned over the years. Approaches vary. A large war game might be proclaimed a success by sponsors but at the same time be criticized severely—in private—by players, observers, and analysts. Who is right? What is missing is a universal set of standards, an accepted body of knowledge, such as established academic disciplines possess. In the "hard" sciences, even the social sciences, there is less room for charlatanism and sloppiness. Practitioners there have frameworks for understanding their disciplines and becoming credentialed in them. War gaming needs the same if it is to warrant the resources invested in holding games and the confidence routinely vested in their results. Such a step is all the more important today in light of the changing nature of warfare and the concomitantly receding utility of traditional force-on-force gaming techniques. "Fourth-generation warfare" blends politics, mass media, global information flows, culture, and religion, with combat in a highly complex way; games attempting to simulate it can lead to catastrophic intellectual error if not conducted under the aegis of a sound, overarching framework.

The substrate for founding a gaming discipline exists. The nation's war and staff colleges all have war-gaming departments whose directors have professional contact with each other and with key figures in the wider war-gaming world. Certain academic institutions, notably the Naval Postgraduate School, teach courses in war gaming. These organizations could come together in a

"guild" of sorts to establish standards and promote the formalization and professionalization of a war-gaming discipline. This professional society, in effect, could draw members from outside the military, such as business and academia, whose contributions would universalize standards and add vitality. The society might publish a professional journal, with refereed articles. All this is necessary if war-game output is to merit a level of epistemological confidence commensurate with the uses made of it.

Valid knowledge can emerge from war games, but only if due diligence is applied. That diligence is considerably hampered today because war gaming is a craft or an art, not a true profession, a discipline. Much more work must be done. Those who believe in the value of games must now link up and work toward the goal of truly professional war gaming.

NOTES

1. For background on the theory and practice of war gaming, see Robert C. Rubel, "War-Gaming Network-centric Warfare," *Naval War College Review* 54, no. 2 (Spring 2001), pp. 61–74.
2. Peter P. Perla, *The Art of Wargaming: A Guide for Professionals and Hobbyists* (Annapolis, Md.: Naval Institute Press, 1990), p. 164.
3. F. Heylighen, C. Joslyn, and V. Turchin, eds., *Principia Cybernetica Web* (Brussels: Principia Cybernetica, 1995), available at pespmc1.vub.ac.be/EPISTEMI.html.
4. S.[tewart] Schlesinger et al., "Terminology for Model Credibility," *Simulation* 32, no. 3 (1979), pp. 103–104.
5. *Right* and *wrong* are not absolute terms. For the purpose of this discussion, "right" means a decision the likely outcome of which has envisioned benefits for the decision maker. Clearly, even "right" decisions could result in failure due to bad luck (statistically speaking) or the intervention of imponderable factors.
6. John T. Hanley, *On Wargaming* (dissertation, University of Michigan, Ann Arbor, Mich.; University Microfilms International, 1991), p. 13.
7. Ibid., pp. 19–25.
8. Peter Perla, Michael Markowitz, and Christopher Weuve, *Game-Based Experimentation for Research in Command and Control and Shared Situational Awareness,* CRM D0006277.A1/Final (Alexandria, Va.: Center for Naval Analyses, 2002). This document reports on the Naval War College's Scud Hunt experiment and offers some excellent prescriptions for achieving additional progress in game-based C2 experimentation.
9. Carl von Clausewitz, *On War*, ed. and trans. Peter Paret and Michael Howard (Princeton, N.J.: Princeton Univ. Press, 1976), p. 156.
10. Ibid., p. 167.
11. Ibid., pp. 159–61. The Treaty of Campo Formio of 17 October 1707 between France and Austria produced, aside from various territorial annexations and guarantees of support, the latter's retirement from the War of the First Coalition (1793–97, originally pitting Austria, Prussia, Great Britain, Spain, Sardinia, and the Netherlands against France).
12. For the Global games see Rubel, "War-Gaming Network-centric Warfare"; Kenneth Watman, "Global 2000," *Naval War College Review* 54, no. 2 (Spring 2001), pp. 75–88; Bud Hay and Bob Gile, *Global War Game: The First Five Years,* Newport Paper 4 (Newport, R.I.: Naval War College Press, 1993); and Robert H. Gile, *Global War Game: Second Series, 1984–1988,* Newport Paper 20 (Newport, R.I.: Naval War College Press, 2004).
13. *Global 2000 Network-centric Warfare: Gaming the Navy Capstone Concept for Operations in*

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the Information Age (Newport, R.I.: Naval War College, December 2000). The report offers glowing endorsements of networked speed of command. The assessment of the national command authority play is that of the author, who was an observer during the game. See also Watman, "Global 2000."

14. Clausewitz, *On War*, p. 137. Clausewitz talks extensively and explicitly in *On War* about effects, except with much greater lucidity than is commonly found in the current literature, which is riddled with unsupported assertions and esoteric jargon.

15. Ibid., p. 178. A brief passage is referred to, but Clausewitz devotes considerable space to the difficulties of strategy, extolling its successful practitioners precisely because of the many imponderables at the strategic level.

16. Edwin Miller, *War Plan Orange: The U.S. Strategy to Defeat Japan 1897–1945* (Annapolis, Md.: Naval Institute Press, 1991), p. 168. Miller describes in this passage some of the Newport war games that indicated the folly of attempting to sail the U.S. fleet directly from Hawaii to the Philippines. However, despite these results, the "thrusters," who advocated such a strategy, held sway until the mid-1930s.

17. Mitsuo Fuchida, *Midway: The Battle That Doomed Japan* (Annapolis, Md.: Naval Institute Press, 1955), pp. 96–97.

ARTHUR K. CEBROWSKI

A Retrospective

James Blaker

Art Cebrowski put it this way: "We live between two great chapters of human history, in the messy interspaces between the industrial age we are leaving and the information age we are entering. This time, however, the transition is occurring much faster and it is far more global. Military affairs, military competition, and the stakes of military competition are in the balance."

Vice Admiral Arthur K. Cebrowski (U.S. Navy, Ret.), former President of the Naval War College, former director of the Office of Force Transformation (in the Office of the Secretary of Defense), N-6 on the Navy Staff, J-6 on the Joint Staff, carrier battle group commander, aircraft carrier commander, and naval aviator, passed away on 12 November 2005. He joins the pantheon of American military innovators, along with George Patton, Hyman Rickover, and Billy Mitchell. He was the prime intellectual architect of U.S. military transformation and network-centric warfare.

In 2001, shortly before the terrorists attacked the World Trade Center and the Pentagon, Cebrowski accepted Secretary of Defense Donald Rumsfeld's request to join his office as Director, Office of Force Transformation. He served in that position for nearly four years, leaving because the cancer that was to defeat him several months later had now so wounded him that he was no longer, he believed, able to help transform the U.S. military. He saw this last position as a culmination and a fulcrum. It culminated his personal intellectual efforts over the four previous

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decades to explain military force and to reconcile its destructive violence with morality. It was a fulcrum, he believed, from which he could help lever the U.S. military to greater effectiveness in the new age. "We would be wrong to let our current military dominance lull us into arrogance or lethargy," he would say. "We should choose to transform what is today the world's most powerful military. We should accelerate some of the changes that are emerging. We should push—more rapidly, strongly, and diligently than we have—the potential capabilities that technology opens into the way we organize, structure, train, and use the U.S. military. We should do this for the sake of our children, their children, and their children's children. And we should do it because it is morally correct."

CEBROWSKI'S CAREER

Cebrowski retired from the Navy in August 2001 as the Navy's senior vice admiral, stepping down from the presidency of the Naval War College in Newport, Rhode Island. He had served in the Navy for almost thirty-seven years after receiving his commission through the Naval Reserve Officer Training Corps, or NROTC, upon graduating from Villanova University. The general course of his Navy career was set just prior to graduating, for in 1963 Admiral Hyman Rickover, father and then absolute ruler of the American nuclear submarine force, conducted his annual survey to find the NROTC members getting the highest marks in science and mathematics. Cebrowski's name popped up. Rickover invited him to interview for the elite nuclear community he was putting together. "Rickover was just a name I'd read in *Time* magazine, I had no understanding of who he was at the time, and here he was asking me to come to Washington on a Saturday," Cebrowski recalled. "So, I sent back a polite note saying thanks, but I was busy. This was, of course, before my commissioning and before I had any real experience with the intricacies of military protocol. To me at that time, admirals were some exalted, mythical beings who had nothing at all to do with ensigns. As far as I was concerned the pinnacle of the Navy was the captain who headed the NROTC detachment at Villanova." Rickover was not amused by Midshipman Cebrowski's polite regrets and called the captain to inquire, in his inimitable way, what was amiss in the captain's detachment. "I remember the captain's face when he asked in a voice louder than normal if I knew who the Admiral was and just what did I want to do in the Navy now that there was no way I could ever have a successful Navy career. Remembering the captain was an aviator, I replied [that] with all due respect to Admiral Rickover, or whatever his name was, I had always wanted to fly Navy jets, thus setting my Navy career for many of the next thirty years."

He flew 154 combat missions during two tours in Vietnam in the 1960s, almost all of them over North Vietnam. "I focused on two things then: completing

the missions and getting back alive," he would tell his wife. It was an early introduction to the military challenge of striking the correct balance between central control and individual discretion and to the dangers of focusing on military problems too narrowly. Reminiscing in 2004, he related an example of the challenge:

> I remember an apocryphal story circulating through the fleet in the 1960s. Those were the early days of dodging SAMs [surface-to-air missiles], and some credited the missiles with extraordinary power, sometimes referring to them as a new kind of death ray. Navy intelligence had discovered a limitation to the missiles, however. They had difficulty locking onto aircraft flying below about eight hundred feet [of] altitude. The solution down the chain was clear: reduce the missile threat by flying low. For a while, the pilots did as directed, and the losses to the SAMs went down. But our overall loss rate went up sharply, not because the missiles got better but because the eight-hundred-foot operating altitude made it so much easier for the Vietnamese antiaircraft gunners. For us aviators, the short-lived quandary was how to balance the need to follow central direction with what we experienced at the tactical level. Ours was a pretty straightforward perspective. As long as the prospect of getting shot down was a function of both missiles and gunfire, we were going to do things that tried to reduce the probability of both. We were after a higher level of truth, if you will, even if it seemed more complicated.

Cebrowski came out of his Vietnam experiences with some combat axioms. "One was to beware the narrow view; try always to look beyond the immediate issue and see it as part of a larger problem. Always start with the assumption that your opponent is not dumb. And always value the perspectives of the individual warriors. No one learns as quickly as someone being shot at, and usually no one in senior headquarters is being shot at." He believed strongly that the Navy applies these axioms pretty well. "It tells its people what to do and not how to do it. It's the officers' job to understand this and get those they lead to implement orders without denigrating or ignoring the insights of their subordinates who were carrying them out." But he also believed an officer was obligated to keep his or her seniors from issuing unfortunate or uninformed orders. "If he fails in that, his next job is to see to it that they are not carried out in unfortunate or uninformed ways. This is a moral dimension that distinguishes the American military from others," he said. "It places value on honesty and on maintaining the flow of information throughout the chain of command. That moral dimension is, as it should be, a driving factor in the new American way of war. And as I grew to understand during my career in the military, it applies to how we ought to think about and build military capabilities, too."

In the 1970s and 1980s he moved upward through the naval aviator's levels of command. Not all of it involved flying. "In the early 1970s, I got interested in

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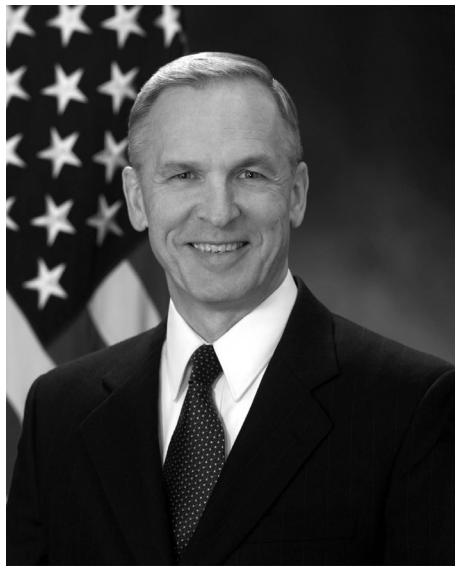
large-scale integrated circuits—computer chips. I saw the chips as technical marvels, because, unlike the older vacuum tubes, they didn't generate much heat. Vacuum tubes did. That made them fail. But you could never be very sure when they would. You could predict more accurately when the chips would fail. And you could increase their use without a proportional increase in their potential failure rates. That meant a reduction of technical risk. Lower technical risk meant you didn't have to have as many backups. At the individual aircraft level, for example, that meant more capability and improved reliability at less cost, risk, and weight."



Office of Force Transformation

He thought large-scale integrated circuits had strategic importance, that they could help deal with military complexity. "My experience had come from flying combat aircraft. While I did it well enough to stay alive, I never saw myself as one of those 'naturals' who seem to fly almost effortlessly. To me, it took a lot of effort to fly through air defenses, maneuvering quickly to present as unpredictable a target as possible, watch for the flak patterns and missiles, locate the target, getting the approach right, timing the bomb drop, and then getting out. It was a complex situation, and success depended on manipulating that complexity—making it as complex as I could to the defenders without missing the target. Transistors and the large-scale integrated circuits they built promised to shift some of the complexity to the aircraft and the weapons it carried. The military that could do that on a large scale, I thought, would have an edge. It could lead to a strategic advantage, an ability to shift the terrible burden of warfare complexity and the risks it carried away from you onto your opponent."

Yet it was clear that the transition from technical promise to strategic effect was anything but automatic. In the 1970s advances in military technology came largely from taxpayer-funded research and development. But Cebrowski realized that the military was not coming up with uses for large-scale integrated circuit technology—the civilian sector was. The promises that the technology brought were one thing; converting those promises to military effectiveness was another. Could it be that technology was only an initial step and that the military had within it structural, organizational, and cultural barriers to bringing technical promise to fruition? "Thirty years ago I began to think the answer was yes. But then it was an ill-formed answer, without much related thought about the question that answer framed: So, what are you going to do about it? I started to develop some answers to this difficult question over the next two decades."

One assignment involved research on how the F-14 could defend the fleet against waves of Soviet Tu-22 Backfire bombers, which the Navy then saw as a key threat. The analysis compared the theoretically best way of using the aircraft with what exercise data indicated could actually occur in an attack on a U.S. carrier battle group. The theory said a central air controller with perfect understanding of the defense scheme, excellent understanding of what was occurring in the airspace a hundred miles around the aircraft carrier, and perfect communications would *always* be able to mount the most effective defense. Equations demonstrated this, as did supporting simulations.

> But exercise data indicated that sometimes a squadron of F-14s operating *without* a central air controller was more effective in intercepting and destroying attackers than what the algorithms said centralized control could provide. The data said several pilots, each with only part of the engagement picture, could do better than a single air controller could with a perfect, full picture. We wanted to see why this happened. It turned out to be my introduction to the potential power of self-synchronization.
>
> We found that the information the pilots got from communicating with each other produced better results than following directions from a central control point. Even if none of them had as much information as a central controller, the pilots could build a rich, operational knowledge of what was going on. And they added nuances, depth, and correlations to the information they passed back and forth, in effect building a common appreciation that was, literally, greater than the sum of the bits of information each contributed.

Involved here, he concluded, were different ways of dealing with the complexity of armed conflict generally. One approach was the classic military solution—concentrate information in a central point so that greatest of all computers, the human mind, could make sense of it and direct the defenders accordingly. "The other was to do the processing in parallel, using the minds of all the defenders with less comprehensive information and letting them self-synchronize to cut through the complexity. I think that was the beginning of my views on the value of pushing information and decision authority down in the military, something I knew went against the traditional view of how militaries are supposed to work."

In 1981, the Navy established the Strategic Studies Group at the Naval War College and sent a handful of carefully selected captains and commanders to it for a year of strategic thinking, discussion, and research. It selected "war fighters," people whose careers had for the most part kept them in the fleet, away from the Washington, D.C., arena of budget fights, program management, and politics. These were officers who had done well enough in their first decade and a half of service to emerge as prospective flag officers. Cebrowski was the youngest

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member of the first class. He joined another young commander, a submariner named Bill Owens, destined to lead the American "revolution in military affairs" as the vice chairman of the Joint Chiefs of Staff in the mid-1990s. As the lowest-ranking and youngest members of the select group, Cebrowski and Owens formed a friendship based on three shared perspectives: first, that change in military affairs was essential; second, that it was not going to come easily; and third, that therefore, the logic for changing had to be solid and its articulation relentless.

Following the year at Newport, Cebrowski returned to the fleet in a series of command positions. He commanded a carrier air wing, then a helicopter carrier, and then an aircraft carrier during Operation DESERT STORM. After promotion to rear admiral in 1992, he took over a carrier battle group.

> Those assignments let me observe and fly the F/A-18. It was an epiphany of sorts. It was the first aircraft I piloted that really flew itself, letting you focus on your mission rather than trying to control the airplane. And the information that was available to the pilot in the cockpit was so much better. To me, the F-18 represented a shift from the physical to the information and the cognitive realms. The limit on what the pilot could do was no longer a matter of physical strength or reflexes. The real limit was the level of awareness and knowledge the pilot had of both the mission and of the environment in which he operated. That awareness turned on the information flowing from parts of the aircraft, what the pilot could see from the aircraft, and—this was the big change—from what other pilots or sensors could see far beyond. That was the revelation. It was no longer the airplane or its pilot that counted the most; it was what the pilot could do as part of a networked environment.

By the time he returned to the Pentagon in 1994, he had developed some general assumptions about military innovation. "I realized that military competition wasn't about how fast one could align with reality but how fast one could leap over it and create a new reality. I spent the next ten years trying to figure out how to do that. I was never fully successful, because I couldn't align my own intellectual compass fast enough. The world was changing too rapidly, and the changes were digging down into the foundations of society—into basic assumptions and what we had accepted as rules. Information technology was driving a lot of it. But I increasingly thought the kind of changes we all felt were diastrophic—that we were in the midst of a shift to a new age."

It was his deep interest in the moral nexus with military power that distinguished Cebrowski and his thought. His focus stemmed from a set of personal beliefs in which his reading of Augustine, Aquinas, and the Jesuit John Courtney Murray were prominent. He was firmly in the American pragmatist tradition and had studied just-war theory—because, as he once explained, his profession had brought him in direct contact with the dilemma of how to use violence

morally. "How to draw the line between the moral and immoral use of military force is a constant companion to those in the military profession; we wrestle with it throughout our careers. Most of us are acutely attuned to the moral need to avoid bringing violence to bear on the innocent."

Cebrowski was convinced that the American military stood on the threshold of an explosion of information, knowledge, and understanding of warfare, as well as, and most importantly, greater precision in waging it. "All that had great moral seductiveness," he said. "It promised to make it easier to protect the innocent in using the great destructive power of the U.S. military."

For most of the 1990s, Cebrowski was at the center of the military's growing interest in the digital information era, increasingly trying to push the edge of that interest beyond conventional wisdom. In the mid-1990s, as Director of Command, Control, Communications, and Computers on the Joint Staff (J-6), he joined Owens, now the vice chairman, in contending that information technology challenged many of the precepts of American military thinking, suggesting that information could substitute for mass and pushing for radical force-structure changes. Most of Cebrowski's military colleagues agreed that information technology was of growing significance. Many could also accept that information technology was changing military capabilities. DESERT STORM was still reverberating through the military in the mid-1990s; while the U.S. victory there had come from overwhelming force, senior military professionals appreciated the potential of the emerging technology and understood that changes in the military were always under way.

But that was about as far as most of the senior military in the mid-1990s would go. Information was certainly a good thing to have in a battle. However, any suggestion of a trade-off between military mass and information faced strong skepticism, even though "smart" bombs, dramatically improved ground navigation afforded by the Global Positioning System, networked warships, and other emerging technology suggested just such a trade-off. "Never saw and don't believe bytes of information kill enemy soldiers," Lieutenant General Paul Van Riper of the Marine Corps was fond of asserting: "Bytes of information can be very valuable in war, but it's bullets that kill enemies." Cebrowski and Owens were arguing, however, not only that rapid change was called for but that there was a moral imperative to make the leap to a different way of warfare. Most of the military leadership remained unconvinced. Some questioned whether "the revolutionaries" understood armed conflict or the lessons of history. If there was a moral imperative here, colleagues told Cebrowski, it was to oppose his views.

One of the best indications of the nature of the debate, and perhaps the high-water mark of the revolutionary argument, was a public 1997 description of future military operations issued by General John Shalikashvili, as chairman

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of the Joint Chiefs of Staff. The document was entitled *Joint Vision 2010.* Billed as a "template for future U.S. military operations," it had been eighteen months in gestation and when finally published was neatly bifurcated between competing views. The first half of the thirty-page document read like an enlistment advertisement, underlining the importance of tradition, the need for highly trained, dedicated, and disciplined personnel, and the lessons of the past. The last half, the part that Owens and Cebrowski had pushed, was very different. The operations envisioned for 2010 centered on a term that had become a buzzword, a rallying point of revolutionary sentiment—"dominant battlefield awareness." Under that rubric, Owens and Cebrowski believed, new operational concepts would come into play. U.S. military operations would emphasize agility and speed, the ability to beat opponents to the punch at all levels of conflict. They would move from sequential to concurrent actions, a concept that not only contradicted contemporary planning assumptions but challenged the linear operational concepts that had conditioned training, doctrine, and equipment since the Civil War.

Much of Cebrowski's and Owens's argument wove through the final pages of *Joint Vision 2010.* Information superiority, not military mass, was the key to military success. Overwhelming force would be less useful or effective than decisive force applied quickly and precisely. Military structures, equipment design, training, and organization would have to change accordingly—and those changes needed to be complete by 2010, when the 1997 vision of the future was to be reality. "We actually believed it could be done by 2005," Cebrowski later said. "But we knew that would be too controversial to get people behind our efforts to accelerate change."

To many senior military officers, this was too bold a vision, far too disruptive. They were comfortable with the existing rate of change the military had relied upon since the end of World War II. Compared to what Owens and Cebrowski were proposing, this was a snail's pace, tied to design-change processes and career patterns measured in generations and decades. On average, between 1948 and 1997 it took major naval surface combatants seventeen years to move from the drawing board to their first cruise. Navy planners anticipated that once in the fleet, a ship and the logistics systems and shore infrastructure needed to support it would remain in place for at least twenty-five years. It took the Air Force's F-16 almost two decades to advance from concept to an operational sortie; the F-15, the B-1 and B-2 bombers, and the F-117 stealth fighter took sixteen, seventeen, fourteen, and fifteen years, respectively, to make the same journey. The initial design of the Abrams tanks that so dramatically outgunned and outmaneuvered Iraqi armored forces in 1991 had been approved in 1968. In the thirty years between 1967 and 1997, the Army introduced a total of four new

courses to its Infantry School at Fort Benning, Georgia; each of them needed between five and eight years to get through the design, test, and implementation process. Cebrowski began asking why this had to be the case.

The answers he got were appeals to history, assertions that "the revolutionaries" failed to understand the nature of warfare, that such challenges ignored the timeless wisdom of the nineteenth-century military commentator Carl von Clausewitz. In fact, the American revolution in military affairs led by Shalikashvili, Owens, Cebrowski, and a handful of other flag and general officers ran into a counterrevolution in 1998. Shalikashvili and Owens retired. The status quo ante returned as their successors reverted to earlier joint staff processes and discarded the modifications made to the Joint Requirements Oversight Council, which Owens had sought to mold into a revolutionary vanguard. *Joint Vision 2010* became *Joint Vision 2020,* still officially a guide to future operations but slipping the goal a decade beyond the horizon of plans, programs, and budgets. The disturbing phrase "revolution in military affairs"—with its connotations of radicalism, speed, and decentralized control—slipped from the lexicon, replaced by the more indeterminate and benign "transformation."

Cebrowski remained in his staff position, with planning and programming responsibilities for Navy command and communications systems, until appointed as President of the Naval War College, with additional supervisory authority over the newly established Navy Warfare Development Command, also in Newport. Captain Terry Pudas, today the acting director of the Office of Force Transformation, served under Cebrowski during this assignment. "He wanted to be an intellectual leader at the War College," Pudas recalls, "and to engage the intellectual power there in three great questions: What was the world of the twenty-first century going to be like? What should the Navy of the twenty-first century become to deal with that world? And how was twenty-first-century warfare going to differ from past and present conflict?"

In his first convocation speech Cebrowski challenged the faculty, staff, and students to innovate, to investigate alternate concepts, to be suspicious of conventional wisdom, and to look beyond history and outside the Navy so as both to understand and influence the future. At the College he was to advocate new and different kinds of naval ships, not only to stir debate but to investigate alternative operational concepts. His proposals for fast logistics ships with nontraditional hull forms elicited deeper understanding of the relationship of the cost of greater speed to the value of time in modern conflict. His "Streetfighter," a new conceptual class of smaller, faster, stealthier vessels woven together by advanced communications networks, were an approach to the broader question of widely distributed operations—not just on the sea but on and above the earth's surface. His proposed "corsairs"—small aircraft carriers carrying relatively few

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aircraft—afforded insights into the benefits of more highly networked platforms in more widely distributed operations that might be gained from greatly extended breadth and speed of maneuver.

The assignment gave him the authority and time to work out the details of the theoretical construct he had pursued over the previous decade. "It was at the Naval War College, during my last active-duty assignment," he would reminisce four years later, "that network-centric warfare [emerged as], with all apologies to Clausewitz and the legions of military historians, truly a new theory of war."

When Secretary Rumsfeld asked Cebrowski to become the director of the Office of Force Transformation, he agreed. He arrived at the Pentagon two weeks after terrorists flew a Boeing 757 into the building's south side. "As I walked through the military cordon around the Pentagon, past the destruction, and into the lingering odors of the fires and water damage," he later recalled, "I knew—more than ever before—that the world had changed. And that the U.S. military had to transform. And that it had to do it much faster than it thought."

Cebrowski was not sure why Rumsfeld had brought him in.

> We had not worked together before, and while I vaguely remember his first tour as secretary of defense in the mid-1970s, it was from afar, geographically and in terms of rank. While I was generally aware he had been secretary of defense, I had been a lot more interested then in what much lower ranks in the chain of command at considerable distance from the senior leadership were telling me to do. I don't remember ever meeting him face to face and doubt if he had any awareness of me prior to the late 1990s. So I was surprised when he called and asked me to come and talk with him. When we met, he went straight to the point. He had heard what I'd been doing for the last several years, he said, and asked how I could help him accelerate the transformation of the U.S. military.
>
> But before I answered, Rumsfeld answered for me. I was to serve as a conceptual engine for the effort and help him sift from all the programs claiming to be "transformational" the ones that best fit the path he wanted to blaze into the new century. He was not particularly clear in that discussion as to what he meant by his path. But he talked of a need for big changes, undertaken quickly, and of the controversy he expected to stir. He spoke of his need for a "think and do tank" and [of] how I would work directly with him in formulating what should be done and then getting it started. I accepted immediately.

There had never been an office of force transformation before; Rumsfeld gave Cebrowski wide discretion in establishing its size, location, budget, and role. Cebrowski opted for a small office, brought in several civilians with whom he had worked previously, including the recently retired Terry Pudas, and asked each of the military services to provide representatives (mostly officers in the grade of captain or colonel). He selected facilities outside the Pentagon for his

main office but capitalized upon his authority to work directly with the secretary on transformation matters, authority that exempted the office from the Defense Department's regular policy and planning processes. The secretary invited him to attend meetings of the Senior Level Review Group, an assembly of the Pentagon's top civilian and military leaders. Rumsfeld launched this privy council with a series of meetings, usually on weekends, focused on defining transformation. He would ask attendees what they understood by the term and then lead a collective parsing of whatever definition had been offered.

"Rumsfeld didn't care what we came up with," Cebrowski recalled; "regardless of who offered a definition, he kept asking them to explain it. He was relentless about it. In meeting after meeting, he'd go back to the definition. And we argued over every single word. What Rumsfeld was doing was making three points. First, that whatever its definition, the senior leadership had to own it and they were not to delegate their ownership down into the various staffs. Second, transformation was a top priority, worthy of the personal time and energy of the leaders; and, third, that the secretary of defense was going to be relentless in its pursuit."

Cebrowski's access to the secretary on issues of force transformation was the source of his influence. Rumsfeld relied on Cebrowski, trusted him, and accepted his advice and views, using his insights and formulations in speeches and public discussions of transformation as well as in Pentagon and interagency policy and planning evolutions. Such stature was not ignored by the press or, more importantly, by the other participants in these processes. For his own part, Cebrowski was not shy about offering his thoughts on transformation to those who solicited them, including congressional committees, senior members of the military services, defense agencies, and major combatant commands. Nor was he bashful about speaking and writing. But he was surprised at the influence his views enjoyed.

> I was surprised by how important the press and other media were to maintaining interest in transformation and how much they became allies in the effort. Senior defense officials—civilian or in uniform—are always interested in what the press is saying, and we all tried to use the press to make our arguments to each other and to the various hierarchies we headed. You send memos and hold meetings. But if you do that in parallel with press coverage and public commentary on the same substance, you get ideas into the audiences who will ultimately determine how far the ideas will go. I found there were some informal "rules" of the game, however. I worked for the most part ahead of policy, pointing out possibilities. That is appealing to the press in the same way it appeals to defense contractors. Both want to "scoop" their competition, and there is no better way than being able to predict the future. So, in effect, I had a story to tell, and the press wanted a story to tell. It was a

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synergistic relationship that turned out to be surprisingly effective. That was because of the subject matter itself. Transformation is about the future and everyone is interested in the future. So, if you've got something sensible to say about what could be coming, and you can say it in interesting ways, almost everyone will listen.

CEBROWSKI'S LEGACY

Art Cebrowski's interests ranged across mathematics, information technology, history, sociology, and theology. They wove themselves throughout his thinking about military affairs and conditioned his instinct for innovation. He was an eclectic thinker; though he claimed to lack deep insights, he could make connections in ways that helped illuminate underlying processes and "the way things worked." He will, however, probably be most remembered for generating important concepts, two of which are network-centric warfare and the idea that military transformation is a process, not an end point.

Cebrowski argued that network-centric warfare is a theory of war—that it identifies new sources of power, shows why those sources generate new military structures and organization, and points to how the combination of new technology, organization, and structure leads to new military and political strategies. It speaks to the character of war, not to its nature, accepting that war by nature is a form of intense human competition that involves violence, profound risk, and mutual danger. Network-centric warfare recognizes that it is the nature of war to be nasty, brutish, and, however short it may be, highly complex.

The new sources of military power stem largely from information technology—from our growing capacity to gather, communicate, and process information rapidly into knowledge. These capabilities, Cebrowski postulated, generate new command and control possibilities, dramatically raising the efficiency and effectiveness of "flatter" military organizations. They suggest the abandonment of classic hierarchical patterns in favor of organizations that are much more decentralized in terms of who reports to whom. They allow "horizontal" structures (with respect to such functions as fire, maneuver, transportation, and logistics) that cut across the vertically structured military services. He argued that information can often substitute for mass in military operations, that dispersed units can, as long as they have access to robust and secure information networks, generate the kind of combat power that achieves overwhelming effects once associated solely with mass. This, he believed, changes geostrategic assumptions, including operational notions of time and distance. But the most profound military implications, in Cebrowski's view, were that attrition was no longer the ultimate military means of achieving political goals and that significant—indeed, superpower-scale—military strength was available to nearly any nation or group that wanted it.

Like other and earlier theories of war, Cebrowski argued, network-centric warfare has its "competitive space," rule sets, and metrics. Where the competitive space of industrial war involved the capacity to produce heavy weapons and get them to where they could be most destructive, in network-centric warfare it is the capability to obtain and integrate information into military operations. The metrics used to gauge the relative power of militaries in the industrial age were generally measures of input, notably military mass, expressed in numbers of weapons, ton-miles per day, manpower, and orders of battle. Operational planning focused on how to achieve an edge in such measures on a battlefield, during a campaign, or in a war. In contrast, the metrics of network-centric warfare describe relative ability to create an information advantage and turn it into a military advantage. They involve *output* measures—rates of change, operational and tactical innovation, the speed with which one acts on information and couples events together, and political and moral outcomes. Where industrial warfare focused on the physical realm and the application of overwhelming force, killing all opponents or as many as it took to make any who remained surrender, the goal of network-centric warfare was to change the mind of the adversary quickly. It aimed to demonstrate to the opponent that he could never maintain the initiative, would always be beaten to the punch, outsmarted, outmaneuvered, and out-killed—to impose on him a conviction that resistance is futile. The central battlefield was not the physical but the cognitive domain. The aim of network-centric operations was to couple military action more closely to the mental processes and perceptions of war, to reduce superfluous destruction, shorten conflict, and minimize harm to the innocent.

Cebrowski's insistence on understanding U.S. military transformation as a continuing process flowed from assumptions girding his interpretation of network-centric warfare, namely, that information technology was a new source of military power and was widely available. He contrasted the availability of information technology with the industrial resources that until recently had powered the strongest militaries and divided the world between great and lesser powers. To compete militarily in the industrial age, a competitor had to have tremendous financial and organizational power, for which reason military powers were almost exclusively nation-states. In the information age, a source of military power was emerging that did not demand financial or organizational assets anywhere near so large. The new technology of power was ubiquitous, flowing out of commercial enterprises, not government laboratories, and globally available. Moreover, the rate at which information technology could produce new and improved military capabilities had become very rapid.

That meant, he argued, that military competition was going to change fundamentally. It was going to be a true "World Series," involving not only the great

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powers but a growing plethora of "others"—not just other nations but nonnational, transnational, and subnational groups as well. Competitive positions would change much more quickly; those who started the race behind would not have to repeat the developmental steps of the leaders. Competitive success would depend increasingly on the ability to innovate and change. Transformation would never end in a particular force structure or set of military capabilities. Unless the United States recognized this, Cebrowski warned, it would lose its current military superiority long before it figured out what to do with its advantages. His solution was to institutionalize transformation.

> So, the United States has to figure out how to best institutionalize continuing and probably accelerating transformation. The Defense Department ought to cultivate a general bias that change is not dangerous, wrong, or unnecessary, per se. That doesn't mean you accept any changes as transformational or necessarily good. The standard for judging transformation is threefold: does it increase military effectiveness, improve military efficiency, and reinforce moral principle in the use of military force?
>
> Military effectiveness, in this context, is a function of generating more capability to achieve American political goals. It is unlikely that everyone will ever agree on the specifics of what that means. So one of the keys to institutionalizing transformation is to devise and refine decision processes that will *continually* assess the priority of our political goals and whether the military capabilities we seek, maintain, and develop are consistent with that priority. And when there is a discrepancy between our goals and capabilities, as is increasingly going to be the case, we will have to have the means of revising our capabilities much faster than has been the case. As our experience in Iraq in 2005 illustrates, it's not too hard to discern when gaps between our military's capabilities and the goals to which we commit the military exist. The hard part comes in being able to keep our notion of future military effectiveness attuned to the changes in the world.
>
> Military efficiency deals with the ease and costs of performing military functions and tasks. Here, the goal is to innovate faster than potential opponents. This is because opponents will adapt to and seek to counter what makes our military efficient. It's particularly the case now, because our current military power is so overwhelming. Our military edge compels those who want to compete against us to try to exploit the way we *do not* conduct our military functions rather than confront us head on, on our terms, and trying—with low probability of success—to beat us in what we do best.
>
> Military efficiency also involves achieving a decisive solution to an issue as fast and completely as possible once you've decided to commit military force. Militaries that do this are efficient. Those that do not are inefficient, because in prolonging military operations they are likely to expand and elevate the violence and, in the process, change the political stakes in the conflict. This is where efficiency, effectiveness, and morality overlap. If the issues driving a resort to armed conflict are not resolved

> quickly, and because of this the political context of the conflict changes, then that is likely to reduce the ability to use military force effectively and morally. This is one of the reasons why an attrition strategy—destroying lives and property until the enemy gives up—is likely to be immoral. It's inherently sloppy and tends to kill the innocent along with everyone else. That creates blood debts that change the political context of the conflict and prolong the violence even longer.
>
> In short, military effectiveness, efficiency, and morality together point to a force that can adapt to changes in the world, to the resulting changes in the political goals the United States adopts because of those changes, and to the opponents' adjustments to what the United States does. The net effect is a general standard for transformational constant change that continually makes U.S. military operations more effective, efficient, and moral.

Near the end of his life, Cebrowski increasingly turned to the question of how to institutionalize constant transformation. He believed the solution was a matter of identifying both the major barriers and the levers needed to overcome them. He narrowed the former to four: "failure fear," "size and uniformity," "the military-congressional-contractor triangle of stasis," and "the seduction of stasis authentication."

"Failure fear" reflected the conservatism of military institutions. They are cautious by nature because they recognize that the stakes of failure are very high. But it is easy to go from justified caution to a less beneficial conservatism that cautions against all change. It is the flip side of the view that change is inherently good, and it is just as dangerous, particularly during a transition from one age to another.

"Size and uniformity" often become a rationale against change, especially relatively rapid change. The size of the U.S. military makes change costly, particularly in view of the need for a high degree of uniformity in order to keep overall capability and readiness high. Size and the commitment to maintain uniformity also impart a momentum to change, in that once change takes hold there it is logical to complete it as rapidly as feasible to avoid a divided force. Accordingly, if the wrong change is initiated, the mistake can compound itself as the military pushes along an ill-fated course driven by the need to reestablish uniformity, coherence, and readiness. For the sake of readiness, preventing costly mistakes, and avoiding a dangerous momentum down the wrong path, the argument goes, it is better to avoid change until the need is entirely clear, recognized, and agreed by all parties involved.

The "military-congressional-contractor triangle of stasis" was Cebrowski's shorthand for the complex interactions that had grown since President Dwight Eisenhower's famous warning about the "military-industrial complex." Defense contractors, focused largely on military clients, tend to accept and echo their

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military clients' views because it is good for business. But there are other business reasons why contractors were generally not inclined toward change. To those who produce tangible goods for the military, change usually means retooling, new production learning curves, and at least temporary sags in profit. Service providers, too, welcome the continuation of "business as usual," for which they have already hired and trained their employees. The congressional interest in continuity is less stable, but the geographical distribution of both the military and defense industry tends to bolster it.

Cebrowski saw "the seduction of stasis authentication" in the behavior of individuals who have the political authority to bring about transformation but often find it easier not to exercise it. The deference the military pays to senior civilian defense officials is seductive—particularly to the growing numbers of officials who have never served in the military. It is sometimes more convenient, usually less difficult, and almost always more enjoyable for them to act as important spokespersons for military figures, with more experience in, understanding of, and appreciation for the intricacies of national defense.

These, then, Cebrowski saw as the four greatest barriers to transformational change inside the Pentagon. He was convinced they would not vanish, perhaps not even in the context of a catastrophic attack on the United States. But he was convinced the United States could surmount them, and he offered "levers" for doing so.

One was the language and imagery of change. Changes in vocabularies, he opined, could interject a healthy counterpoise to stasis. It is important, he warned, not to make the shifts in vocabulary arbitrarily, because sloganeering generates cynicism rather than progress. The key is to choose the vocabulary of change carefully and to keep new terms consistent with the general thrusts of the changes and concepts one seeks to bring about. The shifts should be from the more general concepts toward the more specific, and as a rule of thumb, they ought to occur roughly every two years.

Another was using the military training and education system to "teach change." The training and education system in the Department of Defense offers something few, if any, other federal government departments can—extensive formal training and educational access to the thinking and behavior of most of its members. It is the single most important channel for embedding a process of change in the institution.

A third was to expand the concept of "spiral development." The term came into vogue in the Rumsfeld Defense Department as a way of speeding new weapons and systems through the research and development stage and into the hands of operating forces. Cebrowski saw it as a way of transforming the U.S. military

more broadly, because new technology in the hands of troops pays off in what they learn in using it. The process incorporates the assumption that continued and faster change has virtue. It can help build a mind-set that it is not merely acceptable to challenge continually the existing way of doing things, but natural and needed.

A fourth was what Cebrowski called "planting dragon's teeth." His metaphor picked up on not only the ancient Greek myth of Jason and the Golden Fleece but the Chinese notion of a dragon as an agent of change from whose teeth, planted in the earth, more dragons arise. "The point is," he would say,

> if you want to cultivate a conscious commitment to transformational change, you have to establish agents and charge them with making transformational change their primary mission. Changes in attitude, culture, and procedures that emerge from the bottom up are the most enduring. But they don't emerge spontaneously and they don't necessarily occur in response to admonitions from the top. It takes explanation, consistency, and effort by change agents—dragons, if you will—throughout the organization. And because dragons don't live forever, because they often turn into sheep and merge with the spirit of stasis, or just vanish, we need to continually plant their teeth so that new change agents can take their place.

Finally, Cebrowski advocated more open access to information in and about what the Defense Department was doing—"letting the sun shine in." Change agents can be important levers, particularly if they form networks and fill those networks with information and transactions. But that is not easy. "In national security matters it confronts concern with divulging secrets and threatens the extravagant security systems in which we have invested great wealth and energy. But much of this is outdated now that national security lies less in trying to restrict information and more in knowing what is occurring."

Art Cebrowski remained a profound optimist. In one of our last discussions, amid discouragement that the Pentagon seemed to be using transformation rhetoric to cloak business as usual and that it was proving very hard to make significant changes, he remained confident. "Look," he said, "the race will go to the swift, the smart, and the agile. Here, we Americans have an important edge, for the capacity to leave the past behind flows from our culture and political system. We venerate new frontiers and diversity, the expression of ideas, and the freedom to differ. We, as a people, are the swift, the smart, and the agile. As such, we are far more willing and able than any others to seize the opportunities of the new age."


NAVAL WAR COLLEGE

IN MY VIEW

IRONING OUT THE DETAILS

Sir:

In the Autumn 2005 *Naval War College Review* ("Net-centric before Its Time," pages 109–35), Erik J. Dahl explored the similarities and differences between the *Jeune École* school in the French navy of the nineteenth century and the advocates of net-centric warfare in today's U.S. Department of Defense. Dahl's argument was that "the Jeune École failed . . . primarily because it attempted to do too much, was unwilling to accept criticism or allow dialogue, and misjudged the pace of change in warfare. Today's advocates of military transformation and revolution sometimes exhibit similar failings" (page 110).

Dahl's detailed criticisms of what he calls the network-centric "school of thought" include the following: (a) "a strong faith not just in the latest technical fads but in technological progress writ large," (b) "trust . . . in overly complex and esoteric mathematical calculations and scientific theorizing," (c) a lack of flexibility in thinking and a concomitant unwillingness to admit mistakes, and (d) arrogance (pages 126, 128, 129). What he is really talking about is not so much a "school of thought" but a theology that rests on faith and a kind of special scholasticism alien to the way that most people think.

In making these points, Dahl highlights the problems that face *all* advocates of significant military reform, including the successful reforms. For example, for almost six months at the beginning of 1919, the Navy's General Board reviewed the lessons learned from naval aviation's experiences in World War I. The Secretary of the Navy wanted the board members to produce a series of recommendations that would shape the future of airpower at sea. In testifying to the board, pioneer naval aviator Commander John Towers observed, "I don't think we can continue beyond . . . 1925 . . . in building aircraft carriers, because I think it will be quite possible that ships will all become more or less aircraft carriers and be so designed" (quoted in Thomas C. Hone, Norman Friedman, and Mark D. Mandeles, *American & British Aircraft Carrier Development, 1919–1941*

[Annapolis, Md.: Naval Institute Press, 1999], p. 23). Commander Towers, a key figure in the development of naval aviation, was *wrong*—both on that score and on several others (see Clark Reynolds's excellent and detailed biography, *Admiral John H. Towers: The Struggle for Naval Air Supremacy* [Annapolis, Md.: Naval Institute Press, 1991]). Yet his energy, professionalism, courage, and dedication were essential to the success of the Navy's aviation efforts.

Another way to describe dramatic changes in military affairs such as the introduction of carrier aviation is to say that they are messy. The advocates of change will have some evidence for their case, but their opponents will also marshal evidence for a stiff defense of existing technology, doctrine, and concepts of warfare. Partisans on both sides of the argument will often talk arrogantly and even act selfishly. Careers and reputations will be hazarded and lost. The most senior officials, such as Secretary of Defense Rumsfeld, will be asked to take risks and to make decisions based on little evidence or on disputed evidence. Mistakes will be inevitable.

What's different now from the situation that faced the Jeune École and its detractors is that we have means of testing claims regarding new technology or new methods of fighting. In his essay, Erik Dahl noted that the French navy held its first modern naval maneuvers in 1886, right in the middle of the furor over the claims of the Jeune École. By contrast, the U.S. Navy tested the possibilities, tactics, and techniques of carrier aviation in major fleet exercises from 1923 right through the spring of 1941. My point is that the French navy began a fleet maneuver program because of the debate over the claims of the Jeune École but the program wasn't continued, if only because no one then grasped that a continuous series of experiments and trials was essential if any prospective military revolution was to become reality. The key to avoiding error in the midst of change is to have a means of highlighting mistakes. The French navy didn't understand this well enough in the 1880s. We do now.

Dahl's conclusion was that "many of the Jeune École's innovations were well ahead of their time" (page 123). He made the same criticism of the concept of net-centric warfare—that it was and is ahead of its time both technologically and strategically. His concern is that the effort to jump ahead—to take a major risk—will fail and set back a movement that has *some* promising elements. He fears that today's "transformers" have, like their predecessors in the Jeune École, misjudged "the temper" of the times and overreached (page 130).

But today's advocates of change have tools that weren't available to any navy in the 1880s, including qualitative and quantitative simulations, distributed electronic war games, and a sophisticated national training system that links widely separated participants digitally. Put another way, we know a lot more today about how to define and then to limit risk. That doesn't mean there won't be

heated disagreements about net-centric warfare's strengths and weaknesses, but it does mean that those arguments won't just be played out in the media, as they were in France in the 1880s.

Indeed, the push for "transformation" has shifted from writers and thinkers to tacticians, developers, and our combat forces. Notions debated on paper and in slide presentations five years ago are being tested in combat and in simulations and games. Those who doubt this is so should consult the websites of the military services and the Joint Forces Command. Military revolutions are always bedeviled by details. U.S. armed forces are ironing out the details and developing new ideas as you read this, and that's just the way it should be.

So my response to Erik Dahl is to say, "Thanks for the thoughtful warning. It was appreciated, as are all such warnings. Pitch in! Help your colleagues transform our military forces and the institutions and processes that sustain them."

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Sir:

Erik Dahl's article "Net-Centric before Its Time," which examined whether the controversies surrounding the French Jeune École movement of the late 1800s might hold any lessons for a transforming American military today, is a useful and timely one. However, in concluding that the Jeune École was "ahead of its time strategically" and that its proponents were guilty of "misjudging the speed at which naval warfare was changing," the author may have erred, in not developing these thoughts sufficiently. To my mind, he misses the most fundamental and important lesson that can be drawn from the whole Jeune École experience, and that is that in times of great strategic uncertainty it does not pay to develop a navy with too narrow a strategic focus or too specialized a mission set. The only irrefutable historical consequence of this whole event was surely that the French, through their intermittent pursuit of a specialized form of warfare against a single opponent, failed to foresee that were the strategic situation to change, their innovative fleet was likely to be rendered irrelevant and furthermore that there

would be insufficient time for them to adjust. This is essentially what caused the French Navy to flounder for forty years and to lose its position as a leading naval power. As such, it has to be the key point that must be learned, particularly by the preeminent navy of the modern age.

Secondly, Dahl talks of the "differences in the strategic circumstances facing France during the 1880s," a point that is well taken, but one that is again not fully developed. The major military difference between the French in the 1880s and the United States today was surely that France, as a strong naval power but not comparable to Great Britain, had little choice but to react in some way to the emerging threat posed by the Royal Navy. Not to do so would have been to abdicate its responsibilities as a competing naval power—worse still, it was nationally indefensible in situations such as this, where the power in question was clearly the most pertinent strategic threat on the horizon. In many ways, this situation parallels Western perceptions of Soviet naval might in the Cold War, only more acutely. The historian and analyst must therefore acknowledge that such circumstances provide considerable incentive for an inferior power like France in the 1870s to react in a specific fashion and against an obvious threat. In contrast, the United States, as today's premier naval power, is under no such pressure. Instead, it should be free to examine technological developments in a more empirical manner, selecting only those that, in its judgment, might further its abilities in an appropriate strategic direction. In short, today's American problem of how best to react to an era of technological change is categorically different from the one facing the French under the Jeune École.

Thirdly, and directly linked to this point, it must be understood that the French had precious little choice but to innovate if they were to compete at all. The British strategy, in times of war with France, was simply to adopt the age-old idea of a close blockade of the French Atlantic coast, an approach that had the added benefit of effectively dividing the French fleet in the process—the geographical handicap of the Iberian Peninsula and France's continuing need to base major units in Toulon did the rest. Nor could France rely on its industrial capacity to pull it through. The differing rates of industrialization in Europe had left the French with a far weaker shipbuilding capacity than the British, a situation that was exacerbated by the French practice of providing minimal oversight in contracts let to individual shipyards. The results were, first, an inefficient and uneconomical process that produced ships at a far slower rate than the British, and second, a lack of standardization that made French yards hopelessly unsuited to the building of large and complex platforms like battleships. Worse still, these "one of a kind" ships were causing all sorts of maintenance and training problems for the navy that was to use them.

With no prospects therefore of ever gaining parity in battleships, it is little wonder that the building of the far less complicated torpedo craft seemed so attractive to the French. Not only did such vessels "fit" the cottage-industry style of their yards far more closely, but once the Jeune École had provided the necessary tactical rationale, fielding large numbers of these novel naval weapons in a radically new "networked" force disposition seemed at last to offer an affordable prospect of defeating the close blockade once and for all. Better, even the inferior French battle fleet would have the residual effect of "fixing" the British heavy units in place, where they could be worked on by this *defense mobile* of torpedo craft. These two factors were, in turn, expected to enable the third, offensive leg of the Jeune École strategy, which was to use France's undoubted strength in fast, armored cruisers to slip through the blockade and threaten the consequently poorly protected British trade routes. The point to all these explanations, however, is to show that the French were reacting to some very specific criteria and from a position of military and economic inferiority—a handicap that does not currently afflict the United States.

So, if the French response in this era was too specific in nature to be of use as a model for the United States today, what of that of the British? After all, in many ways their strategic situation more closely parallels that facing America in this new century. Britain was the leader of a global trading empire and the premier naval power of the time. Its military-industrial complex was the envy of the world, and its ability to outproduce all comers in any prospective naval race seemed assured. Is there, therefore, anything in the way that it responded to the same naval "revolution" that might be of use to American planners today? The rather glib, if factually correct, answer would seem to be "yes and no." Yes, the U.S. Navy should pay very close attention to the fact that the British essentially "hedged their bets" against a variety of threats while experimenting with a whole range of promising technologies. The result seemed to be that they were better placed to use their industrial might appropriately when the strategic situation settled—or at least they were certainly better off than navies like the French, which had invested too heavily in the one scenario. At the same time, however, Americans would do well not to look too closely at the reasoning of the British, who it seems were guided less by a sense of purpose in this than by a rather arrogant indecision.

For example, I am quoted by Dahl as arguing that the British were probably poorly prepared to deal with the sort of threat posed by a Jeune École France. While true, this is essentially a broader issue, in that the Royal Navy, preoccupied with its enthusiasm for naval technology and the prospects of a second Trafalgar, seemed very slow to recognize the fact that the industrial age had changed the entire nature of naval warfare forever. From this point onward, naval decisions

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were going to depend less upon decisive engagements at sea per se and more on how such engagements might impact the broader and more mundane business of safeguarding the nation's economy and its crucial ability to generate the necessary combat power, in its widest sense. In short, the business of exercising "command of the seas" in the industrial age had widened considerably. For a country that, more than any other, was critically dependent on its naval might for the security of its overseas trade, this was a surprising oversight—all the more so when you consider that this oversight persisted essentially unchanged right up until the First World War, a full thirty years after the Jeune École threat should have provided the necessary impetus for change. This is the reason for my caution about drawing too many parallels with the quality of British naval thinking at the time, although the main lesson is certainly clear. The United States should anticipate that, in the same way that the industrial revolution altered naval equations, there are likely to be similar differences in the way in which an "information age" navy should exercise its influence.

The final caution I would add, and this echoes Dahl's thinking, is that we should never forget that the Jeune École was, first and foremost, a social reaction to an oppressive environment within the French Navy of the time, like that within any large bureaucracy of the day; it was, that is, simply a microcosm of the bitter turmoil evident in French society as a whole. The service's institutional thinking was therefore prone to being "hijacked" for political purposes and distorted for personal ends, with its establishment becoming hopelessly polarized in the process. While I am not suggesting that such bitter divides exist today in America, it is nonetheless timely to warn against any overly zealous pursuit of "transformation" for its own sake, or equally, against any outright rejection that offers little in return save the rejection itself. Such policies can only have the effect of polarizing opinion within the Navy to the extent that neither side would feel inclined to compromise. This would be damaging in the longer term, since the forging of an appropriate naval strategy to meet uncertain times requires a collective cool head and open mind in order to consider the full range of possibilities.

ANGUS ROSS
Naval War College

Naval War College: Full Spring 2006 Issue

THE NATURE OF INSURGENCY WAR

Sir:

The Naval War College's Professional Ethics Conference 2005 grappled in a timely way with the inescapable issues of "insurgency" and "counterinsurgency." An unquestionable merit of this open meeting on the diverse, convoluted, culturally rooted, subjectively contended, and above all, destructive insurgency in the GWOT (Global War on Terror) is that it revealed the breadth and depth of the issue to be overwhelmingly beyond any single individual's study and experience and beyond a simple thesis or strategy for "the" solution.

To be sure, the event gathered an august spectrum of academic, legal, military, nonmilitary/agency, historical, religious, media, and political expertise as well as warriors (fresh from the front line of GWOT) and ex-warriors (from wars past). The debates underscored the insurgency as the core of the current U.S. and world geopolitical strait and, therefore, the utmost challenge—whatever the genesis, mistakes made, and their consequences in and prospects for the (Iraqi) war. Insurgents particularly of the current GWOT have many faces, beliefs, ethnicities, countries of origin, loyalties, reasons for hatred and fanaticism, each of which elicits many different assessments, sentiments, points, and counterpoints. The "ethics" context of the conference served to examine this complex issue, including reflections of individual judgment or even conscience for thoughtful conclusions.

Curiously, *Webster's* defines insurgency as "revolt against a government that is less than an organized revolution and is *not recognized as belligerency*" (emphasis supplied). In contrast, Bard E. O'Neill, cited in the conference program, adds the use of "*violence* to destroy, reformulate, or sustain the legitimacy of one or more aspects of politics." O'Neill separates terrorism as "threat or use of physical coercion . . . *against civilians,* to create fear in order to achieve political objectives." But he goes on to connect the two: "Insurgent terrorism is purposeful . . . violence . . . to achieve specific . . . goals." If so, it would make sense to try to identify unequivocally those specific *reasons* within the amorphous substance of the Iraqi insurgency. That is the case especially when the U.S.-led coalition troops are being sent into the war with a prosaic assignment—"Hunt down the insurgents"—that may be concise but is proving hopelessly open-ended. Perhaps more important than touting America's rhetorical "mission" or "victory"—as the administration is doing—might be to try learning what the insurgents' "mission" or "victory criteria" are. That would help to develop insight into the question of whether indeed the insurgents can be defeated.

The motivator for insurgency per se may be more universal than one might suspect from the peculiarities in Iraq. In the NWC forum, many historical parallels were noted, such as in the war of American independence, French colonial resistance in Algeria and Vietnam, the British struggle against the IRA, and America's Vietnam War. References were made also to the powerful underlying character of a warring nation or cultural entity, to the codes of the warriors, such as the (medieval) knights, (Japanese) samurai, and (U.S.) Marines. One universal causal element of revolt is the endemic resistance against "foreign" occupation or presence in a territory or populace invaded by the foreign government. Normally this resistance factor can be ameliorated only by a "signed"—that is, abiding—accord of cessation or of victory and surrender, possible only between sovereign nation states, as in the world wars. Thus, in insurgency—by a faction within a nation—this resistance tends to sustain itself in perpetuity. Discriminating chronicles of the Japanese surrender in World War II tell the real reason (that is, behind the often-told rationale of yielding to the A-bomb and Soviets' entry into the war) why Emperor Hirohito and his cabinet decided to surrender—to avoid the inevitable coup d'état by an Imperial Army faction determined to "fight till the last man." The insurgency would have imploded the Japanese nation.

The notion of a coup within a troubled sect might explain the Iraqis-killing-Iraqis plight. An anti-foreign-occupation cause can be strong and righteously unilateral enough to identify any foreign-enemy "sympathizer" as an enemy of the cause. The Iraqi-specific, historically rooted, Shia-Sunni-Kurd dispute (threatening a civil war in the post-Saddam instability) adds another dimension in the problematic internecine squabble. Further, the infusion of the non-Iraqi jihadists—since al-Qa'ida is seizing the opportunity in the U.S. invasion and deposal of a Moslem nation to claim legitimacy for infiltration into Iraq—has undoubtedly introduced a convoluted, equivocal, and elusive insurgency element under the umbrella of the pan-Islamic jihadist movement.

The U.S. effort to establish a new Iraqi sovereignty by cajoling—if not coercing—the installation of an interim administration, writing of a new constitution, and free election (pending at this writing) of the (first post-Saddam) government is evolving but slowly because of the insurgency. Would the insurgency disappear if the foreigners left? Can America's war on the Iraqi insurgency be turned over to the Iraqi "army" and "police" or the government? Would it then be the Iraqis' war? But against whom? If against the insurgents, for what insurgency cause—if no longer against foreign occupation?

Accounts of U.S. veterans of Iraqi battles indicate the problematic viscidity of the insurgency war, even in each of the encounters. For example, which of the Iraqis are insurgents, whether al-Qa'ida or just another Iraqi with a grievance? Is

their cause anti-foreign or indigenous dissatisfaction, and how strong is it? Military people on the ground put their lives in the insurgents' way—in real time and in real life.

The intensity and determination of the insurgents are manifest in their "suicide bomber" attack methods. The preemptive bravery and moral stigma of self-sacrifice inflict shock and even fear upon the ordinary global populace. Pragmatically, though, the "suicide" or certain-death aspect of the bombing technique points to use of the human—still the most precise cybernetic mechanism—as the targeting or guidance "system." In the last days of World War II, the Japanese military was in desperate need of skilled attack pilots to inflict any possible damage on the overwhelmingly superior Allied invasion forces. As has since been chronicled, the Imperial Navy, after agonizing reflection, formed the "Special Attack" force—known in the West as the kamikazes. The literally final attacks were not ordered but requested, with appeals to each pilot's ingrained spirit of *bushido* (the way of the warrior), which taught that there was "no greater honor than to die (sacrifice oneself) for the ancestors' land." It might be of special note that the Japanese never associated the kamikaze mission with the word "suicide" *(jisatsu),* which connotes cowardly capitulation rather than fighting to the end. A kamikaze pilot who was shot down in his final dive and rescued, and another who was en route to attack when he received the surrender notification, have uniformly said to this writer, "Everyone was going to fight and die for the country. My time had come."

As the Marine and Army officers returning from Iraq recounted in the NWC discussions, in face-to-face, hand-to-hand encounters with an enemy as amorphous, frustratingly extrinsic, and preemptively explosive as the Iraqi insurgents, the individual fighter must make instantaneous assessments and tactical and moral decisions for the next moment's action, actions that must ensure their own survival and save the lives of their teammates and achieve victory in the micro-localized combat. To the warriors on the ground—and most likely, to the opposing individual insurgents likewise—the fighting becomes personal, detached from the geopolitical strategies, weapons of mass destruction, oil, liberation, freedom, democratization, and, likewise, jihad and al-Qa'ida. In his book *One Bullet Away,* Captain Nathaniel Fick, a Marine veteran of the Afghanistan and Iraq wars, describes the combat on the ground as "humanity stripped of the veneer of civilization," and policy and strategy "as luxuries that men on the ground cannot afford." He contends that one's commitment and loyalty are not so much to "the idea of democratic Iraq or even the United States at large" but "to my Marines to the left and the right." Fick says the only thing that mattered was that his Marines died or survived doing the "honorable thing."

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Another preponderant concern at the conference was the "ethics" of "information gathering" from captured insurgents—the question of "torture." It became clear in discussions that laws and regulations in the final analysis leave the responsibility with the warriors on the scene. The chief of Navy and Marine Corps chaplains, Rear Admiral Louis Iasiello, the conference's final speaker, concluded that "who we are drives what we must do," that the "just war" is a product of the upbringing of the individual American warrior.

In the meantime, what could the United States do with respect to the Iraqi insurgency situation? If the foreign occupation is the basic cause of insurgency, it would make sense to remove the coalition presence from Iraq. But is it responsible and honorable to take over a nation (albeit one under a genocidal dictatorship), cause the rise of insurgency, and invite a global terrorism transplantation into the country, and then to leave the nation torn by insurgency, an internecine battle threatening its fledgling sovereignty? An honorable approach would be a clear policy to assist the Iraqi nation to stand up free of struggle against foreign coercion, including the easily misunderstood mandate for American-style democracy, and as a self-respecting and responsible sovereign state. At any rate, the Iraqization of Iraq would be the answer to the issue of "ethics of insurgency and counterinsurgency."

THOMAS S. MOMIYAMA

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REVIEW ESSAYS

CONTEMPORARY OPERATIONAL-LEVEL WAR FIGHTING

James S. Robbins

Reynolds, Nicholas E. *Basrah, Baghdad, and Beyond: The U.S. Marine Corps in the Second Iraq War.* Annapolis, Md.: Naval Institute Press, 2005. 276pp. $32.95

Basrah, Baghdad, and Beyond is one of the first broad, theater-level accounts of the Marine Corps's most recent conventional conflict. It is not an official history but, in the author's words, "a framework for understanding Marine participation in the Iraq war." The book opens with Operation ENDURING FREEDOM and swiftly moves to the preparation, planning, and execution of IRAQI FREEDOM (OIF). It is an operational-level account, focused primarily on campaign planning and execution from the point of view of I Marine Expeditionary Force (I MEF), operating as part of the Coalition Forces Land Component Command. The book is based generally on such primary sources as interviews, official documents, contemporary reports, and firsthand observations. The author, retired Marine Corps Reserve colonel Nicholas E. Reynolds, served as Marine Corps Officer in Charge of Field History from 1999 to 2004 and supervised Marine history operations during IRAQI FREEDOM. His work has benefited from the fact that this campaign was one of the best documented in history, particularly on the Marine side; the Corps had embedded numerous historians and "lessons learned" analysts at every level in the MEF. As hostilities wound down, a "kind of historical wolf pack" was deployed to conduct a week's worth of interviews with Marines

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from the MEF commander on down. Add to these materials journalists' accounts, "mil-blogs," and participant memoirs, and one is left with an unequaled documentary record from which to draw.

The book naturally focuses on the relationship between campaign planning and execution, and one can see from the beginning in Afghanistan that the most important elements in the process are relationships, communication, and trust. Reynolds highlights the importance of human factors in command; even though technology makes it possible for a commander to lead "virtually" from a distant networked headquarters, warfare is still a human undertaking, and the personal touch is important. Personalities play a central role. MEF commander Lieutenant General James T. Conway is as ubiquitous throughout the book as he was in the theater, leading his men from the front to the extent practicable. "Almost like a commander in the U.S. Civil War," Reynolds writes, "he wanted to see, and be seen by, his Marines before the battle." Brigadier General James N. Mattis, 1st Marine Division commander, followed this example as well, and "in search of a purer form of war fighting, set off on the battlefield with a tiny retinue and a cell phone." By staying close to the front and interacting personally with their field officers, the generals were better able to adapt to the fluidity of the battle space. This ties into another theme developed throughout the book, namely that "the plan itself was nothing but the planning was everything." That is, planning processes that encumber themselves with too much detail at the front end waste time by emphasizing form over function. A good plan is one that allows the war fighter to prepare to adapt as conditions on the ground inevitably change. If good processes are in place, it does not matter whether the plan is complete to the last bullet, bean, and Band-Aid.

The evolution of the planned air phase of the offensive is one example. The original plan followed the Operation DESERT STORM model, with a month-long aerial preparation to induce "shock and awe" among the Iraqis. The long duration of the planned air campaign was of special concern to the MEF because it affected how the Marine air wing could be utilized—if the air and ground campaigns were asynchronous, as was originally planned, it would be more difficult to commit airframes to ground-support missions. But as the start of the war neared, the air campaign was shortened, first to around two weeks, then to five days, and ultimately to a planned fifteen hours. Ironically, the attempted decapitation strike on the Iraqi leadership on the night of 19–20 March forced the ground phase into action prematurely to secure the southern oil fields, and the air "preparation" followed a day later. This had the benefit of achieving a measure of surprise on the Iraqi ground forces, who had expected to face a period of aerial bombing before fighting on the ground, and resulted in a completely synchronous battle space for the Marine air-ground elements, which was what the Marine commanders had wanted from the beginning.

The ground campaign plan itself underwent significant revisions as the battle unfolded. It was originally planned for 125 days, which overestimated the resistance potential of the regime. Saddam Hussein had no well-thought-out defensive plan, no evident strategic concept. Thus as Iraqi forces collapsed before them, the Marines had to adapt to the greatly accelerated timeline. Likewise, coalition forces found that the planned-for opposition from elite Republican Guard and Special Republican Guard units was not as deadly as that from Fedayeen Saddam and other irregular forces, particularly in built-up areas. These fighters—General Mattis called them "as worthless an example of men as we've ever fought"—lacked the firepower to engage decisively, but as was shown in battles such as An Nasiriyah, they were flexible, opportunistic, and oblivious of the laws of war, and they could do heavy damage to isolated groups of Marines.

At An Nasiriyah—which the author describes as "an uninviting Third World 'sprawl of slums and industrial compounds,' with two- to-three-story concrete buildings set on a grind of bad roads and alleyways, many strewn with garbage and raw sewage"— the narrative dips into the tactical level to give a sense of the battlefield environment, though the focus of the book is on the operational level. There is a gripping account of Charlie Company, 1st Battalion, 2nd Marines being engaged by A-10s that had mistaken them for Iraqis. There are illustrative tactical anecdotes scattered throughout, such as the account of First Lieutenant Brian R. Chontosh, whose combined anti-armor team platoon was caught in an ambush on the highway to Baghdad. Lieutenant Chontosh directed his driver through a gap in the berm by the side of the road directly into the enemy positions, then dismounted and personally engaged the enemy with a succession of weapons (M-16, 9mm pistol, AK-47, RPG), ending the ambush with a burst of sudden violence and physical bravery. Chontosh was awarded the Navy Cross.

Baghdad represented another planning evolution. Most planners believed that Saddam would make his stand in the capital and that Baghdad would be the scene of punishing urban warfare. The Marines faced some tough fighting along the approaches to the city from irregular troops and foreign fighters. Originally, Baghdad was assigned wholly to Army V Corps, to avoid boundary conflicts between two corps-level elements. The MEF was assigned cordoning and support responsibilities, though the land component commander, Lieutenant General David D. McKiernan, had felt that should circumstances arise in which the MEF would be more directly involved, the natural split would be the Tigris River. When it became clear by 3 April that the regime was "going down fast, going down final," the Marines were assigned half the city and shifted plans several times in a few days from cordoning to conducting raids, and then to moving decisively into the city center, where they were greeted by enthusiastic crowds of Iraqis.

"Phase IV" planning, which is discussed throughout the book, is particularly noteworthy given that it has yet to terminate. Reynolds notes early in the narrative, "there was very little guidance from higher headquarters on Phase IV, not even a basic policy decree." Marine planners tried to get ahead of the question even without guidance, knowing that they would have to handle at least some Phase IV duties. Questions sent to higher authorities on basic planning guidelines—whether the Iraqi electrical grid, the economy, or the human infrastructure (e.g., the bureaucracy and police) would be intact—were met with "hazy assumptions" or no answers at all. As it turned out, the men on the ground adapted to the situations as they encountered them, and they generally did well. Stopgap solutions provided the basics for the Iraqis and kept order, at least for a few months after the brief initial "looting" phase. The author notes well the significance of the "surprise move" by the head of the Coalition Provisional Authority, Ambassador L. Paul Bremer, who on 23 May 2003 disbanded the Iraqi army and, perhaps more significantly, canceled their pensions. The "predictable result" of this short-sighted move was to destabilize the country and give birth to the insurgency, but the long-term effects go beyond the scope of the work under review.

The author periodically discusses the use of contemporary networked planning tools and makes some good observations on the "near obsession" with PowerPoint in the military. Some such briefings are the result of the distillation of hours of staff work, carefully reduced to a few key concepts, artfully constructed and carefully worded to fit on a slide. However, after being sent up the chain a few levels, other hands (not necessarily commanders) might begin editing, changing, rewording, or rearranging slides based on personal preferences or random inputs, without the benefit of the depth of knowledge that was behind the original briefing. "The result could be a course of action that looked good on a PowerPoint slide but had not been thoroughly staffed," Reynolds writes. "That part of the plan would be 'one PowerPoint brief' deep, and would either collapse of its own weight or have to be rescued by planners scrambling to do the staff work to back up the change." The Marines generally resisted putting too much detail into early planning, since the plans were certain to change later on. In addition, their experience in Afghanistan taught them that large planning staffs and detailed plans hundreds of pages long were unnecessary, even counterproductive. It was better to rely on "common sense, good liaison officers, and 'hand con'" (i.e., relationships based on a handshake). Reynolds also gives a favorable account of the British planning system, which is highly informal while still professional and abjures PowerPoint completely.

Sometimes higher commands received too much information, from official channels and otherwise. It was "literally impossible to get away from TV images of the war." Media accounts of actions on the battlefield would occasionally have

a negative impact on information management; press reports were generally seen at higher headquarters more quickly than official reports, and in some cases when the situation was hot, headquarters would be pressing down the chain to get more information right away. This tended to make the information jam even worse; as one staff officer observed memorably, "If you want information bad, you will get bad information." Reynolds also occasionally mentions the negative role of pundits, "the experts on television with their nonstop stream of commentary and free advice, usually from thousands of miles away." This stands in contrast to the attitude toward the embedded reporters, who were held in high repute by the men on the ground and were generally seen as providing accurate reportage.

Reynolds's tone is sometimes colloquial, which keeps the book accessible, especially given the subject matter. The book is inevitably acronym heavy, so it helps if the reader is comfortable in that environment. A useful glossary is provided. The author notes that the reader who had a hard time keeping track of the specialized terminology would not be alone: "In this war, there was an often-confusing mix of civilian and military acronyms whose meanings were not entirely clear to everyone." One shortcoming is the lack of adequate maps; the few that are included are reference maps that do not show force dispositions, plans, or movements. That being said, *Basrah, Baghdad, and Beyond* is an excellent book for officers or other professionals seeking to improve their understanding of contemporary operational-level war fighting and could profitably be studied at intermediate-level professional military education schools for seminars on operational art. There is clearly much more to be written about this campaign, but this book provides a good framework to launch the process.

NEATNESS DOESN'T COUNT

Donald Chisholm

Williams, Cindy, ed. *Filling the Ranks: Transforming the U.S. Military System.* Cambridge, Mass.: MIT Press, 2004. 376pp. $50

Cold steel isn't worth a damn in an emergency. You need men to direct it.
FREDERICK BRITTEN, U.S. HOUSE OF REPRESENTATIVES, 15 MAY 1934

The road to hell is paved with good intentions.
MARY KATHERINE CHISHOLM (VARIOUS DATES)

To date, transformation debates have ranged widely over force structures, command and control, networked warfare, rapid decisive operations, and their associated processes and technologies, not to mention privatization. It remains personnel, however, that give life and shape to organizations, and there is precious little informed discussion of the critical problems of military personnel in the contemporary setting. As part of a fine MIT publication series on national security issues, *Filling the Ranks* might have done much to overcome that lacuna, but unfortunately, it falls short in several respects; to follow its well-intentioned policy recommendations would produce serious harm to a system that, judged by its accomplishments, is already extraordinarily effective.

Filling the Ranks comprises twelve essays by different authors (two-thirds are economists, several having political science or government backgrounds, with one each from mathematics and business administration, and only a couple with professional military experience), framed by introductory and concluding chapters by its editor. Its self-proclaimed mission is to present "assessments of U.S. military pay and personnel policies in light of the strategic, demographic, economic, and labor realities of the future. It identifies specific problems that today's military career patterns, training, pay, and benefits pose for officers and enlisted men and women in both active duty and reserve forces, discussing such issues as competition with the private sector for talent, the need to restructure compensation, and provision of family support. It offers recommendations for more flexible, adaptive, and effective policies and a blueprint for achieving them."[1]

Dr. Chisholm is a professor in the Joint Military Operations Department of the U.S. Naval War College. He earned his PhD in political science from the University of California, Berkeley. His book Waiting for Dead Men's Shoes: Origins and Development of the U.S. Navy's Officer Personnel System, 1793–1941 *(Palo Alto, Calif.: Stanford Univ. Press, 2001) received the 2001 Rear Admiral Samuel Eliot Morison Award for Distinguished Contribution to Naval Literature.*

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This reviewer offers a dissenting perspective. In so doing, I restrict my attention to two principal problems of the work, constraints of space precluding both wider-ranging evaluation and differentiated attention to its individual essays.

WHERE IS "SERVICE"?

This book's component essays focus almost exclusively on manipulating "tangible inducements" to produce desired results. Frederick Winslow Taylor famously believed that people were at once inherently lazy *and* sorely greedy for material goods.[2] To overcome the former in the manufactory setting, to ensure that workers would not "soldier," Taylor disdained hourly or salaried pay and devised a system of compensation directly tying individual pay to individual productivity—the so-called piece-rate system, which was, in turn, contrived by means of an empirical analysis of work processes. Scientific management would thus improve productivity and eliminate the principal impetus for management-labor discord by irrefutably establishing those production levels that were actually possible—management could not then ask for more, and workers could not then perform less. Indeed, Taylor and his acolytes did bring a certain order to the workplace and improved the efficiency of large industrial enterprises.[3]

Within less than two decades of Taylorism's acme, however, pioneering empirical studies by other students of organization and management, notably F. J. Roethlisberger, demonstrated that organization of work processes and production levels, far from being determined by scientific analysis and implemented by management, were largely set and enforced through a complex informal social organization of the workers.[4]

Shortly thereafter, a vastly experienced corporate executive, in residence for a time at Harvard, observed that all organizations employ complex economies of incentives to attract and retain workers and to secure from them the necessary services.[5] Chester I. Barnard concluded that although an *objective* economy of incentives (pay and other material emoluments) was essential, no organization ever possessed sufficient resources to secure required contributions solely by objective means. Consequently, all organizations also employed *subjective* economies of incentives appealing to other than purely material motivations (working conditions, symbolic rewards, socialization to organizational values, and the like), both as a matter of constrained resources and as practical recognition of powerful human motivations that could be effectively manipulated by organizations for their own purposes.

It is mildly astonishing, therefore, that any serious discussion of military personnel "transformation" could be undertaken absent systematic consideration of the subjective economy of incentives. Nonetheless, Taylor's dogma, however discredited, apparently constituted the alpha and omega of individual human

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motivation for the authors of this collection of essays. They seek to manipulate those aspects susceptible of manipulation and measurement, irrespective of their practical relevance to the problems at hand.[6] Even this assumption is suspect—efforts to structure naval officers' pay to encourage willingness to go to sea began in the early nineteenth century, meeting with only partial success. Tying promotion to sea duty performed proved far more effective as an incentive. Moreover, if the precise amounts of pay, allowances, incentives, and benefits actually received by service members remain somewhat opaque and difficult to sum, it is likely because such opacity serves a function in the larger polity.[7]

The military's commissioned officer corps developed as a distinct profession very early in its history, with internally derived performance standards and enforcement.[8] For officers, and now increasingly senior enlisted personnel as well, the subjective economy of incentives has elaborated to an effective complex of mechanisms: the intrinsic value of service to and sacrifice for country; opportunity for promotion through the grades; assignment to duty in which service members can actively practice their profession, carry responsibility, and exercise discretion, to include, ultimately, command; overseas travel and residence; access to training and educational opportunities; decorations for valor and extraordinary accomplishment; and opportunity to join a tradition of excellence and achievement. Everyone has to pay the rent, but professional officers have always been more highly motivated by the subjective economy of incentives than their civilian counterparts, now made easier by very decent pay, the best retirement program bar none, and other benefits. For good reason, service in the military has been a calling sometimes likened to life in a monastery.

FALSE ECONOMY

There is another, troubling myopia common to these essays. In devising their personnel systems, all organizations must attend to both *economy*—that is, cost—and *equity* for individual members. First and foremost, however, we need our organizations to be *effective* and *reliable*.[9] We create and maintain public organizations to provide vital goods and services—external security primary among them—that the market is unwilling or unable to provide reliably in desired ways at appropriate levels, often because they cannot be generated at a profit; that is, they are inherently inefficient. It is a perilous misdirection to be efficiently ineffective, but especially so for public organizations, which need to be assessed for accomplishment far more than cost. In fact, in the face of the uncertainty and danger characteristic of turbulent environments, hard experience shows us that effectiveness and reliability are rarely achieved absent organizational redundancy, even though this runs precisely opposite to the efficiency assumptions and theorems of theoretical economics.[10]

In the military context, effectiveness translates to war-fighting ability. One searches in vain, however, for close attention to war fighting and military effectiveness by the authors of *Filling the Ranks.* Rather, consistent with broader efforts to bring the ethos of private business to the military over the past decade or so, these essays focus on economic efficiency, with attention to equity as it appears to play in incentives for performance. Thus, one learns that because computer specialists are worth more in the private market than they are currently paid in the military, to improve their retention rates they should be paid more in equivalent grades than the infantryman whose combat skills find little demand in the private sector. Aside from its implicit dismissal of the vital importance of the lowly grunt, especially in counterinsurgency and similar operations, and bearing in mind the importance of technical knowledge in the modern U.S. military, this recommendation ignores the fact that the military has long provided social mobility by means of access to stable income, education, and training, with the expectation that military personnel will move to the private sector—a historically extraordinary and effective subsidy of industry. Comparisons of the military services with private labor markets need to be undertaken advisedly and only with careful qualification. Defense, is, after all, a public good and is likely to remain so. As General Dwight D. Eisenhower once said to his subordinates: "Now boys, let's not make our mistakes in a hurry."

Few would question that the military personnel system is now under great stress. Let me suggest, however, that this strain has been produced not by difficulties of the objective economy of incentives to which these essays address themselves but by the post–Vietnam War shift to an all-volunteer force, the post–Cold War drawdown in military strength, a world suffused with failing states and the troubles they breed, unrealistic assumptions about the use of conventional military force to produce desired results in this environment, intentional Department of Defense policies that for reasons of economy have stripped virtually all slack from the military services, an ongoing real shooting war, and the resulting sustained high operational tempo (and concomitant personnel tempo) that shows little sign of abating any time soon.[11] Relieving this stress hinges on addressing the underlying problems described immediately above, the scope of which vastly exceeds those aspects of the personnel system considered in *Filling the Ranks*.

In the end, these essays are not really about personnel reform and combat effectiveness. Rather, they are about two other, lesser objectives: making the system more penetrable and rendering military personnel themselves more malleable by their civilian masters; and reducing costs. That a personnel system is cumbersome or difficult to manage presents no justification for reorganization if it is already effective. Neatness doesn't count; outcome counts. Institutions

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cumulate their structures and processes over decades and centuries of trial-and-error response to practical problems and, although sometimes appearing byzantine and arcane, usually have sound reasons for their particular configuration. The track record for sweeping reorganizations remains dismal.[12] These essays display poor historical grasp, suffering from casual, sometimes plain inaccurate, empirical assertions, combined with an alarming lack of understanding of the military profession and the factors that motivate its members. Finally, these essays define the problem in terms of a preferred, a priori solution: instead of working regressively from a carefully structured problem, they begin with a set of untested assumptions and work forward, leading, fundamentally, to trying to solve the wrong problem.[13] This reviewer does not share the optimism of the authors of *Filling the Ranks;* at the macro level, their policy recommendations do not address the most serious military personnel problems but rather, if followed, will produce myriad unintended consequences, some of which will be profoundly negative.[14]

The military personnel system *can* benefit from careful *empirical* analysis to produce an accurate image of its problems' structures, accompanied by a systematic process of generating appropriate alternatives to the status quo, to be treated as empirically testable hypotheses intended to produce incremental adaptations. Also, notwithstanding contemporary urges to centralize, consolidate, and standardize (often under the mystical guise of enhanced "jointness"), any analysis must take account of the fundamentally different histories, missions, and operating environments of the several services. *Filling the Ranks* does not provide such an analysis.

NOTES

1. Available at mitpress.mit.edu/catalog/author/default.asp?aid=192.
2. See Frederick W. Taylor, *The Principles of Scientific Management* (New York: Harper, 1911; repr. Norton, 1967). See also Judith Merkle, *Management and Ideology: The Legacy of the International Scientific Management Movement* (Berkeley: Univ. of California Press, 1980). Taylor's aim was to decompose given work processes into their smallest components, define the levels and optimum method for each, train workers to those components, establish normative production levels, and, finally, pay any given worker only for that level of skill required and for his actual production. This diminished labor's power by making any one worker readily replaceable by any other suitably trained worker.
3. Scientific management was implemented over a vast olio of enterprises, including an ill-fated experiment in Navy-owned shipyards that was quickly abandoned.
4. Along with Elton Mayo, George Homans, and others, F. J. Roethlisberger conducted the famous "Hawthorne Studies" over several years, beginning in the mid-1920s, reported in *Management and Morale* (Cambridge, Mass.: Harvard Univ. Press, 1941).
5. Chester I. Barnard gave a series of management lectures at Harvard in 1937, published

as *Functions of the Executive* (Cambridge, Mass.: Harvard Univ. Press, 1938), still in print in many languages. This reviewer considers it among the several best books on management ever written. Among his many accomplishments in both private and public sectors, Barnard established and ran the United Services Organization (USO) during World War II.

6. Elizabeth A. Stanley-Mitchell's "The Military Profession and Intangible Rewards for Service," pp. 93–118, is the sole exception to this generalization.
7. Congressional efforts to nail down exactly the pay received by naval officers dates to at least the mid-nineteenth century. The short-lived reforms included discontinuance of fuel allowances and rations, with increased pay to compensate for same. Opacity also helps to mask the inevitable inequalities and inequities in any system of compensation, thereby reducing heartburn. See Donald Chisholm, *Waiting for Dead Men's Shoes: Origins and Development of the U.S. Navy's Officer Personnel System, 1793–1941* (Palo Alto, Calif.: Stanford Univ. Press, 2001), chaps. 7–11, 23.
8. See Christopher McKee, *A Gentlemanly and Honorable Profession: The Creation of the U.S. Naval Officer Corps, 1794–1815* (Annapolis, Md.: Naval Institute Press, 1991); Peter Karsten, *The Naval Aristocracy: The Golden Age of Annapolis and the Emergence of Navalism* (New York: Free Press, 1972); and Chisholm, *Waiting for Dead Men's Shoes.*
9. See Chisholm, *Waiting for Dead Men's Shoes*, chap. 1.
10. See Martin Landau, "Redundancy, Reliability, and the Problem of Duplication and Overlap," *Public Administration Review* 29 (1972), pp. 346–58.
11. The military faces well documented recruitment and retention problems, which the reviewer believes resulted primarily from a post–Cold War military that was structured and sized to fight conventional conflicts of the preferred American type but that now is and will be called upon for the foreseeable future to fight low-intensity conflicts that are enormously consumptive of personnel over long periods of time.
12. Abysmally unsuccessful Western efforts to "develop" third world countries by means of large-scale projects that ignore local history and institutions are instructive on this point. See, for example, J. Stephen Lansing, "Balinese 'Water Temples' and the Management of Irrigation," *American Anthropologist* 89 (1987), pp. 326–41.
13. Economists have largely remained indifferent to the practical problems of searching for and generating alternatives because it assumes that the market will present alternatives to the decision maker. Notable exceptions include Wesley C. Mitchell and Herbert A. Simon.
14. See Robert K. Merton, "The Unanticipated Consequences of Social Action," *American Sociological Review* 1(1936), pp. 894–904. Unintended and unanticipated consequences are *not* the same as the economist's "negative externalities," about which, by definition, the individual decision maker, the firm, does not care. Responsible public policy makers, in contrast, must be concerned with unanticipated consequences.

BOOK REVIEWS

NOT THE DAYS OF CLAUSEWITZ

Smith, General Sir Rupert. *The Utility of Force: The Art of War in the Modern World*. London: Penguin, 2005. 428pp. £25

Military theorists around the globe have noted changes in the landscape of warfare—nonstate actors, asymmetric threats, technology proliferation, etc.—and suggested that the military forces currently fielded by Western nations are not equipped to respond to them. The latest product of this analysis is *The Utility of Force: The Art of War in the Modern World,* by General Sir Rupert Smith.

Smith certainly has the appropriate credentials to write about the topic. He commanded the British 1st Armoured Division in the first Gulf war and was commander of UN forces in Bosnia at the time of the Dayton Peace Accords in 1995. After three years as General Officer Commanding Northern Ireland, he became Deputy Supreme Allied Commander Europe (DSACEUR), serving as second in command to a U.S. general, Wesley Clark, during the NATO air campaign in Kosovo.

The variety of the author's experiences throughout his distinguished career is critical, because these experiences constitute the framework for his thinking about war. First, he emphasizes the importance of separately considering the effects of force at the three levels of war: tactical, operational (or theater, as Smith prefers), and strategic. Having held commands at each level, he has gained his appreciation of this first-hand. Second, much of Smith's command experience has been as part of coalitions, which he recognizes will continue to play a significant role in future warfare. Finally, he taxonomizes modern warfare—which he dates from the wars of Napoleon—into three distinct forms of war, corresponding roughly to three historical periods: interstate industrial war, the Cold War (which he regards as primarily an anomaly of the era of mutually assured destruction), and "war amongst the people." Just as Smith has commanded troops at each of the levels of war, he has served in some capacity in all three forms of war.

The most novel contribution Smith makes is his discussion of the implications of "war amongst the people." This is grounded in the idea that troops today are committed for much different reasons than in the days of Clausewitz,

and against much different enemies—enemies who do not wear a uniform but move freely "amongst the people." Smith uses this idea to examine past conflicts, touching on the guerrilla fighters operating on the Iberian Peninsula in the Napoleonic wars before moving on to analyze the British successes in Malaya, the French and American failures in Vietnam, and the two Gulf wars. Thereafter, he develops a series of questions for commanders to ask prior to the employment of force and devotes the penultimate chapter to applying these questions, albeit post hoc, to his experience in Bosnia.

The Utility of Force is not a scholarly work, nor does it claim to be; it has few footnotes and no bibliography, but neither does it need them. The book is not military history but rather a skillfully presented interpretation of certain trends in the history of warfare. Meanwhile, it raises a number of important questions that all future strategic leaders should be considering.

ROBERT BOLIA
Air Force Research Laboratory
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Fontenot, Gregory, E. J. Degen, and David Tohn. *On Point: The United States Army in Operation Iraqi Freedom*. Annapolis, Md.: Naval Institute Press, 2005. 539pp. $34.95

On Point, as stated in its opening pages, is clearly intended for a professional military audience. General Eric K. Shinseki, former chief of staff of the Army, commissioned this work in 2003 as an after-action review. The overarching purposes were to educate soldiers and defense professionals with respect to the conduct of combat in Operation IRAQI FREEDOM (OIF) and to suggest implications for continued U.S. Army transformation.

In telling the story of the Army in OIF, the authors appeal not only to the target audience but to the general public at large through objective and informative analysis. *On Point* provides a clear appreciation for the complexities involved in planning, preparation, and execution of military operations across the range of military operations. Further, *On Point* provides the lay reader insight into the after-action-review process, which remains critical to advancing institutional learning and improving the future application of the armed forces as an instrument of national power.

On Point tells the story from a decidedly Army perspective. The discussion encompasses topics essentially in three parts, from the strategic-operational level down to the tactical level of war. The first discusses the Army preparation for OIF. The second focuses on the ground war through the conclusion of major offensive combat operations. It is discussed in four phases: Phase I—preparation, Phase II—shaping the battlespace, Phase III—decisive offensive operations, and Phase IV—post-hostilities. Finally there is an analysis of the campaign's implications regarding future conflict, Army organization, and transformation to a future force. Army successes and failures are clearly delineated, along with the authors' recommendations for the future.

Like many military books written by military officers and professionals, *On Point* often suffers from an overemphasis on acronyms and abbreviations, making the writing sometimes dry and overly detailed. Nonetheless, the

authors have effectively blended official battle narratives, after-action reviews, and eyewitness accounts of the war to emphasize one or more of the central themes to be investigated by the OIF Study Group.

Shortly after its completion in 2004, *On Point* was available only online through links to the Center for Army Lessons Learned (CALL), and to a select group of officers fortunate enough to receive a limited edition produced by the Combat Studies Institute Press in 2004. This first edition from the Naval Institute Press makes the work available to the public in a single bound edition. Unlike the online version, the pictures, illustrations, graphics, and maps are difficult to read and interpret accurately due to poor printing and reproduction. Until this problem is corrected in a subsequent edition, the reader should refer to the color online version for any necessary clarification. Additional tools available to the reader include a complete glossary of military terms and acronyms, as well as a detailed U.S. order of battle for Operation IRAQI FREEDOM. Nonmilitary readers will no doubt need to consult both items early and often during their reading and study.

TERRY L. SELLERS
Lieutenant Colonel, U.S. Army

Ellis, Jason D., and Geoffrey D. Kiefer. *Combating Proliferation: Strategic Intelligence & Security Policy*. Baltimore: Johns Hopkins Univ. Press, 2004. 287pp. $48

Jason Ellis, a former senior research professor at the National Defense University, and Geoffrey Kiefer, a researcher at NDU's Center for Counterproliferation Research, seek to illuminate the intersection between intelligence and America's "quest to prevent and manage WMD proliferation."

The authors focus on six topics, discussing the issues involved in each, and illustrate each with a pair of case studies. Chapter 2, "Standards of Evidence," focuses on intelligence concerning the Pakistani nuclear program and Chinese missile assistance, while the remaining five chapters address, in succession, estimative uncertainties and policy tradeoffs, intelligence surprise, intelligence sharing, military support, and warfighting in a WMD context. The North Korean nuclear program and Soviet/Russian biological warfare activities serve as the case studies for the estimative uncertainties chapter. They are followed by studies on India's 1998 nuclear tests, North Korea's 1998 launch of a three-stage Taepo Dong-1, and U.S. intelligence sharing with Russia (concerning its nuclear and missile assistance to Iran) and the United Nations Special Commission (UNSCOM), as well as the boarding of the *Yin He* along with the attack on the al-Shifa facility in Sudan. The final two case studies examine the Operation DESERT STORM air campaign and counterforce in DESERT FOX.

As indicated by the sixty-three-page notes section, the authors made an extensive effort to mine the open-source literature for relevant material. As a result, their case studies provide valuable accounts of some of the key examples of the intersection of intelligence and proliferation in recent years.

One shortcoming stems from Ellis's and Kiefer's desire to focus on current developments concerning the intersection of intelligence and proliferation. In

doing so, the authors have bypassed any discussion of older events that might have provided opportunities for some long-term perspective.

They report the recommendations of Admiral David Jeremiah's investigation of the intelligence community's failure to provide advance warning of India's 1998 tests. Yet those recommendations—including altering collection priorities, better human intelligence, and improved coordination—are eerily similar to those of the community's postmortem of its failure to warn of India's 1974 test. The similarities raise a number of questions—possibly, that the intelligence community has simply proven it is unable or unwilling to correct its shortcomings.

Another problem for the reader (although not the authors' fault) is that the book only briefly refers to Operation IRAQI FREEDOM. There is only a brief mention of Colin Powell's presentation of intelligence to the UN, and none at all of the postwar findings on U.S. intelligence performance. Had the book been completed a year or two later, these would have been prime topics. However, *Combating Proliferation* is not a book overtaken by events but rather a valuable guide to the issues concerning intelligence and proliferation.

JEFFREY T. RICHELSON
National Security Archive

Herspring, Dale R. *The Pentagon and the Presidency: Civil-Military Relations from FDR to George W. Bush.* Lawrence: Univ. Press of Kansas, 2005. 512pp. $45

Civil-military relations are the subject of considerable scrutiny and debate throughout the Clinton presidency. Unfortunately, the academicians, journalists, and occasional uniformed professionals who joined in that debate have been inexplicably mute since the Bush-Cheney-Rumsfeld regime came to power. So this inquiry by Kansas State University political science professor Dale Herspring offers a welcome shot of intellectual adrenalin to an enduringly important, if temporarily moribund, topic. Herspring confronts two issues that are central to the canonical discourse of civil-military relations: civilian control of the military by elected and appointed political officials, and the political neutrality or nonneutrality of those in uniform. Herspring is well qualified to address the subject, having spent twenty years as a foreign service officer in relatively senior State Department and Defense Department assignments, as well as some thirty-two years of combined active and reserve duty in the Navy.

Focusing his attention primarily on the senior ranks of the military—the controlled—rather than on the civilian controllers, Herspring considers the intersection of presidential leadership and military culture an arena of inevitable conflict. Where the two are compatible, he argues, conflict is minimized; where they are not compatible, the frequency and intensity of conflict are magnified. He holds that since the Truman administration the military has become progressively more political, displaying common interest-group behavior by using Congress and the media to serve its own institutional self-interest at the expense of dutiful obedience to executive civilian authority.

Herspring devotes a chapter to each of the twelve presidencies from Franklin D. Roosevelt to George W. Bush. Each chapter, identical in structure, begins with a brief examination of the leadership style of the president concerned, along with two or three case studies depicting the military's reaction to it on particular critical issues, and concludes with a discussion of two questions: To what degree did the president's leadership style mirror or violate military culture, and how did that style affect civil-military relations? Did military culture change or employ new methods to oppose change?

Conflict between senior civilian officials and the senior military, though inevitable, Herspring believes, can be mitigated by presidential behavior. Over time, such conflict has been most pronounced in administrations where presidential leadership style and military culture have been most at odds. Herspring adjudges the level of conflict as high in the Johnson, Nixon, and Clinton administrations; moderate under Truman, Eisenhower, Kennedy, Carter, and George W. Bush; but minimal under Roosevelt, Ford, Reagan, and George H. W. Bush.

This is a book that should command attention from students of civil-military relations. Although it is an interesting read—thoroughly but not exhaustively researched, tightly and coherently structured—its ultimate value is as descriptive historical synthesis. It offers no conceptual breakthroughs and does not examine in any detail such important issues as the highly political behavior of senior officers like Colin Powell and Alexander Haig or the growing practice of retired senior officers, like William Crowe, to endorse presidential candidates (arguably for political patronage) and, like Wesley Clark and Barry McCaffrey, to provide regular news commentary on controversial public policy issues; the firings and resignations of selected senior officers (John Singlaub, Michael Dugan, Frederick Woerner, Ron Fogleman, even Eric Shinseki), and the associated failure of senior officers to accept responsibility for gross military lapses like Abu Ghraib and the bombing of the Beirut Marine barracks, Khobar Towers, or the USS *Cole;* and, most notably, Iran-Contra and its aftermath, particularly the roles played by Robert McFarlane, John Poindexter, Oliver North, and Colin Powell. More discussion on these issues would have strengthened the author's thesis and the reader's understanding of military politicization and professionalism.

Although such omissions do not weaken the book noticeably, the author's avoidance of normative judgment is a shortcoming worth noting. Is conflict between civilian officials and the military healthy or unhealthy? Is there a proper distinction to be drawn between responsible military dissent and disobedience? Which of the military's obligations takes precedence, dutiful obedience to civilian authority or checking and balancing civilian impetuosity, ineptitude, or misconduct?

Such questions remind us that civil-military relations are an endless contest of principle and personality in democracies fledgling and mature. One suspects that this contribution from Dale Herspring will have the salutary effect of reminding us of that fact and rekindling much-needed debate on the subject.

GREGORY D. FOSTER
Industrial College of the Armed Forces
National Defense University

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McCoy, Jennifer L., and David J. Myers, eds. *The Unraveling of Representative Democracy in Venezuela.* Baltimore: Johns Hopkins Univ. Press, 2004. 342pp. $49.95

By far one of the more interesting and challenging issues facing U.S. national decision makers today is what to do about Venezuelan president Hugo Chavez and his Bolivarian revolution. Since Chavez came to power Venezuela has shifted from a staunch friend to a strident antagonist and become much more closely aligned with Cuba, and it now appears increasingly willing to find new markets for its oil. Given that Venezuelan crude supplies approximately 13 percent of U.S. energy needs, these are developments U.S decision makers cannot take lightly.

The Unraveling of Representative Democracy in Venezuela attempts to explain how the political landscape of Venezuela evolved to the point where a Chavez victory was possible. In this effort, the editors succeed admirably. Not only does this work boast solid scholarship and impressive research, but it stands as a superb example of what an edited volume should be but all too rarely is.

The book begins with an exploration of the history of the Punto Fijo democracy, which was essentially an agreement between Venezuelan political elites, establishing a representative democracy. In chapter 1, David Myers examines how this agreement was reached and how, over time, the terms of the agreement became codified into the Venezuelan political landscape. The result was one of the most stable and long-lived democracies in South America.

Chapters 2 through 6 deal with various elements of Venezuelan society and how it reacted to or was incorporated within the Punto Fijo regime, including how eventually the regime could no longer be maintained in the face of increasing political stress. A variety of actors, from the urban poor to the professional military to Venezuelan intellectuals, are examined. Each chapter is well written and thought provoking and complements the other portions of the book.

Among its more intriguing conclusions is that an increasingly professionalized officer corps became a key component in the success of Venezuelan democracy. With professionalization came acceptance of civil control of the military and a greatly diminished role in internal security issues. When this changed in 1989, at the request of civilian authority, the officer corps became increasingly politicized. Today, a significant percentage, if not a majority, of formerly civic functions are carried out by military officers whose primary attribute is a fierce personal loyalty to Hugo Chavez.

Chapters 9 through 11 deal with policy decisions made during the Punto Fijo years and how, gradually, the existing political parties grew unable to cope with or meet the demands of an increasingly disillusioned public. Through this examination the reader grows to understand that it was this political failure that enabled Chavez to rise to power. Furthermore, by 1998 the vast majority of Venezuelan voters welcomed Chavez, believing change preferable to maintaining the status quo.

The description of the evolution of a representative Venezuelan democracy to a democracy of direct participation is compelling and fascinating. It is so well handled that one wishes the authors

had spent as much time dissecting the Chavez regime as those that preceded it. One of the few drawbacks is that there is little attention to an examination of Hugo Chavez and his inner circle of advisors.

This book is a must-read for anyone who wishes to get beyond Chavez's rhetoric and red beret. It would enrich any South American regional studies course and has applicability for other disciplines as well. Readers who take the time to consider *The Unraveling of Representative Democracy in Venezuela* will emerge richer for the effort. Among those who should read it are businessmen interested in Venezuelan markets and any military officer assigned to the U.S. Southern Command.

Given the success McCoy and Myers have had in creating this book, it is only to be hoped that a companion is in the works.

RICHARD NORTON
Naval War College

Bush, Elizabeth Kauffman. *America's First Frogman: The Draper Kauffman Story*. Annapolis, Md.: Naval Institute Press, 2004. 221pp. $28.94

War brings out the best as well as the worst in human nature. Freedom for Americans has always depended on the bravery and innovation of servicemen willing to endure danger and privation. Elizabeth Kauffman Bush has written a marvelous account of one such hero, her brother, Draper Kauffman—the nation's first frogman and the founder of the Navy SEALs.

Determined to follow in the footsteps of his father (Vice Admiral James Laurence), Kauffman persevered at the Naval Academy despite his poor eyesight, which nearly prevented him from attending and initially denied him a commission in the Navy when he graduated in 1933.

Disappointed but undaunted, he accepted a position at a shipping company, U.S. Lines, in New York, where he became assistant operations manager. His two-month tenure at the company's German office in 1939 convinced him that the United States had to join with France and Great Britain to stop Hitler. When he returned home, Kauffman joined the free-lecture circuit urging early American intervention in the war, in defiance of the prevailing isolationist sentiment in the United States.

Eager to do more to defend the cause of freedom, Kauffman joined the American Volunteer Ambulance Corps, which placed itself under the direct command of the French army. He served with valor as an ambulance driver during the Battle of France in May–June 1940 before the Germans captured him. He languished several weeks in a Nazi prisoner-of-war camp, dropping forty pounds before the American embassy secured his release.

After a six-week voyage from Portugal, Kauffman arrived in Great Britain at the peak of Hitler's bombing campaign. He joined the Royal Navy and became expert at the harrowing task of diffusing delayed-action German bombs and mines during the Blitz. He narrowly escaped with his own life when a mine he was working on blew up.

Kauffman returned home to recover from his wounds, and in November 1941 he finally received his commission in the U.S. Naval Reserve. His experience in

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Great Britain won him the job of launching the Navy's Bomb Disposal School, receiving his first Navy Cross for dismantling a five-hundred-pound bomb dropped in Hawaii by the Japanese attack on Pearl Harbor. Chosen in 1943 to establish an underwater demolition school in Fort Pierce, Florida, Kauffman rigorously trained teams later known as frogmen (later to be known as the Navy SEALs) to defuse bombs and destroy submerged obstacles deployed by the Nazis to impede the invasion of France. Kauffman received his second Navy Cross for valor in leading underwater demolition teams at Tinian in the Pacific, as well as advance demolition teams at the invasions of Iwo Jima and Okinawa.

When the war ended, Draper Kauffman continued his distinguished naval career, commanding the destroyer USS *Gearing* and the heavy cruiser *Helena.* Promoted early to rear admiral, Kauffman eventually became superintendent of the U.S. Naval Academy in Annapolis, Maryland. His naval career concluded with two postings: as Commander, U.S. Naval Forces, Philippines, and then as commandant of the Ninth Naval District and the Great Lakes Training Center, north of Chicago. Kauffman retired from the Navy in 1973, revered by those with whom he had served. The author of this work is Kauffman's sister, Elizabeth Kauffman Bush. Her historical analysis is precise, concise, and judicious. She has not only mastered such technically intricate topics as bomb demolition but conveys them in a way that keeps the reader riveted.

ROBERT G. KAUFMAN
Pepperdine University

OF SPECIAL INTEREST

. . . AT THE NAVAL WAR COLLEGE

Annual International Law Conference, 28–30 June 2006. "Global Legal Challenges: Command of the Commons, Strategic Communications, and Natural Disasters," a colloquium of international law scholars, practitioners, and students to examine legal standards applicable to pressing global challenges—the global commons, strategic communications, and natural disasters—will be hosted by the International Law Department of the Center for Naval Warfare Studies. All those attending the conference will be integral participants in this colloquium, and the Naval War College will publish the conference proceedings as a volume in its renowned International Law Study series. For agenda and registration information, visit www.nwc.navy.mil/ild.

Spring Intersessional. The Naval War College's Spring 2006 Intersessional Conference was held 6–7 March, on the theme "Employing Strategic Communications in the Modern Operational Environment." Panels addressed "The Nature of Strategic Communications," "The Message and the Audience of Strategic Communications," and "The Bearers of Strategic Communications." Panelists included teaching and research faculty, supplemented by representatives from the Navy, Department of State, industry, and major universities. Readings are available on the College's website, at www.nwc.navy.mil/pao/L1/Upcoming%20Events.htm (click on "intersessional conference").

The Edward S. Miller Research Fellowship in Naval History. The Naval War College Foundation intends to award one grant of $1,000 to the researcher who has the greatest need and can make the optimum use of research materials for naval history located in the Naval War College's Archives, Naval Historical Collection, Naval War College Museum, and Henry E. Eccles Library. (A guide to the College's manuscript, archival, and oral history collections may be found on the Naval War College's website: www.nwc.navy.mil/museum, under "naval history resources," click on "Naval Historical Collection Publications." Further information and copies of registers for specific collections are available online or on request from the Head, Naval Historical Collection, e-mail evelyn.cherpak@nwc.navy.mil.)

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The recipient will be a research fellow in the Naval War College's Maritime History Department, which will provide administrative support during the research visit. Submit a detailed research proposal that includes a statement of need and plan for optimal use of Naval War College materials, curriculum vitae, at least two letters of recommendation, and relevant background information to Miller Naval History Fellowship Committee, Naval War College Foundation, 686 Cushing Road, Newport, R.I., 02841-1207, by 1 August 2006. For further information, contact the chair of the selection committee at john.hattendorf@nwc.navy.mil. Employees of the Naval War College or any agency of the U.S. Department of Defense are not eligible for consideration; EEO/AA regulations apply.

RECENT BOOKS

Osborne, Eric. W. *Cruisers and Battle Cruisers: An Illustrated History of Their Impact.* Santa Barbara, Calif.: ABC-CLIO, 2004. 283pp. $85

"Men and women who operate cruisers [today] do so in an environment where the future of their ships is questionable." It is an ironic state of affairs for a warship type that has the "most lengthy stories" of any, save only the battleship. Like its companion volumes in the publisher's Weapons and Warfare series, it defines and describes the type and traces its evolution (in this case from its "prehistory" in the Age of Sail), in the not only military but historical and social context (an area where this volume is especially strong), up to 2004. All this accounts for a little more than half the book, by bulk; the rest is a tabulation of cruiser classes, with specifications, summaries of historical highlights, and in most cases black-and-white photographs. In this section the rapid transformation of the "cruiser" type in the late nineteenth century is especially striking—from the *Vauban,* much like the U.S. screw steamers of the Civil War, to the *Dupuy de Lome,* which looks like nothing so much as a crocodile in a children's book. Glossary, selected bibliography, and index.

Polmar, Norman, comp. *The Naval Institute Guide to the Ships and Aircraft of the U.S. Fleet.* 18th ed. Annapolis, Md.: Naval Institute Press, 2005. 672pp. $89.95

This series forms, with the *Jane's* family and *Combat Fleets of the World,* the standard reference in the field—anyone familiar enough with the subject to need such a book is already aware of its use and value. The eighteenth edition adds chapters on littoral combat ships and unmanned aerial vehicles, and updates on carrier air wing composition, prepositioning ships, submarine rescue systems, unmanned undersea vehicles, the MH-60R/S helicopter, and the Coast Guard's DEEPWATER program. The volume contains 918 photos and 114 other illustrations, general and ship-name/class indexes, and appendixes (four of them tabular, plus essays on the Arsenal Ship and transformation).

Rasor, Eugene. *English/British Naval History to 1815: A Guide to the Literature.* Bibliographies and Indexes in Military Studies, no. 15. Westport, Conn.: Praeger, 2004. 913pp. $119.95

Sixteen years ago, Eugene Rasor published an invaluable guide to naval history in his *British Naval History since 1815* (Praeger, 1990). He has now supplemented that work with a new guide, *English/British Naval History to 1815.* The new work differs from the earlier work, not only in being a "prequel" of nearly twice the size but in having for every entry an annotation that assesses its reference value. Together, Rasor's volumes provide an unmatched reference guide to British naval history for interested readers, students, and scholars of naval history, of all levels and interests. Rasor's new volume is particularly welcome because of the 2005 bicentenary of the battle of Trafalgar. While that commemorative event has produced a large number of new works that will need to be considered in future bibliographical studies, Rasor is aware of many research works in progress and has incorporated as many as he could into this bibliography. The 4,124 entries in his alphabetical listing of the most important scholarly and printed materials on the full range of topics in the naval history of England and Great Britain from the earliest times to 1815 is conveniently linked to and prefaced by a 373-page historiographical narrative. His authoritative introduction is helpfully divided into numerous chapters and subsections devoted to specific periods and major thematic topics. This will not only serve as a guide to what has been written but provide a stimulus to what yet needs to be done on this subject.

Sorley, Lewis, ed. *Vietnam Chronicles: The Abrams Tapes, 1968–1972.* Lubbock: Texas Tech Univ. Press, 2004. 917pp. $50

In 1972, when General Creighton Abrams returned to Washington from Vietnam to assume the duties of Army chief of staff, he brought along some two thousand hours of tape recordings of briefings and discussions made during his four-year tenure as Commander U.S. Military Assistance Command Vietnam (MACV). The tapes were classified and sealed after his death in 1974. Sorley, while writing Abrams's biography, became aware of the tapes, and they were made available to him for use in his 1999 *A Better War.* Screening the tapes, Sorley produced some 3,200 handwritten pages of notes, much more than he could use. This work, then, is an annotated collection of excerpts from those notes. Many themes concerning strategy, tactics, intelligence, etc., emerge in this work and provide the MACV view of the war from the perspectives of Abrams, his senior commanders and staff officers, and Ambassador Ellsworth Bunker. They will be of use to scholars and researchers of the 1968–72 period. For a broader perspective of the war see William Gibbons's *The U.S. Government and the Vietnam War* (edited by Edward Keefer), which describes and analyzes U.S. policy, or the State Department's official record of U.S. foreign policy and diplomacy during the Vietnam War.