AIRPOWER

Winter 1994

JOURNAL

Winter Readings

- Military Ethics
- Third-Wave War
- Nonlethal Warfare

The *Airpower Journal*, published quarterly, is the professional journal of the United States Air Force. It is designed to serve as an open forum for the presentation and stimulation of innovative thinking on military doctrine, strategy, tactics, force structure, readiness, and other matters of national defense. The views and opinions expressed or implied in the *Journal* are those of the authors and should not be construed as carrying the official sanction of the Department of Defense, the Air Force, Air Education and Training Command, Air University, or other agencies or departments of the US government.

AIRPOWER JOURNAL

Winter 1994, Vol. VIII, No. 4 AFRP 10-1

For paid subscription information, see page 52. For basis of issue and official distribution information, see page 44.

EDITORIAL

Changes: Faces and Focus

Change may be the only constant. Sometimes it happens so slowly we don't see it until it's moved past us. At other times we see it coming and don't even have time to duck. For the past few months, we've experienced more of the latter. We have new faces behind the desks and beginning with the Spring issue, we will have a greatly expanded focus for the *Journal.*

If you've been in the Air Force for more than a month, you've seen new faces arrive and familiar faces depart. It's a way of life and it's something we all come to expect. Part of that expectation encompasses a belief that the process is managed. We never expect all the experienced people to rotate at the same time, but it sometimes happens. In July, our new associate editor, Maj John Poti, arrived a few days before his predecessor departed. He grabbed the stick, asked some questions, and started to work. Just as we started to adjust, we got word that our editor was moving to his next assignment earlier than expected but that his replacement, Lt Col Bill Spencer, wouldn't arrive until November. So in August I took charge, destined to become the shortest-lived editor of the *APJ.*

Although ·challenging, the changes discussed thus far are ones of circumstance rather than substance. As such, it is unlikely that they will be of lasting import except to those directly concerned. But when we encounter change of substance, we expect broader effects. The decision to realign the focus of the *APJ* is a change of substance, mandated by self-reflection.

Every once in a while it's probably a good idea for the members of an organization to answer two questions: What *do* we do? and What *should* we do? The answers to these questions keep an organization focused on its purpose and its goals. If the two answers don't match, it is time for change. When we asked the questions at *APJ,* the responses varied more than expected. There was general agreement on the first answer: We publish a journal for midcareer personnel that focuses on air power at the operational level. That wasn't surprising since it has been editorial policy for over seven years. What did surprise us was the range of things people thought we "should" be doing. After all the voices had been heard, the answer to the second question is, We should produce a journal that focuses on air power at the operational *and* strategic levels.

I can't pinpoint the moment our focus needed to be broadened. Maybe it was when the Berlin Wall fell. Maybe we should have changed course when the collapse of the Soviet Union highlighted our singular position as the world's only aerospace power. A reasonable argument can be made that the pivotal moment occurred when Desert Storm finally gave substance to Giulio Douhet. Perhaps the specific instant doesn't matter all that much. Let's simply say that in 1987 the *APJ* had an intentionally narrowed focus that best advanced the understanding of air power, and this issue marks the end of that era.

Beginning with the Spring 1995 issue, the *APJ* will broaden its coverage of air power and encourage authors to submit articles that deal with strategy and policy issues. This fundamental change in direction will help ensure a more comprehensive understanding of air power. But in the final analysis, a comprehensive understanding of air power will require authors who can articulate all sides of an issue—and, more important, readers who challenge assumptions, attack inconsistencies, and force debate. *APJ* will provide the court and the ball. It's your serve. TK

apj RICOCHETS

We encourage your comments via letters to the editor or comment cards. All correspondence should be addressed to the Editor, Airpower Journal, *401 Chennault Circle, Maxwell AFB AL 36112-6428. You can also send your comments by E-mail to Spences=James%ARJ%CADRE@Chicago.AFWC.AF.MIL. We reserve the right to edit the material for overall length.*

CORE VALUES

In his article "Core Values in a Quality Air Force: The Leadership Challenge" (Summer 1994), Chaplain, Lt Col Alexander B. Roberts describes the values that are important to a quality Air Force. He then addresses the challenge facing Air Force leadership to raise levels of commitment to these values and makes some recommendations concerning achieving this goal. The values are, as Colonel Roberts states, core values; that is, they are subservient to other character aspects, especially one's morality.

Core values in the Air Force underlie the more fundamental values of love of God and country. My commitment to Air Force core values grows out of patriotism, and my patriotism stems in large part from the degree to which our country allows freedom of worship and the degree to which our national laws and actions mirror Christian morality. Integrity, competence, courage, tenacity, and service all need to have a foundation in something larger than simply an organization. In my case, God's law is the basis of my morality; my moral principles determine my character; and my character results in actions which exhibit what Colonel Roberts calls core Air Force values. Colonel Roberts suggests that transformational leaders proclaim the real meaning of our organization, the Air Force. I suggest that without other meaning and higher commitments in life, this cannot be accomplished.

Lt Col Steven T. Lofgren, USAF
Beavercreek, Ohio

STRATEGIC JOURNAL

Kudos on your devotion of the recent special edition of *Airpower Journal* to strategic issues. This is long overdue. I believe the demise of the excellent *Air University Review* in 1987 was indicative of what Earl Tilford—the last editor of the old journal—called "the Air Force's unilateral disarmament in the war of ideas." Let me explain.

From 1987 to 1991 I taught strategy at the Army Command and General Staff College and then joined the faculty at the Air War College. While I found all of my Air Force students extremely intelligent and many plainly brilliant, their overall understanding of strategy and national policy in Air War College seminars was less than that found among the captains and majors at the Army Command and General Staff College. At the senior service schools, this gap widens. For the Army War College, the contribution of critical, unencumbered strategic debate in *Parameters* and the publications of the Strategic Studies Institute is clear.

Currently, the Air Force excels at "inside the Beltway" politics and the operational level of war. Many Air Force officers also have a sophisticated grasp of national security strategy and world affairs, but they have developed this through individual effort, more in *spite* of the Air Force's perspective and values rather than because of them. While it would be only a very small step in a wider transformation of institutional attitudes, the Air Force needs a strategic journal. Long live *Airpower Journal,* but bring back *Air University Review!* There is not only room for both, but in this time of dramatic strategic transformation, there is also a pressing need.

Steven Metz
Carlisle Barracks, Pennsylvania

REBUFF

The critique in "Ricochets" (Summer 1994) of the mystery author's article "A New Defense Industrial Strategy" (Fall 1993) was remarkable for three reasons. First was its insistence that the costs of doing depot business are "their" fault—"their" being, variously, the threat, the Congress,

continued on page 53

DESERT STORM

The First Information War?

COL EDWARD MANN, USAF*

Know the enemy and know yourself: in a hundred battles you will never be in peril.
—Sun Tzu

INTO THE SILENCE there dropped the notes of the dove: the grasshoppers were still now. Into the silence there dropped the thunder of cannon and the sharp clear sounds of rifles. . . .

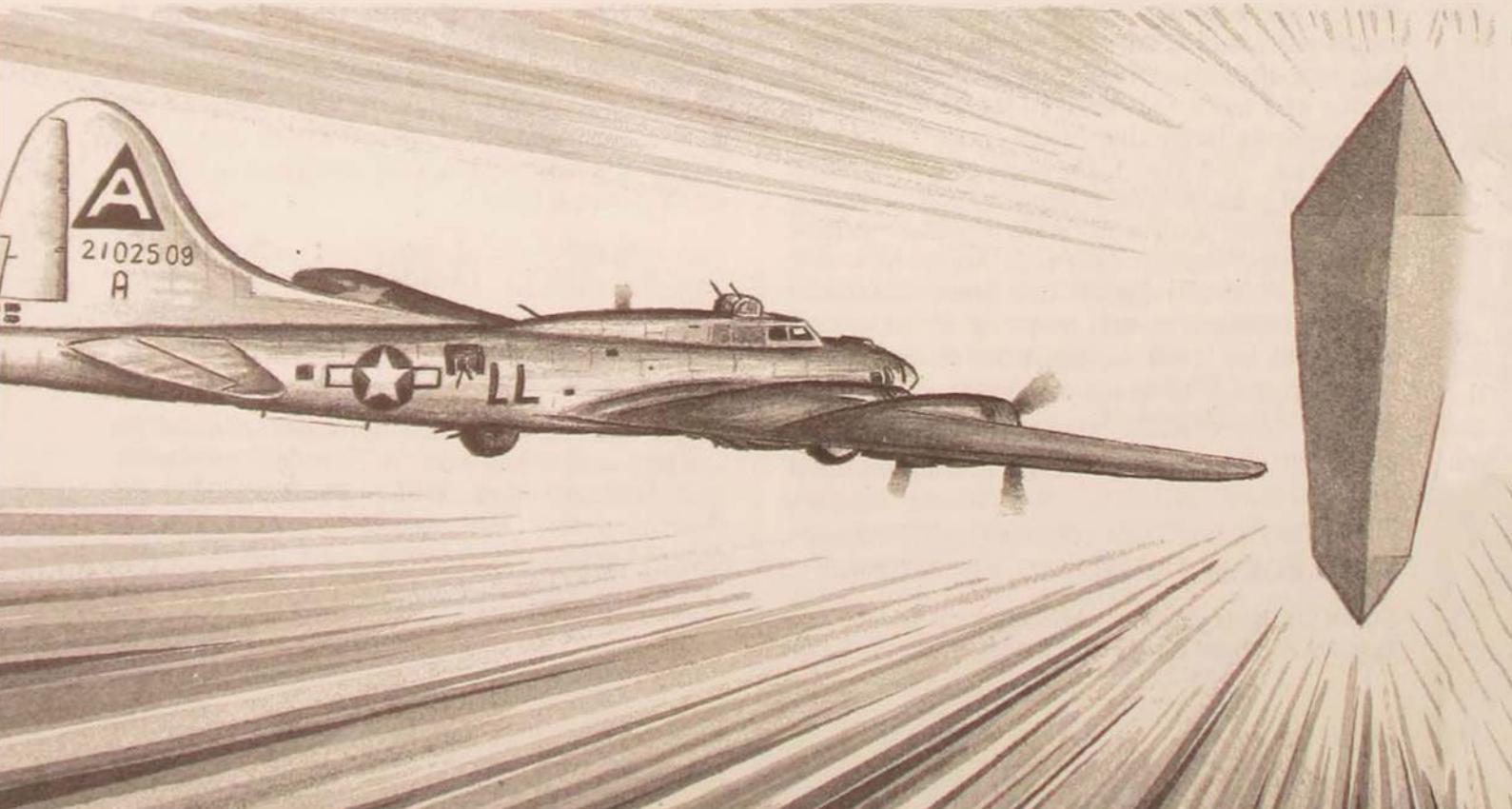
Moved by a spirit that was outside ourselves and our captains, we went forward on to the plain. . . . [The leader] kept the pace midway between walk and run. There was a rhythm to the firing of the cannon: as the enemy jumped clear there came a puff of smoke and then the great wind of the bullet. Our leader sent fifty runners to tell the men that they must drop to the ground when they saw the puff of smoke, then the big bullet would go over their heads. The men having caught his words fitted themselves into our enemies' rhythm, and so there were less killed than was expected.

Still, great numbers were left behind on the plain. . . . On and on through the tall green grass, their plumes touched by the wind of death . . . their death-screams were heard above the roaring of the guns. . . . Indeed people were falling so fast that they made a sort of fence behind which the living hid while they fired. . . .

The war cry of Zulu filled the sky and the tread of Zulu shook the earth.[1]

---

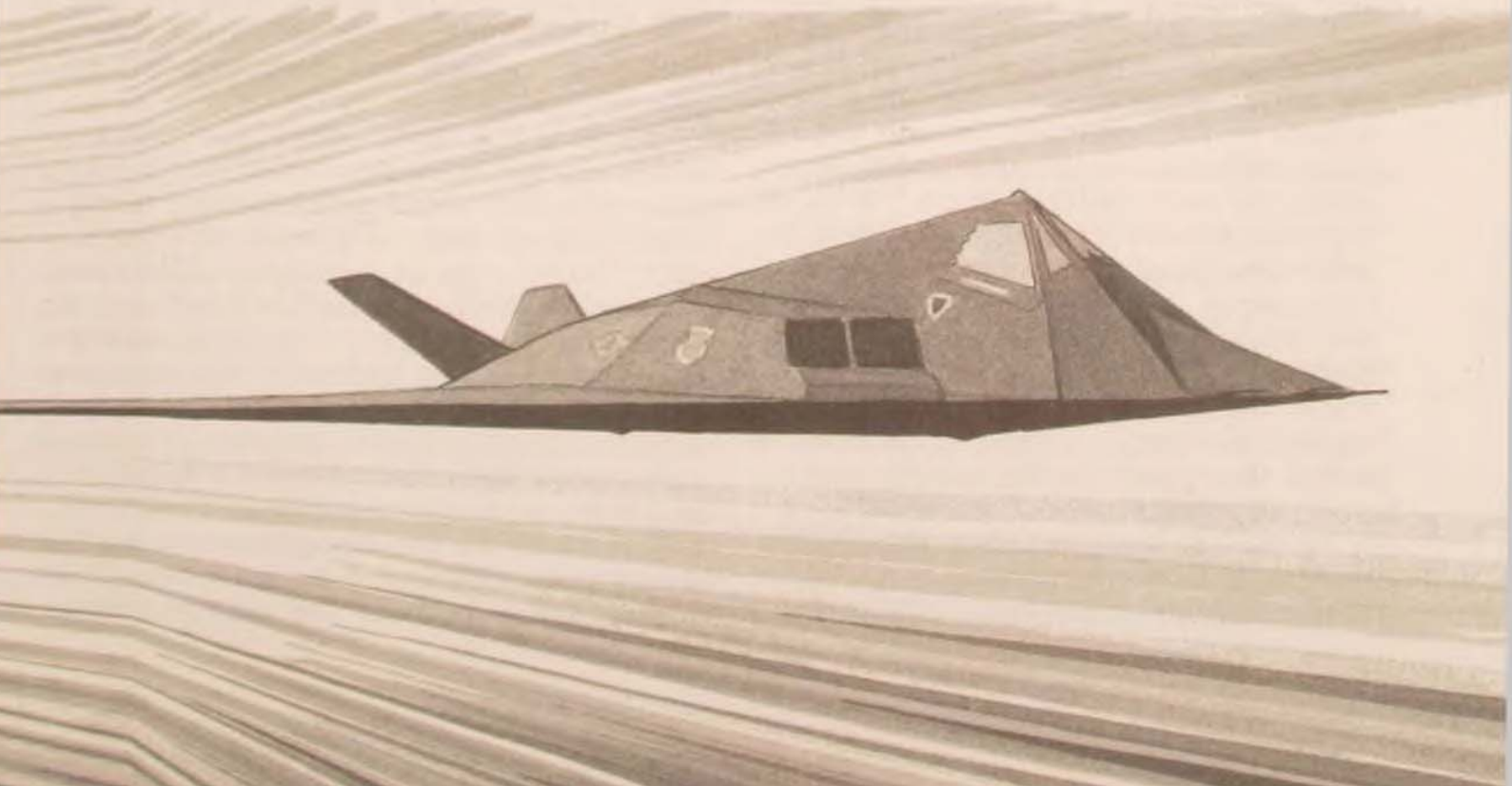
*This article is an excerpt from Colonel Mann's book *Thunder and Lightning: Desert Storm and the Airpower Debates*, forthcoming from Air University Press.



THE WORDS ARE fiction, but the scene is real and vividly illustrates the fate of preindustrial warriors opposing industrial-age firepower. Such warriors, though they sometimes win the field, pay a horrible price in blood. Indeed, the industrial-age force would have to be incredibly stupid to lose such a battle. For instance, Lord Frederic A. Chelmsford lost the battle of Isandhlwana in 1879 (the battle described above) because he declined "local advice concerning the adversary and terrain before him on the grounds that 'the broad principles of tactics hold good in Africa equally as well as in Europe'."[2] The British army paid heavily for Chelmsford's failure to obtain knowledge concerning the enemy and his deployments. Though Chelmsford's main column slaughtered Zulus by the hundreds, only 355 of 2,800 in the British force survived the battle. Just one day later, however, at Rorke's Drift, a British force of 85 drove off thousands of Zulus, killing 400–500 while losing only 17 men themselves.[3] The major difference was that the smaller force knew the Zulu attack was coming and had prepared for it. Chelmsford might have known, but he *chose* not to.

Perhaps Operation Desert Storm was, as some people claim, the first information war,[4] but it wasn't—by a long shot—the first time an armed force perished for lack of knowledge. Sun Tzu recorded the principle for us nearly 25 centuries ago. The struggle to dominate the enemy in terms of information and knowledge is not new, but it has recently taken on dramatically increased relevance in war fighting. It is possible—perhaps even likely—that "information warfare" represents a true revolution in war fighting[5] and will require new understandings of military force and force application. If so, the overwhelming defeat of Iraq by the US-led coalition in 1991 may be attributable in large measure to the fact that Saddam Hussein's industrial-era armed forces ran up against a postindustrial military whirlwind. This article examines how air and space power contributed to coalition dominance in the collection, dissemination, and application of information and knowledge, and how this process affected the outcome of Desert Storm.

Rapidly gaining and exploiting information dominance was clearly a key goal of the Desert Storm air campaign plan. The first Iraqi targets attacked were air defense, lead-



ership (including command, control, communications, and intelligence [C³I]), and electrical grids,[6] all of which had the highest priority because of their impact on the Iraqis' flow of information. The integrated air defense command and control (C²) system, known as Kari (*Iraq* spelled backwards in French), provided tracking and targeting

Perhaps Operation Desert Storm was, as some people claim, the first information war, but it wasn't—by a long shot—the first time an armed force perished for lack of knowledge.

information for Iraqi fighter and surface-to-air missile (SAM) engagements of coalition aircraft. Breaking down this flow of information would fragment the enemy's air defense effort, forcing his SAMs into autonomous mode and leaving his interceptors virtually helpless. This situation allowed coalition aircraft to exploit Iraqi airspace at will. Leadership C³I targets provided linkages between the highly centralized decision-making elements (principally Saddam) and both the Iraqi population and the fielded military forces. Disrupting these systems would upset and discredit the regime, while simultaneously reducing its capability to control military forces.[7] Without electrical power, communications would be reduced to verbal and handwritten messages conveyed by courier. Thus, a successful attack against the Iraqi power grids would disrupt nearly every kind of information flow within the nation.[8] Plans called for maintaining pressure on Iraqi "information nodes" throughout the war to help create an exploitable "information differential."[9]

To build and maintain this pressure, the US brought a tremendous array of electronic warfare systems to the fight. (Other coalition partners contributed a few systems, such as the British Tornado GR1As, but the US provided the vast majority.) Before and during the war, satellites and airborne systems collected electronic intelligence, finding and fixing C³I nodes of all types for later attention from less benign systems such as the USAF's 61 F-4Gs and 12 specially configured F-16 Wild Weasels, highly sophisticated systems capable of detecting and destroying electronic radiation sources (especially radar emissions) with high-speed antiradiation missiles (HARM) and Shrike antiradiation missiles. The Navy and Marines contributed less sophisticated—yet very capable—F/A-18, EA-6B, and A-7 HARM and Shrike shooters. (These aircraft could detect and shoot at radiation sources but, lacking some of the information available to the Weasels, could never be sure they had released their missiles within range of the target.) Many strike aircraft carried their own electronic jamming equipment to counter Iraqi attempts to track and shoot them with radar-guided systems; additionally, EF-111s, EC-130s, and EA-6Bs accompanied most strike packages, employing even more sophisticated (and powerful) jamming equipment.[10] The apparent Iraqi fears that radiating was both futile and dangerous were certainly well founded, if not totally accurate.[11] The enemy's ability to collect and use information was severely disrupted, but creating that deficit represents only half the battle.

According to Col John Boyd's observation-orientation-decision-action (OODA) loop theory, this kind of offensive effort can "enmesh [the] adversary in a world of uncertainty, doubt, mistrust, confusion, disorder, fear, panic, chaos . . . and/or fold [him] back inside himself so that he cannot cope with events/efforts as they unfold."[12] This factor probably contributed greatly to the mass desertions and surrenders of Iraqi troops and almost certainly to their general ineffectiveness as a cohesive fighting force. Of course, as Boyd also states, this disruption of the adversary's flow of information represents only one side of the equation. The real objective

is to complete one's own OODA cycles faster than the adversary completes his; thus, while "stretch[ing]-out [the] adversary['s cycle] time," one must also "compress [his] own."[13] Although caught somewhat flat-footed in August 1990, the coalition immediately began working this part of the equation and continued with a vengeance until the air war began in January 1991.

According to Colonel Boyd, "the O-O-D-A loop can be thought of as being the C&C [command and control] loop."[14] Surely, Boyd is actually referring to all aspects of what we call C^3I (or what many people now call C^4I—the fourth C standing for "computers"). Logically, then, (1) intelligence[15] provides observation (in accordance with command elements' requirements); (2) working together, intelligence and command elements provide orientation (i.e., they determine *what* to observe, *which* observed information is of greatest value, and *how* it is to be used in making decisions); (3) command elements make necessary decisions and direct the actions required to execute those decisions; and (4) field units and their discrete elements (aircraft, tanks, people, etc.) execute the directed actions (and contribute to observation through postaction reports, at which point the cycle begins again). All these elements are interconnected through the communications element of C^3I (and computers of C^4I). The whole can be only as strong as the weakest link. Even though at least one of its links was very weak indeed (i.e., orientation, discussed below), the coalition—after weathering a slow start—would eventually dominate in every element of this cycle.

The slow start resulted in part from the orientation of US operations planning—and, therefore, intelligence collection—for the Middle East prior to early 1989. Before that time, planners concentrated on a potential Soviet threat in the region. That orientation, combined with the "aggressive security and counterintelligence policies of the Iraqi regime," meant that the US (therefore, the coalition, since the US owned the vast majority of intelligence assets which could be brought to bear) did not have a full complement of information on Iraq.[16] Much of the available data was old, of poor quality, and/or incomplete.[17] The US had satellites in place that could and did monitor military activity, but little was known about the regime's intentions.[18] Consequently, there was no consensus on the probability of the Iraqi invasion before it actually occurred.[19] Neither was there a consensus on Saddam Hussein's intentions beyond the occupation of Kuwait. Some people thought that he would continue the attack into Saudi Arabia in early August, while others thought he had already overextended himself and would now only dig in and try to hold.[20] The coalition immediately began the scramble to improve the flow of information.

The first deployments to theater included US airborne warning and control system (AWACS) aircraft to enhance the development of an "air picture" for coalition military leadership and forces. This knowledge not only was critical to the defense of Saudi Arabia against air threats, but also helped monitor Iraqi training activity and improve coalition understanding of the Iraqi air force's readiness levels and sortie-generation capability. Behind the initial air defense force deployments came a plethora of reconnaissance and surveillance aircraft to monitor Iraqi activities and define orders of battle. These included RF-4s, RC-135s, TR-1s,

The true purpose of information dominance . . . is to provide an exploitable knowledge dominance.

P-3s, E-2s, RF-5s, and specially configured F-14s and Tornado GR1As—a total of more than 100 such aircraft. Additionally, Pioneer unmanned aerial vehicles flew nearly 300 reconnaissance sorties.[21] Two experimental E-8 joint surveillance target attack radar sys-

tem (JSTARS) aircraft contributed their own brand of near-real-time battlefield reconnaissance. Though using them was a risky gambit (because of their developmental status), these aircraft provided tracking of both friendly and enemy ground forces, thus reducing fratricide and making possible some spectacular—usually one-sided—air-to-ground engagements such as the one that produced the now-famous "highway of death."[22] On top of all that, a significant array of military and civilian space systems augmented air-breathing reconnaissance and surveillance systems, providing meteorological information and imagery of various types.[23] Even this massive reconnaissance and surveillance capability couldn't satisfy the coalition's insatiable appetite for information on Iraq and its army's field deployments, so several other types of fighter aircraft "flew reconnaissance missions in an attempt to overcome the shortage."[24]

It is possible—perhaps even likely—that "information warfare" represents a true revolution in war fighting and will require new understandings of military force and force application.

But coalition military leaders still couldn't seem to get sufficient information quickly enough. Throughout the war, theater planners had to contend with an unacceptable lag in information flowing to them through normal intelligence channels. Furthermore, the people who assigned priorities for imagery collection were often not involved with target planning (and, therefore, not in touch with the decision makers' priorities). Because required information, once collected, frequently arrived too late to be useful, planners had to use out-of-channel work-arounds to assess bombing results within the 72-hour planning cycle.[25]

Some vital information—such as the location of mobile Scud missile launchers—proved to be just too difficult to obtain. Highly effective Iraqi deception efforts and employment procedures made targeting the Scuds very difficult; confirming successful attacks was almost impossible.[26] The only indication of success against the Scuds was the gradual reduction in the number of missiles fired, although a resurgence in firings during the last week of the war tended to cloud this assessment. (Nevertheless, the last week's firings were still less than half those of the first week.)[27]

Though far from mobile, Iraqi nuclear research facilities proved nearly as difficult a problem. Coalition intelligence uncovered only eight known or suspected nuclear facilities before or during the war, yet postwar inspections by the International Atomic Energy Administration turned up at least an additional 18. The fact that 16 of the 26 were considered "main facilities"[28] means that at least eight major nuclear facilities escaped detection until after the war.

Although these intelligence "failures" were significant (especially the timing lag for national systems, which was never really fixed), the coalition totally dominated the Iraqis in terms of information collection (i.e., observation). Saddam's forces had nothing to rival the coalition's collection capability and no means of countering it other than tactical deception (which, though used effectively by Iraq, clearly has limits). The gap in information collection—huge at the outset of hostilities—grew rapidly over time. This was especially true after the opening of the air war, when the coalition expanded its collection efforts while quickly altering force deployments and carefully denying useful information to Iraq. With regard to observation, the coalition held all the cards.

Orientation gets nowhere near the attention from US military forces that observation does, yet it is probably the most critical element in the entire OODA loop. Colonel Boyd notes that "the second O, orientation—as the repository of our genetic heritage, cul-

tural tradition, and previous experiences—is the *most important part* of the O-O-D-A loop since it shapes the way we observe, the way we decide, the way we act" (emphasis in original).[29] In effect, orientation is the real starting point of the OODA loop, even affecting *what* we decide to observe (and then, *what* we decide to do). Lord Chelmsford, for instance, decided not to observe anything about the Zulus he would face or about the terrain on which he would face them. Saddam Hussein made a similar decision (though less overtly) and therefore had no resources with which to observe coalition activities beyond his own front lines (other than international sources such as radio and television, which were considerable but nowhere near sufficient).[30] For this lapse, both Chelmsford and Saddam paid an enormous price. Orientation is the critical link between information—which is nice to have—and knowledge, which (when properly considered and acted upon) saves one from peril.

The difference between information and knowledge may seem very subtle at first, but in warfare it is truly critical. On the one hand, information is passive and always exists (at least in the abstract) whether anyone pays attention to it or not. Among other things, it can be collected, collated, analyzed, "fused," packaged, disseminated, and even managed. Of particular relevance to the Gulf War, it can be stored, protected, and concealed or suppressed, sometimes even from one's own decision makers.[31] It can also be jammed up in a system of data flow that will eventually deliver it to decision makers but perhaps not in time to be useful to them. Knowledge, on the other hand, is active and must be possessed if it is to exist—let alone be useful. Somewhere, someone must process the collected raw material (information) into something recognizable and useful for decision making (knowledge). For example, the location of a tank is information, whether anyone knows it or not; it becomes knowledge only when someone has seen and taken note of it. Such knowledge becomes useful when it is fitted into a scheme of operations (are tanks to be destroyed or left alone to support a potential coup d'etat?) to make informed decisions. One need not do this perfectly—only better and faster than the adversary.

Knowledge processing, then, requires the ability to orient on the right information (e.g., using surveillance systems to collect data about Iraq instead of the Soviet Union) and then on discrete elements of information necessary to the decision at hand (e.g., examining a particular set of pictures or documents such as those that reveal Iraqi nuclear facilities). Thus, the true purpose of information dominance (which requires proper orientation on information collection and dissemination) is to provide an exploitable knowledge dominance.

Throughout the war, theater planners had to contend with an unacceptable lag in information flowing to them through normal intelligence channels.

The ability to discriminate between useful information and background "noise" (i.e., orientation) may have been the weakest link in the US-designed C^{3}I system used by the coalition in the Gulf.[32] In fact, US national intelligence appears to be biased toward forcing all available information through channels and shows little regard for shifting priorities in the field. Often, discrete elements of information needed by commanders and planners were already collected and available but awash in a much larger stream of data that was working its way through the system.[33] However, if planners requested these elements from key individuals within the system, they could be extracted and forwarded hours-to-days faster than normal. Dave Deptula, a key planner in the US Air Forces, Central Command (CENTAF) special

planning group (which quickly became known to other CENTAF planners as the "Black Hole," because people and things went in and never came out),[34] cites an example of "normal time delays involved in getting information [through the formal system]":

> We wanted a photo of a particular target. . . . [Then-Brig Gen Buster C.] Glosson picks up the phone, calls [Joint Staff deputy chief of staff for intelligence (J-2) Mike] McConnell, and we get the photo in about 4 hours. . . . Twenty-four hours later, about, he gets a photo from CENTCOM [US Central Command] or CENTAF/IN [Intelligence]. About 24 hours after that, 48 hours later, we get the same photo from CENTCOM/J-2 [Intelligence].[35]

Data from the Gulf War Air Power Survey confirm such scenarios.[36] Obviously, this was not an observation problem since the required information was available in the system and eventually would have reached the planners—whether they needed it or not!

The difference between information and knowledge may seem very subtle at first, but in warfare it is truly critical.

Nor can the delays be blamed on lack of communications (although they often are, especially by apologists for the national intelligence system)[37] because once the specific need had been identified to the "right" people in the system (i.e., once proper orientation was provided), delivery was nearly immediate. Of course, communications problems existed, especially during the early deployment phase. The CENTCOM area of responsibility was an immature theater, and communications suffered from the common initial deployment problem of Desert Shield: incomplete time-phased force and deployment data[38] for operations plan (OPLAN) 1002-90 (CENTCOM's contingency plan for defense of Saudi Arabia; in August 1990 it was still in conceptual development). The US did not have much in the way of communications capability in-theater when Iraq invaded Kuwait, and Saudi telecommunications systems were of limited use for a large military operation such as Desert Shield/Storm. But communications systems began moving right alongside the combat forces on 8 August 1990.[39] In fact, by war's end, CENTCOM had greater electronic communications connectivity than US European Command, according to Lt Gen James S. Cassity, the Joint Staff director of the Command, Control, and Communications System Directorate (J-6) during Desert Shield/Storm.[40] At its peak, the system could handle over 700,000 telephone calls and 152,000 messages per day. In addition, communicators managed and monitored over 35,000 frequencies to ensure interference-free radio connectivity for the theater.[41]

Much of the system that communicators ultimately cobbled together was vulnerable to interference, yet—for whatever reason—it was never successfully attacked by the adversary. Saddam's forces probably could have seriously stressed coalition capabilities with a moderate investment of time and effort. In particular, they apparently could have interfered with tactical satellite communications (TACSATCOM; ultrahigh frequency [UHF] and superhigh frequency [SHF] radio communications) but either never tried or were unsuccessful.[42] Since the overall theater communications architecture, as it evolved, depended heavily upon TACSATCOM, successful jamming would have severely degraded coalition communications capability.[43] Iraq's almost total lack of opposition in the electromagnetic spectrum allowed the coalition to very quickly build and maintain a system capable of delivering required information. The fact that Glosson could get a call through to McConnell at all—not to mention receiving a photograph from him within four hours—indicates that sufficient communications were available to deliver what planners needed. Faster data transfer will always be desirable, but it is not

the root of the intelligence problem in Desert Shield/Storm. Nor does the solution lie in increasing the flow of data.

The problem lies in a systemic orientation that favors data flow over user needs. This at least partially explains the debate between intelligence and operations over the intelligence system's Desert Shield/Storm performance. That is, intelligence delivered "tons" of information as fast as possible (IN's self-imposed measure of merit), while operations wanted specific "pounds" of it delivered much more quickly than the system was capable of. Operations planners, unable to get a satisfactory resolution within the intelligence system, resorted to unofficial work-arounds and informal arrangements outside the system.[44]

Examples of these external sources include General Glosson's special relationship with Admiral McConnell and the Black Hole connection to Checkmate[45] for targeting information. Planners also used unofficial, informal arrangements to get battle damage assessment (BDA) and measurements of battlefield attrition levels (a subcategory of BDA that became very contentious during the war) that intelligence was not providing.[46] (In some cases, information was available, but intelligence sources would not use it or make it available to operations planners.)[47]

Operations planners, unable to get a satisfactory resolution within the intelligence system, resorted to unofficial work-arounds and informal arrangements outside the system.

Fortunately, Saddam did not experience a similar problem with information sorting. Indeed, coalition efforts to deny him useful information were so successful that once the war started, he couldn't even follow the positions of his own forces—let alone those of the coalition.[48] Saddam's intelligence was oriented on internal, not external, issues.[49] He possessed no space-based observation capability of his own and failed to arrange access even to commercially available products such as the French SPOT. Of course, since France was a member of the coalition, it was not likely to sell information to Saddam, but he could have availed himself of more surreptitious means of obtaining such products. These sources certainly would have exposed the movement of two reinforced US Army corps 150 miles to the west. That single piece of information, received and properly processed, would have revealed the hopelessness of his force deployment in terms even he could understand and thus might have altered his subsequent actions.

Like other two-dimensional thinkers, Saddam failed to see the implications of Col John Warden's "air-Schlieffen" plan, but even he could not have failed to understand the seriousness of a powerful two-corps surface force deploying beyond his right flank, with nothing standing between it and Basra (or Baghdad, for that matter). But, then, that *was* the major implication of air-Schlieffen: because Saddam and his forces could not observe, they could not orient and therefore could not decide sensibly and therefore would act stupidly or not at all. The only sensible action open to Saddam—acceding to coalition demands—escaped him at this point. When the moment came, many of his forces would try to fight, but their situation was hopeless. To reiterate Colonel Boyd's assessment, they were enmeshed "in a world of uncertainty, doubt, mistrust, confusion, disorder, fear, panic, chaos" and folded "back inside [themselves] so [they could not] cope with events/efforts as they unfold[ed]." The coalition had unquestionably met Boyd's requirement of operating inside the Iraqis' OODA loop, sometimes by a matter of days.

With observation platforms such as the TR-1 and JSTARS linked directly (or through AWACS) to both command elements and fighting units, coalition forces could spot, target, attack, and destroy Iraqi armor and

supply columns, literally in minutes. This sequence of events occurred at Al Khafji, on the highway of death outside Kuwait City, and—somewhat less dramatically—elsewhere in Kuwait and southeastern Iraq. Even information from national systems (satellites) could sometimes affect events in near-real time. A phone call from Checkmate or Admiral McConnell, for instance, could put bombs on the "building with the Mercedes parked out front" within minutes.[50]

This was possible not only because of the rapid observation and orientation cycles (relative to those of Iraq), but also because Gen H. Norman Schwarzkopf and then-Lt Gen Charles Horner delegated decision making to the lowest possible level consistent with centralized control of air power. Before execution—and for most of the 42 days of the air war—decisions about targeting were made in the CENTAF planning cell. Only after the Al Firdos bunker incident did high-level decision makers (probably Schwarzkopf, Chairman of the Joint Chiefs of Staff Gen Colin Powell, or both) intrude themselves by withholding most Baghdad targets.[51] Other than that, decisions did not require specific approval at multiple command levels and therefore could be made quickly.

The division of targets into categories corresponding to previously defined enemy centers of gravity—combined with careful explanations of the categories and associated objectives, as briefed to senior officials—helped desensitize leaders such as Schwarzkopf and Powell (perhaps even Secretary of Defense Dick Cheney and President George Bush) to specific target selections. When a target clearly fitted one of the categories, everyone assumed that it served a legitimate military purpose (and ultimately, therefore, the political objectives)—an assumption that seems vindicated by results. Glosson and his planners had free rein to make adjustments as they saw fit. Schwarzkopf and Horner gave support and general guidance—as well they should—but specific targeting decisions were made in the CENTAF planning cells.[52]

General Glosson's delegated decision-making authority extended downward to the flying units by virtue of General Horner's position as joint force air component commander (JFACC). By selecting Glosson for the position of chief air campaign planner with the concomitant authority to control the air tasking order (ATO) (in which all overland flights had to appear), Horner delegated him authority over flying units' wartime taskings. The reorganization of CENTAF in December 1990 further enhanced Glosson's authority by making him commander of 14th Air Division (AD), comprised of the USAF fighter and fighter-bomber wings. At the same time, Glosson was named CENTAF director of campaign plans, a position that expanded his role from directing strategic offensive planning in the Black Hole to controlling all CENTAF planning functions in the newly formed Campaign Plans Division. Thus, Glosson had both functional authority (as the JFACC's campaign plans director) and service authority (as commander of 14th AD) over all USAF fighter units. There was no confusion whatsoever concerning his direction of their activities.[53]

Just as Glosson's authority and the role of the Black Hole planners evolved from strictly informal to ever more formalized modes, so did their ability to provide the orientation necessary to the collection and dissemination of intelligence. Increasing at much the same rate was their ability to impose decisions on the rest of the CENTAF plans division and the flying units that would execute the plan. Following the December reorganization, Glosson and his planners were powerful enough and sufficiently "connected" to control the OODA loop for the entire air campaign. Their innovative, informal approaches eventually overwhelmed and, in some cases, swallowed up the formal system—witness the December reorganization of CENTAF's plans division under Glosson's

direction and the key roles played by Black Hole planners in the new organization. They also formed their own BDA cell, which—by using gun-camera video and other information obtained outside intelligence channels—bypassed the formal system almost entirely. In other words, they "drove" their own OODA loop from the special planning cell and made it respond to their 72-hour planning priorities. Indeed, they made it responsive enough to handle immediate priorities as well. They then aggressively and continuously attacked and further degraded Iraq's capability to OODA. A decision cycle similar to one that moved from observation to action in minutes or hours for Horner's men probably took days for Saddam—if it could be completed at all.[54] As Col John Boyd would say, the outcome was all but inevitable. Victory was assured over 30 days before coalition ground forces moved to contact.

A new chapter in warfare was written on 17 January 1991. With the advent of postindustrial warfare, information warfare, or knowledge warfare—whatever one might choose to call it—a window opened, giving discerning people an opportunity to gaze into the future. Although the view remains blurred and imperfect, warriors who make the most of it increase their chances for victory in the next round. □

Notes

1. Daphne Rooke, *Wizards Country* (Cambridge, Mass.: Houghton Mifflin Co., 1957), 253–54.

2. Andrew Duminy and Charles Ballard, eds., The *Anglo-Zulu War: New Perspectives* (Pietermaritzburg, Natal: University of Natal Press, 1981), 65.

3. John Young, *They Fell like Stones: Battles and Casualties of the Zulu War, 1879* (London: Greenhill Books, 1991), 52–69, 88–89; and R. Ernest Dupuy and Trevor N. Dupuy, *The Encyclopedia of Military History from 3500 B.C. to the Present* (New York: Harper & Row, 1986), 851.

4. See, for instance, Alan D. Campen, ed., *The First Information War: The Story of Communications, Computers and Intelligence Systems in the Persian Gulf War* (Fairfax, Va.: AFCEA International Press, 1992). Campen declares (among other things) that the Gulf War "differed fundamentally from any previous conflict" in that "the outcome turned as much on superior management of *knowledge* as . . . upon performances of people or weapons" (page vii; emphasis in original). Despite his use of the term *information warfare*, Campen tacitly avers the truth—suggested by Sun Tzu 2,500 years ago—that the ultimate goal of the struggle is to dominate the enemy in knowledge—not information. Collection and analysis of information is, of course, a part—but not the whole—of the issue.

5. Or perhaps this is simply an important part of a larger military-technical revolution (MTR; others have called it a revolution in military affairs [RMA]). A third possibility is that information warfare, MTR, and/or RMA are simply different names for the same phenomenon.

6. *Conduct of the Persian Gulf War: Final Report to Congress*, vol. 1 (Washington, D.C.: Department of Defense, April 1992), 156.

7. Ibid., 126–27; and Thomas A. Keaney and Eliot A. Cohen, *Gulf War Air Power Survey Summary Report* (Washington, D.C.: Department of the Air Force, 1993), 36–37.

8. *Conduct of the Persian Gulf War*, vol. 1, 127.

9. Like several other concepts used in Desert Storm (e.g., parallel attack and simultaneity), information differential acquired its name after the war. See Joint Pub 1, *Joint Warfare of the US Armed Forces*, 11 November 1991, 57. It is worth noting that this concept is specifically tied to "advanced US technologies," a relationship that makes it a perishable advantage, dependent upon continued US superiority in technology development.

10. Keaney and Cohen, 195–97.

11. Col S. D. Ramsperger, cited in Alan D. Campen, "Iraqi Command and Control: The Information Differential," in Campen, 173.

12. Col John R. Boyd, "A Discourse on Winning and Losing," 1987, 177. Unpublished briefing slide set available at Air University Library, Maxwell AFB, Ala.

13. Ibid.

14. Ibid., 222.

15. For the sake of simplicity, *intelligence* is used here to subsume all information sources. The author recognizes that much of a commander's or staff's vital information is not provided by the intelligence system.

16. Keaney and Cohen, 122.

17. Col James Blackburn, Bolling AFB, Washington, D.C., transcript of interview with Lt Col Suzanne B. Gehri, Lt Col Richard T. Reynolds, and author, 21 April 1993, 102–4, Desert Story Collection, US Air Force Historical Research Agency, Maxwell AFB, Ala.

18. *Conduct of the Persian Gulf War: Final Report to Congress*, vol. 2 (Washington, D.C.: Department of Defense, April 1992), C-2.

19. See, for example, Bruce W. Watson et al., eds., *Military Lessons of the Gulf War* (London: Greenhill Books, 1991), 146; and H. Norman Schwarzkopf with Peter Petre, *General H. Norman Schwarzkopf, the Autobiography: It Doesn't Take a Hero* (New York: Bantam Books, 1992), 293–94.

20. Schwarzkopf, 310, 313–14; Col Steve Wilson, Washington, D.C., transcript of interview with Lt Col Suzanne B. Gehri, Lt Col Richard T. Reynolds, and author, 11 December 1991, 50–51, Desert Story Collection, US Air Force Historical Research Agency, Maxwell AFB, Ala.; and *Triumph without Victory: The Unreported History of the Persian Gulf War* (New York: Random House, 1992), 97–98.

21. Keaney and Cohen, 184, 195.

22. *Conduct of the Persian Gulf War*, vol. 2, T-84 to T-87.

23. Ibid., 1: 194.

24. Keaney and Cohen, 195.
25. Ibid., 140–41.
26. Ibid., 83.
27. Ibid., 83–84.
28. Ibid., 123.
29. Boyd, 222.
30. Campen, in Campen, 172.
31. For example, according to Lt Col Dave Deptula, intelligence personnel withheld certain photographs needed by Black Hole planners until the end of the war because they "were afraid that if they gave them to the Black Hole, they would get lost." Lt Col Dave Deptula, Washington, D.C., transcript of interview with Lt Col Suzanne B. Gehri, Lt Col Richard T. Reynolds, and author, 12 December 1991, 103–4, Desert Story Collection, US Air Force Historical Research Agency, Maxwell AFB, Ala.
32. If so, the problem is nothing new. Roberta Wohlstetter, for example, points to the US failure to anticipate the Japanese attack on Pearl Harbor in 1941. "To discriminate significant sounds against this background of noise, one has to be listening for something or for one of several things. In short, one needs not only an ear, but *a variety of hypotheses that guide observation*" (emphasis added). In other words, if one is to determine which specific elements of information are important to the issue at hand and then turn that information into useful knowledge, one must have specific orientation on key questions—not simply indiscriminate collection and dissemination. *Pearl Harbor: Warning and Decision* (Stanford, Calif.: Stanford University Press, 1962), 55–56.
33. Maj Gen James R. Clapper, Jr., assistant chief of staff of Air Force Intelligence during Desert Shield/Storm, says that the flow of US intelligence operates on a "push" rather than a "pull" system. That is, field units receive mostly what analysts deign to give them rather than what they need. According to General Clapper, the intelligence community is fixing this particular problem. James R. Clapper, "Desert War: Crucible for Intelligence Systems," in Campen, 81–85.
34. Lt Col Sam Baptiste, Maxwell AFB, Ala., transcript of interview with Dr Diane Putney and Lt Col Richard T. Reynolds, 24 September 1992, 24–25, Desert Story Collection, US Air Force Historical Research Agency, Maxwell AFB, Ala.
35. Deptula, 12 December 1991, 91–92.
36. Keaney and Cohen, 131–32.
37. See Clapper, in Campen, 82.
38. Larry K. Wentz, "Communications Support for the High Technology Battlefield," in Campen, 8.
39. *Conduct of the Persian Gulf War*, vol. 2, K-27 to K-28.
40. "The services put more electronic communications connectivity into the Gulf in 90 days than we put in Europe in 40 years." Quoted in *Conduct of the Persian Gulf War*, vol. 2, K-26.
41. Ibid., K-26 to K-27.
42. Alan D. Campen, "Information Systems and Air Warfare," in Campen, 27; and idem, "Iraqi Command and Control," in Campen, 175.
43. Wentz, in Campen, 10–13.
44. Keaney and Cohen, 129–30.
45. Directed by Col John Warden, the Checkmate Division was part of Air Force Plans and Operations. Under Warden's guidance, Checkmate planners designed the Instant Thunder air campaign plan, which became the basis for the air war against Iraq.
46. Keaney and Cohen, 138–39; and Deptula, 12 December 1991, 25–27, 54–64, 89–92, 101–3.
47. Although much information was available outside the intelligence system, sometimes it was difficult to persuade intelligence personnel to use nonsystem information. A case in point is gun-camera video, which intelligence personnel initially refused even to review. Deptula, 12 December 1991, 87–89.
48. *Conduct of the Persian Gulf War*, vol. 1, 215.
49. Ibid., 94; Campen, "Iraqi Command and Control," in Campen, 174; and James F. Dunnigan and Austin Bay, *From Shield to Storm: High-Tech Weapons, Military Strategy, and Coalition Warfare in the Persian Gulf* (New York: William Morrow and Co., 1992), 348–49.
50. Deptula, 12 December 1991, 32–34.
51. Even in this case, however, the CENTAF planners retained a great deal of latitude, since they were left to define the limits of Baghdad for themselves. They appear to have chosen a relatively narrow definition that allowed them to continue attacking the outskirts of Baghdad and surrounding areas without specific approval. Lt Col Dave Deptula, Washington, D.C., transcript of interview with Lt Col Suzanne B. Gehri, Lt Col Richard T. Reynolds, and author, 23 May 1991, 64–67, Desert Story Collection, US Air Force Historical Research Agency, Maxwell AFB, Ala.; Maj Gen Buster C. Glosson, Washington, D.C., transcript of interview with Lt Col Suzanne B. Gehri, Lt Col Richard T. Reynolds, and author, 29 May 1991, 81–88, Desert Story Collection, US Air Force Historical Research Agency, Maxwell AFB, Ala.; and Keaney and Cohen, 68–69.
52. Glosson, 29 May 1991, 81–84.
53. Lt Col Dave Deptula, Washington, D.C., transcript of interview with Lt Col Suzanne B. Gehri, Lt Col Richard T. Reynolds, and author, 11 December 1991, 28, 30–31, Desert Story Collection, US Air Force Historical Research Agency, Maxwell AFB, Ala.
54. Campen, "Iraqi Command and Control," in Campen, 171–73.

MILITARY ETHICS

Col Richard Szafranski, USAF
Dr James H. Toner
1st Lt William D. Casebeer, USAF

This article is an edited transcript of a conversation among three people on the subject of military ethics. Lieutenant Casebeer, Colonel Szafranski, and Dr Toner respond to the increasingly negative perceptions of the ethical standards of members of the armed forces, as reported in the public media. Each man believes that the armed forces must be more ethically robust or pure than the society at large—even more so than other professions. The academic and philosophical nature of the conversation is a function of the participants' individual personalities. We print this article to raise issues that suffuse the subject of ethics in the armed forces.

Szafranski: I'm concerned about the number of reported ethical transgressions among officers, especially senior officer "problems." Some of these reports may be inaccurate or just malicious—the "moral equivalent of fragging."[1] Anyway, it seems we have a serious problem with ethics in the armed forces.

Toner: I agree. Based only upon publicly available sources such as newspapers,[2] the opinion that there is an ethics crisis in the military seems to be well founded. I'm afraid that published reports are only the tip of the iceberg. How extensive the moral erosion is, I couldn't say. I certainly remember what it was like when I was a company-grade officer 20 years ago.[3] I thought the corner had been turned. Hasn't it?

'IN SEARCH FOR
AN HONEST MAN

Casebeer: As a company grade officer, I'm not so sure we're any worse off now than my perceptions of where we were 20 years ago. Tailhook aside, the vast majority of military men and women strike me as sensible and ethical individuals. Of course, there's always room for improvement, and the military is by no means a perfect institution. So, to make sure we're in the same ballpark, let's define some terms. Dr Toner, when you use ethics and crisis, what do you mean?

Toner: By *ethics*, I mean simply the ability to distinguish between what is honorable and what is shameful—in the sense of "duty, honor, country." By *crisis*, I refer to a time or situation of great danger or trouble. But to be more specific, the word *moral* would refer to custom, and in a more practical sense, the word *ethics* would refer to a code that transcends social convenience.

Szafranski: I understand *honorable* to mean something like unselfish—something subordinate to an imperative that's unselfish. But *honor* can mean different things to different people. *Bushido* is honor to some; *omertà* is honor to others.[4] To me, *honor* means something like the absolute commitment to putting something, someone else, first.

If excessive careerism is being rewarded in today's Air Force, it's our fault as individuals for letting the selfish be rewarded.

Toner: I think that's a useful concept, yes. But a person can certainly be selfish and still be honorable. I think of Sir Thomas More (1478–1535), who went to the gallows for what he believed, despite the pleas of his wife and family to accede to the king's demands for religious conformity.[5] Was More selfish? Sure, in a sense. He followed the dictates of his conscience. But he was also honorable.

Casebeer: Whether or not a person like More can be moral for selfish reasons—at least in a utilitarian system, where results are equated with morality—our goal should be to determine what ethical standards we are to hold ourselves to, no matter what the individual reason for doing so: love of country, love of God, love of flying, and so forth. This is an admittedly utilitarian or results-oriented standard and not a deontological or intention-based yardstick.

Szafranski: That may be a starting point, because these reported scandals hurt and embarrass all of us in the armed forces, professionally and personally. It does appear, however, that somehow a negative form of selfishness has interposed itself in our rules of behavior and has become more widespread than it should be. And now, because of this selfishness, we are in danger of losing something. After all, how can someone charged with the public trust and the lives of others come to believe that others exist to serve him or her, or that the public trust can be maintained if there's a lot of misbehavior? But I agree with you, Bill— if something's broken, we've got to fix it. Period.

Casebeer: Precisely. If careerism and excessive self-love are really the root of the problem, then our system needs to be retailored to address and punish egoistic behavior. If someone truly cares only about his or her career, and that career can only advance if the person is ethical, then egoism would actually provide for a straightlaced force. If excessive careerism is being rewarded in today's Air Force, it's our fault as individuals for letting the selfish be rewarded.

Toner: While I think there's nothing wrong with appropriate self-love and self-respect, my complaint is that in the military, excessive self-love—egoism—becomes careerism, where the officer—whether soldier, sailor, airman, or marine—says, "I come first." This attitude is particularly heinous when it ap-

pears in military service, where leaders have to be aggressive, take-charge people, intent on mission accomplishment. Yet, that aggressive attitude toward the mission can easily spill over into an aggressive attitude toward self-promotion. So how do we set up a system in which legitimate self-concern is balanced by appropriate devotion to the community?

Casebeer: That's a classic question of political philosophy: how do we balance the needs of the state against the needs of the individual? The framers of the Constitution recognized this inherent tension and resolved it by forming a governmental system of checks and balances. On the other hand, I'm sure many evolutionary biologists would disagree that self-concern is largely natural and instinctive, preferring to believe that cooperation and symbiosis developed naturally in our ecosystem despite the reward for being self-concerned.[6] Perhaps societal conditioning is really the largest factor affecting self-love.

Szafranski: Let's leave biology and political philosophy. Where *did* these ethical problems in the military originate?

Toner: We can leave biology, but we can't leave philosophy. I would argue, like Thucydides, that human nature is essentially unchanged over the centuries. But good societies—good social structures—generally facilitate reason and impede passion.[7] Break down institutions like the family and religious communities or any other means by which societies encourage the best in us, and—as in William Golding's *Lord of the Flies*[8]—there will be political and moral chaos. All questions, at their heart, are religious and political. One of the problems involved with ethics education is that, especially in the military, we just cannot teach *about* ethics; we must teach ethics. In the military, ethics isn't academic or clinical; it's an everyday, living reality. There really are "school solutions," and the people tasked with teaching ethics must inculcate the right way of doing things. But I wonder how there can be a "right way" when people actually talk about shoplifters as "nontraditional shoppers"? If there is no ultimate social agreement on matters of ethics, then there is no society.

Szafranski: Yet, these scandals seem to have cropped up suddenly, out of nowhere, and it seems we're seeing more of them. The problem goes beyond mere self-promotion. Something—some removal of inhibition or restraint, some loss of moral compass bearing—must have occurred *recently* to cause the kinds of alleged misbehaviors and shameful behavior that are reported as widespread. Why does this seem so much more a problem now rather than two years ago—or 10?

Toner: I agree that excessive self-promotion and intemperate self-gratification have always been problems. Even though it may be somewhat of an overstatement, however, I think that until the 1960s, certain cultural totems and taboos were in place that helped to restrain the darker side of our nature. The notion that everyone can pretty much do what he or she wants to do seems to have emerged full force in the late sixties, and we're seeing the ripples of that effect today. I suspect it will get much worse before it gets any better because so many of the 1960s campus radicals who subsequently joined university faculties are now tenured, and many of them remain unchanged in their views about ethics and politics. The teaching of traditional ethics is an essentially conservative enterprise, for ethics is a constellation of beliefs about wisdom and virtue that comes to us from the centuries. If such wisdom and virtue are derided as the things and thoughts of "dead, white, European males,"[9] then traditional ethics—the heart of the mili-

tary ethic—will not be taught, for there is no one to teach that discipline.

Casebeer: Roger Kimball in *Tenured Radicals* and Dinesh D'Souza in *Illiberal Education*[10] say essentially the same thing—that people who lost the ideological struggle that took place in the late sixties and early seventies sought refuge in the universities and colleges. Nonetheless, if this were the heart of the problem, we would expect to see the most flagrant ethics violations taking place in the age group of officers and enlisted personnel who attended college in the late seventies and early eighties when these radical viewpoints were fresh on the minds of the newly estranged Left. That would mean the problems would center around our most junior personnel—those who attended college and high school during the Reagan years. But that just isn't so.

Szafranski: Good point. Then this egoism or self-centered legacy of the sixties and seventies has become a pernicious disease that has pervaded all aspects of the force. Do either of you think it's "terminal," or is there something we can do about it?

Toner: I think you're exactly right when you use the term *disease*. I think we're in the middle of a moral bubonic plague. Our ethical hygiene is generally so bad that we spread the disease practically unknowingly. Edmund Burke (1729–97), the British statesman, talked once about *prejudice*, which he used in a good sense to mean "unarticulated social custom."[11] Today, we must instruct people in rules that many of us used to take for granted. The very fact that we have to do this is a symptom of the epidemic we face; naturally, it carries over into our warriors. I think of the graphically sexual lyrics in songs and the slogans on shirts today that, when I was in high school in the early 1960s, would have been unthinkable. I think of the majority of Tailhook offenders who had no concept that their behavior was wrong—even criminally so.[12] How do you teach someone that "some things just aren't done"? There must be an atmosphere—a milieu or expectation—of what is done and not done. The military notion of the "officer and gentleman" and the article in the Uniform Code of Military Justice about "conduct unbecoming" capture this spirit.

Szafranski: So we've got to do something. We can't afford to let these attitudes and behaviors prevail. Our obligations as warriors are so big we'll lose the trust necessary to carry heavy burdens if we can't even carry light ones. We warriors have in our hands the means to rob others of their very existence. This is the essence of our trade. How can the moms and dads of America trust me with the lives of their sons and daughters if I can't tell the difference between sobriety and drunkenness—or between the lawful exercise of authority and the abuse of authority? These allegations and kinds of things—like organized public drunkenness, like witnessing debauchery and not intervening, like exerting abusive or unlawful influence, like ridiculing the president, like mismanaging a procurement program—I find hard to relate to cultural totems, taboos, or the 1960s.

Toner: Dick, your response to the things you list derives from an objective standard that you have internalized on a personal level—a standard that used to be the core of the military ethic. If, however, I have no internalized standard, then self-indulgence and self-promotion are what spur me toward any action. My standard of right and wrong, honor and shame, virtue and vice becomes merely what pleases me. I think a substantially different ethic worked in our parents' time—one much more in keeping with the profession of arms. People joined "the service" during World War II. Increasingly, today's military is seen as a career opportunity, a business enterprise, a place for experimentation in total quality management. The idea that a soldier is a "secular Jesuit" seems laughable to today's recruit, but it shouldn't be. The military is and must continue to be a

profession—a community of comrades-in-arms locked in common, high purpose. It must never become IBM with M-16s and F-16s.

Casebeer: Good point. All too often, the military is viewed as a means to an end—such as a way to get a good education, a way to build up a resume before you enter the private market—instead of an end in and of itself. However, I wouldn't be so pessimistic about today's military. In general, our soldiers are professional and dedicated service members.

Szafranski: You're right; there are more good folks than errant ones, and none of us is perfect. But if the dominant social ethic is sick, the problem is just beginning. Like a real epidemic, it can run its course only by mortal means. It seems that the ethically ill—the mortally ethically ill—in our profession must die, or our profession will die because of them. If that's so, who does the vaccinating against this plague? From what we've said, parents and society at large are at fault. We can't fix all of that. What can warriors do?

Toner: If the disease runs its course, I tremble for the society our warriors are supposed to protect. No, this disease must be arrested and cured. The problems, certainly, are not only in the military. Consider the accusations of depredations by priests and ministers, for example, that have been commonly reported in the media. If there is a vaccine, I think it resides in good education. But recent changes in the curriculum at the US Air Force Air Command and Staff College at Maxwell AFB, Alabama, don't seem to offer much hope. If I am to believe published reports,[13] there is little—or no—instruction in ethics. Isn't that a mistake?

Szafranski: Unfortunately, by the time you reach your "majority," it's probably too late anyway.

Toner: A very good point. Professional military education (PME) should reinforce previous education. Again, by education, I refer to instruction in wisdom and virtue. But imagine trying to sell that notion on most campuses today!

Casebeer: Still, more instruction and training in ethics would definitely help the problem. The ultimate solution, though, is backbone: when we see ethical violations occurring, we must stop them immediately. Turning the other cheek might help us "get along," but it won't help the military polish its tarnished character.

The military is and must continue to be a profession—a community of comrades-in-arms locked in common, high purpose.

Szafranski: OK, but let's hold off on that idea of individual integrity for a minute and get back to this idea of education. If we accept the idea that the solution—the vaccine—is education, who will be charged to conduct this education? Is there a moral or ethical elite of whom I'm unaware?

Casebeer: In relation to values, childhood is still the most important formative period in a person's life. So the majority of the burden here is going to fall on parents. Yet, in any educational situation we would set up, we'd have to deal with the quandary in our society's value system posed by ethical relativism—the belief system that posits there are no absolute and independent standards of right and wrong.

Szafranski: Specifically?

Casebeer: The quandary is this: if all moral statements are relative to one's beliefs, then

relativism is itself relative. However, I can choose to accept an absolute standard and effectively disprove relativism. This is what we all do when we pledge to defend the Constitution of the United States with our lives. So for our intents and purposes, we shouldn't give up hope—an ongoing process of a somewhat "absolutist" military education can help correct the errant ways of its members. In today's valueless society—at the very least—we can attempt to provide a rational, ethical nervous system for those people whose consciences have been left vacant by the nihilism of the past two decades.

Toner: In that case, we have to return to good teaching rather than to political correctness. Almost every week in *U.S. News & World Report*, John Leo has a column about the inanities and excesses of political correctness. In many respects, ethics cannot be politically correct because inculcating traditional ethical values is an inherently conservative enterprise. Much of what we understand as ethical is the fruit of traditional religious, philosophical, political, historical, and literary reflection—much of what has been "deconstructed" by political correctness, which is at heart a leftist ideology.[14]

Szafranski: Jim, this is sounding either Ciceronian ("O tempora! O mores!") or Dylan Thomasesque ("Rage, rage against the dying of the light"), and neither of these views is very productive.[15] I refuse to be fatalistic about this; nevertheless, we *must* restore—unarguably—honor to this sometimes onerous profession.

Toner: You're right. If you know that something—some component—flat-out doesn't work in an aircraft and that such failure can endanger your life, it seems to me that you'll take action as soon as practicable to get the thing fixed. If you can't trust the guys on your left and right, you'll try to get new guys—people—on board. Ethics can be very practical stuff.

Szafranski: I don't want a cookbook, but I do want some clues as to wherein you both think the remedy lies. Some of the new people we're bringing on board in our premier warrior schools are lying, cheating, raping, and stealing, and the military academies haven't immunized themselves to the disease either, it would seem. What specifically is the fix? Who is the agent of change? Where do we start?

Casebeer: Well, the service academies are in a unique situation to help, but they're also problem-ridden. In the sixties, the ethics violations that took place there may not have been as flagrant; of course, class sizes were much smaller then, and sensitivities about sexism are much higher now. But part of the problem stems from an honor system that gets bogged down in technicalities and game playing.

Toner: Yes, which reminds me of something we touched on before—the idea that the vaccine for this disease also has to be in the minds, hearts, and souls of men and women of character and gumption—people with enough sense and substance to say, from time to time, *"No! This is wrong! It must stop!"* They know something is wrong for many reasons that I won't explore here.[16] But the "elite teacher corps" is already around; they just don't know it yet! More than 40 years ago, Gilbert Highet wrote a wonderful little book called *The Art of Teaching*,[17] in which he says that all of us are—or must become—teachers. Certainly, anyone who holds a commission—which means "with mission"—is, ipso facto, a teacher. If one sees a minor abuse of protocol (e.g., not saluting a senior), one has the responsibility to make a correction. How much more critical it is, then, that officers realize they must set the standards in their commands. Officers don't *teach* ethics; they *are* ethics.

Szafranski: But I repeat, Jim, how does the teacher get taught?

Toner: By seniors, by society, by self. To some extent, one is what one is because others have cared. They have taught that person what they know best. Society customarily taught us standards that we collectively endorsed as a nation. The Nuremberg, Manila, and Tokyo war-crimes tribunals taught us, again, the importance of listening to seniors and society and of accepting ultimate responsibility for ourselves. Again, this is not just philosophy; it's the law of the land! Finally, I have my own conscience. Of course, conscience is not an ultimate answer unless it is formed by consent to values that transcend the ego. John Henry Cardinal Newman (1801-90) once said, "Conscience has rights because it has duties."[18] Following the dictates of an exclusively selfish or ill-formed conscience is unlikely to lead one to do what he or she should.

Casebeer: Exactly. No matter what we choose to present in education programs, ultimately the individual is the key. *Society* and *nation* are aggregate terms—what we do and believe as individuals determines what our society and nation look like. Any problems start there and have to be stopped there.

Szafranski: Society will continue to fail us. So how is it possible for the individual, the moral self—Lieutenant Adam and Lieutenant Eve, in a garden of earthly delights and snakes—to save himself or herself and thereby save us. Perhaps fear is a solution. Make us all afraid to misbehave.

Casebeer: Yes, external punishments are needed. But if we frame the issue deontologically, where intent and attitude toward duty are important, then it isn't enough to punish, for that does nothing to change the dictates of an individual's free will—the intent behind the action.[19]

Toner: There is clearly something in what you both say. I think fear can serve an initial teaching purpose in some situations, but my chief concern is that we'll accidentally create a political or military Frankenstein who will terrorize us in the name of the holy. All systems use fear, I know, and that may not be bad. I prefer, however, to think that our ultimate "vaccine" lies in the two areas of grace[20] and of reason. I'll not pursue the former here, but because we are rational beings, we can see error around us. Hurt can lead to resolve. Resolve can lead to reformation. I agree with you, though, that fear can be made to complement reason.

Szafranski: So, the agenda for reformation seems to be in assuming these characteristics. First, it must begin within ourselves; second, others can help us through an education process; and third, the right way is the way of reason with the discernment given by grace. Still, I'm stuck with a problem. How can we keep the reformation simple for the people involved in it?

Toner: One doesn't teach ethics—it used to be called "character guidance"—in basic training by assigning readings in Aristotle. Troops don't need to read AFP 110-31, *International Law: The Conduct of Armed Conflict and Air Operations* (November 1976), to understand the rudiments of just conduct. I come back to Burke's term *prejudice*. There are some standards so basic—yet, so critical—that anyone entering the military must know them before he or she graduates from basic training or boot camp. In this way, we can teach ethics without becoming embroiled in academic debate and in philosophical jargon.

Officers don't* teach *ethics, they* are *ethics.

Casebeer: I think the Air Force Academy's honor oath is well put: "I will not lie, steal,

or cheat nor tolerate those who do. Furthermore, I resolve to do my duty and live honorably, so help me God."

Szafranski: So, would "I will not lie, steal, or cheat or tolerate those who do" work as a simple formula for the whole Air Force, maybe buttressed by appropriate amounts of frequently underscored fear?

Toner: Well, it's an excellent starting point. "Duty, honor, and country" is good too, but it's not something readily understood by everyone. I have tried to develop a way to inculcate this for 18-year-olds. I came up with the notion of *principle–purpose–people.* That is, the soldier's first responsibility (back to Nuremberg) is to follow *legal* orders; second, to get the job done right; third, to take care of his or her fellow soldiers.

Szafranski: That is very, very good. It is simple, understandable in human terms, and put in such a way that it fixes us in relation to others—good relations, unselfish relations. So if we vaccinate the 18-year-olds, how about the 50-year-olds? What's to be done for or about them?

Casebeer: Incompetence can be moral as well as, say, mechanical.[21] The issue of professional incompetence is thorny. If we equate a lack of professional knowledge with immorality, then busting a check ride makes you an evil person.

Toner: The incompetents, in either sense, must be weeded out by professionals over the years. Although these are difficult times for the military because of cutbacks, this is also a good time very carefully to choose the people "on your left and right." Let me say one more thing about teaching, though. Another phrase I use to teach this idea is *mother–mission–men–me.* I use *men* for reasons of alliteration only. I put me last; my buddies (or my command) come(s) ahead of me (whenever possible); the mission has to come before the men (as the Code of Conduct properly suggests); but mom is first. What I mean is that if we imagine our moms seeing us do things we should be ashamed of, we might be able to cease doing them. It is hard to imagine a drill sergeant discussing deontological ethics in basic training. But it is not hard to imagine an instructor telling soldiers, "If you would be ashamed of having your mother see you do it, it's probably wrong." Terribly simple? Sure. There are numerous exceptions. Married people make love—and there is certainly nothing wrong with it—but it is not a public activity for mothers or for anyone else to observe. That doesn't make sexual intimacy in marriage wrong. Soldiers might have to bayonet the enemy, and they would not want their mothers to see that, either. But the action of killing the enemy in combat may well be necessary. The idea to get across is that some actions (e.g., lying, cheating, and stealing) are almost always wrong, and somebody should say so very early on. "These actions are wrong! Do them, and you will pay the price [fear]! You will not do them because you are educated in our profession, in our community of values."

Szafranski: I'm beginning to see a way out of this swamp! I really think most people are good or want to be good. The military, with its emphasis on teamwork and group accountability, is really made up of special people—unselfish people—as Bill mentioned earlier. Maybe all we need is a little more openness about ethics and good conduct. So how do we proclaim that without a doubt, the reformation has begun and cannot be stopped?

Toner: The first leadership principle I learned at Infantry Officer Candidate School (OCS) was "be technically and tactically competent." I always thought ethically should fit in there too. Dick, I know the bad guys won't be won over by appeals to their sense of shame, but when somebody says, "Think about what you're doing! Is it right?" most of us will listen. It's time for

warriors to get back to the notion of the community.

Szafranski: OK. On some level, I'm both comforted and challenged by our discussion. We've pointed out ways and words that can provide the vaccination against the disease. How do we formalize this educational process within the warrior clan? You mentioned basic training, officer formation programs, and PME. Do you see a continuing program of moral armament and rearmament?

Casebeer: Great term! *Moral armament*! Returning ethics to the commonsense level makes a lot of sense. We still need to be wary, though, that today's conception of common sense—greed? immorality?—is compatible with our military mission.

Toner: As a teacher, I always think of reading lists—and they're important. PME—indeed all military education—should have such lists. They're necessary for moral armament but not sufficient. We need models. That is one reason, as you know, that the service academies for years have insisted on officers teaching—because officers must understand the values that suffuse those programs.

Casebeer: My experience at the Air Force Academy drove home the importance of having good role models. Military members in the classroom provided both positive and negative examples of officership.

Szafranski: As we've said, all officers must answer again the call to arms and become the role models they were meant to be. But you just addressed PME. What about some set of recurring, annual, whatever, "core value" training for everyone?

Toner: Agreed. A major problem with any military education is the shortness of time permitted for "enculturation" or socialization. It took me a year in the Army to earn a gold bar. It takes people in Air Force Officer Training School (OTS) *three* months. How does a new officer learn the community—the professional—values of the service (and thus become a model of them) in *three* months? The very people who have the key teaching roles—lieutenant colonels and colonels—have relatively little time to learn their profession and much less time [usually] to pass its values on before they are retired. Doctors, lawyers, and college teachers, by contrast, have a professional lifetime to master their profession and to pass along its values.

Casebeer: Or in the case of the service academies, four years sometimes isn't even enough. Even so, we face a dilemma. We need to purge ourselves of those who can't meet military standards of conduct; yet, the very act of getting rid of soldiers puts "the community" at risk. How can we develop a sense of community in a reduction in force (RIF) and selective early retirement board (SERB) atmosphere?

Toner: Tough call. Still, warriors must realize that honor—military virtue—is not just a nice thing to have; it's a functional imperative. One of the sad things about military education is that teachers are rotated into and out of slots so fast that there's little chance to create a real honor guard—that is, the core (and corps) of seasoned military teachers who know ethical theory but (far more important) model ethical behavior. They teach well because they live well. I believe that there should be a corps of professional teachers in the military—it should be a military occupational specialty or Air Force specialty code—that would allow seasoned professionals to earn their advanced degrees and then to teach at the service academies, OCS/OTS, ROTC, and the PME schools. We've got to stop penalizing these folks in our promotion, RIF, and SERB processes simply because they're educators.

Szafranski: The "crisis" is not without its bright side. That is, it provides the justification for now deliberately and consciously ap-

proaching these issues with an eye toward authentic reformation. You've given me a new awareness of the foundation of the warrior "coda." It's because we hold the stuff of life and death in our hands—sometimes, in dire straits, trusted with ensuring the very survival of our country and its institutions and values—that we must be adherents to and practitioners of right thinking and right behaving. Further, we can fight or fix anything as long as we can pinpoint the enemy.

Toner: Too, I think we have all profited from lousy teachers. Maybe the ethically stunted officers we've referred to have done us all a good turn by modeling how not to be an officer. Thomas Jefferson told us that "we hold these truths." We need to get back to the truths we hold— and all of us, as C. S. Lewis once told us, share so many truths in common.[22] But we need to practice ethics daily. Taking a hill by fire and steel is rarely done by most professional warriors. But fraud, waste, and abuse issues, though not glamorous, are really the stuff of daily military ethics. We usually lie, cheat, and steal over the trivial stuff; thus, we "practice" wrong! Every athletic coach knows that as you practice, you will play. Lie, cheat, and steal in petty matters, and you'll very likely do the same when lives are on the line. After a time, in fact, people who lie, cheat, and steal can't even separate truth from fiction. They become lost souls, figuratively and literally.

Casebeer: In the strictest moral sense, even the slightest ethical violation is tantamount to committing the gravest of sins. If we can't trust ourselves on the "unimportant issues," how can we trust ourselves when truly important moral problems confront us?

Szafranski: I agree. The only hard part is getting started. Coach Bob Knight at Indiana University used to say, "Everyone has the will to win, but only winners have the will *to prepare to win*." If we prepare ourselves and practice right thinking and right behaving, we'll win. But if we don't, all of us lose. Like Toner says, we're lost souls—literally and figuratively. □

Notes

1. This phrase was used by Maj Glen Sanborn, a member of the judge advocate general corps and formerly the chief of military justice for the 7th Bomb Wing at Carswell AFB in Fort Worth, Texas. Sanborn used it as a possible explanation for the large number of complaints levied against senior officers beginning in 1990 and continuing to the present. He hypothesized that the troops were unhappy with the changes and rate of change that occurred in the armed forces after the cold war ended. The troops, he speculated, took their revenge—in many cases—by moral fragging. That is, they mortally hurt their superiors by alleging that they had engaged in some kind of misconduct. The presumption of innocence, an important principle in our country, never seems to make the news.

2. References to the ethics crisis in the military are based on reports about Tailhook, about inappropriate command influence in the selection of general officers, and about other matters well covered recently in the press.

3. See James H. Toner, *The American Military Ethic: A Meditation* (New York: Praeger, 1992).

4. *Bushido* is the code of the samurai. *Omertà* is the code of silence among the Cosa Nostra ("our affair"). *Honor* can be interpreted differently by different groups. Ask yourself what it means to you.

5. See Robert Bolt's *A Man for All Seasons* (New York: Random House, 1962) or refer to William E. Campbell's *Erasmus, Tyndale, and More* (Milwaukee: Bruce, 1950).

6. The framers of the Constitution were undoubtedly working from a certain set of assumptions about human nature. Checks and balances were introduced in that document to offset our natural drive toward selfish behavior. Biologists may not be working from these same assumptions about human goodness. For an excellent exposition about how altruistic behavior in nature can sometimes be rewarded by the evolutionary mechanism, see Richard Dawkins's *The Selfish Gene* (Oxford: Oxford University Press, 1990) or *The Blind Watchmaker: Why the Evidence of Evolution Reveals a Universe without Design* (New York: Norton Press, 1987).

7. For an excellent overview, see Russell Kirk, *The Politics of Prudence* (Bryn Mawr, Pa.: Intercollegiate Studies Institute, 1993).

8. William Golding, *Lord of the Flies* (New York: Coward-McCann, 1962).

9. Dead, white, European males (DWEM)—Shakespeare, for example—are seen by some professors as representing class, gender, or perhaps religious interests different from the values of many others (e.g., "people of color"). In a typical college course—the reasoning sometimes goes—there are only so many

books on the reading list or syllabus that the professor can assign. Therefore, it is important to be certain that a wide variety of authors—some of them perhaps not well known—be included. To concentrate on the supposedly great literature of DWEMs is to inculcate a certain set of Western, white, male values into what ought to be a multicultural educational enterprise.

10. Roger Kimball, *Tenured Radicals: How Politics Has Corrupted Our Higher Education* (New York: HarperCollins Publishing, Inc., 1991); and Dinesh D'Souza, *Illiberal Education: The Politics of Sex and Race on Campus* (New York: Maxwell Macmillan International, 1991).

11. See Glenn Tinder, *Political Thinking: The Perennial Questions*, 3d ed. (Boston: Little, Brown, 1979). Burke's term, of course, is from his classic book *Reflections on the Revolution in France* (New York: Doubleday, 1989).

12. Department of Defense Inspector General, *Tailhook 91, Part 2: Events at the 35th Annual Tailhook Symposium* (Washington, D.C.: Government Printing Office, 1993).

13. See, for example, Maj P. Mason Carpenter and Maj George T. McClain, "Air Command and Staff College Air Campaign Course: The Air Corps Tactical School Reborn?" *Airpower Journal* 7, no. 3 (Fall 1993): 72–83.

14. Political correctness may be defined as conformity to liberal or ultraliberal political and social norms. Such conformity is supposedly required by a number of American institutions.

15. Cicero, *In Catilinam*, no. i, sec. 2; and Dylan Thomas, "Do Not Go Gentle into That Good Night," line 3.

16. See James H. Toner, *The Sword and the Cross: Reflections on Command and Conscience* (New York: Praeger, 1992).

17. Gilbert Highet, *The Art of Teaching* (New York: Knopf, 1950).

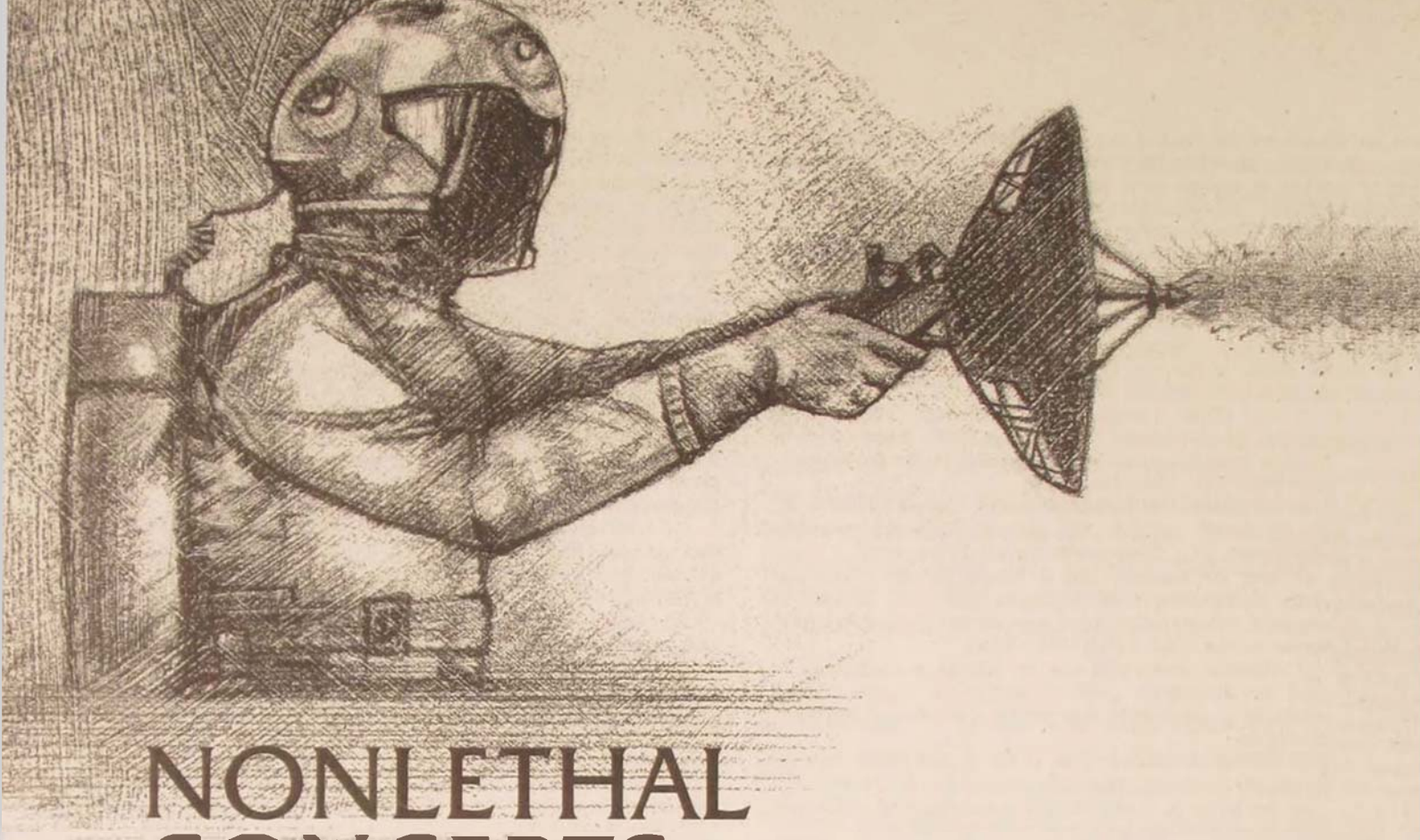
18. Quoted in Pope John Paul II, *The Splendor of Truth* (Boston: St. Paul Books, [1994]), 50.

19. Deontologists believe that the intent behind an action is crucial to determining whether the action is "moral" or not. Results are irrelevant. This schema is based on the assumption that we can't perfectly predict the future, so how can we make our morality contingent on chance? Intent and good will—not outcomes—are what count. One of the most famous deontologists is the eighteenth-century German philosopher Immanuel Kant, who says in his *Foundation for the Metaphysics of Morals* (1785), "An action done from duty derives its moral worth, not from the purpose which is to be attained by it, but from the maxim by which it is determined, and therefore does not depend on the realization of the object of the action, but merely on the principle of volition by which the action has taken place" (from *Philosophic Classics*, ed. Walter Kaufmann [Englewood Cliffs, N.J.: Prentice Hall, Inc., 1968], 495).

20. It is increasingly difficult in our society even to raise the idea of grace, which is a religious concept. See Stephen L. Carter, *The Culture of Disbelief* (New York: Basic Books, 1993); and James Q. Wilson, *The Moral Sense* (New York: Free Press, 1993).

21. No one has made this point better than Col Malham Wakin of the Air Force Academy. See his two fine essays on "The Ethics of Leadership," in *War, Morality, and the Military Profession*, 2d ed. (Boulder, Colo.: Westview Press, 1986). Another excellent book is Col Anthony E. Hartle's *Moral Issues in Military Decision Making* (Lawrence, Kans.: University Press of Kansas, 1989). Hartle teaches ethics at West Point.

22. See William E. Bennett, ed., *The Book of Virtues: A Treasury of Great Moral Stories* (New York: Simon and Schuster, 1993); and James H. Toner, *True Faith and Allegiance: The Burden of Military Ethics*, forthcoming.



NONLETHAL CONCEPTS

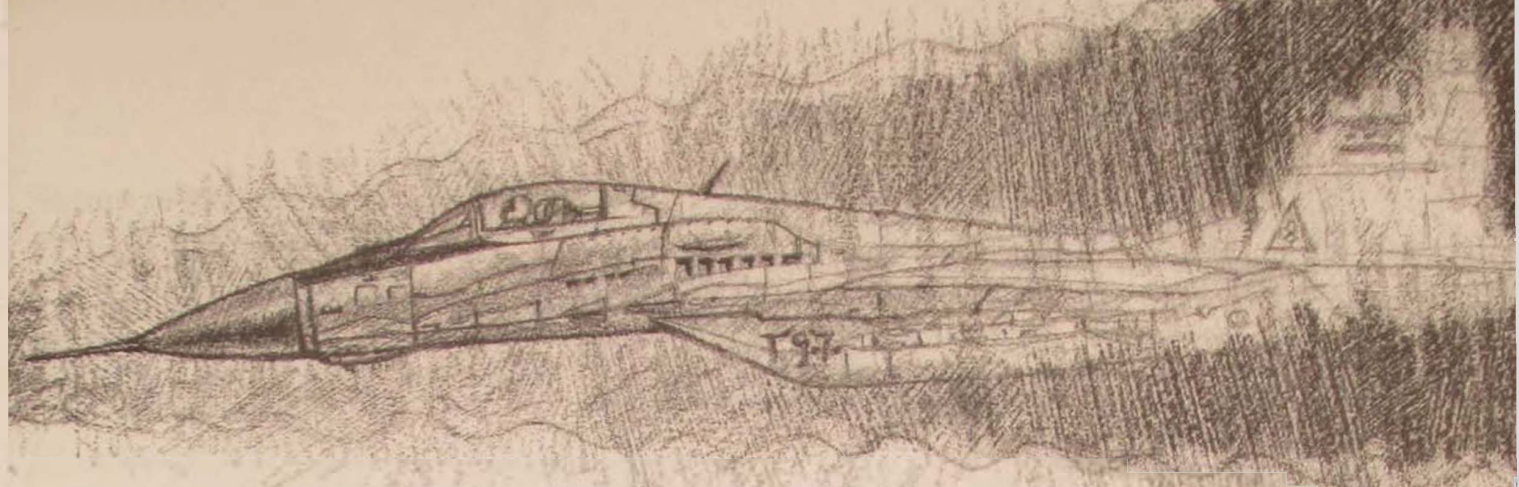
Implications For Air Force Intelligence

CAPT EDWARD P. O'CONNELL
1ST LT JOHN T. DILLAPLAIN

RECENTLY A NEW class of "nonlethal weapons" has garnered a considerable amount of interest in defense and law enforcement circles, resulting in the increased likelihood of the actual deployment of these new technologies at the operational level. The increased interest in the development of nonlethal means to achieve limited political, economic, and military objectives may require new considerations in how Air Force intelligence goes about its business of supporting the war fighter.

Emerging technologies supporting the development of nonlethal weapons are somewhat scattered, with many potential players. However, according to Don Henry, staff specialist in the Office of Tactical Warfare Programs, Under Secretary of Defense, Acquisition and Technology, "Preliminary evaluations suggest that the use of non-lethal weapons, in either the more traditional conventional missions or the newer missions as suggested by operations other than war, seems more probable than possible."[1]

The term *nonlethal* has come into wide use despite the objections of many observers who claim that these weapons could result in lethality in some situations. A Rand study headed by Dr Gerald Frost used the term *nonlethal concepts,* defined as a system that can incapacitate an adversary's capability while



attempting to prevent noncombatant injuries, friendly/adversary casualties, and collateral damage.[2] Of these technologies, many have potential air power applications.

Nonnuclear electromagnetic pulse (EMP) generators could potentially be fitted into air-launched cruise missiles. The nonnuclear EMP burst is produced by a conventional explosion that releases a microwave energy pulse that can damage or disable electrical components thousands of feet away.[3] These weapons could not only disable enemy weapons in the field but could also damage or "functionally kill" hardened, underground command, control, communications, computers, and intelligence (C^4I) nodes.[4]

Another promising technology is high-powered acoustic generators that are used to produce infrasound (below 20 hertz and inaudible). This low-frequency, high-decibel sound is emitted in bands that resonate in certain body cavities, causing the disturbance of body organs, visual blurring, and nausea. These effects, becoming more severe as the decibel level increases, range from temporary discomfort that disappears after a few minutes to permanent damage or lethality. Additional antimaterial effects include the embrittlement or fatigue of metals, thermal damage, and the delamination of composites.[5]

The Scientific Applications and Research Associates (SARA), Incorporated, of Huntington Beach, California, is working on acoustic devices that can be attached to rotary-wing aircraft or inside penetrating munitions. SARA researchers see acoustic technology as meeting weapons requirements by being compact, rugged, transportable, and relatively cheap. The benefits of acoustic weapons include a tunable degree of effect, area denial, and propagation through precipitation, smoke, and dust.[6]

A brief rundown of other promising nonlethal technologies would include special chemicals, antitraction lubricants, and antipersonnel technologies. Optical munitions such as an isotropic radiator would be contained in a flare dispenser for the purpose of disabling infrared missiles instead of merely luring them away from an aircraft. Chemicals such as superacids, caustics, and embrittlement agents degrade certain materials, while antitraction lubricants make road surfaces inoperable. Antipersonnel technologies, perhaps more suited to law enforcement or special operations, include sticky foams, entanglement nets, volume confinement devices, calmative agents, flash devices, and rubber bullets.[7]

The USAF application of nonlethal concepts could cover a wide range of scenarios ranging from covert air insertion of special operations forces in an antiterrorist operation to a broader application of air power in support of crises and lesser conflicts (CALC). The delivery of nonlethal weapons as a force multiplier in a major regional conflict (MRC) has the potential to become a common part of future warfare.

The driving factor behind the development of nonlethal concepts is the increasing emphasis on limiting casualties on *both* sides of a conflict. As we have witnessed in all US operations since Desert Storm, the emergence of the global media (i.e., the "Cable News Network [CNN] factor") has become a key consideration in conducting modern warfare. An illustration of this was the decision process leading to the cruise missile attack on the Iraqi intelligence headquarters. Before authoriz-

ing the attack, President Bill Clinton wanted to know precisely how many civilian casualties to expect. When Gen Colin Powell, chairman of the Joint Chiefs of Staff, gave him a probable number (12), the president approved the attack.[8] This shows that individual military operations are being scrutinized at the highest levels to determine the potential media fallout from civilian casualties. We can expect this to keep the collateral damage issue a key part of any future policy guidance from the national command authorities (NCA). As Alvin and Heidi Toffler noted in *War and Anti-War,* future wars are likely to be fought increasingly in the low- to mid-intensity conflict range.[9] These are precisely the types of conflicts where nonlethal applications could play a preeminent role. The more cautionary environment created by consensus-based coalition warfare and peacekeeping operations tends to make nonlethal concepts an attractive option for changing an enemy's behavior.

Nonlethal concepts, at least in terms of Air Force applications, do not appear to be a departure from the normal evolution of air power. Since the air campaigns of World War II, we have witnessed a steady improvement in the accuracy of our weapon systems as well as an increased specialization among both weapon platforms and the ordnance that they deliver (fig. 1). The net effect of this evolution has been the ability to more effectively destroy critical targets while at the same time reducing collateral damage. The deployment of a wide array of nonlethal munitions in a future conflict will no doubt push us further down this continuum. Therefore, decision makers should understand that any movement toward a "cleaner, safer" war is a process whereby investment in more advanced munitions, weapon platforms, training, and intelligence is traded for fewer casualties, less collateral damage, and the neutralization of the CNN factor.

The situation presented to Gulf War planners by Iraqi MiG aircraft parked in front of the Iraqi Ziggurat temple during Desert Storm offers some insight into the potential benefits for the Air Force from nonlethal concepts. At that time, joint forces air component planners engaged in target development efforts against Iraqi air assets were confronted by the question of how to attack two Iraqi aircraft in the open yet parked proximate to one of Iraq's most significant cultural symbols.[10] Due to concerns raised about damage to the temple under the laws of armed conflict (LOAC), planners could not select it for force application.[11] Precise geolocation and imagery (target development) existed on a valid target (aircraft in the open), yet because of the lack of suitable *fielded* weapons, such as super caustics or embrittlement agents, the target could not be attacked safely within the stated guidance and objectives to limit damage to cultural, historical objects.

Recent Air Force intelligence efforts to better support the war fighter by refocusing systems and personnel forward at air operations centers will also better equip us to support nonlethal operations. Each of the Air Force

Figure 1. The Evolution of Air Power

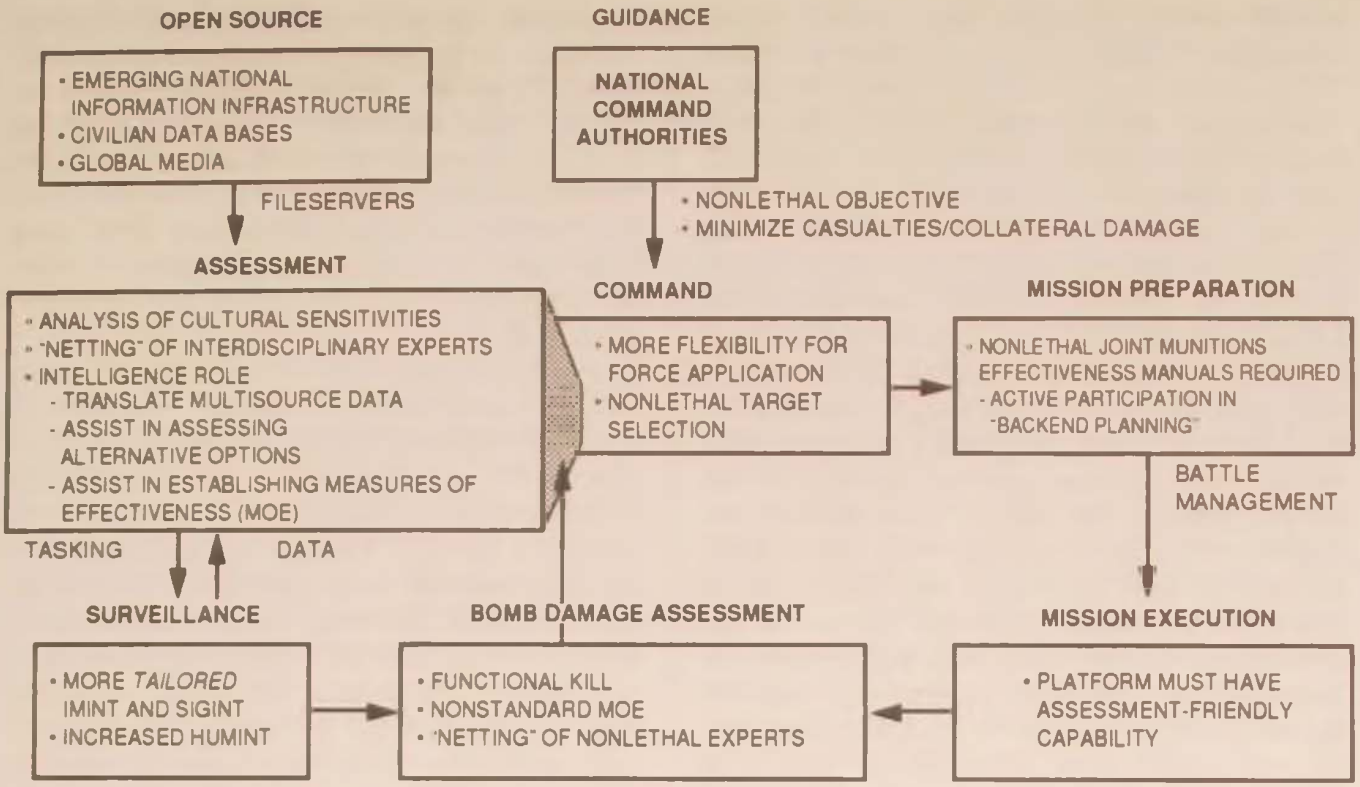


Figure 2. Strategy to Task Framework — Intelligence Applications for Nonlethal Concepts

missions described above, from CALCs to MRCs, will require the traditional level of support provided by the intelligence community. However, some missions will require specially *tailored* intelligence support to planners, operators, delivery platforms, and weapons. The intelligence community, along with weapon developers and operators, will have to determine the proper mix of information required to support nonlethal applications. Equally important, the community will have to learn how to translate nonlethal warfare objectives and guidance, potentially through a nontraditional target development and weaponeering process, to recommend courses of action that operators have to plan and then execute.

One potential way to examine the implications of nonlethal concepts on Air Force intelligence is to run the targeting process (including nonlethal concepts) through Rand's strategies-to-tasks framework (fig. 2).[12] In doing so, we observe that the current Air Force targeting process, coupled with existing collection resources, is not necessarily inadequate for the effective support of nonlethal concepts. Nevertheless, an increased demand for some tailored inputs may require some fine tuning of the process.

In Desert Storm, as we've seen, some targets were not attacked due to concerns over collateral damage. However, nonlethal concepts, once deployed as weapons, will give command decision makers more flexibility in the force-application stage, enabling them to service targets that would otherwise not be attacked. In a mid- or high-intensity conflict, the normal targeting process will provide a small number of residual targets that may require nonlethal ordnance. A low-intensity conflict or one-time limited strike may fall entirely into the nonlethal realm due to the "hands-on" interest from national decision makers. (Depending on the scale of conflict, command could reside at a specialized squadron's mission-planning cell, the intervention

wing's operations center [WOC], or at the air operations center[AOC] supporting the joint forces air component commander [JFACC].) Intelligence officers must assist the planners in dividing the target set into lethal, nonlethal, and overlapping categories (fig. 3).[13]

The hub of intelligence support for nonlethal concepts will take place in the assessment cell located within the command infrastructure. In the future, the assessment of potential targets will change from a simple task to multidimensional work, involving the "netting" of interdisciplinary experts from varied nontraditional support fields (meteorology, physics, chemistry). Intelligence specialists such as targeteers, who have been trained to fuse all-source *intelligence,* are a potential unrealized resource for use in the assessment task of translating multisource *information* for nonlethal operations. Support for nonlethal concepts will require ready access to open-source information. Air Force intelligence systems specialists must establish information paths in peacetime to ensure easier access to this data in wartime. The difficulty is that such "path clearing" must be done in a low-profile, yet ultimately publicly known, manner. In the future, we can probably expect to access interactive data bases that "leave no footprints," giving us sources of targeting information that are currently untapped.[14]

With no current measures of effectiveness (MOE) for nonlethal concepts, intelligence analysts will help command planners establish MOEs for assessment and battle damage assessment (BDA) purposes by discussing alternative options with interdisciplinary experts, potentially over interactive video nets. An example of this would be the potential use of acoustic generators deployed in specially configured penetrating weapons. Planners might need to confer with weapon developers and geologists over video links in order to

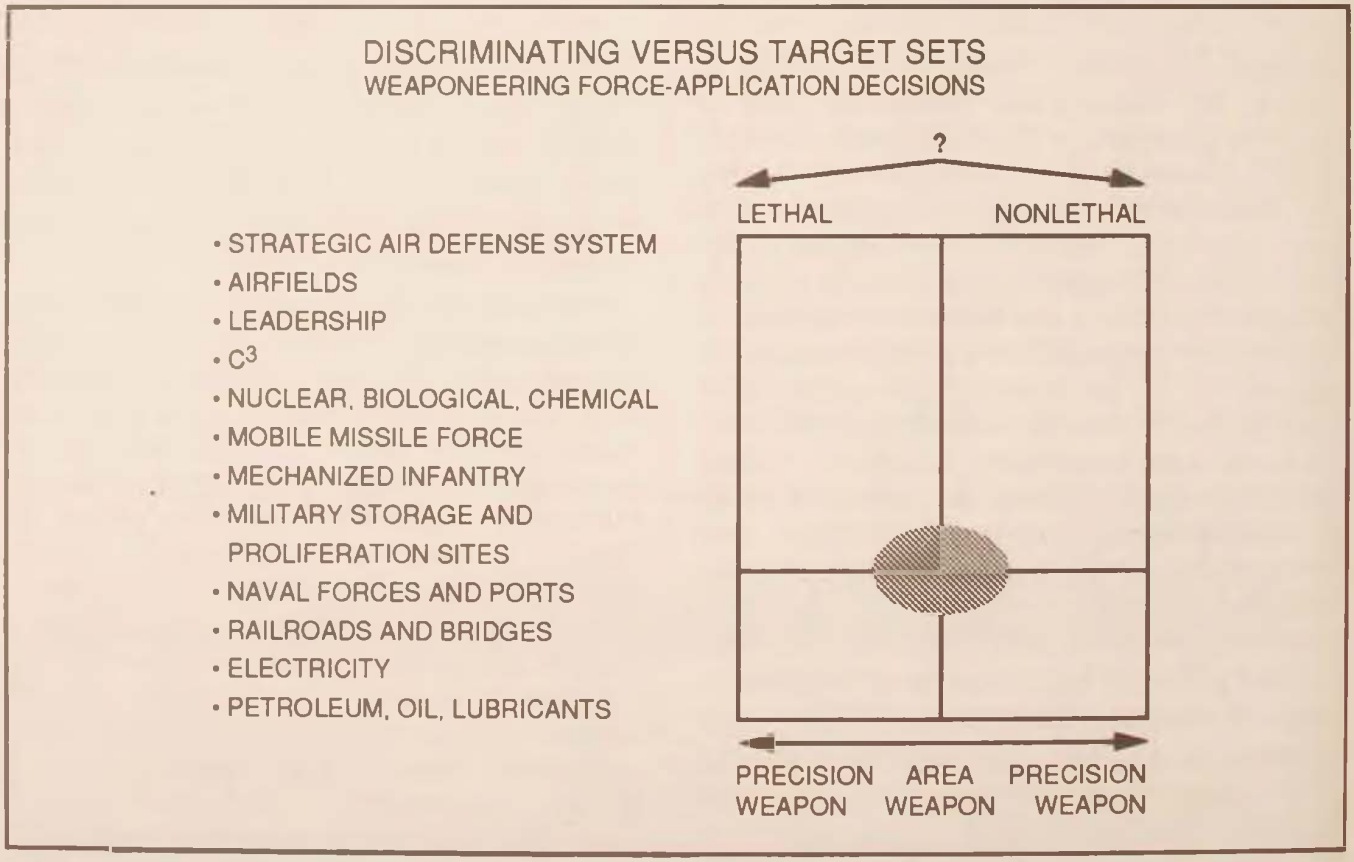
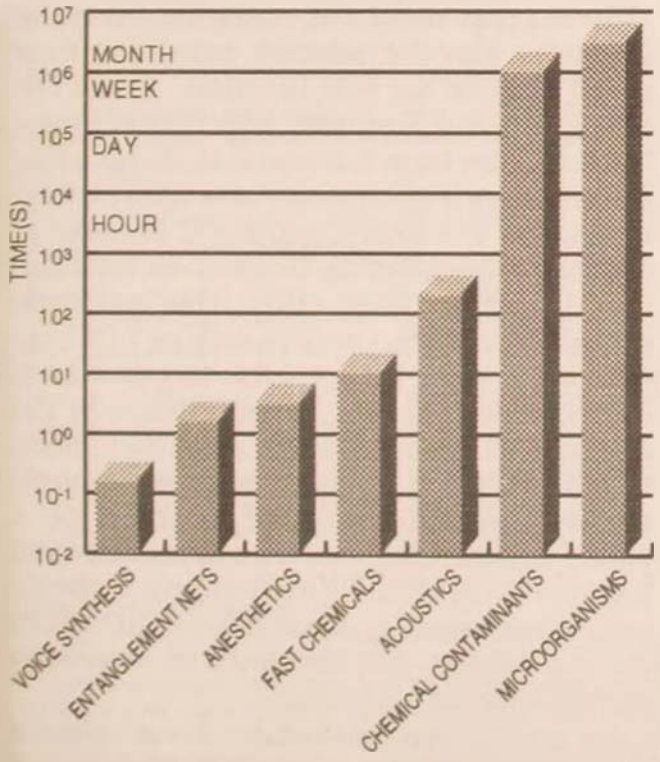


Figure 3. Discerning Nonlethal Target Sets

show them the underground command post they are targeting and to seek their expertise in assessing the potential effectiveness of acoustic waves propagating through a particular rock formation or soil type.

The surveillance function will be tasked by intelligence analysts to provide more specialized imagery intelligence (IMINT) and signals intelligence (SIGINT) for damage assessment. One significant property of some of the potential nonlethal weapons will be the onset time for the weapon to take effect. Figure 4 illustrates that we may have to wait several minutes or even hours for the effect to take place.[15] In order to record these nonlethal effects, the aircraft delivering the ordnance might be required to extend its loiter time, thus exposing itself to increased risk from enemy defenses. Tactical reconnaissance aircraft may be tasked for images timed to correspond to previous weapon effects; or if constant surveillance is required in a high-threat area, unmanned aerial vehicles (UAV) or remotely piloted vehicles (RPV) might be the best option. Some effects may only be discernible to personnel on the ground. For this reason, we can expect a greater role for human intelligence (HUMINT) in support of nonlethal concepts, with greater access coming from a system of classified fileservers, connecting us with data bases from coalition member countries, national agencies, and sister services.[16]

Notional Onset Times to Affect Targets:
Intelligence Collection Considerations

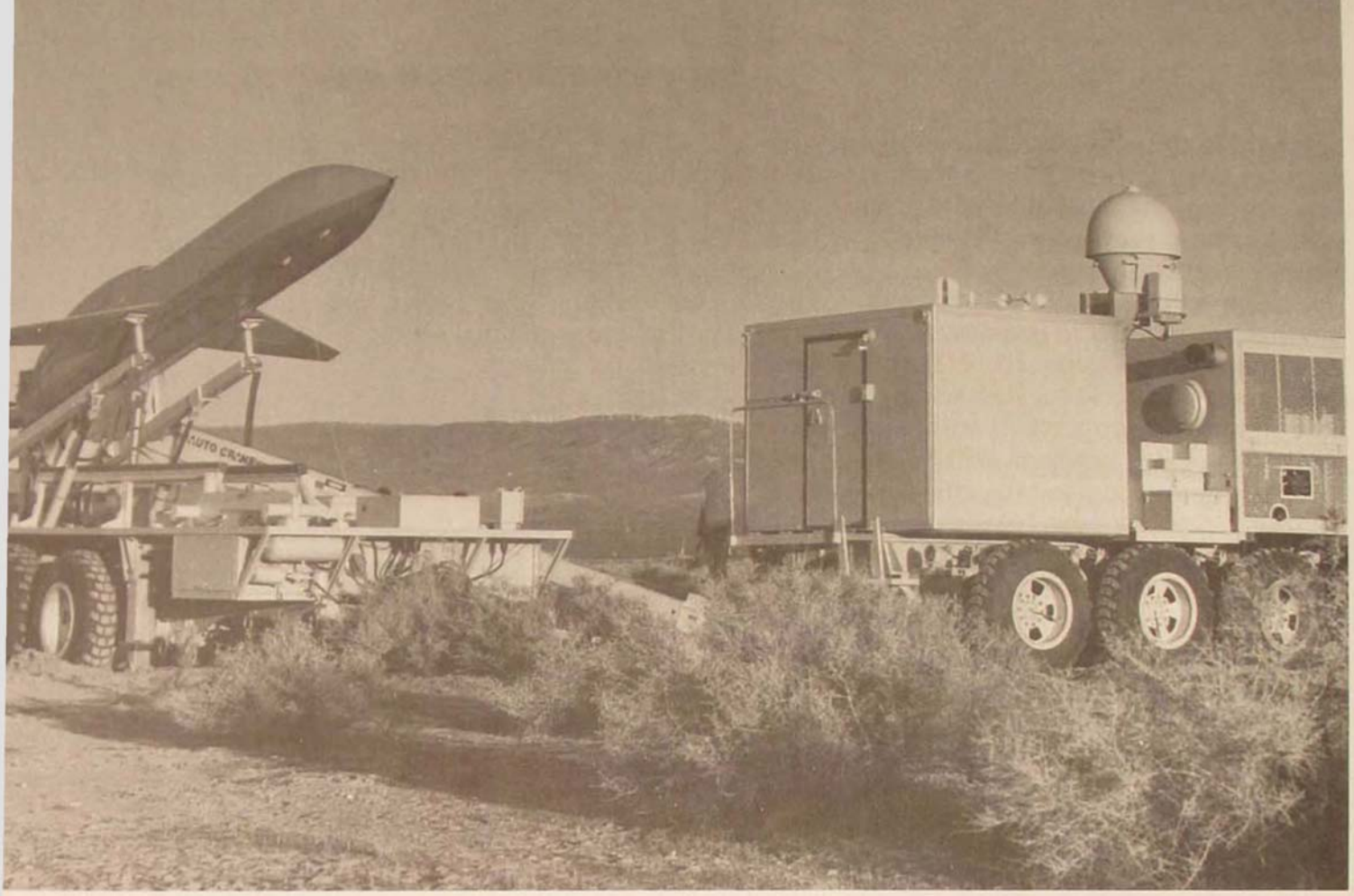


Source: Dr Gerald Frost and Dr Calvin Shipbaugh, Rand Corporation

Figure 4. Onset Times for Nonlethal Weapons

One part of the debate concerning the development of nonlethal weapons will be how to integrate them into operational units. In a broader context, as the weapons become more commonplace, they will eventually become another tool in the commander's "toolbox."[17] However, in the meantime, we may see a more limited distribution of these weapons. The use of nonlethal force in a peace enforcement scenario or limited raid may require the quick deployment of air power in the form of a specialized squadron. This further reinforces the "new rule" discussed in Michael Hammer and James Champy's *Reengineering the Corporation*—field personnel's (in this case, squadron intelligence officers') ability to send and receive information *wherever they are.*[18]

With a high learning curve initially encountered by all players in the nonlethal targeting process, mission preparation may become more problematic from a planning standpoint. As observed from studying recent peace enforcement efforts in Somalia, mission preparers and mission executors at lower levels could not afford the time for HUMINT information requests to be approved and sent "up channel" without a negative effect on mission success. Case studies from the January 1993 Operation Southern Watch air attacks show that we have to move our notion of "back-end" planning "up front" so that information is more effectively communicated to the mission executor.[19] With the potentially more diverse nature of nonlethal concepts, it will be even more important for



Unmanned aerial vehicles (UAV) might be the best option for tactical reconnaissance images timed to correspond to weapons effects or if constant surveillance is required in a high-threat area.

personnel at the mission-preparation stage to reduce confusion and nonvalue-adding work by actively participating in "back-end planning" through direct interactive video systems when confronted with attacks against infrastructure or when performing detailed preplanned targeting. When mission planners are developing strikes against enemy forces or considering more adaptive targeting problems such as those in Bosnia, they will need to provide "in-time" nonlethal-related intelligence to the operators.[20] The intelligence specialist at this level might require access to an information carousel comprised of different fileservers containing blocks of data (from the composition of metal found in Serbian artillery tubes to the current geolocation of each piece).

To support nonlethal operations, mission executors may be selected based on their added value to the BDA function. In the Desert Storm and Southern Watch operations, battle damage from F-16 and F-18 strikes using ordnance with proximity fuzes against Iraqi radars was not easily confirmed because of difficulty in analyzing imagery to establish frag damage to radar vans. This was compounded by these aircraft's lack of BDA sensors to confirm blast to the targets. Such controversies will only be exacerbated by the assessment of new MOEs for nonlethal operations in which the "effect" may be the embrittlement of the metal or the slickness of a paved surface. Such devices as air-delivered incapacitating acoustic mechanisms make accurate battle damage assessment—which relies on our current emphasis/mix of collection systems—just as problematic.

In a new era marked by instantaneous global media reports (somewhat outside of our control), as well as the likelihood of more limited enforcement operations, targets may

be selected with the criteria being ease of battle damage assessment. If Air Force intelligence does not have the requisite protocol and systems in place to assess nonlethal concepts, we may inadvertently contribute to a CINC's perception that use of air power may be prohibitive. In scenarios in which CINCs have been given strict guidance to limit casualties and collateral damage, they must have a good picture of what nonlethal force will entail and how the results will be verified. Otherwise, they will not accept the risks associated with its use.

Since the Gulf War, the gap between nonlethal technology development and intelligence capabilities required to support the command, mission preparation, and mission execution functions in figure 2 is closing rapidly. Though many nonlethal concepts are still in the development and early demonstration stages, intelligence systems specialists and communication engineers need to make sure that when they design information paths in the future, they consider all frictional impediments to the successful support of nonlethal concepts. Former Air Force Chief of Staff Merrill McPeak has summed up his thoughts on nonlethal technology:

> We should address so-called non-lethal technologies, non-lethal in human terms but quite lethal in terms of killing systems or degrading capability. . . . I admit, this all sounds a little James Bondish; not something that should come from a guy who's spent lots of time thinking about putting "fire and steel" on target. But, I believe this is the kind of creative thinking we all must do.[21]

From an intelligence perspective, the Air Force is well suited to be a leader in the eventual employment of nonlethal weapons. As General McPeak emphasized, the time for creative thought is now, before these weapons become operational. □

Notes

1. Don Henry, staff specialist, Office of Tactical Warfare Programs, Under Secretary of Defense, Acquisition and Technology, interview by authors, 2 August 1994.

2. Rand briefing, Brig Gen William S. Hinton, Jr., Air Combat Command, subject: Application of Nonlethal Weapons for Air Force Missions, June 1994.

3. "ALCMs Given Non-lethal Role," *Aviation Week & Space Technology* 138, no. 8 (22 February 1993): 20–22.

4. Barbara Star, "Proliferation: The New High Ground for USA," *Jane's Defence Weekly*, 14 May 1994, 1.

5. Dr Gerald Frost and Dr Calvin Shipbaugh, *GPS Targeting Methods for Non-Lethal Systems*, Rand Publication RP-262 (Santa Monica, Calif.: Rand Corporation, 1 February 1994), 3.

6. John P. Dering, staff scientist, SARA, Inc., interview by the authors at SARA, Inc., Huntington Beach, Calif., 3 June 1994.

7. Frost and Shipbaugh, GPS *Targeting Methods*, 3.

8. "National Affairs," *Newsweek*, 12 July 1993, 20.

9. Alvin Toffler and Heidi Toffler, *War and Anti-War: Survival at the Dawn of the 21st Century* (New York: Little, Brown, and Company, 1993), 56.

10. Then-Lt Col Dave Deptula, USAF, interview by Captain O'Connell at 33 TFW, Eglin AFB, Fla., 22 June 1992.

11. The authors realize that the MiG aircraft parked in front of the temple was a "baiting" tactic. Therefore, *any* type of attack would remain problematic due to overriding concerns with Arab sensitivities and the potential effect on coalition solidarity.

12. The model in figure 2 was created by the authors using Rand's strategies-to- tasks framework.

13. The graphic in figure 3 was developed in accordance with guidance from Maj Gen Kenneth Minihan, USAF, AIA/CC, 17 May 1994.

14. Dr Bruce Don, Rand Corporation, senior researcher, Critical Technologies Institute, interview by Captain O'Connell, 15 November 1993.

15. Rand briefing, "Application of Non-Lethal Weapons."

16. JCS/J-7 Joint Publication 2-0, *Joint Doctrine for Intelligence Support to Operation*, VII-6.

17. Briefing by authors, Maj Gen Ervin Rokke, USAF/IN, subject: Nonlethal Concepts: Implications for Air Force Intelligence, 7 June 1994.

18. Michael Hammer and James Champy, *Reengineering the Corporation* (New York: Harper Business, 1993), 96.

19. Rand briefing, Brig John Casciano, USAF/INX, subject: A Targeting Process for the Future: Implications of Case Studies, 6 October 1994.

20. *Air Force Intelligence Modernization Plan (AFIMP)*, executive summary, 9 March 1994, edited by Capt YuLin Whitehead, AF/INXX.

21. Gen Merrill McPeak, Air Force chief of staff, "Ensuring Technology Preeminence of U.S. Air and Space Forces," address, Scientists Group dinner, Andrews Air Force Base, Md., 5 January 1994.

Fall 1994

IRA C. EAKER AWARD WINNER

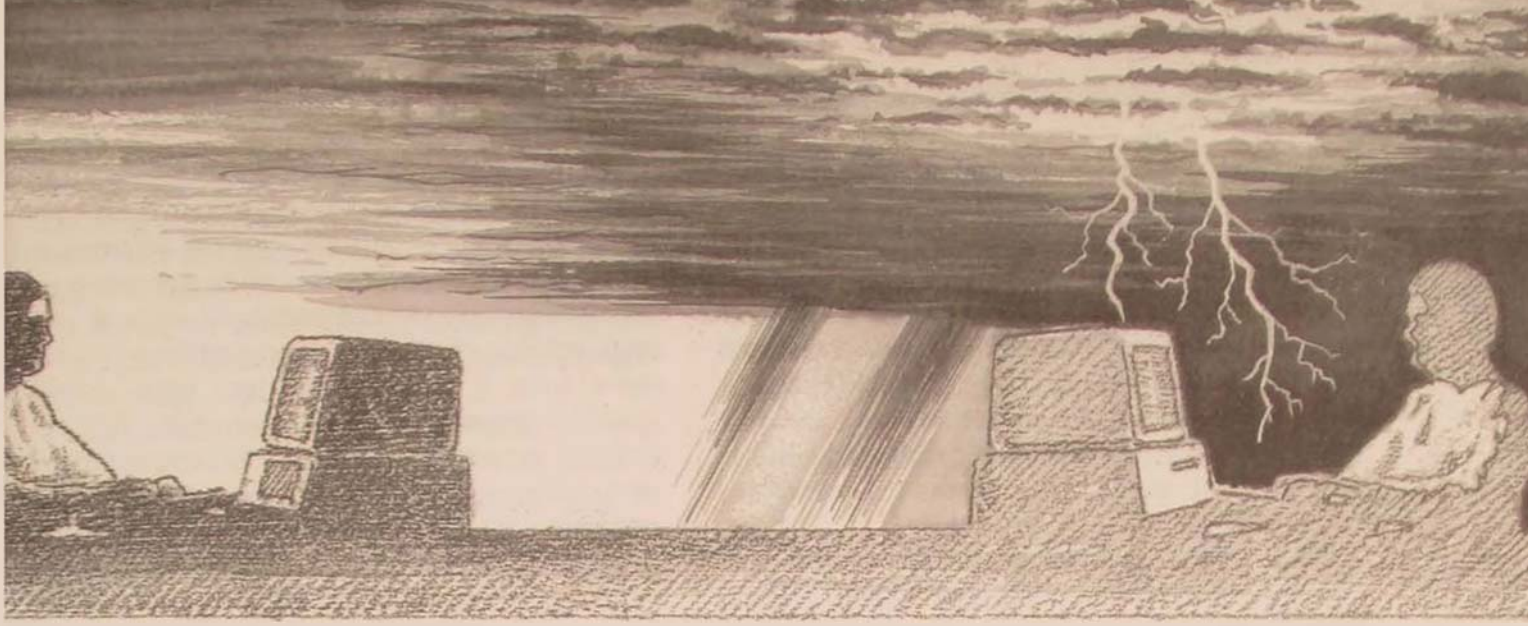
Capt Charles T. Barco, USAF

for his article

Valuing Leadership in an Era of Prophets, Politicians, and Pugilists

Congratulations to Capt Charles T. Barco on his selection as the Ira C. Eaker Award winner for the best eligible article from the Fall 1994 issue of the *Airpower Journal*. Captain Barco receives a $500 cash award for his contribution to the Air Force's professional dialogue. The award honors Gen Ira C. Eaker and is made possible through the support of the Arthur G. B. Metcalf Foundation of Winchester, Massachusetts.

If you would like to compete for the Ira C. Eaker Award, submit an article of feature length to the *Airpower Journal*, 401 Chennault Circle, Maxwell AFB AL 36112-6428. The award is for the best eligible article in each issue and is open to all US military personnel below the rank of colonel or equivalent and all US government civilian employees below GS-15 or equivalent.



INFORMATION WARFARE
PRINCIPLES OF THIRD-WAVE WAR

COL OWEN E. JENSEN, USAF

A SURGE OF INTEREST, analysis, and discussion has arisen concerning a topic variously referred to as information warfare, command and control (C^2) counterwar, knowledge war, or third-wave war. Since the Air Force has established an Information Warfare Center and seems to have adopted the term *information warfare*, that is the term that will be used here. Terminology aside, however, if current proponents are right, we are at a turning point in history. Future wars will never be the same. Military strategy must be rethought in order to capture not only a change in technology but a new set of goals and even new principles.

The popular press has joined the debate. In fact, in some cases it is leading the discussion. Alvin Toffler, author of *Future Shock* and (with his wife Heidi) *The Third Wave* and *Powershift: Knowledge, Wealth, and Violence at the Edge of the 21st Century*, has written extensively on this topic in his latest works. This effort culminated in the recent publication of their newest book, *War and Anti-War.*[1] Although differing in many major areas from US Air Force forecasts, their views establish the tenor of current dialogue and certainly constitute mandatory reading for any US military leader today.

Activity and discussion at all levels in the Pentagon regarding information warfare have coalesced and become centered in specific offices where interest in this type of warfare has intensified over the last few years. As testimony to the interest in the subject, we should note that virtually all the services have resources committed to implementing information warfare in one or more of its forms; the Air Force has held a four-star summit on the subject; and inspector general teams have named it as a special interest item for their unit visits.

What are all these people talking about? For those who need a tutorial on the basics, the Tofflers provide probably the clearest

and most accurate explanation of how this new type of warfare evolved. Briefly, they explain that warfare follows wealth. In other words, the culture, technology, communication, technical skill, and organizational pattern that develop in a society and define its economy, also describe the constellation of patterns which result in the way that society makes war.[2] In the history of man, three basic types of warfare have evolved—agrarian, industrial, and informational.

First came the agrarian age, which, of course, produced agrarian warfare. When man learned to grow food, he no longer had to wander and hunt. Populated towns developed, and the practice of hoarding a surplus of food became possible. It was then that true warfare—a "bloody clash between organized states"[3]—began. Weapons, handheld and handcrafted, were agrarian. The agrarian goals of capturing surplus wealth and land justified and motivated wars. Wars followed agrarian patterns, being fought only during intervals between reaping and sowing. And technology changed, but slowly over time. Agrarian warfare principles were espoused by a well-known guru—Sun Tzu. Much of what he wrote was timeless, and much pertained only to agrarian warfare.

The agrarian economic and military climate began to change in the seventeenth century with the introduction of steam power. This change accelerated with the growing manufacture of interchangeable, machined parts. It flowered with urban development, the French Revolution, the *levée en masse*, and the concept of a "nation in arms." We call this era the industrial age, and with it came industrial warfare. Here we find standardized weaponry, professional full-time soldiers, mass production, mass destruction, and goals echoing the Darwinian industrial economic struggle: annihilation, unconditonal surrender, and subordination. Once again, we know the guru of this era—Carl von Clausewitz. Much of what he wrote is timeless, and much pertained only to industrial warfare.

While some areas of the world remain in the agrarian realm and others have advanced only to the industrial state, a few have broken out into a completely new era—the information age. Information societies connect through interlaced communications and correspond via terminals and gateways. We have seen a rapid evolution from hand-cranked telephones to cellular units, fax machines, integration with computers and even with cable television, while our society and economy have undergone fundamental and unalterable infusion and mutation caused by information technology. Nearly every product we use today has either been designed with computer assistance or actually has an imbedded brain. Instead of mass production we find customized production for markets using intelligent technology. These economic changes are reflected in military forces employing smart weapons with focused lethality and a conscious reduction of collateral damage. Information warfare relies on sophisticated communication, imbedded intelligence, access to space, and real-time decision loops. It is permeated by information feeding precision weaponry, multispectral sensors providing real-time data about the battlefield, and tightly woven command and control of combined arms elements. Although the Tofflers have expounded on the origins of this type of warfare, no guru has yet established its principles. Hopefully, this paper will start us down that path.

The author of this article accepts, as a first assumption, that the reader understands enough about third-wave change to believe that it exists and that we must accommodate concomitant shifts in military operational doctrine. Just as military science mirrored agrarian and industrial age cultures, it cannot help but reflect the reality of the information age. But even when we accept the fact that information warfare is real, we find that we are struggling to understand it—particularly in the realm of operational application. We look back at past wars and clearly see when a second-wave country prevailed over a first-wave enemy. We look at Opera-

tion Desert Storm and recognize the advantages of third-wave applications. But when we hold information warfare ideas up to present situations in Korea, Bosnia, and Moldavia, we have trouble figuring out how to employ its strategies. The basic principles are missing.

Industrial armies know how to fight—concentrate in one place, use mass and surprise to break through, operate along interior lines, and so forth. But these principles don't apply to information warfare. At least we find great difficulty in trying to force them to fit. What we need are equivalent, understandable principles to guide our understanding of how to actually employ information warfare to real situations. That is the purpose of this article. It is for those seeking a few fundamental principles to guide them in applying information warfare to specific scenarios. It contains distilled principles, not a full explanation of theory.

Old concepts of defense and offense do not apply precisely to information warfare. It seems that we should instead spread its principles across four broad categories with two principles per category. If the four categories were summarized, they would instruct us to (1) thicken the fog of war for our enemy, (2) lift the fog of war for ourselves to create a transparent battlefield, (3) ensure that our enemies can't turn these tables on us, and (4) always fight the information war with full intensity. Now, with these few words as introduction, let us examine the proposed principles more closely.

Category I: Denial (The Fog of War)

Ideally, our enemy will be capable of neither gaining knowledge of our forces or intentions nor of communicating among his own units at any level. On our side of the front, our forces and movements will be invisible to him. On his side, the chief of state will find it impossible to communicate with his minister of defense. The minister of defense, in turn, will not be able to talk to the head of his armed forces. Army commanders will be out of touch with divisions, divisions will be cut off from battalions, and so on down to the small-unit level. By fogging our forces and strangling his, we make sure that he knows nothing. Therefore, under this broad objective, we find two principles—electronic decapitation and sensor denial.

The Principle of Decapitation

Deny enemy command and control elements the use of any automated or electronic decision aids. This constitutes "electronic decapitation." Data bases, data fusion systems, electronic processing and display systems for command centers, combat information centers, and the like must "go dark." Introduce "combat amnesia" to the enemy. Target key decision-making nodes at the top of each enemy echelon—i.e., his national command authorities, his joint staff, his theater commander in chief (CINC), the headquarters of each enemy field army, each division, and every battalion. Leadership must not be allowed to overcome our focused and purposeful introduction of war fog. Go for the brain shot, not the body shot.

When we hold information warfare ideas up to present situations in Korea, Bosnia, and Moldavia, we have trouble figuring out how to employ its strategies. The basic principles are missing.

Cut or deny all the enemy's information-transfer media—telephone, radio frequencies (RF), cable, and other means of transmission. Sever the nervous system. Deny, disrupt, degrade, or destroy every transmission.

Stop all "gray system" access. Close off to the enemy all third-party communications

satellites (COMSAT), whether they belong to international consortia or to commercial enterprises or are assets of uninvolved nations. The purchase of bandwidth should not necessarily *guarantee* the buyer communications in time of war.

Deliberately introduce confusion and fear. Ensure that the body retains no will to march on after the head is gone. Disrupt the direction and motivation of enemy forces.

The Principle of Sensor Primacy

Kill sensors, not people, first. Open the way to the enemy's army by blinding all his defenses.

Deny electronic radiation. If it radiates, it dies. Seek absolute silence over the battlefield. Homing weapons, jamming, and lethal and nonlethal suppression of enemy air defenses (SEAD) must all be employed. There is no excuse for allowing an enemy to get away with exposing his position by openly broadcasting RF energy. It gives him too much information, but it is also easy to detect and kill.

Overpower passive sensors. Burn passive detectors. Use lasers on optical trackers. RF receivers should be blown. The enemy can use his vision across a broad band of the electromagnetic spectrum. Your reply must come in focused, in-band, overpowering energy or brilliantly targeted conventional weapons.

Enforce gray-system cooperation immediately. Third-party satellites for weather collection, earth sensing, and other missions, must not provide information to the enemy. The same is true for terrestrial sensors. Any sensor that provides information to an enemy is an enemy sensor.

Category II: Force Enhancement (The Transparent Battlefield)

The enemy completely and forever loses the element of surprise. We watch him, we hear him, we seek out his hiding places. We know his weapons, and his troop dispositions and movements. We catalog his command and control networks, his intelligence sources and databases, and all his sensors. He can't talk without us hearing him. He can't move without us seeing him.

The principle of sensor primacy seeks absolute silence over the battlefield. If it radiates, it dies, just as this Iraqi Fan Song radar did during Desert Storm.

The Principle of Knowledge

Ensure that your surveillance and reconnaissance are frequent, thorough, and multi-

spectral. Achieve total situation awareness. Don't let this awareness grow stale or out-of-date. Don't overlook "unlikely" avenues of attack. Look through clouds, precipitation, darkness of night, and penetrable surfaces. Spend energy and sensor resources recklessly. Do anything to stay ahead of an enemy's knowledge-feedback cycle. Give yourself the opportunity to always move first.

Ensure open-ended reception of remote sensor data by allied forces. Avoid funneling sensor information to a vulnerable choke point. Don't take time to process the data unless you have to. Hand it out to all shooters directly so they can use it instantly.

Match the precision of information to the precision of the weapon. If a smart weapon can hit a known spot within a one-meter circular error of probability (CEP) day or night, feed it one-meter target information all day and night.

Ensure rapid, insightful, accurate battle damage assessment. Don't waste resources on decoys or targets you've already killed. Use multiple phenomenology to discriminate live targets from dead targets with exquisite resolution. Do this quickly; the next day's frag (fragmentary order) has already been built.

The Principle of Alacrity

Ensure that allied forces enjoy a tighter, faster decision loop than the enemy. Combine the principles of decapitation, sensor primacy, and knowledge with a sense of competitive urgency. Shoot-move-shoot, and do it fast and accurately, while the enemy is hit-staggered-hit and doesn't know where you went.

Enforce readiness and ensure that required information is available on a moment's notice—anytime. Too often attack pilots are ready to fly but have to wait on the latest intelligence. Full, complete, and finished intelligence and targeting information should be ready anytime a shooter needs it. The same is true with tanker anchors and other air tasking order (ATO) data. All data relevant to engaged forces must be kept fresh and flowing, arriving before it's needed.

Ensure that the bandwidth has the capacity and flexibility for the full flow of data. Don't send critical information over jammable, fragile media. Don't send high-volume information over narrow, slow media. Splurge on bandwidth. Get all you can. Don't get in your own way by choking decision makers with communications bottlenecks.

Category III: Survivable Situation Awareness and C^3 (Duck the Counterblow)

A military most vulnerable to information warfare strategy is one from an information society. What information warfare can do for us can also be used by an enemy against us. The more we depend on our sensors and computers and space-based communications, the easier we are to unplug. Therefore, our information warfare systems must be made robust. We must discover electronic survivability.

The Principle of Survivability

Centralize policy strategy and planning, but decentralize force planning and execution. Use many thinking heads. Don't make decapitation easy for the enemy. Take advantage of the inherent strength in the American military's policy that allows for local initiative and flexibility and eschews rigidly centralized command and control.

Take advantage of all national assets and use all sectors of society—television newscasts, off-the-shelf computers or communications systems, existing COMSATs, fax machines, computer bulletin boards, and international corporate connectivity. All these and other assets should be considered as po-

tential parts of the national war effort. If we can employ a Civil Reserve Air Fleet, why not a Corporate Reserve Communications Network?

Proliferation breeds survivability. In general, many nodes, many systems, many pathways, many frequencies—and many of anything else—make a harder target set than just a few things.

Employ tactical deception. Hide your command, control, and communications (C^3) backbone. Use small, moveable COMSAT receivers and move them often. Bury cable and fiber lines between fixed sites. Radiate deceptively from noncritical nodes. Employ Red Teams that regularly try to steal or deny your communications. If your theater passes all communications through a large, stationary gateway, you're dead.

Use redundant pathways, always keeping a backup communications plan. The backup must be more survivable than the primary. It does no good to plan to use FM radios as a replacement for a base phone system if you know the enemy has equipment and training to jam FM.

Ensure that you have a C^3 technological advantage. Change to stay ahead of the threat. Pay for upgrades. It's money well spent. Don't scrimp on C^3 to buy more bullets.

The Principle of Interoperability

Maintain interoperability and rationalization of systems with other services and allies. Anecdotes about incompatible C^3 systems abound. Who hasn't heard about the soldier who called from a phone booth on Grenada back to the States to get a message passed to US Navy ships lying in sight offshore? Who doesn't know that the ATO in the Gulf War had to be printed, copied, and carried to the Navy by hand because communications were incompatible? Such incompatibility could cost lives in the next war.

Avoid C^3 standardization. Full standardization promotes vulnerability. It reeks of industrial warfare. In information warfare, we should seek multiple, different, but interoperable systems so that a golden BB can't take them down.

The principle of knowledge seeks to achieve total situation awareness. Surveillance and reconnaissance should be frequent, thorough, and multispectral. Here, Iraqi tank locations in Kuwait are pinpointed by Air Force reconnaissance.

Category IV: Levels (Fight Your Own Fight)

Of all categories, this one is the most contentious. It appears that armies at a higher level win. Alexander the Great, Julius Caesar, and Genghis Khan all fought agrarian warfare versus agrarian warfare, but their tactics

were more disciplined, regimented, and industrial compared to their enemies', and they were therefore successful. Industrial-age Napoleonic France had a field day with agrarian European armies but had more difficulty with industrial England. The same was true with the industrial North against the agrarian South, England against the Boers, the cavalry against the Indians, and the Japanese against the Chinese. In Vietnam, once we stopped trying to fight an agrarian war against an agrarian enemy and began employing industrial-age power—massive B-52 strikes against industrial targets—the enemy came to the bargaining table quickly. We expected a bloody fight with thousands of allied casualties in Desert Storm. The fact that it was so easy is seen in retrospect as a discovery of the power of third-wave over second-wave armies. Should we therefore fight a third-wave war against industrial North Korea or revert to massive, dumb, nuclear second-wave strategies? The advice here is to fight our own fight. Never drop to the lower-level warfare of the enemy.

The Principle of Hierarchy

Don't fight a lower-level enemy with a lower level of warfare. If a third-wave army faces a first-wave or second-wave army, it should not fight a first-wave or second-wave war. It should fight a third-wave war.

Even the warlords of Mogadishu need intelligence. Even North Korean forces need command and control—particularly if we do something to surprise them and force them to react. All enemies are vulnerable to fog; all need to communicate. Finding ways to thicken the fog and strangle communication may take imagination in some of the more unconventional conflicts, but that must be our task if we are to make this work.

Our amazing technology should be used in any situation to create transparency. In low-intensity conflicts, the technology may look more like anticrime than armed force activity. It may include bugging, street surveillance, or electronic tagging and tracking. In more conventional scenarios, it will ensure that we are not surprised—that all enemy movement and reinforcement are watched, understood, and attacked.

Our information society has certain inherent vulnerabilities. Enemies will exploit these weaknesses no matter what we decide about fighting at one level or another. We have to employ the principles of survivability and interoperability in any case.

Force on force, we can still be outnumbered and overpowered on distant battlefields around the world—at least until reinforcements arrive. Our only hope is to fight smarter with better intelligence and greater precision, efficiency, and lethality. A shot to the head can even the odds between David and Goliath. We must make sure that we play the role of David.

The Principle of Intensity

If you are going to make war, then make it. This is a principle that is not unique to information warfare. Problems come from fighting at half speed against an enemy fighting at full speed—or from fighting with limitations against an enemy who has no restraints. Whereas industrial warfare was so powerfully and indiscriminately destructive as to invite restrictions, information warfare is much more carefully focused and more conducive to being waged without limitations on its intensity.

Take information warfare seriously. Don't revert to second-wave strategies because they are familiar. Dumb bombs and mass tactics may be easy to use, but they also demand large forces that may not be available. Against North Korea, we must plan for full-scale war where the enemy could vastly outnumber us. If we use second-wave strategies, we are likely to lose. Therefore, we must adopt all principles appropriate to a third-wave force fighting a second-wave army. To seriously apply third-wave strategy against such an adversary will take determination and creativity.

The mushroom cloud represented the logical culmination of industrial warfare. The consequences of an all-out effort by our armed forces in the nuclear age became literally unthinkable. As a result, we have grown accustomed to fighting with one arm behind our back. To go further invited global disaster. But information warfare promotes precision strikes. It strives to eliminate collateral damage and to minimize casualties. It does not aim for brutal annihilation of the enemy army but rather to paralyze his nervous system and cause him to change his behavior. We can go from full stop to full speed in information warfare without fear of overstepping political limits. At last, our military planners can be freed of political constraints. At last, our CINCs can fight all out when American lives are at risk.

A military most vulnerable to information war strategy is one from an information society. What information warfare can do for us can also be used by an enemy against us.

So those are the principles. But to fully implement the strategies outlined above, we must understand that information warfare *goals* are very different from first-wave and second-wave goals. As already mentioned, industrial warfare followed goals of unconditional surrender and annihilation, but the American public currently finds such goals to be unacceptably costly in lives, material, collateral damage, and time. Today we expect wars to be short, cheap, and clean. Therefore, our goals must be as focused and as specific as our weapons. We must aim to do the following:

Change behavior. Don't seek outright capitulation; seek more modest behavioral changes. The president was exactly right in stopping the Gulf War when the behavior we wanted (Iraqi forces to leave Kuwait) occurred. In every future conflict, we must carefully specify what an enemy must do to bring a cessation of hostilities.

Minimize casualties. Reduced casualties and reduced collateral damage, both ours as well as the enemy's, are absolute requirements of tomorrow's war. We must always provide ways for an enemy to satisfy our demands without total surrender. The cornered-rat syndrome will cause a fight to the last man. While our forces must engage fully with a combination of lethality and precision, they must leave an avenue by which the enemy can ultimately escape. Smart, precision weapons also add to our capability to focus lethality and to limit enemy casualties as well as collateral damage. Very detailed intelligence is needed to direct such precise power. Overall, the application of a higher form of war against an enemy fighting a lower form of war is directed at producing the quickest, and therefore the least costly, result.

Change from deterrence theory to inducement theory. Deterrence theory is catastrophic if it doesn't work. It uses fear to motivate an adversary before war begins, and it depends on the credibility of a threat. Many examples show that opponents, with strong motives for going to war, misjudge that credibility to the point where their fear is overcome. Once the war has started, there is no motive to stop the fighting. Once the line is crossed, it becomes a de facto fight to the finish with no alternative except unconditional surrender.

To employ inducement—which is continuously applied before, during, and after the conflict—we must (1) make it clear what the enemy will gain by conformance behavior, (2) be willing to use force if a rogue actor breaches clear limits of nonconformance behavior, and (3) always stay ready to revert to a peaceful status quo ante with the cessation of hostilities. Stated another way, we must

offer incentives to change, change quickly to extremely lethal force when clearly necessary, then be ready to switch back to offering incentives based solely on the behavior of our adversary. We must make this clear. Steadiness of purpose must be maintained for such a strategy to succeed, while, at the same time, quickness to go to war when necessary will reinforce our credibility.

We all know that change is accelerating in every aspect in both our individual and collectives lives. In such a world, standing still long enough to mass-produce anything is foolish. A long production run (or force buildup) will result in obsolescence before it achieves full rate. Our only alternative is to seek more perfect knowledge of events as they change, to select those events that we must force to change for our own self-interest, and to focus our energy on specific change strategies. Tomorrow's enemy may not even be a nation-state. It may be a radical fundamentalist or extremist ethnic group. Tomorrow's ally might be a corporation instead of a United Nations task force. Hopefully, the principles outlined in this article will start us thinking about how we can deal with such events. □

NOTES

1. Alvin and Heidi Toffler, *War and Anti-War: Survival at the Dawn of the 21st Century* (New York: Little, Brown and Co., 1993).
2. Ibid., 18–19.
3. Alvin and Heidi Toffler, "War, Wealth, and a New Era in History," *World Monitor*, May 1991, 46–52.

Basis of Issue

AFRP 10-1, *Airpower Journal*, is the professional journal of the Air Force. Requirements for distribution will be based on the following:

1 copy for each general on active duty with the US Air Force and Air Reserve Forces.

1 copy for every 5 (or fraction thereof) active duty US Air Force officers in grades second lieutenant through colonel.

1 copy for each US Air Force or Air Reserve Forces office of public affairs.

3 copies for each Air Reserve Forces unit down to squadron level.

3 copies for each air attaché or advisory group function.

1 copy for each non-US Air Force, US government organization.

1 copy for each US Air Force or US government library facility.

If your organization is not presently receiving its authorized copies of the *Airpower Journal*, submit a completed AF Form 764a to your publications distribution office (PDO). Note sample below.

The Editor

(PRESS HARD WHEN USING BALL POINT PEN)

SHORT TITLE AND DATE	UNIT OF RQN	CLASS	SYMBOL	REQUISITION	REQUIREMENT
AFRP 10-1	EA	UN	F		(-)COPIES

TO: YOUR BASE PDO

FROM: YOUR OFFICE ADDRESS OR CUSTOMER ACCOUNT REPRESENTATIVE

COMPLETE *(Include all changes)*

FOR FORMS USE ONLY

MONTHLY USAGE	ON HAND

	EMERGENCY		ONE TIME
	PB RESPONSE		
	FOLLOW UP/TRACER		
	MISSED SHORT ID		
	OTHER *(Specify)*		

REMARKS

ESTABLISH NEW REQUIREMENT FOR (-) COPIES OF AFRP 10-1, AIRPOWER JOURNAL

DATE PREPARED ✓

SIGNATURE AND TITLE ✓

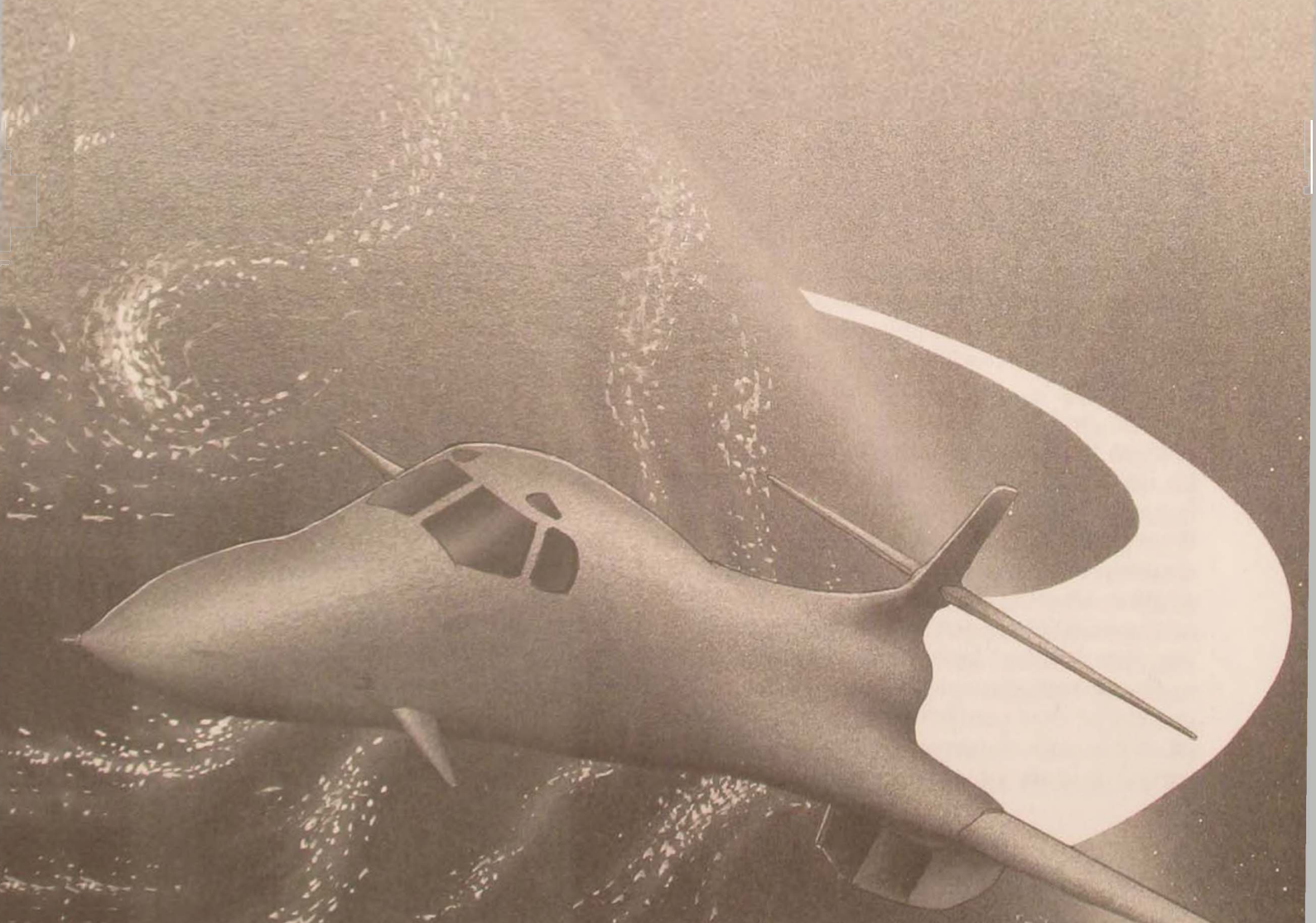
EXAMPLE

AF Form 764a, FEB 88 PREVIOUS EDITION IS OBSOLETE. RQN AND RQMT REQUEST

HEAVY BOMBERS HOLDING THE LINE

MAJ DAVID W. SCHNEIDER, USAF

RECENTLY, THE composition of the US Air Force's heavy bomber force has received high-level interest. The eventual makeup of the force will undoubtedly be a reduction from current levels. The ability of this force to perform its missions in the future will depend on effectively utilizing force multipliers such as precision munitions, equipment modifications, and assets that maximize bomber potential. The decision to deploy force multipliers is an essential step in keeping our limited number of bombers capable of their future tasking. Developing, documenting, and training using procedures that will allow the diverse systems to achieve the level of interoperability desired are critical issues that often do not receive enough attention. In an era of declining budgets, the choice of fielding a modification or adding a weapon to the inventory often overshadows the need to learn how to best utilize these new assets once fielded. The



following fictional scenario, set in the near future, should provide food for thought on this topic.

Historical Background

The situation in Bosnia had turned from bad to worse. The Serbian army had shed its behind-the-scenes support of Bosnian Serb forces for an overt military invasion with the strategic goal of establishing control of the Adriatic ports and easing the effects of long-standing economic sanctions. The ability of the United Nations to stabilize the situation evaporated when Russia endorsed the Serbian invasion as a legitimate action to ensure the safety of ethnic Serbs still in Bosnia. Russia's endorsement was logical in order to legitimize its own security doctrine, which acknowledges Russia's intent to continue protecting, with force if needed, ethnic Russians in former Soviet Union states. Russia's veto in the Security Council left open unilateral United States or North Atlantic Treaty Organization (NATO) action to keep Serbia from totally overrunning Bosnia. The options open to the Western forces were few. The fact that ground forces were needed to stop the Serbian army was obvious. The Bosnian forces were too weak to withstand a fully supported "modern" Serbian offensive. The Bosnian arms embargo had only recently been lifted, and the supplies had not yet impacted Bosnian readiness and combat power appreciably.

This Serbian invasion presented many risks to the future security of Europe and to US interests. The Moslem world was screaming genocide and threatening military action if the Serbs were not stopped. No European country welcomed the specter of Turkey or another Moslem country becoming involved in the conflict, expanding the scope of fighting. World War I loomed as a bloody specter to many historians. The correlation of the origins of that conflict to this crisis was too close for sane observers to ignore. The historical lessons of appeasement had taught that the aggressive nature of Serbian expansionism had to be thwarted. We had to oppose the precedent of allowing an invasion of a sovereign country for the purpose of protecting certain ethnic groups or else risk future Russian exploitation. These factors had all combined to make this invasion a legitimate US security interest requiring active combat opposition. Once the strategic decision to oppose the invasion was made, the national command authorities went to the joint planners to see what operations plans to implement.

Operational Objectives

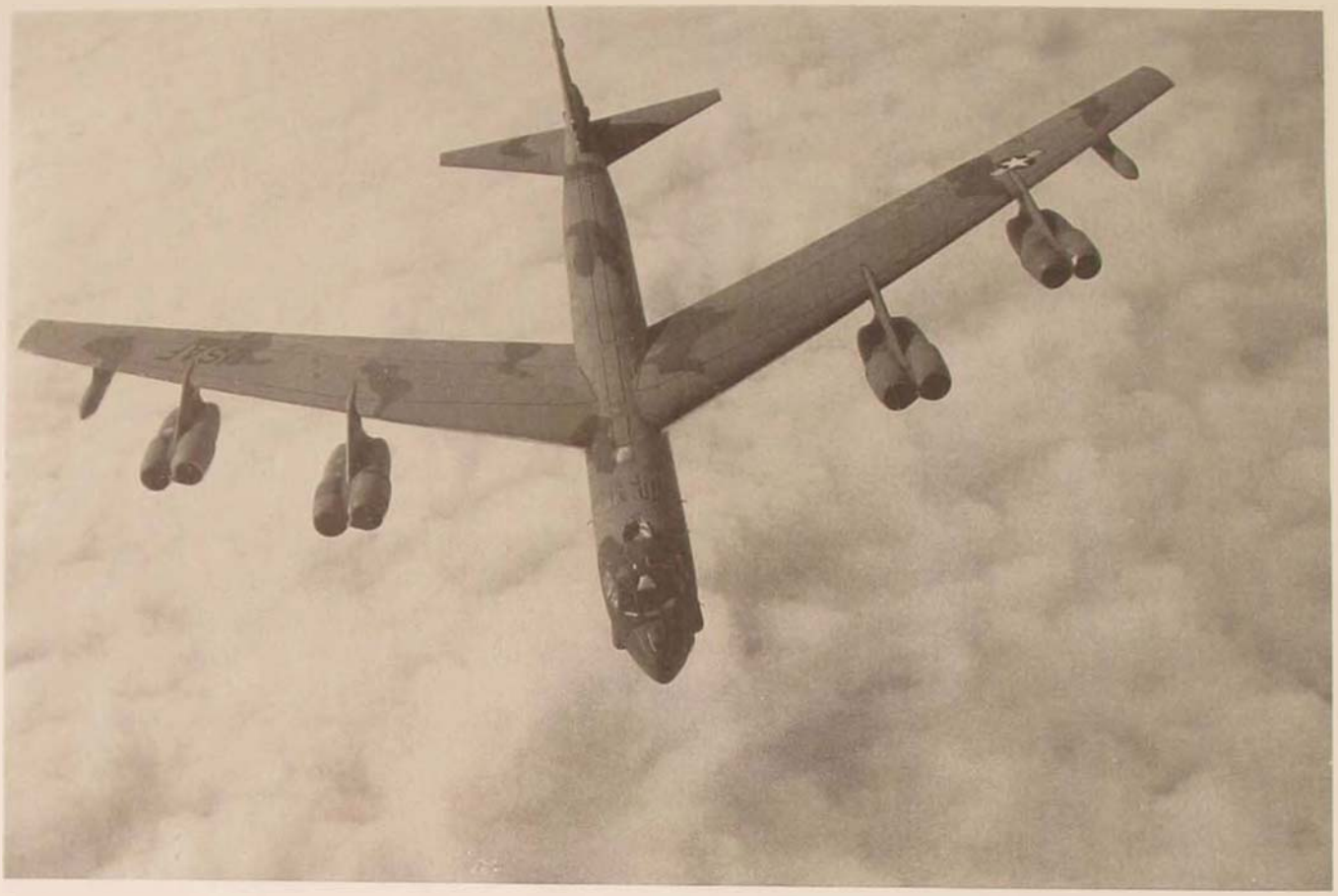
All established plans hinged on the use of NATO bases. Unfortunately, NATO refused to allow offensive operations during the critical initial period of the conflict. The use of Italy as a staging ground to support a US unilateral action was met with little enthusiasm by the Italians. Gaining consent for operations from NATO forces was agonizingly slow due to the recent inclusion of Russia as a consulting member of NATO. Until NATO reached a consensus to support US involvement, NATO ordered that all of its forces stationed in Europe be restricted to defensive combat operations only. This seriously limited support for US operations during the opening days of the invasion. The US operational planners decided to send the Marine Expeditionary Force, stationed in the Mediterranean Sea, to land in Bosnia and began moving US Army heavy divisions from the continental United States (CONUS) to eventually reinforce the beachhead. The strategic objectives required the establishment of a secure beachhead and then, when combat forces reached sufficient strength for offensive operations, to push the Serbian army back to its own borders. Once the border was secure, these forces would hold it until relieved by reconstituted Bosnian forces capable of maintaining the border. Their strategic objectives were supported by the US public and politicians, but the initial question remained: Could the

Aerial refueling provides heavy bombers the capablity to fly CONUS-to-CONUS missions in support of overseas operations when forward bases are unavailable. Global reach–global power is a reality because of our air refueling capabilities.

marines hold the beachhead until heavier forces arrived? The theater commander's first operational objective was to slow the Serbian army's advance to allow for the insertion and buildup of ground forces. This task required that an interdiction plan be devised. The Bosnian interdiction plan had to be radically different from those on the books due to restrictions imposed by NATO.

The missions required to halt the Serbian advance involved dropping the bridges linking Serbia and Bosnia. The Serbians needed the bridges if they expected to fight offensive actions against the Marine Expeditionary Force. With the destruction of the bridges, the first priority—slowing or attriting advancing Serbian armor and mechanized forces—was a close second. Serbia is extremely rugged with few roads capable of heavy traffic. Interdicting travel on these lines of communication would ensure that whatever forces arrived to fight the marines would be piecemeal and easily pushed beyond their point of endurance. With the tasks defined, assigning capable aircraft became the major headache.

Considering the restrictions placed by NATO and the resulting long duration of the



Many of the system modifications mentioned in this scenario are in development and await the decisions of the requirements community whether or not to field them for the B-52. Without these modifications, the B-52 faces the ballistic inaccuracies and targeting shortcomings that limit its utility as a diverse weapons carrier.

proposed missions, a high priority was placed on maximizing delivery of an adequate volume of varied munitions in each sortie to meet the mission objectives. A quick survey of the forces capable of the task resulted in a sobering list. The composite wings designed and ready for completing this task, due to NATO restrictions, were without a forward base from which to operate. They would have to wait for the marines to capture a Bosnian airfield capable of supporting their operation. The strike aircraft in NATO were grounded and those stationed in the US did not have the range for this operation. Most of the Navy's strike aircraft stationed in the Mediterranean were tied to supporting the marine landing. That left an insufficient Navy force to complete the interdiction effort. The task then fell to heavy bombers capable of CONUS-to-CONUS operations to provide the muscle behind the effort to halt the initial Serbian drive. Luckily, recent command initiatives to promote joint operations had laid the foundation for Air Force bomber, Navy striker, and special forces cooperation. The procedures and interoperability issues tested during numerous peacetime joint tactics development and evaluation tests paid off when the iron started to fall. To increase the value of each sortie, adequate targeting was essential. The insertion of special forces for target identification and targeting quickly commenced. With these pathfinders in place along the roads and around the bridges, the ability to deliver weapons efficiently became conceivable. There would still be the need for autonomous target detection and delivery if

communications with the special forces failed.

Weapons Systems and Procedures

But enough of the conflict's historical basis and operational goals. Now let us delve into the weapons systems and procedures used to accomplish this admittedly hypothetical example of US power projection. The need for the suppression of enemy air defenses (SEAD) and the negation of the Serbian command and control in Bosnia required precision weapons delivery and standoff capability. By 1996, only a handful of B-2 Spirits was available. They formed the crux of the initial suppression forces, and they were followed by B-52Hs armed with AGM-142 Have Nap missiles and conventional cruise missiles (CALCM).

It took 48 hours to prepare a combined B-52, B-1, and B-2 strike. By then the special forces had located, and with the help of intelligence using available imagery, had targeted the air defense control sites and communication nodes. The destruction of these sites would give future strikers acceptable penetration risks.

The B-2 missions were able to penetrate and deliver their munitions with complete tactical surprise. They struck the regional air defense center in Serbia and the forward control centers in Bosnia. Their recent certification to release conventional weapons from a rack assembly, coupled with their accurate avionics, gave the B-2s the ability to temporarily cripple the Serbs' air defense capability. The B-52s, backing up the B-2s, used their precision strike capability to knock out the hardened command bunkers. Capitalizing on the confusion sown by the B-2 strikes and numerous CALCM shots, B-52s were able to penetrate at low level close enough to launch four Have Naps per aircraft.[1] Another B-52, flying a high-level standoff profile, performed the final targeting for these missiles. The Have Naps effectively blinded the Serbian air forces, which had rarely practiced night operations. The lack of ground control further reduced the effectiveness of Serbian interceptors. The scattering of cluster bomb unit (CBU)-89 cluster bombs at the Serbian airfield by the B-1s further delayed the Serbs' willingness to mount an air defense at night against a force of undetermined composition.[2] A small force of Navy F-14s acting as combat air patrol (CAP) effectively handled the few Serbian interceptors that rose to threaten the strikers. This initial confusion was sufficient to allow the follow-on strikers to penetrate and attack their targets.

With air superiority temporarily achieved over the border, the B-52s armed with precision guided munitions (PGM) systematically dropped the bridges that first night. Since the B-52s were not able to self-designate their PGMs, they relied on Navy attack aircraft and special operations forces to designate for them.[3] Released from the need to carry the actual PGMs, the Navy aircraft were equipped for self-defense and designating only. This allowed them to make the multiple passes needed to guide the PGMs to the bridges. Acting as bomb trucks and using communications techniques established through joint doctrine exercises, the B-52s each carried ten 2,000-pound class laser guided bombs (LGB) on their external racks. Once they had dropped their LGBs, the B-52s acted in conjunction with the special forces and Rivet Joint targeteers to hunt down the lines of communications in Serbia and Bosnia and release their internal loads of conventional munitions. Some carried 27 M117s and others released CBU-71s with delayed activation and Destructor land mines.[4] The majority of the Serbian forces in Bosnia were forced to seek cover or be destroyed on the roads. Either way, they were stopped from their advance and this allowed critical time for the marines to land and deploy.

The recent installation of the improved forward looking infrared radar (FLIR) monitor[5] and the laser detection and ranging (LIDAR) system gave the B-52s the accuracy they

required for tracking targets along roads and for delivering general purpose weapons accurately from the altitudes that kept them out of range of tactical antiaircraft artillery and surface-to-air missiles.[6] The B-52s were able to detect concentrations of Serbian forces with the assistance of special forces units, Rivet Joint, the joint surveillance and target attack radar system (JSTARS), and their own FLIR. This allowed them to effectively deliver CBUs with delayed activation to hold the enemy in place. The B-52s accurately determined the coordinates of the concentrations using a combination of their dual inertial navigation systems and global positioning system (GPS). Once the locations of these concentrations were targeted and relayed to the airborne battlefield command and control center (ABCCC), B-1s flying low with full loads of MK-82s or CBUs arrived to continue to interdict the Serbs.[7]

Concentrations of enemy forces were accurately pinpointed using a combination of inertial navigation systems and the global positioning system. Once these forces were targeted, B-1s arrived to interdict the Serbs.

Through a combination of preplanned targets, in-flight mensuration and targeting capability, and secure communications procedures, the maximum bombing effort of the first three days of the campaign enabled the marines to land against token resistance. The eventual lifting of the NATO restrictions and the arrival of heavy army divisions gave the US forces the mass they needed to push the Serbs back to their borders. The situation was still tense, but the Moslem world stayed out of the fight and Europe returned to some semblance of normality.

Future Requirements

The success of these missions hinged on effective communications and control of the fluid air battle through the ABCCC. Recently tested communications plans and secure data relay procedures have ensured that the strikers received their targets en route to the theater. Previous testing of the interoperable, secure communications gear gave the operating units confidence in their systems. The need for establishing, documenting, and training a hierarchy of control that is tested, capable, forward deployed, and probably airborne is essential to achieving the level of acceptable risk and mission success desired when employing heavy bombers in forward areas of responsibility (AOR).

The use of heavy bombers as described in this scenario was possible given proper back-

ing by theater commanders. Our prime concern should be validating the command and control interfaces with airborne and ground agents that would provide effective bomber targeting and weapons guidance. The results of these tests should be incorporated into joint employment manuals and widely disseminated. Unfortunately, individual units often develop procedures as the tasking arrives, without the benefit of definitive test results. Without tactics development and evaluation test results, we face the problem of arriving in the theater with each unit using its own best guess at the communications procedures and joint tactics that would make this scenario a success.

Many of the system modifications mentioned in this scenario are in development and await the decisions of the requirements community whether or not to field them for the B-52 and B-1. Without the procurement of the improved FLIR, GPS, and LIDAR systems, the B-52 faces the ballistic inaccuracies and the targeting shortcomings that limit its utility as a very diverse weapons carrier. Without improving the B-1's conventional weapons capability, it would only be able to bring MK-82s to this conflict, severely limiting its utility.

Many operational plans are predicated on the use of forward basing and indigenous assets to achieve their objectives. When these are denied, the theater commanders must rely on our heavy bombers to hold the line until adequate tactical forces arrive. During Desert Shield, B-52s were called upon to be ready to interdict Iraqi forces should they decide to invade Saudi Arabia. Those who were tasked with this challenge faced many obstacles in planning for that action. Unfortunately, many of the same obstacles that made bombers stopping an Iraqi offensive daunting in 1990 continue to confront operational planners today. Joint targeting capabilities, buddy laser designation procedures, and ballistic accuracy are all still vital concerns today for the bomber community. If joint interoperability issues and bomber upgrades are not aggressively pursued, winning in the above scenario may not be possible. Present-day bombers would not be capable of the effective strategic interdiction that a theater commander may require without the assistance of fighter and SEAD assets deployed forward. In this time of decreasing forward presence, strategic bomber tests and modifications that foster autonomous capabilities must receive high priority if our boast of power projection is to be credible.

The war-fighting commands must place the emphasis of training dollars and high-level direction on formalizing the bomber joint communication and targeting procedures. Stating our theoretical bomber capabilities in documents like the *Bomber Road Map* is essential to planners. Actual testing of the procedures and documenting them in multicommand manuals (MCM) is vital to the crew members who will be flying the missions. Giving them the best documents with which to train is the duty of the commands. MCM 3-1 is supposed to describe tactics that have been validated through tests. Many times its authors lack actual test data on joint interaction. Greater attention must be placed on the joint aspects of our tactics. Bomber missions that deploy to forward AORs for training should have specific test goals that aid in the formalization of joint interoperability issues. These test goals should be centrally controlled and documented to ensure that the tactics one unit devises improve effectiveness, are built on previous experience, and are spread throughout the commands. A document distributed to the bomber community outlining the pending joint interoperability issues to be tested and documenting completed tests would expedite this process. MCM 3-1's Tactics Analysis Bulletins and the Weapons and Tactics Center's *Weapons Review* are not reactive enough or are, by regulation, inappropriate for this task. Whatever document is used to facilitate the cross talk, the need persists for the war-fighting commands to identify their interoperability requirements down to the unit planners. The bomber

community must then test, document, and disseminate by the widest means possible the tactics that meet these requirements. Joint tests must receive higher priority, and interoperational procedures must be in place if heavy bombers will be expected to hold the line in future conflicts. We may not have months to iron out our interoperability issues during the next conflict as we did during Desert Storm. Tests in peacetime will save lives in war. □

Notes

1. Technical Order (TO) 1B-52G-43-2-4, *Aircrew Weapons Delivery Manual (Nonnuclear) B-52/AGM-142*, 15 January 1994, 7–8.
2. *Bomber Roadmap*, white paper (Washington, D.C.: Department of the Air Force, June 1992).
3. *B-52 Laser Guided Bomb Employment Tactics Development and Evaluation Test Plan*, ACC Project Number 93-509F (Langley AFB, Va.: Air Combat Command, November 1993).
4. TO 1B-52G-34-1, *Aircrew Weapons Delivery Manual (Nonnuclear) Description and Procedures*, 15 November 1991, 5–3, 4.
5. *Platinum Silicide FLIR Phase III Preproduction Validation Test Operations Summary* (Barksdale AFB, La.: 49th Test Squadron, June 1994).
6. *LIDAR/B-52 High-Altitude Bombing Technology Demonstration II After-Action Report* (Barksdale AFB, La.: 49th Test Squadron, June 1994).
7. *Bomber Roadmap*.

Ricochets
continued from page 3

and the sinister forces that deny "funding control to responsible program officials." Second was its insistence that we continue preparing to fight World War II. For some reason I'm unable to fathom, this World War II preparedness paradigm seems to be a fundamental tenet for those who resist needed reform of the depot system. Third, finally, and most significant was its remarkable assertion that we need to know "the author's background" in order "to assess the fidelity of the information the article contains." What kind of hogwash is this? Trial by resumé? Proof by grade, aeronautical rating, or AFSC? This is an unacceptable form of prejudice, and I commend you for withholding the author's identity. Once in a while this might be a good idea.

Let's remind ourselves that the test of arguments is the arguments themselves, not some personal or prejudicial assessment of the author's credentials. Good on you, *APJ*. Not so good on those who would judge the value of what is said by the value they capriciously place on whoever said it.

Col Richard Szafranski, USAF
Maxwell AFB, Alabama

STATIC . . .

In his Spring 1994 article "Surprise and Intelligence: Towards a Clearer Understanding," Maj Jeffrey O'Leary quotes a 1962 book which claims that although the Philippines had 9–10 hours' warning of a possible Japanese attack, "there was no sense of urgency. . . . When the Japanese bombers arrived shortly after noon [8 December 1942], they found all the American aircraft wingtip to wingtip on the ground."

But in fact there had been appropriate awareness of the danger. As a safety precaution, the Army Air Corps commander in the Philippines, Maj Gen Lewis H. Brereton had ordered his planes into the air that morning. Later the aircraft landed for refueling and maintenance and for the crews to have lunch. Radar was functioning and should have provided adequate and timely alert of the approach of Japanese airplanes. However, when radar did reveal the coming air attacks, unfortunate communications failures prevented reception of the warnings: (1) static fouled the radio message from the radar center, (2) the teletype message from the radar center was not received because the teletype operator in Manila was eating lunch and had not been replaced by a relief operator, and (3) a telephone warning from the radar center was received but was not promptly relayed. *If* meteorological conditions had not disrupted the radar center's radio communications, *if* the teletype operator had been replaced for lunch, *if* passing on the telephonic warning had been given higher priority—there are times and situations in which *if* can be a truly big word—the American aircraft at Manila would not have been caught on the ground by the Japanese attack.

Although it's unquestionable that more care should have been taken to ensure the maintenance of unbroken communications with the radar center, the oft-repeated, widely accepted picture of US military personnel sitting around unconcerned about a Japanese air attack on 8 December 1942 is historically inaccurate.

Joseph Forbes
Pittsburgh, Pennsylvania

HISTORICAL ERRATUM

The *Liberators* book review in the summer issue left me somewhat perplexed. The reviewer "wholeheartedly recommends it" yet devotes a whole paragraph outlining its "basic problem." The reviewer may not have been aware that the referenced documentary was pulled by the Public broadcasting System's (PBS) Thirteen/WNET in early February 1993 after an extensive examination by the American Jewish Committee, a few investigative reporters, a Washington, D.C. attorney, a professional historian, and numerous challenges by veterans, including veterans from the 761st Tank Battalion. They determined that *Liberators* was marred by numerous historical inaccuracies. Shortly after PBS Thirteen/WNET launched its probe, and after five months of investigation, *Liberators* was found to be seriously flawed because it lacked "diligent and comprehensive" research. In the meantime, the book's publisher, Harcourt Brace, issued a disclaimer admitting that there were questionable oral testimonies and recollections.

Author Lou Potter, who crafted the documentary with William Miles and Nina Rosenblum, was irresponsible in his research. Citations in the book were very meager and lacked judicious pri-

mary sources. For example, the 761st's after-action reports, S-2 (intelligence) and S-3 (Operations) journals, and the battalion's morning reports were not examined to verify the historical claims of *Liberators*, including the so-called oral interviews. In addition, on the issue of liberating Buchenwald on 11 April and Dachau on 29 April 1945, the 761st's history (Trezzvant W. Anderson's *Come out Fighting*) and the battalion commander and veterans acknowledged that the "Black Panthers" were nowhere near the infamous concentration camps. They were too busy fighting the Germans elsewhere. Buchenwald was liberated by a unit from the 6th Armored Division, and Dachau was liberated by units from the 42d and 45th Infantry Divisions.

The tragedy of *Liberators* is that Potter and Miles Productions invalidated the 761st's true history. They took away the 761st's moment in history by presenting a seriously flawed account of its members' accomplishments. *Liberators* is a story of dysfunctional nonhistorians—faulty or impaired researchers who select, manipulate, and invent military history as a means of satisfying their social, monetary, and political self-indulgencies. It is also a story of mythmaking by the electronic media and their supporters, the newspapers. It attempts to execute a political agenda by abrogating the history of one of the most decorated World War II African-American tank battalions. The Black Panthers had an impressive combat record of 183 days, engaging in some of the most tenacious fighting in Europe. Toward the end of the war, the battalion did indeed liberate a concentration camp. While assigned to the 71st Infantry Division, it was credited with that division's liberation of Gunskirchen, a subcamp of the Mauthausen complex in Austria. At the same time, the Black Panthers were fighting prejudice and racism not only in the States but in the military. Eventually the Black Panthers received a Presidential Unit Citation for their true accomplishments in World War II.

Dr George F. Hofmann
Cincinnati, Ohio

COMMENT CARDS

STRATEGIC: USE WITH CARE

I can't believe that in an article (Special Edition 1994) relating to the DOD definition of *strategic* in 1994 the author fails to mention or interview leadership from the unified command responsible for strategic matters. The US Strategic Command (USSTRATCOM), not SAC, not ACC, has purview.

Name withheld

The Author Responds

I agree that interviews with senior USSTRATCOM officials could have strengthened my article. However, the "STRATCOM position" on the use of the word *strategic* would not have changed the basic finding of my research. The use of the word *strategic* has changed over time, from shorthand for "long-range nuclear" to a descriptor for actions that directly support achievement of the goal. Does the writer of the above comment really believe STRATCOM owns the rights to the word *strategic?*

Maj Judy M. Graffis, USAF
Whiteman AFB, Missouri

APJ CRITIQUE

I have been reading *APJ* for 15+ years. I've also been reading *Proceedings* for the same period. Your magazine isn't in the same league as *Proceedings*. You need to get out of the "academic" mind-set and publish an operational magazine like *Proceedings*. I spend my own money for *Proceedings* but would never buy *APJ*. How about color photos? How about articles like "What It's Like to Fly the B-2"?

No name given

EDITOR'S NOTE: Fiscal realities do not afford us the luxury of color photographs. Private publications like Proceedings *gain additional revenue*

through advertisements. As far as article content is concerned, our editorial focus is on the operational level of war. We are broadening our focus along the upper end of the spectrum to include some strategy/policy topics (see editorial on page 2). APJ *is the proper forum for an article on* how to employ *the B-2 but not for an article on what it's like to fly one. JMP*

RE: SPECIAL EDITION 1994

[The Special Edition is a] good idea. I enjoyed all the articles. They contained timely topics which should be useful to many planners. I would recommend adding one "strategy/policy" article to each *APJ* edition along with the operational articles.

Lt Col Ira D. Good, USAF, Retired
Bladensburg, Maryland

EDITOR'S NOTE: Obviously, great minds think alike! We liked the 1994 Special Edition so much we're going to do it again in 1995. The INSS will once again sponsor the funding and research. We're also going to start including strategy/policy-level articles just as you suggest. Air power needs a voice at this level, too. TK

I Can Write Better than That!

OK, then do it! *Airpower Journal* is always looking for good articles written by our readers. If you've got something to say, send it to us. We'll be happy to consider it for publication.

The *Journal* focuses on the operational level of war—that broad area between grand strategy and tactics. We are interested in articles that will stimulate thought on how warfare is conducted. This includes not only the actual conduct of war at the operational level, but also the impact of leadership, training, and support functions on operations.

We need two typed, double-spaced draft copies of your work. We encourage you to supply graphics and photos to support your article, but don't let the lack of those keep you from writing! We are looking for articles from 2,500 to 5,000 words in length—about 15 to 25 pages.

As the professional journal of the Air Force, *APJ* strives to expand the horizons and professional knowledge of Air Force personnel. To do this, we seek and encourage challenging articles. We look forward to your submissions. Send them to the Editor, *Airpower Journal*, 401 Chennault Circle, Maxwell AFB AL 36112-6428.

Live always in the best company when you read.

— Sydney Smith

Reading is to the mind what exercise is to the body.

— Sir Richard Steele

True Faith and Allegiance: The Burden of Military Ethics by James H. Toner. The University Press of Kentucky, 663 S. Limestone Street, Lexington, Kentucky 40508-4008, 1994, 208 pages, $25.00.

"This book proceeds not only from the belief that soldiers *can* be moral, but from the conviction that soldiers *must* be moral." This explanation from the preface of Jim Toner's most recent contribution to the field of military ethics is accurate. This is a very good book, revealing Dr Toner's sincere and forcefully stated convictions. He decries the failure of modern approaches to ethics because they seem to have lost the clear distinction between right and wrong, and some have sublimated the concept of real evil in the world altogether. He points out the current problems in US society of "social decay" and the persistent and pernicious influences of emotivism and ethical relativism. He cites numerous studies to substantiate his concerns before highlighting the importance of character, competence, and the study and practice of ethics in the military profession.

Toner's background and references for this discussion are voluminous and to the point. From each of our wars to the most recent cheating episode at the US Naval Academy, he examines issues of fundamental ethical import to the military. He cites the various codes of the military services, noting their hortatory value but also their limitations. He examines the nature and role of the military in contemporary US society and finds confusion presently about roles and missions. However, there is no confusion in Dr Toner's position. The fundamental purpose of the US military and *every* military member "is to *kill* national enemies of the United States." "When soldiers are not actually killing, they should be training to kill. Some soldiers die; when they are not dying, they should be preparing to die." From this framework, Dr Toner provides very interesting reviews of such cases as that of the USS *Pueblo* (off the coast of Korea in 1968) and Comdr Lloyd Bucher's decisions. Pursuing the principle of civilian control of the military, he provides critical commentary for the cases of a number of generals—Douglas MacArthur, John D. Lavelle, Michael Dugan, and Harold N. Campbell.

Toner carefully details the necessity for including ethics in military training, and he has a separate chapter devoted to the role of ethics in military education. He includes a clear analysis of the murky issue of disobedience to illegal or immoral orders. Here he includes 10 case studies, nine of them actual, one fictional. Each raises important concerns; none is easily resolved; all are certain to evoke spirited discussion. He calls for the restoration and fostering in the military of the basic moral virtues. He deals with the current controversial issues: the role of women in the military, openly declared homosexuals in the service, when a military professional should resign, fraternization, peacekeeping missions, the Tailhook affair, and others. Some will find his tough-minded stand on the homosexual issue extremely controversial. Some will find his views on noncombat uses of the military similarly controversial. But his positions are clearly stated and clearly reasoned. Some will be especially excited by his critical treatment of the "trendy" creeds and canons of total quality management (TQM). All who read his views will certainly be challenged to think about the issues from a strong moral perspective.

In the chapter titled "The Profession of Arms," Professor Toner proposes a practical ethics guide for military professions to assist soldiers at every

level in the hierarchy in resolving ethical issues, including those involving obligations to disobey. His guide consists of six simple tests that he dubs the *shame test*, the *community test*, the *legal test*, the *situation test*, the *consequences test*, and the *God test*. In his brief chapter titled "Excursus," he makes very specific suggestions for "teaching and learning about military ethics," recommending a number of sources including journals, books on ethics, and fictional works whose characters exhibit moral virtues. This chapter and the extensive selected bibliography he includes will be invaluable for teachers of ethics and extremely useful for those who wish to learn more about military ethics.

True Faith and Allegiance is a very lively treatment of military ethics; its style is forceful and to the point and extremely readable. Jim Toner has packed considerable challenge into this brief volume, a challenge to which all of us who care about the future of this country and its military profession must respond.

Col Malham M. Wakin, USAF
Colorado Springs, Colorado

Remembering Pearl Harbor: Eyewitness Accounts by U.S. Military Men and Women edited by Robert LaForte and Ronald Marcello. SR Books, 104 Greenhill Avenue, Wilmington, Delaware 19805-1897, 1991, 303 pages, $24.95.

The fiftieth anniversary of World War II has unleashed a flood of memoirs, oral histories, and eyewitness accounts upon the military book market. In their attempt to help the reader understand the events in question, most of these books have a very limited value. *Remembering Pearl Harbor* is one of the better oral histories; however, it still demonstrates the deficiencies of the oral history method.

Remembering Pearl Harbor is the product of 350 interviews with military veterans who experienced the Japanese attack on Hawaii. The interviews were compiled over a 15-year period by the University of North Texas Oral History Project. Forty interviews of veterans representing all the services and most of the major units on Oahu were selected and edited for this book. While it represents a tremendous effort, the book does not accomplish what good history ought to accomplish. It provides nothing in the way of new information, insight, or analysis of the events of 7 December 1941.

Oral history does have its place within historical study, but overreliance on this method is academically dangerous. Forty-year-old memories, even of a momentous event, can be notoriously unreliable. Gordon Prange's *At Dawn We Slept: The Untold Story of Pearl Harbor*, the highly detailed and definitive account of the Pearl Harbor battle, included a large number of interviews from Prange's own research. Gordon Prange, however, worked to reconcile these accounts with existing documents from both sides. The end product still contains a great deal of oral history, but it is bound to be a more accurate account.

Remembering Pearl Harbor unfortunately contains a great deal of inaccuracy and misinformation. Many of the accounts consist of clearly apocryphal stories of the 7 December battle. Interviewees relate stories about the numerous Japanese spies and fifth columnists on Oahu and about Hawaiian Japanese openly taunting US soldiers in the aftermath of the attack. They claim that some of the Japanese pilots were graduates of Honolulu prep schools and that the Japanese spy network in Hawaii was so thorough that the Japanese pilots bombed only the US Army aircraft hangars containing vital equipment and ignored empty hangars. Not only are such remembrances pure nonsense, but many of the silliest stories come from people who later reached high rank in the US military. In addition, the editors failed to catch some obvious errors. Bellows Field (where the reviewer's father was stationed) was not attacked at 0748; it experienced its first strafing at about 0830—a half hour after the battleships were bombed.

Remembering Pearl Harbor is a disappointment. It is a good example of why oral history must be used very cautiously.

James S. Corum
Maxwell AFB, Alabama

The Fifth Star: High Command in an Era of Global War by George M. Hall. Praeger Publishers, 88 Post Road West, P.O. Box 5007, Westport, Connecticut 06881-5007, 1994, 248 pages, $39.95.

This is an interesting book, but it never fulfills its potential. It does, however, have some high

points. After being given a quick introduction to the principals and a chapter that describes the global setting and explains the book's purpose and format, the reader comes to the core material—career outlines of 10 senior strategic leaders of five-star military rank. The author follows a pattern of describing family, upbringing, education, assignments, career highlights, and influences. He uses historic and anecdotal examples to emphasize and enrich the chapters. It is an excellent format that produces a concise, clear picture of the subjects, including their faults. Gen John J. Pershing was a martinet, Gen George C. Marshall was austere, Adm Ernest J. King was ascerbic, and Gen Douglas MacArthur can be judged *only* by God. The author's purpose is not to thoroughly sketch each individual, but only to present similarities and differences in order to "encourage better understanding among the services as the importance of joint operations grows." Still, there are many times that significant events or experiences are dismissed in a sentence or two.

"Perspectives of War" is the framework the author uses to compare and contrast these leaders. These perspectives are heroism, tactics, operations or campaigns, theaters, and national purpose and resources. Hall explains their common factors: purpose or objective, ways and means, and consequences of failure. Their common reference is time. The author compares the principals' character and flaws, information processing, intelligence, perception, personality or style, leadership capability, and situational level of perspective. In a chapter entitled "Entanglements," the author presents seven events that collectively involved all the leaders and that still remain controversial. They are the employment of American troops in World War I, the lack of preparedness at Pearl Harbor, antisubmarine warfare in the Atlantic, Operation Torch, Adm William F. Halsey's action at Leyte Gulf, the decision to bring the Soviet Union into the war against Japan and to use the atomic bomb, and the Korean War.

Presenting the evaluation criteria and methodology before the narratives on the principals would facilitate easier study as the reader would be more attuned to the author's purpose. Likewise, the chapter on "Leadership Facets" should precede the biographies. "Entanglements" is Hall's way of presenting examples of the leaders functioning at different levels of perspective; this can be missed in the presentation. The analogy to the *Odyssey* and *Iliad* and the frequent references to Greek mythology, although apropos, detract from the author's purpose. I had to spend time reacquainting myself with these epics to understand the author's references.

The strengths of this book are the biographies and the chapter comparing the background and experience of the principals. Much can be learned from the examination of these senior strategic leaders. All did their best despite personal feelings. All were ambitious. All but Halsey had mentors who developed them. Most were voracious readers. The comparisons are revealing but do not lead to better interservice understanding of joint operational leadership as Hall intended. For the reader who is unfamiliar with the subject, however, the work provides models for career success and a stimulus for further study.

Lt Col William J. Troy, USAR
Chino, California

Arc Light by Eric L. Harry. Simon & Schuster, 1230 Avenue of the Americas, New York 10020, 1994, 551 pages, $23.00.

Like William Shakespeare's Mark Antony, Eric Harry has "cr[ied] havoc, and let slip the dogs of war," or perhaps has unleashed the Four Horsemen of the Apocalypse. Fresh out of today's headlines, *Arc Light* is complete with a North Korean invasion of South Korea, a desperate Russian attack against the Chinese along their much-fought-over border, and a renegade Russian general who temporarily seizes control of the nuclear control mechanisms at a crucial moment. This is a story of mistakes, miscalculations, political intrigue, and coups that bring the world to the brink of, and into, World War III. More than just another technomilitary thriller, it has a premise that is totally believable, results that are frighteningly realistic, and its warning, couched in fiction, is all too real. Eric Harry vividly reminds us that even though the cold war is over, we may be facing one of the most dangerous situations the world has seen to date—the collapse and breakup of the Soviet Union.

Arc Light takes its name from the Vietnam-era B-52 bombing missions in South Vietnam, but those aging aircraft play only a minor role in this

tale of conventional and nuclear conflict. *Arc Light* begins with an attack on South Korea by their implacable foes to the north, then shifts to the planning councils of the Russian supreme military command. The Russians are planning to use nuclear weapons to destroy much of the People's Republic of China's northern military forces in a nuclear first strike followed by a massive ground invasion. Plans go awry almost from the start. The unstable Russian government is temporarily taken over by a rogue army general who, thinking that Chinese nuclear-armed missiles are being supplied by the United States, manages to launch a counterforce strike against the United States. Detailed glimpses of nuclear war-fighting command and control (Looking Glass, Nightwatch, and all the other ground and airborne command and control systems are here) add credibility to what would otherwise be just another end-of-the-world, doomsday book. However, despite suffering grievous losses to nuclear detonations, a vengeful United States survives another "Day that will live in Infamy" and by the end of the book manages to accomplish what Napoléon, Kaiser Wilhelm, or Adolf Hitler could not do—invade Russia and capture Moscow.

Eric Harry has created a scenario straight out of the pages of today's post-cold-war headlines. His characters, from the young national security advisor George Lambert (through whom most of the story is told) to the scared civilians in relocation camps around the United States, are well developed, real people who find themselves in a terrifyingly believable situation. It is the detail filling these pages that makes this story so chillingly credible. This is not a rah-rah, hooray-for-the-red-white-and-blue, the US-wins-again plot. When I finished reading this narrative of what could happen (today, tonight, or tomorrow), I felt as though a prediction had been revealed. This book reminds us that even if the United States is the only superpower remaining in the world, that world is still a very dangerous place, and the threat of global war may not have receded very far at all with the collapse of the Soviet Union. In *Arc Light*, the world survives a limited nuclear exchange and a vicious conventional war between the United States and Russia. Let's all pray that these events stay firmly between the covers of this book. If you want to feel the hairs rise up on your neck, if you want to know what it may be like to be aboard an airborne command post when a missile attack warning comes, then read this book. Otherwise, pass it by. But remember—the bombs and missiles are still out there.

Maj M. J. Petersen, USAF
Maxwell AFB, Alabama

1794: America, Its Army, and the Birth of the Nation by Dave R. Palmer. Presidio Press, 505-B San Marin Dr., Suite 300, Novato, California 94945-1340, 1994, 290 pages, $24.95.

1794 tells the story of this country's early struggles to become a sovereign nation. It investigates the period from the closing days of the Revolutionary War through 1794. Why 1794? This year proved to be a turning point in our history, a year in which we as a nation proved our resolve on both foreign and domestic issues. The book's emphasis is on the establishment of a military structure in our democracy and on the origin of the American form of government.

The Revolutionary War held colonial America together against a common enemy. When Great Britain signed the treaty ending the Revolutionary War, tremendous differences emerged among the previously united revolutionaries. Winning the Revolutionary War against the British was against the odds. Given the magnitude of the ensuing problems, winning the peace was even more unlikely. It was very much in doubt if the confederation of colonies could ever succeed as a nation. These were difficult times. Everything was at stake. A standing military was needed but was viewed as a potential danger to the nation. Within this turbulent and unpredictable environment, the foundations of our government and military structure were formed. The author, Lt Gen Dave R. Palmer, US Army, Retired, brings this struggle to life.

The book sets the stage militarily, politically, and economically. In 1783, the fighting was over, but there was much discontent in the Continental Army due to poor conditions and no pay. Congress was unwilling, or perhaps unable, to raise sufficient funds to meet the financial commitments of back pay and pensions necessary to muster out the Continental Army. George Washington, as commander in chief of the Continental Army, was perhaps the most influential person in

the country. He was forced to use his influence to intercede and quell the unrest.

After the war, the United States was pressured from all sides. Britain, France, and Spain sought to maintain their colonial holdings, often at each other's expense. Barbary pirates threatened US shipping and trade in the Mediterranean. As settlers moved westward into the Ohio valley and beyond, conflict with native Indian tribes became inevitable. This conflict was often fanned by agents of Britain and France hoping to gain advantage. In response to tribal threats and attacks, Congress voted to fund the establishment of a regiment to include 300 regular army troops. This proved totally inadequate. In addition, by 1785 the Continental Navy had been disbanded and Revolutionary warships sold. The United States was virtually defenseless.

Politically, there existed a split between those who favored a strong federal government—Nationalists—and those who distrusted central authority and favored states' rights—the Antinationalists. This split was evident on most issues discussed in Congress.

Economically, there were many problems: shortages of currency, unequal taxation, inadequate representation, excessive legal fees, and artificially low prices for produce. In short, there was economic chaos. This resulted in a 1786 revolt in western Massachusetts known as Shay's Rebellion.

This was the environment that delegates faced as they met in Philadelphia in 1787 to draft the Constitution. Palmer concludes a discussion of British history with the belief that American fear of a strong standing army was a holdover from our British ancestry—based primarily on Oliver Cromwell's actions against the British monarchy. In addition, America feared a strong chief executive. The role of the chief executive was drafted based on a consensus of belief that George Washington would assume the position as the first president. Their confidence in his character and integrity played an important part in defining the president's role and responsibilities. The Continental Congress declared the Constitution duly ratified on 2 July 1788.

Many of the ideas and concepts ratified in the Constitution were not firm until they were put into effect and tested by time. The roles of the president and vice president were defined by Washington during his eight years in office. The principle of maintaining a standing military in strict subservience to civilian rule was also defined during this critical period. The Army conquered native Indians, forcing peace treaties upon them. It also quelled a domestic revolt during the Whiskey Rebellion in western Pennsylvania. In all cases, America expanded its military slowly and cautiously—wary at each step of the potential of a standing army to overthrow the government. The new nation's prudent use of a regular military served notice that the United States was here to stay and would defend its territories. The author provides a thorough discussion of America's first campaigns on the new frontiers, bringing American defeats and victories to life. His account is well written and informative.

1794 provides a look back to our foundations. Today we often take our democracy and Constitution for granted. From our current perspective as the world's only superpower, it is hard to grasp exactly how fragile our nation really was in the post-Revolutionary War period. This book provides that insight. Palmer's account is thought provoking as he explains the concepts and attitudes behind our remarkable Constitution. He also explains American traditional perceptions, expectations, and fear of the military. I highly recommend this book to military personnel as well as to others interested in America's continued success.

Lt Col Chris Anderson, USAF
Maxwell AFB, Alabama

Bombs, Cities, and Civilians: American Airpower Strategy in World War II by Conrad C. Crane. University Press of Kansas, 2501 West 15th Street, Lawrence, Kansas 66049, 1993, 208 pages, $29.95.

Bombs, Cities, and Civilians is a soldier-scholar's rebuttal of two recent works on American strategic bombardment in World War II—Michael Sherry's revisionist *The Rise of American Air Power: The Creation of Armageddon* (1987) and Ronald Schaffer's condemnatory *Wings of Judgment: American Bombing in World War II* (1985). The latter works argue that American policies against indiscriminate strategic bombardment were so broadly interpreted and so frequently violated that they were meaningless. A commitment to high-altitude precision daylight

bombardment may have existed in theory but not in fact. According to Professor Sherry, the sources of this schism were racism, technological fanaticism, and "a slow accretion of large fears, thoughtless assumptions, and incremental decisions" (page 4). Professor Schaffer, in turn, has tried to foist the odium of indiscriminate area bombing onto Henry ("Hap") Arnold and other Air Force leaders. In his opinion, any claim that these leaders harbored a moral revulsion towards area (i.e., terror) bombing is a myth. In both the European and Pacific theaters, Schaffer argues, American air forces yielded to "military necessity" and routinely violated the letter and spirit of precision bombardment doctrine. As a result, moral scruples did not prevent a growing number of overt attacks against enemy civilians.

According to Professor Crane, however, such revisionism actually distorts the historical record. In fact, the Army Air Forces' pursuit of accurate bombing "remained a primary goal throughout World War II, influencing American tactics and technology during that conflict and setting precedents for later wars" (page 5). There were factors that led American airmen to increasingly risk enemy civilian casualties by mid-1944—the tantalizing possibility of a knockout blow delivered from the air; the need to cooperate with the British, who constantly pressured the US to mount area attacks against German morale; and "the temptation to exploit and magnify the psychological effects of bombing civilians" (page 9)—but the commitment to precision bombardment and the minimizing of noncombatant suffering remained firm despite a growing reliance on relatively inaccurate radar-bombing. This commitment survived, according to the author, because operational and tactical commanders enjoyed genuine latitude in waging the air war. They shaped American bombing policy without real direction from Washington, and as their assaults against Berlin (Operation Thunderclap) and the German transportation network (Operation Clarion) illustrate, US air commanders in Europe consciously tried to avoid morale-oriented terror bombing even when distant superiors encouraged the idea. Thus, there were utilitarians—Hap Arnold, Ira Eaker, Curtis LeMay, and Frederick Anderson—who thought military necessity/efficiency, public relations, and inter-Allied solidarity took precedence over morality. On the other hand, there were moralists—Carl Spaatz, Jimmy Doolittle, Richard Hughes, and Charles Cabell—who wrestled with the problem of good ends and bad means. According to Professor Crane, the latter sought to continue precision assaults against military and industrial targets and to avoid the siren song of indiscriminate terror bombing. Yes, the author admits, their standards of precision deteriorated as the war continued, but their commitment to the concept of pinpoint accuracy survived. It was the exigencies of war rather than calculated policy decisions that contributed to the growing imprecision of aerial bombardment. As a result, civilian casualties remained an unintentional and regrettable consequence of attacking military and industrial targets, which included the German transportation network and oil industry.

By focusing on both operators in the field and military elites in Washington, *Bombs, Cities, and Civilians* admirably attempts to refute the recent revisionism of others. Professor Crane's argument is compelling: when it came to choosing between precision or terror bombing, the hearts of some American airmen were in the right place. They did slow the rush to unlimited aerial warfare. However, *Bombs, Cities, and Civilians* does have some limitations. Its emphasis on the doctrinal autonomy of local commanders, for example, unwittingly makes it easier to blame individuals for increased civilian casualties. But was Curtis LeMay's extreme pragmatism more responsible for civilian deaths in Japan than the impersonal, systemic forces that created the B-29? The point is debatable. Second, there are times where *Bombs, Cities, and Civilians* reads like an apologia for American airmen. It does not, for example, always challenge contemporary claims that targets were "militarily significant," nor does it always clarify what a "military" or "industrial" target actually was. As the war progressed, the terms became increasingly sloppy and did include a growing disdain for noncombatant immunity. Finally, there is the problem of evidence. Professor Crane either qualifies his basic theme repeatedly (words like *probably* abound in the text), or he merely asserts rather than proves his points. (The author admits that it is impossible to determine what impact ethical restraints had on strategic bombing with the documentation now available.) Most significantly, he interprets his data too narrowly in order to support what appears to be a previously determined theme. Data that actually illustrates the multiple motives behind Carl Spaatz's behavior, for example, too often ends up only illustrating his moral discomfort with area bombing. Ultimately, such reduc-

tivism is unfortunate but does not undermine the fundamental thesis of this well-crafted work.

Maj Peter R. Faber, USAF
Colorado Springs, Colorado

The Golden Thirteen: Recollections of the First Black Naval Officers by Paul Stillwell. Naval Institute Press, US Naval Institute, 118 Maryland Avenue, Annapolis, Maryland 21402-5035, 1993, 256 pages, $22.95.

African-Americans have served with great distinction in the United States Navy since its inception, but it was not until the Second World War that blacks were commissioned as naval officers. In the spring of 1944, 13 men, later known as the Golden Thirteen, became the first African-Americans to receive commissions as active duty naval officers. As part of the United States Naval Institute's ongoing oral history project, Paul Stillwell interviewed the eight surviving members of this group and accumulated over 2,000 pages of transcripts in the process. *The Golden Thirteen* is his carefully edited summary of their recollections. He intended to make the book an examination of how blacks were treated by society in the twentieth century, using these men as examples, rather than a collection of World War II biographies. He clearly succeeds in this goal and crafts an extremely readable and historically important work. However, many questions about the core of his subject, the training and commissioning of America's first black naval officers, remain unanswered.

In order to achieve his goal of presenting a broader social history, the author sacrifices details from the critical period revolving around the officer training itself from January to March 1944. The inclusion of events from before and after the war in each subject's account was effective in developing their individual biographies as a whole, but readers are left wondering what the group's experiences during the training were really like. Descriptions of the first day of class or their performance on specific exercises, for example, would have provided a more tangible feel for their experiences.

Nevertheless, the editing of the individual accounts is very well done. The book begins with a well-written summary of African-Americans in the Navy throughout history. Following this, each individual's biography forms a separate chapter, prefaced by a short introduction. This pattern aids the transition from one chapter to the next. The language and tempo of each account capture each man's character; serious-minded officers are definitely distinct from the more jovial ones. Clear, well-chosen photographs in the text also helped develop the biographies. Additionally, the inclusion of accounts by three white officers involved with the Golden Thirteen adds balance. Some of the best information about the selection, training, and evaluation process of the officer candidates appears in these three chapters. Furthermore, these white men offer an informative contrast to the lives of the black officers and a revealing portrait of how differently African-Americans were treated in this period.

The Golden Thirteen captures the rushed, chaotic feeling of America's entry into World War II from the perspective of the common man, black and white. One feels the difficulty of making extremely important life decisions, like quitting college to enlist, getting married, or opting for the Navy over the Air Corps, as the United States entered a wartime status almost overnight.

The book also illustrates how critical these 13 men were in paving the way for future African-Americans to serve as officers in the Navy and to participate more fully in society. Like Jackie Robinson breaking the color line in major league baseball, the Golden Thirteen were pioneers in entering another area of America monopolized by whites. This task was not an easy one as the 13 were denied use of officers' club facilities, white enlisted men refused to salute them, and they received no combat assignments upon commissioning.

However, by the end of the war, partially due to their heroism, the Navy became more accepting of African-Americans and perhaps acted as a catalyst in integrating American society in the decades after the war. Certainly this is the opinion of Gen Colin Powell, who pays homage to the Golden Thirteen in a foreword to the book, and of African-Americans in the Navy today, who give thanks to these pioneers whenever they meet them. Many of the 13 were conscious of their critical role in this process and cite it as a reason for their willingness to put up with so many abuses. *The Golden Thirteen* is an important book because it eloquently tells the stories of

brave men who championed the cause of freedom against both enemies abroad and society at home.

Capt James M. Tucci, USAF
Colorado Springs, Colorado

Pushing the Envelope: The Career of Fighter Ace and Test Pilot Marion Carl by Maj Gen Marion E. Carl, USMC, Retired, with Barrett Tillman. Naval Institute Press, 118 Maryland Avenue, Annapolis, Maryland 21402-5035, 1994, 133 pages, $23.95.

As World War II Marine Corps fighter aces go, both Greg ("Pappy") Boyington and Joe Foss are probably better known than Maj Gen Marion Carl. However, of the three, only General Carl completed a full military career after the war. While comparisons to Boyington and Foss are only natural, readers familiar with the careers of Brig Gen Charles ("Chuck") Yeager and Col Bud Anderson will see General Carl as more their contemporary than his Marine Corps brethren. In addition to being "aces," all entered into the test pilot business immediately after the war, had a variety of command jobs, served in Vietnam, and retired after long successful careers, thanks to tremendous skill and a measure of good fortune.

Pushing the Envelope is not an autobiography; it provides the reader exactly what its title states—a review of the 35-year career of Marion Carl. During that time, General Carl flew almost every type of aircraft the Marine Corps had from Grumman F3F biplane fighters to F-4 Phantom jets, including numerous experimental and prototype aircraft. Acting as bookends for this career are two brief chapters, basically summed up as life before and after the Marine Corps. The overriding theme of this book is flying, or, more appropriately, the love of flying.

Born in Hubbard, Oregon, in 1915, Marion Carl grew up on a farm. He enjoyed athletics and fast cars. In 1938 he completed an engineering degree and, though he was an Army ROTC graduate, took advantage of an old congressional act to get a reserve Marine Corps commission. Flying was in Carl's blood; his private license earned in college only whetted his appetite for more. He went to Pensacola in 1938 and managed to "steal" a fighter assignment after graduation from flight school. He was assigned to the Marine squadron defending Midway Island in June 1942. In his first combat, he managed to score victories, but his squadron was completely destroyed as a fighting unit. Following Midway, Carl went to Guadalcanal, where he had the distinction of becoming the Marine Corps's first "ace." After Guadalcanal, he was reassigned to the States, where he did war-bond tours and, in the process, met his future wife. After starting up a new squadron of F4U Corsairs as its commander, he returned to the Solomons in 1943. There his excellent chance of finishing the war as the Marine Corps's leading ace was killed by a move up to a staff job.

Following the war, General Carl's engineering background earned him a place as a test pilot. He flew such aircraft as the Douglas D-558 I Skystreak jet, in which he set a short-lived world speed record. Later he flew the D-558 II rocket-powered aircraft as well. General Carl continued to advance in the Corps, doing well at a variety of command and staff jobs. Regardless of what his job was, however, General Carl made sure he got stick time. As commander of a Marine expeditionary brigade in Vietnam, he routinely flew his helicopter (Carl was the first marine qualified in choppers) into hot spots to keep tabs on his troops. General Carl retired in 1973 with over 14,000 flying hours. Today he is still regarded by friends and aviation contemporaries as "The Best."

General Carl's collaboration with Barrett Tillman has produced a fast-paced, highly readable rendering of the general's career. As a successful aviation author, Tillman undoubtedly influenced the structure of the book; however, the straightforward, unassuming manner of General Carl comes across on every page. Be sure to read the inner flaps on the dust jacket of the book as well as Tillman's introduction. Otherwise, you will have no clue as to the magnitude of the aviation accomplishments of Marion Carl. *Pushing the Envelope* is highly recommended to all students of World War II, test-flight, and general aviation fans. A good, fast read!

Lt Col Dave Howard, USAF
Maxwell AFB, Alabama

Wrong Place! Wrong Time! The 305th Bomb Group & the 2nd Schweinfurt Raid, October 14, 1943 by George C. Kuhl. Shiffer Military/Aviation History, 77 Lower Valley Road, Route 372, Atglen, Pennsylvania 19310, 240 pages, $24.95.

On 14 October 1943, the Eighth Air Force's 1st and 3d Bombardment Divisions of the 305th Bombardment Group left Chelveston, England, for a second attack on the German ball-bearing plants at Schweinfurt, Germany. In an air battle lasting over three hours, Eighth Air Force lost the battle for air superiority over Germany. *Wrong Place! Wrong Time!* is George Kuhl's analytical narrative history of that decisive day. He argues that not only was the Eighth Air Force's strategy unrealistic, but that those making the decisions had "thrown away the 'book' on planning a successful military operation."

Although he was a member of the 305th Bombardment Group, B-17 pilot George Kuhl and his crew did not arrive at Chelveston until December 1944, more than a year after the Schweinfurt raids. Although the aircrews who had flown the mission had by then either returned to the States or been shot down during later missions, the author found that "Second Schweinfurt" was still a topic of conversation among the permanent party members at the base. Forty-five years later, he finally decided to satisfy his curiosity about what had happened to the aircrews who had left Chelveston the morning of the 14th.

Wrong Place! Wrong Time! is based on personal interviews with more than 50 of the survivors, plus extensive research in the National Archives and the archives of the USAF Historical Research Agency. Divided into two sections, the book tells the story of the 305th and the second Schweinfurt raid through the stories of the men who were there. Section one is devoted to setting the stage with a discussion of such topics as the Eighth Air Force, the B-17 itself, and a nearly minute-by-minute narration of the premission briefing, the takeoff, the mission itself, and the return home of the two surviving B-17s of the 305th. The second section is devoted to not only an analysis of what the author feels "went wrong," but also to the stories of those flyers who were shot down and who were either interned or evaded the Germans and escaped.

Extensively documented through archival research and interviews, *Wrong Place! Wrong Time!* puts the reader in a B-17 over Germany in the months before long-range escort fighters were available. More than just another "buff" book, this one is an attempt to analyze just what went wrong on this disastrous mission. He comes to the conclusion that the 1st Division's heavy losses were due to more than just the fact that there were no long-range fighters available. Tracing the mission in an almost minute-by-minute fashion, he convincingly argues that the 305th had inept leadership on that fateful day.

However, the reader must always keep in mind that this is a book based not only on archival sources but, more importantly, on the recollections of 50-plus aircrew members interviewed 45 years after the event. If these nearly half-century-old recollections are accurate, then Kuhl's conclusion that the wrong person was leading the 305th is dramatically understated. He concludes that "Major Normand [305th mission commander] gave his version of what took place. It was obviously not the truth and quite different from what actually happened" (page 251).

Wrong Place! Wrong Time! presents its evidence with obvious diligence and persuasiveness. The primary sources appear credible, although, as suggested earlier, the passage of time is a factor. If, however, these primary sources—particularly the interviews—tend to substantiate each other (and there does not appear to be any reason to doubt their veracity), then his conclusions concerning the leadership of the 305th Bomb Group and the 1st Division are convincing. This small volume may cause air power historians to reconsider interpretations of the second Schweinfurt mission and the bombing offensive over Germany in 1943 in general. It raises more questions than it answers and is a must read for anyone interested in the air war over Germany and the strategic bombing campaign in particular.

Maj M. J. Petersen, USAF
Maxwell AFB, Alabama

Turmoil and Triumph: My Years as Secretary of State by George P. Shultz. Charles Scribner's Sons, 866 Third Avenue, New York 10022, 1993, 1,184 pages, $30.00.

When he replaced Secretary of State Alexander Haig, George Shultz came to an office in a decade that would see the collapse of the Soviet Union. But in the summer of 1982, Soviet-US relations

were more threatening than they had been since the early 1960s, terrorism was exploding everywhere, and the specter of nuclear war cast its pall over the globe. When he departed six and one-half years later, Soviet-American relations were better than they had been in decades, and the stage was set for the curtain to drop on the "evil empire." Was this George Shultz's doing?

Over a thousand pages of dry, no-nonsense prose later, I've read of progress and despair over the Middle East, the "gardening" aspects of diplomacy, Soviet-American relations, relations with Japan and China, struggles over Central America, the "setback" of Iran-Contra, and the "last of the Superpower summits." Still, these are interesting and instructive stories that take the reader down the corridors of international relations to sit and get a fly-on-the-wall glimpse into the inner workings of the Reagan cabinet. These are the tales of a participant, but one who seems unwilling to dig deeper into this past and reveal glimmers of questions that he would just as soon not answer. The parts dealing with Iran-Contra were, in the final analysis, somewhat unsatisfactory, not because they failed to pin the blame on anyone but rather because they avoid the deeper issues surrounding the affair. Other sections are fascinating reading—the real story behind Reykjavik, what to do about terrorism, and especially the continuing drama of American-Soviet relations, which culminated at the Washington Summit.

Perhaps the most interesting aspect of the memoirs is what George Shultz thought about President Ronald Reagan. Shultz, too, was a conservative, confident in his anti-Communist stance and absolutely convinced of the superiority of the United States's democratic system. He agreed with the president's attitude that the United States had lost political power in its international relationships during the years of the Carter presidency and fully supported the rearmament program that President Reagan sponsored. However, he was also convinced that any negotiations between the United States and the Soviet Union would work in our favor because the Soviet Union understood that America was recovering its strength at the same time that the Soviets were facing an ever-increasing period of vulnerability. Shultz clearly shows that President Reagan was truly convinced that the Soviet Union and its ideology were indeed headed for history's dustbin.

Shultz sees the Reagan years as a turning point, the result of "the ideas and institutions put in place in the critical period right after World War II." As he reports, Margaret Thatcher was right when she said in a *Washington Post* and *Newsweek* interview in November 1988, "We're not in a Cold War now." Even though there are many uncertainties remaining in the world, by the time Shultz closes his weighty memoirs, the world has become a fundamentally different place and he has been a witness in the center of the turmoil.

This book is not light bedtime reading. It is nothing less than a study of the inner workings of the highest circles of international relations and the US government. It is well worth investing the time necessary to plow through it.

Maj M. J. Petersen, USAF
Maxwell AFB, Alabama

FDR, into the Storm, 1937–1940: A History by Kenneth S. Davis. Random House, Inc., 201 East 50th Street, New York 10022, 1993, 691 pages, $35.00.

> At the time, what happened was generally regarded as a renewal of the war of 1914–18, and indeed that war might be truly said never to have ended, in the sense of reaching a conclusion or settlement of its basic issues. It had merely been suspended until one of the combatants, having collapsed of exhaustion, regained sufficient strength to renew the struggle. That Germany *would* renew the struggle had been virtually ensured by the "peace" that the Allies, themselves on the verge of collapse when joined by the United States, imposed upon her at Versailles*—a "peace" whose perfection of economic stupidity was unmarred by the slightest hint of economic realism, a "peace" whose perfection of nationalistic vengefulness was but slightly marred by the establishment of a toothless League of Nations, a "peace" that was otherwise quite marvelously devoid of rational dealings with the deepest of the war's root causes. (page 465)

This book should be mandatory reading for anyone who will be trying to assess the New World Order as it unfolds into the next century. It may be trite to say that we must study history to avoid repeating it, but it is also true. The parallels in the international arena between the era of President Franklin D. Roosevelt (FDR)

*"This is not a peace," commented French marshal Ferdinand Foch when the Versailles Treaty was signed. "It is an armistice for twenty years."

and today should not be lost on even the novice among history buffs. In fact, this is one of those books that causes the reader to actually read the footnotes so as not to miss anything!

The historical value of the book aside, Kenneth S. Davis has done a masterful job of telling the story of a man who was at once made by the times in which he lived and the maker of the events of his time. We will feel the impact of FDR's presidency and indeed of his political life for a long time to come. The more we examine his rise to power and his exercise of that power, the more complex the man becomes to our understanding. Finally, we come away with an image that has grown more mysterious with each insight.

These were, after all, dangerous and treacherous times, and we are just now beginning to feel the full import of the events of this momentous epoch in our history. The United States was on the verge of formal entry into an alliance that would manifest itself in terms of a coalition response to the threat of Nazi domination of the European continent. The world was changing at a pace that was difficult for the people of the time to understand. Technology had begun to reshape the political world and the political loyalties. Some would even argue that the American strategic bombardment campaign was created around and later driven by changes in technology.

These were the times into which FDR came to use his skills. There was a definite pacifist bias in the country that bordered on isolationism as the people sought to stay out of wars that did not directly threaten US interests (page 494). There was an immigration "problem" to be resolved as tens of thousands of oppressed people fled to our shores looking for the "American Dream" and attempting to avoid persecution in their homelands (page 269). Additionally, he had to contend with the international results of decisions and appointments made solely for domestic political reasons such as the appointment of Joseph Patrick Kennedy to the post of US ambassador to the Court of St. James's (page 323). On the technological front, he was dealt a hand to play that included the nuclear wild card (page 473). Meanwhile, the domestic economy was in worse condition than at any time before or since (page 201).

The intent of the previous paragraph was to whet your appetite to read a book about a president who changed the way we do business in the Supreme Court, the House, the Senate, and, for that matter, in the economy. There are examples to be studied for problems with immigration, political appointees, and the accelerating pace of technology.

We in the Air Force can begin to see how we got to where we are today. There is merit, after all, in reflecting on the key role that FDR played in the expansion and mobilization of US air power. Davis gives us a good deal of detail on the political reality of the times and the decision factors that exerted influence on the Oval Office. Yet, had FDR chosen an alternative path, the world would probably be a very different place and the Air Force would most assuredly look a whole lot different than it does today.

This book is very readable and well documented, and I have difficulty finding fault with it. Davis does a masterful job of putting President Roosevelt at the center of a controversy over the US involvement in a foreign war, a domestic economic crisis, and ultimately at the center of a clash over who would lead the world on a path toward freedom. We see the behind-the-scenes mechanics of a president as a political power broker dealing with the US Congress and the Supreme Court. We even catch a glimpse of his more human side through comments to close friends and aides. It is well worth the effort and the time to read *FDR, into the Storm, 1937–1940: A History.*

Lt Col Albert U. Mitchum
Maxwell AFB, Alabama

D-Day, June 6, 1944: The Climactic Battle of World War II by Stephen E. Ambrose. Simon & Schuster, 1230 Avenue of the Americas, New York 10020, 1994, 656 pages, $30.00.

D-Day, 1944 edited by Theodore A. Wilson. University Press of Kansas, 2501 West 15th, Lawrence, Kansas 66049-3904, 1994, 430 pages, cloth $45.00, paper $22.50.

The arrival of the 50th anniversary of the "Longest Day" has spawned a tremendous outpouring of memoirs, collections, and analyses of the invasion of the French coast of Normandy by the troops under Gen Dwight D. Eisenhower's command. More than any other, this was the climactic battle of the war in Europe. As the sun set on 6 June 1944 and darkness covered the broken vehicles and bleeding bodies of Allied and Ger-

man troops along that stretch of French beach, so set the sun of the Third Reich. Stephen Ambrose and Theodore Wilson have presented their histories of that fateful day in two complementary volumes. Historian and Eisenhower biographer Stephen Ambrose has masterfully utilized the collection of oral and written histories in the Eisenhower Center at the University of New Orleans. Professor Theodore Wilson, taking another tack, has put together an outstanding anthology of essays composed by leading scholars covering all aspects of the "Longest Day."

D-Day, June 6, 1944: The Climactic Battle of World War II is not the climactic history of the Normandy invasion. It is, however, a history as told by the participants in the preparations for and the landings on the shores of northern France. Above all else, it is most especially a story of the American visit to the hell of "Bloody Omaha" and the chaos that reigned on the shell-swept shingle of that blood-soaked beach in front of the bluffs at Vierville. It ultimately becomes a chronicle of the men of the 29th ("Blue and Gray") Infantry Division, especially its 116th Regiment, whose companies were decimated as they ran, crawled, bled, and died on their way to the partial security of the seawall that rose out of the shingle before the escarpment in front of them. Although the other actors in this great play are here—the paratroopers, the Canadians, the British, the glider troops, and the Wehrmacht—the overwhelming feeling that strikes the reader is that the invasion was made by those valiant men who landed at Omaha's Dog Green Beach. I found it difficult to be objective about Ambrose's concentration on the 29th Division—my father was a medic attached to the 116th Regiment and one of the few from those first waves of the "Blue and Gray" that survived the day—but perhaps it is deserved because it was here that the invasion's success was assured. As a synthesis of oral histories, Ambrose's work is less concerned with presenting an analysis of the strategy, operational art, and tactics of the invasion, and this can be unsettling to the professional historian who is accustomed to (and often prefers) critical analysis and not narrative history. However, narrative has its place, and Ambrose has successfully presented a valuable picture of the invasion of Normandy through the eyes of the participants. As one reads modern critical history, and especially military history, it is easy to forget that these are real people with real hopes, dreams, fears, and most especially real flesh, blood, and bones who bleed and die. Critical analysis has its place, but so too does a narrative history that puts the reader in the wet boondockers of the scared infantryman crawling his way out of the red surf on Omaha Beach. Too often, the military historian concentrates on analysis and forgets the humanity who fought and died. *D-Day, June 6, 1944*, in the words of one participant, takes the reader to dozens of "little battlefields . . . maybe 45 yards wide."

D-Day, 1944 will satisfy the reader who is searching for a critical analysis of the Normandy invasion. Drawing together a collection of essays by 20 notable historians such as Forrest Pogue, Robin Higham, Alexander S. Cochran, and Maurice Matloff, this volume is an assessment of the lessons and meaning of the "Longest Day." The authors, delving into newly opened archival sources, have presented a compendium that will expand the reader's comprehension of such diverse subjects as coalition war fighting, logistics, air operations, the contributions of special forces, intelligence, leadership, and the capabilities of American, Canadian, and British forces. Taken together, these essays clearly demonstrate why, 50 years later, this single day is still one of the defining points of the epoch of World War II. This, too, is an excellent volume. Wilson has drawn together a sterling collection of essays that clearly indicates the scope of not only the battle but also the planning and preparations that began long before the first shell burst from the gun muzzles of the ships gathered off the Normandy shore.

D-Day, 1944's critical analysis dramatically complements the narrative history of *D-Day, June 6, 1944*. Every student of World War II should read both of these volumes. Together they present a picture and analysis of what was the beginning of the end for the Third Reich.

Maj M. J. Petersen, USAF
Maxwell AFB, Alabama

Stealth Fighter Pilot by D. M. Giangreco, in The Power Series. Motorbooks International, P.O. Box 2, 729 Prospect Avenue, Osceola, Wisconsin 54020, 1993, 128 pages, $14.95.

If the Gulf War was the first high-tech war of a new, post-cold-war era, as many observers have asserted, then this book on the role of the F- 117's development and employment in that contest de-

serves very close attention by air power professionals. No advanced conventional weapon system developed by the United States over the last decade of the cold war was held in deeper cover and expected to have a greater role in future war than the stealth fighter, or Black Jet, as she was known to her pilots and ground crews. This book, which is richly illustrated with more than 100 color and black-and-white photos, takes the stealth fighter from a concept to prototype at Lockheed and to production, deployment, crew training, and then combat utilization. This is a book about aviators—the men who tested, trained on, and fought in the F-117. The author has made their stories into an interesting narrative.

Those interested in modern air warfare will find much of interest in the chapters devoted to the planning, preparation, and conduct of the air campaign in the Gulf. Designed originally as a weapon for covert operations, the F-117 matured into a combat multiplier in the Gulf, where stealth technology and advanced conventional munitions combined with deadly effect against Iraqi command and control capabilities; nuclear, chemical, and biological facilities; and airfields in the face of heavy air defenses. It was the F-117s that took the war to downtown Baghdad with such devastating effect. The performance of the Black Jet crews was extraordinary. Critics have pointed to the number of sorties that had to be aborted because of bad weather, which made target acquisition difficult or impossible. The results were, however, very successful by any standards.

The historian in me originally was put off by the prologue, a fictional account of the response of frustrated Iraqi air defenders to the nighthawks that struck without warning. Yet, it was precisely the picture from the other side of the hill that makes clear the radical effect of stealth technology on air warfare. Without an account from "the other side of the hill," the story of stealth in the Gulf would be incomplete.

In the epilogue, the author discusses the postmortem assessments of the F-117's performance and concludes that the investment in stealth had saved lives and shortened the war. Military theorists concerned with future war and the role of stealth technology in such a conflict have noted that the Gulf War was one-sided. The question is still open regarding the impact of stealth technology when both sides can deploy and use such platforms and advanced precision guided munitions against each other. In an era of downsizing and reduced appropriations, this question is by no means academic. It is one made frequently by Russian commentators on the Gulf War and its lessons. This book is recommended for all those interested in air power, aviation history, and the application of advanced technology to warfare.

Dr Jacob W. Kipp
Fort Leavenworth, Kansas

Silent Descent by Dick Couch. G. P. Putnam's Sons, 200 Madison Avenue, New York 10016, 1993, 288 pages, $21.95.

Silent Descent is a novel about Russia's selling a portion of its nuclear arsenal to third world countries in 1993. The book is action-packed and uses current events to formulate the scenario. The intriguing aspect is that the scenario is not far-fetched. The author is a former member of the Navy Sea Air Land (SEAL) unit, with two tours of duty in Vietnam.

Lieutenant Moody, USN, must take a SEAL team into Russia and make contact with a CIA operative who has gone underground and hasn't been heard from in several years. The operative is the only one who can confirm whether Russia is dismantling its nuclear weapons and creating newer, more accurate models from them—ones that can be launched from aircraft. Only one person (an Army Special Forces noncommissioned officer who speaks fluent Russian) knows the location and identity of the operative. The responsibility of developing the operations plan goes to an Air Force major. These circumstances set the tone for a joint operation. Once the plan is formulated, all players have about 30 days to prepare for the mission (which predictably gets accelerated). Only a handful of people, including the president, have any knowledge of the plan and the people involved.

The team members are given carte blanche anywhere they go, enabling them to get any supplies, equipment, personnel, and so forth, they desire. This includes a specially fitted KC-10 tanker made to look like a Royal Dutch KLM aircraft, from which they jump at night at 40,000 feet onto the Kola Peninsula in northern Russia. Once the aircraft is airborne and the mission has been given the green light, the suspense really

kicks in gear. The author sustains the suspense throughout the novel by adding twists and turns at the proper time, some of which are predictable. For instance, the SEAL team is to be extracted from Russia by an American submarine, which must go under the Arctic ice into Murmansk to pick them up. The submarine is detected by the Russians right before it is ready to go under the ice mass. Once the sub is under the ice, it must wait there for several days before the SEAL team arrives for pickup.

Naturally, the suspense continues when the SEAL team is almost detected several times after it is in Russia. The team is eventually detected and pursued because someone in Washington, D.C., brags about the mission in a local bar. The bartender, a Russian spy who has been in place for many years, immediately notifies authorities in Russia, and they take appropriate action. Military people can certainly appreciate this "sinking of the ship."

Couch keeps the book moving at a quick pace without going overboard with his characters. He provides just enough characterization to give the reader good insight and develop the plot. He also does not delve into great detail about all the aspects of the mission. If he talks about the equipment the SEALs are using, he briefly identifies it and describes its capabilities without going into too much detail. This practice keeps the book under 300, quickly read pages.

The book's only fault is its reference to the USAF Security Police as the Air Police, a designation that changed over two decades ago. Although many readers would overlook this point, it struck me because I spent 11 years as a security specialist prior to my commissioning. Nevertheless, this suspenseful, excellent book is well worth reading.

Lt Walter Klose, USAF
Maxwell AFB, Alabama

Ribbentrop: A Biography by Michael Bloch. Crown Publishers, Inc., 201 East 50th Street, New York 10022, 1992, 528 pages, $25.00.

The life of Hitler's wartime foreign minister, Joachim von Ribbentrop, is fascinating and bizarre. The author brings to light the persona of Ribbentrop, not as Hitler's great minister of foreign affairs but as an average individual who was drawn into German nationalism by Hitler's personality.

At a glance, *Ribbentrop: A Biography* seems like another stuffy biography about a Nazi henchman. However, Michael Bloch blends a mire of documented facts into a quick-reading historical book. Of particular note is the easy reading style Bloch uses to provide the reader with an understanding of Joachim von Ribbentrop. Bloch gives the reader an in-depth background on Ribbentrop and his immediate family. He also does an outstanding job of showing the influence of events during Ribbentrop's childhood through his early twenties that shaped Ribbentrop's personality and views.

Bloch's portrayal of Ribbentrop leaves the reader with a feeling of regret, not for Ribbentrop the self-important diplomat and politician, but Ribbentrop the individual. As an individual, Ribbentrop was a success in business and family life. His downfall was the intoxication of power mixed with his self-induced perception of importance. Bloch brings this out through a narrative description of Ribbentrop's tenure as ambassador to Great Britain. Bloch describes the diplomatic blunders of Ribbentrop during this period and the cause of his resentment and eventual hatred of Great Britain. Bloch describes the buildup of Ribbentrop's disenchantment for the British from two points. The first is Ribbentrop's lack of tact and a self-created image he projects concerning his influence in pre-World War II German foreign policy. Bloch draws out this point through his creative style of describing Ribbentrop blunders such as telling the British Foreign Office to come to him when they have concerns about the political scene in Berlin. The British politely declined by telling Ribbentrop that they had an ambassador in Berlin for that specific purpose. The second point Bloch brings out is Ribbentrop's obsessive blind obedience to Adolf Hitler. Bloch describes Ribbentrop's efforts to secure an Anglo-German alliance against communism, then his attempts to persuade the British to support Germany's interests and expansions to the East. During this period, Ribbentrop attempts to rationalize and justify the Nazi agenda of *Le-*

bensraum, or German expansionism to the East for economic growth. Up to the end of Ribbentrop's tenure as ambassador to Great Britain, you really have to wonder just how he could be taken seriously by foreign governments and especially the Nazi political machine on the eve of World War II.

Bloch ties Ribbentrop's political survival to his relationship with Hitler. Hitler, like everyone else who had contact with Ribbentrop, described him as stiff, boring, humorless, and vain. But unlike Ribbentrop's political adversaries, Hitler used Ribbentrop for his own political advantage. Bloch explains Ribbentrop's dedication and obedience to Hitler as his greatest strength. Another Ribbentrop attribute that gained Hitler's favor was Ribbentrop's inflexibility. Hitler maintained his power base by using Ribbentrop's loyalty and stubbornness to keep other Nazi leaders at bay and quarreling.

Bloch describes Ribbenrtop's involvement, or lack of involvement, in major German political events before and during World War II. If Ribbentrop was not personally involved in the major decisions, he would maneuver himself to gain favor with Hitler or gain public importance through the press. Bloch brings this out by pointing out Ribbentrop's lack of involvement in the Austrian annexation. Ribbentrop's greatest Nazi achievement was his planning and negotiating of the nonaggression pact with the Soviet Union. It is through this pact that Ribbentrop can be credited with the solidification of the Allies against Germany and the forced alignment of Japan and Italy with Germany for the start of World War II.

Ribbentop's paranoia was his downfall, as Bloch best describes through the Nuremberg trial period. Ribbentrop can be described as needing intensive psychiatric help because of his dissociation from the Jewish problem, when in fact Ribbentrop's zealous directions to his subordinates may have been the catalyst for the extermination of millions of Jews and others. To the very end, Ribbentrop was devoted to Adolf Hitler and his ideals.

Michael Bloch does credit to himself by his well-documented book about a man who was perceived to be a mastermind, but in reality was an individual without personal strength and integrity. I highly recommend this book to anyone wanting to understand the fanatical mind-set of Nazism and how the German war machine was able to start, sustain, then lose a world war.

Maj Thomas A Torgerson, USAF
Peterson AFB, Colorado

The Search for Strategy: Politics and Strategic Vision edited by Gary L. Guertner. Greenwood Press, 88 Post Road West, Box 5007, Westport, Connecticut 06881, 1993, 360 pages, $60.00.

The Search for Strategy is a collection of 16 papers focusing on the problem America faces in creating a coherent and long-lived security strategy following the end of the cold war. The papers deal with the unique elements of the American strategy development process, problems with that process, and the examination of possible strategic "concepts" that might be useful to consider when formulating policy in the future.

The major thesis is that the dominant factor in the development of an American national security strategy is the domestic political environment. In keeping with that thesis, part 1, comprising one-third of the book, examines the creation of national security strategy as an aspect of the American political process. Interesting essays in this part include the opening essay, "Why is Strategy Difficult?" by David Jablonsky, which stretches the Clausewitzian trinity of warfare to argue that any effort at harmonizing the competing domestic and foreign policy objectives to achieve a stable national security strategy must be based on identifiable national interests, not specific threats. Another interesting essay in this section is Robert Art's "Strategy and Management in the Post-Cold War Pentagon." Art argues that as a result of the Goldwater-Nichols reorganization, the management of the Department of Defense is superior to its strategy. The concluding essay by Gary Guertner argues that maintenance of a core military strength has to be presented to the public as integral to the continued economic vitality of the country and necessary to keep open access to vital resources.

Parts 2, 3, and 4 of the book are detailed to look at certain concepts (defined as ways to deal with security problems or threats) that appear to

be prudent choices for inclusion in an American post-cold-war strategy. Part 2 examines the future of deterrence and seeks to find aspects of nuclear deterrence that are transferable to conventional deterrence in a multipolar world. George Questor revisits his groundbreaking work on prenuclear deterrence in "Deterrence before Hiroshima: The Past as Prologue" and finds that the capacity to inflict pain (in a countervalue sense) will be a necessary component of any post-cold-war conventional deterrence. Robert Haffa then follows with an essay outlining a theory of extended conventional deterrence for the future. Key to Haffa's theory is that contrary to nuclear deterrence, for conventional deterrence to work, the US will have to use military force both to protect its interests in the event of a critical threat and to validate the viability of conventional deterrence to future aggressors. Gary Guertner concludes this part by arguing for a force structure based primarily on conventional forces. The deterrent ability of such a force structure lies in the greater possibility of its use (unlike nuclear weapons, conventional forces are less likely to be self-deterring) and its flexibility.

Part 3 examines technological superiority as a concept applicable to security strategy in the coming years. The first two essays in this part deal with the development of technology in support of a security strategy. In his essay "Compensating for Smaller Forces through Technology," Anthony Cordesman argues that joint doctrine will need to be developed and strengthened so that our smaller military can take full advantage of the force-multiplying effects of advanced technology. James Blackwell then follows with an essay that cautions against overdependence on limited and very expensive technologies. He argues that in the future a technology must be flexible and efficient to warrant further development. The two concluding essays in this part deal with the problem of nuclear and conventional weapons technology proliferation. In his discussion of nuclear proliferation, Leonard Spector argues that it is in the interest of those states already possessing nuclear weapons to keep them out of the hands of hostile proliferators and that diplomatic/economic efforts along these lines are preferable to military actions. Michael Klare then revisits his work on conventional weapons proliferation, ultimately arguing that it is safer for American interests to view arms transfers as potential proliferation risks rather than as security assets. He also notes that any successful effort to limit conventional proliferation will have to be multilateral to be effective.

The final concept, collective security, is discussed in part 4. The centerpiece of this section is Inis Claude's essay "Collective Security after the Cold War." Claude argues that collective security in the pure sense is unattainable, but collective security in a more narrow sense can be realized under US leadership and legitimized by international organizations like the United Nations. But Claude also sees the continued need for bilateral and multilateral defense agreements. In that vein, Sheldon Simon then discusses the Asian dimension of collective security arrangements. He argues that US presence in the form of bilateral defense agreements is necessary in Asia because of deep economic, political, and military differences between nations in the region. The final essay in this part is an appraisal of European security efforts. Here Douglas Stuart hints that a wider role as a pan-European peacekeeping organization may be in NATO s future. Fortunately, he qualifies this at the end of the paper with the observation that prior peacekeeping organizations have performed poorly. Given the impotence of the European response to the Bosnian crisis, this caveat is more than justified. The book concludes with an interesting discussion on the need to integrate the strategic and political paradigms to create a national security strategy that does not seek an unrealistic concept of victory (which is undefinable and unattainable in the foreseeable international milieu) but instead promotes and defends vital national interests.

The book presents very little that is brand new, but it is a useful reader for the officer seeking background on current issues in the national security strategy debate.

Maj Budd Jones, USAF
Maxwell AFB, Alabama

Cold War Casualty: The Court-Martial of Major General Robert W. Grow by George F. Hofmann. The Kent State University Press, Kent, Ohio 44242, 1993, 250 pages, $26.00.

In 1952, Maj Gen Robert W. Grow was convicted by court-martial for breaching security measures by keeping a diary containing classified information. Though certainly not the first American general to keep such a personal record—Dwight Eisenhower, Omar Bradley, and Mark

Clark, for example, kept wartime diaries that were later published as books—Grow was the only one to have his journal used as a source for Soviet propaganda.

Using the Freedom of Information Act to gain access to the previously closed investigations and court-martial proceedings, Hofmann unravels the Grow affair. Included among Grow's duties as the American military attaché to Moscow from 1950–52 was that of assessing Soviet military strengths, movements, and viability. In the summer of 1951, parts of his diary were photographed at a small US Army hotel in Frankfurt, West Germany, while Grow was there for a conference. Extracts were published in January 1952 in an obscure East German book that was obviously Communist propaganda. The Army compared the extracts with Grow's actual diary and positively concluded that all the excerpts were either misquotes or out-and-out forgeries. Grow was clearly innocent of abetting Communist propaganda efforts.

But the Army faced a dilemma: It must either allow Communist propaganda to go unchallenged or expose it as false and, in the process, reveal lax Army security procedures. The answer, argues Hofmann, was to deflect attention by court-martialing Grow on trumped-up security charges. A small group of Army general officers in the Pentagon, led by Lt Gen Maxwell D. Taylor, deputy chief of staff, and Maj Gen Alexander R. Bolling, the assistant chief of staff for intelligence, made the decision to prosecute Grow. In fact, Hofmann's real purpose is to reveal what he believes is institutionalized resistance by many Army commanders to legal changes in court-martial procedures.

That Taylor and Bolling exercised direct, covert command influence seems undeniable based on evidence Hofmann uncovered. The Taylor management group misled the secretary of defense and the Army chief of staff as to the nature of the Grow affair. More directly, it orchestrated the court-martial by withholding critical information and manipulating evidence, witnesses, court members, and the press. While Hofmann's Grow was the good soldier who faithfully did his duty, Taylor and Bolling emerged as manipulators more concerned with "careerism" than justice.

Hofmann provides overwhelming evidence that Taylor and Bolling did indeed orchestrate Grow's court-martial, but he never satisfactorily addresses the more intriguing question, "Why did they do it?" Taylor, he suggests, had an apparent thirst for power and control that factored into his role in the affair. Bolling, perhaps, feared he might lose influence in the Army because of the ease with which Grow's diaries were compromised in Frankfurt. Also, no doubt, playing heavily on Bolling's mind were the results of the CIC [Counter Intelligence Corps] investigation in EUCOM [European Command], which had uncovered a possible Soviet mole and deplorable security measures at a hotel used by ranking American officials. Perhaps the G-2 [intelligence branch] had much to lose—which was ample motivation for caution and silence (page 101). This sparse speculation—he offers no supporting documentation—is Hofmann's only explanation for the Taylor/Bolling actions.

Hofmann's objectivity is clearly suspect. A former member of the Army's armored branch, he wrote *The Super Sixth: History of the Sixth Armored Division in World War II and Its Post-war Association.* Grow commanded that division in World War II, and in the preface to *Cold War Casualty,* Hofmann acknowledges several prominent members of the division who give Grow due credit . . . for his many years of honorable service to his country (page xii).

He first became aware of General Grow's court-martial through Col Robert Grow, the general's son, who suggested a historical investigation of the incident. Hofmann writes, "The reader may conclude at times that I am pleading a defense for General Grow" (page x). Though he further says he is merely evaluating evidence, I must agree with his initial assessment—he is indeed pleading a defense for General Grow, who died in 1985.

Most disturbing is that Hofmann barely, and then only reluctantly, acknowledges that Grow did anything wrong. Regardless of Grow's honor, competence, or sense of duty—qualities Hofmann plainly demonstrates the general possessed—he still did, in fact, violate security requirements by keeping an unsecured, classified personal diary.

In his trial, Grow's defense lawyers fell back on inexcusable rationalization, arguing that the classified information Grow kept was already well known to the Soviets, and therefore inconsequential. Hofmann accepts this irresponsible justification with blinders on.

Despite its many flaws, *Cold War Casualty* is an excellent book that reveals the extent to which powerful forces will go to advance selfish agendas. At times reading like both a spy thriller and a riveting courtroom drama, General Grow's court-

martial is a modern morality play that provides lessons for all American military men and women.

Maj William L. Coode, USAF
Starkville, Mississippi

Cruelty and Silence: War, Tyranny, Uprising in the Arab World by Kanan Makiya. W. W. Norton & Co., 500 Fifth Avenue, New York 10110, 1993, 367 pages, $19.95.

In *Cruelty and Silence*, Kanan Makiya has produced a strange mixture of a book. Both gripping and boring, the book manages to blend fascinating personal accounts with pages of tedious tangents. In the first half—"Cruelty"—he continues the polemic against the Iraqi regime that he began under the pen name Samir al-Khalil in *Republic of Fear*. In the second half—"Silence"—Makiya attempts to find the cause of the cruelty he finds in the modern Arab world and lays a significant portion of the blame at the feet of Arab intellectuals. The second half of the book will only be useful for those interested in the social psychology of the Arab world. However, the first half provides valuable insight into the workings of the Baathist regime of Iraq as well as the popular uprisings in Iraq of early 1991 that were hidden from Western eyes.

As a whole, and from a Western point of view, the book is not very well written. It too easily slips away from a subject into musings and self-examinations; and it assumes knowledge of the Middle East and Iraq that many readers do not have. However, for those interested in why Saddam Hussein's Iraq and dictatorships like it have to be resisted, there are gems of personal testimony within these pages that should not be missed.

Makiya divides "Silence" into sections devoted to the personal accounts of cruelty that individuals have suffered at the hands of the Iraqi government. Although these accounts are perhaps not surprising, they still manage to convey horrifying details of the actions and state policies of the Saddam-centered Baath regime. These are the interesting and valuable sections for Air Force readers. Following are some examples.

"Khalil" is a Kuwaiti victim of the Iraqi invasion of August 1990 who describes some of the atrocities committed by the Iraqi army while in Kuwait. His real name is Khaled Nasser al-Sabah. He is, as his name suggests, a member of Kuwait's ruling family who chose his wartime pseudonym in honor of the author of *Republic of Fear*. The reader who hopes for a narrative of the Kuwaiti resistance during the occupation will be disappointed here. Khalil spends more time on the "Highway of Death" than he does on the occupation. Makiya compounds this by focusing on inter-Arab perceptions and prejudices more than on the events of late 1990 in Kuwait, which an American would be interested in.

"Abu Haydar" is a pseudonym for any number of Iraqi soldiers who took part in the Shia uprising in Najaf in early 1991. This chapter is perhaps the most useful since, in describing the uprising from several firsthand viewpoints, it provides accounts and information that are not well known in the West. It will be of particular interest for Iraqi analysts as it discusses the role of Ayatollah Khoei, the former Shiite cleric in Iraq during the uprisings.

The chapter "Omar" is perhaps the most interesting reading. Omar is an Iraqi victim of the Baathist regime, just one of many implicated in an imaginary plot against the regime. His story gives insights into the Iraqi security structure and techniques through the eyes of the common Iraqi. He is the best narrator of all Makiya's sources, and the reading is gripping as well as informative.

"Mustafa" is a Kurd, a victim of the use of chemicals by Saddam Hussein's regime. Mustafa lost most of his extended family in one chemical bombing raid on their village—despite precautions against the use of chemicals. With this chapter, Makiya begins his focus on the Kurdish side of the Iraqi equation that continues with "Taimour," a Kurdish boy. The Iraqi army/security forces took Taimour when he was less than 10 years old to be executed along with the rest of his village. He escaped from a mass grave and is now a symbol of Kurdish resistance against Al-Anfal—a policy of the Baathist regime aimed at ridding Iraq of the Kurdish "problem." The parallels between the extermination policies of Saddam Hussein's Iraq, Hitler's Germany, and Pol Pot's Cambodia are too clear to need emphasis here.

In the second half of the book, "Silence," Makiya quickly loses the reader in a morass of self-examination, examination of the state of the Arab psyche, and examination of the state of Arab intellectual life. I think he wants to make the point that the academic world, especially Arab intellectuals, has the obligation to speak out against the continuing atrocities in the Middle East. He fails to make his point clearly and compounds his problems by holding those intellectu-

als responsible for the state of Arab society today—surely a responsibility that must be shared more widely. Most disappointingly, Makiya uses this book to indulge in what seems to be a personal vendetta against Edward Said, the Palestinian-American author and scholar. Makiya accuses Said of aiding Saddam Hussein by not speaking out against the invasion of Kuwait, a puzzling accusation since Said was at the forefront of those condemning the invasions.

Fortunately, the "Silence" section is the second half, and the reader has gleaned the useful information before being bogged down in Makiya's poorly presented agenda. Despite the problems with the second half, the first half on cruelty speaks volumes about the plight of Arabs in modern police states. For those who will not have the misfortune to experience life in Iraq or Syria or any number of Middle Eastern states, *Cruelty and Silence* opens a window onto those benighted societies.

Capt Donald G. Rose, USAF
Hurlburt Field, Florida

Boeing's Ed Wells by Mary Wells Geer. University of Washington Press, P. O. Box 50096, Seattle, Washington 98145, 1992, 179 pages, $24.95

Who better to write a personal biography of the aviation engineering legend Edward Wells than his sister, Mary Wells Geer? After Wells's death in 1986, Geer received several boxes of his belongings containing, among other things, letters, original plane designs, patents, Boeing memoranda, and speeches—in her words, a record of seventy years of his life. Using primarily this very personal archive, Geer has reconstructed her brother's life as she witnessed it. Though much has been written about the man, Geer shows us the personal side of this National Aviation Hall of Fame member and why he is considered an aviation engineering genius.

A 1931 Phi Beta Kappa graduate of Stanford's School of Engineering, Wells began his career at Boeing not only in the midst of the Depression but also in the early stages of Boeing's ties to military aviation. Wells quickly gained notoriety for designing a retractable landing gear, first used on the Air Corps's P-26 monoplane pursuit fighter. But Wells is probably best remembered as the designer of the workhorse of World War II, the B-17 Flying Fortress. The War Department originally ordered 13 of the bombers, but it remained skeptical of totally endorsing the B-17. Strapped for cash after building the original prototype, Boeing's president orchestrated an impressive B-17 flyover at the 1938 Argentinian inauguration parade (Lt Curtis E. LeMay was a navigator on one of the aircraft). After the flyover, President Franklin D. Roosevelt (FDR) enthusiastically endorsed the plane, and Congress, the War Department, and the Air Corps fell in line. The next year, FDR authorized $50 million for airplane procurement, and the War Department ordered 512 B-17Es in 1940. Wells was promoted to chief engineer on the B-17 project in 1943. Gen James H. ("Jimmy") Doolittle, describing the tremendous impact that the planes eventually had on the war effort, proclaimed that the B-17 had a rendezvous with destiny (page 91). Wells next was asked to become involved in designing the B-29, a high-altitude bomber good enough to repeatedly bomb Japan. Now a major general, LeMay decided to use a stripped-down version of the B-29 for his incendiary raids over Tokyo and ultimately the missions over Hiroshima and Nagasaki.

After the war, Wells began working on jet aircraft designs for Boeing. Still heavily entwined in military aviation, Wells's name again came to the forefront for his work on designing the B-52 long-range heavy bomber. With the engines placed on pods outside rather than built into the wing, and with the inclusion of air-to-air refueling capabilities, the mighty B-52 began setting distance and speed records. Turning to civil aviation, Boeing and Wells transformed some of these designs and produced the Boeing 707. But Wells's ties to military aviation were still strong, and the 707 designs inspired the KC-135 Stratotanker, now giving LeMay's B-52s unlimited range. Wells's great influence on Boeing's military aviation projects led to his election to Boeing's board of directors at age 40. Wells's mastery of aviation design continued to be evidenced throughout the cold war, as Boeing designed and fielded the Minuteman intercontinental ballistic missile (ICBM) system as well as the first stage of the giant Saturn booster and the lunar rover. Wells retired in 1971 as senior vice president of Boeing and died in 1986 of pancreatic cancer.

Geer has written what could be called a personal portrait of this influential engineer. Her story of Wells's work at Boeing is interwoven with personal glimpses of her brother, their fam-

ily, and Wells's family. Although providing a good personal insight into the man, her work becomes tedious at times with immaterial family trivia. Details such as his wife's wedding dress having princess point lace, Wells's love for his Toyota Camry, and meticulous information on neighborhoods and Wells's boats sometimes cause the reader to wonder whether he is reading about Wells and aviation engineering or a family history. However, Geer has also reconstructed, through her brother's association with them, a history of Boeing and its influence on military aviation. Personalities such as Henry ("Hap") Arnold, Carl Spaatz, Doolittle, and LeMay pepper the story of Boeing and Wells laboring to satisfy the aviation requirements of the Air Corps and the Air Force, thus providing the reader a historical insight into military research, development, and procurement. Family trivia notwithstanding, Geer's work is worth reading for this reason.

There is no doubt that Ed Wells had a tremendous impact on Air Force history. Geer has written an ardent account of her brother's place in that history and the story of one whom his colleagues called "an incredible man."

Capt Phillip L. Osborne, USAF
San Antonio, Texas

Exclusion: Homosexuals and the Right to Serve
by Maj Melissa Wells-Petry. Regnery Gateway, 1130 17th Street, N.W., Washington, D.C. 20036, 1993, 337 pages, $20.00.

This book couldn't have been published at a more opportune time for the American military. Maj Melissa Wells-Petry has drafted a nonemotional, concise, logical, and legally understandable book on the homosexual issue confronting the American military today. She has provided every military leader, commander, and supervisor with a reference book to better understand and uphold the policies and laws governing homosexuals in the military. She uses the US Army as the basis for preserving the homosexual-exclusion policy for the US military. Although she writes from the perspective of the US Army—having been a judge advocate general officer involved in many of the Army's legal battles to uphold the ban—Major Wells-Petry supports the defense of maintaining the exclusion policy by noting actual court cases involving homosexuals against all branches of the military.

As you read the book, you will come to the conclusion that Major Wells-Petry provides a factual argument to maintain the exclusion policy and to explain why the mission of the US military will be in trouble if homosexuals are openly allowed in the services. The book justifies the US military's discrimination in its personnel policies because the military has a responsibility to ensure that the force structure of the military is combat-ready to carry out the demands of national security. She points out that the discrimination is towards groups of people, not individuals, because the welfare of the corporate body of the military outweighs the needs of any individual. In support of the personnel policy is the legal principle that no one has a right to military service, just as no one has the right not to serve. Major Wells-Petry logically discusses the prudent and rational process of how personnel policies are derived and regulated by the services.

To support her position, Major Wells-Petry addresses both the legal and constitutional claims that homosexuals and gay rights activists have used to stake their right to serve in the US military. The two basic positions they use in arguing against the exclusion policy are their fundamental rights and their status as a "suspect" class—that is, as a discrete, immutable, and politically powerless minority group that has suffered a history of discrimination. Specifically, Major Wells-Petry presents legal findings and rulings of why the rights of privacy and speech are not violated by the services and why homosexuals can't pass the legal acid test for being a "suspect" class.

The other areas Major Wells-Petry tackles are the social theorist positions of occupation versus profession for military service and social goals for the military (should the military accommodate social changes?). Advocates for changing the homosexual-exclusion policy use three models to justify inclusion of homosexuals in the military. The author discusses each model by providing the advocates' position and then logically discussing the fallacies of each.

To bolster her case that the exclusion policy should be maintained, Major Wells-Petry addresses two key defenses of the exclusion policy. First, she discusses the traditional relationship of the military member and society—specifically, what the civilian population expects from its military force. The second defense is that policymakers must be restrained from making snap changes in personnel policy to accommodate perceived or actual social changes. The basis of such

restraint, according to Major Wells-Petry, is derived from the constitutional fact that the US military has constitutional checks and balances to ensure that it is truly a military of the people.

Major Wells-Petry does an excellent job of presenting the positions of homosexual activists and legal rebuttals to these positions. The benefits to any reader are that you come away from this topic more aware of the homosexual-exclusion policy and are more able to discuss it using fact and logic rather than subjective emotions.

I highly recommend this book as a reference to any individual who wants to understand the ramifications and problems involved with this highly emotional social issue from a factual position.

Maj Thomas A. Torgerson, USAF
Peterson AFB, Colorado

Giap: The Victor in Vietnam by Peter Macdonald. W. W. Norton & Company, 500 Fifth Avenue, New York 10110, 1993, 348 pages, $25.00.

As the commander in chief of his nation's armed forces for 30 years and a decision maker at the highest levels of government for almost half a decade, Vo Nguyen Giap earned a large share of the credit for defeating the French and the United States militaries, repelling the 1979 Chinese invasion of Vietnam, and securing the unification and independence of his nation. So writes British author and former army officer Peter Macdonald in an insightful and historically comprehensive biography of one of the most successful and respected military leaders in history.

Macdonald's book is the first published effort to document the life of General Giap, self-admittedly a challenging enterprise. The closed nature of the Vietnamese regime and society, as well as the private character of the Vietnamese people, made writing an extremely personal biography unrealistic. For this reason, *Giap: The Victor in Vietnam* is as much a detailed record of the Vietnamese people and their decades of struggle to attain independence and unity as it is a portrait of General Giap's life.

The centuries of invasions and occupation of Vietnam by the Chinese, the French, the Japanese, the British, and eventually the Americans seem almost incomprehensible to the Western mind. As Macdonald eloquently writes, turbulence is the word that encapsulates Vietnam's history. Armies marching back and forth. Waves of blood-stained soldiers surging around village fences, splashing over the rocklike peasantry, here one dawn, gone the next, leaving dead bodies and animal carcasses and empty rice bowls, fading like a dream only to reappear in the next generation, an unpreventable nightmare that would come again in a long night, unbidden. It was this historical constant, the oppressive presence of foreigners in his country, that provided General Giap with the motivation at an early age to fight for and help lead his country to independence.

From humble beginnings as a student agitator in Hanoi during the 1920s, Giap grew more and more involved in clandestine nationalist activities. Through his readings of anticolonialist literature, Giap became acquainted with communist ideology and grew to fervently embrace its precepts. As a founding member of the Vietnam Independence League with Ho Chi Minh in 1941, Giap went on to be a leader in its military component, the Vietminh. He served as minister of the interior in Ho Chi Minh's government during the Japanese occupation and assumed leadership of the armed forces as chairman of the Military Council in 1946. Giap led Vietnamese armed efforts to force the French from his country, which culminated in the defeat of French forces at Dien Bien Phu in 1954. The departure of the French after their humiliating defeat brought the United States to South Vietnam to prevent countries in Southeast Asia from falling like dominoes to communism. Giap continued to serve as the leader of his nation's armed forces until America was forced to withdraw from an engagement described by French general Jacques Philippe LeClerc as "not a fight against an army [but] . . . a fight against a whole nation."

From a military strategist's perspective, Macdonald's book provides a worthwhile account of the military commander in charge of the massive Vietnamese war effort against France and the United States that spanned over 30 years. As a leader of the Vietnamese "People's War" that was implemented according to the principles of Mao Tse-tung, General Giap faced enormous challenges. He directed the employment of conventional as well as irregular troops and strove to combine their operations for maximum effect against the enemy. Giap's leadership was central to Vietnamese military successes, but Macdonald's account makes it clear that the will of the Vietnamese people to persist in their fight was the decisive factor that caused Vietnamese military shortcomings, like limited command and

control capabilities, to be minor inconveniences on the path to total victory.

Giap: The Victor in Vietnam provides a portrait of an undeniably successful and influential military leader, as well as an insightful description of his nation's people and their violently tumultuous history. Unfortunately, however, the book leaves the reader with the mistaken impression that the goals of the North Vietnamese communists and the leadership of the COSVN (Central Office for South Vietnam) were identical. In *A Vietcong Memoir,* one former COSVN official describes the betrayal which he and other Vietcong leaders felt after the takeover of the South in 1975. They were largely excluded from the newly unified government of Vietnam, and their ideals of freedom and liberty in an independent Vietnam were certainly not advocated by the northern communists. This conflict, which took place between the northern communists and the COSVN leaders after unification, is overlooked by Macdonald and does not receive the attention it undoubtedly deserves.

It is an ironic footnote to his life story that after decades of difficult fighting, the deaths of thousands of human beings, and military "successes," the faith that Giap held in communist ideals was demonstrably misplaced. Just as the Tet offensive did not lead to the expected general uprising of the South Vietnamese population in the final stage of People's War, neither has the post-1975 Vietnamese communist experiment led to a fair, just, and classless society—"the possibility of happiness for all mankind," in the words of Giap. Macdonald's biography of Giap is worthwhile reading for anyone seeking to better understand the Vietnamese people, their history of struggle, and the remarkable man who helped lead them to independence.

2d Lt Wesley A. Fryer, USAF
Mexico City, Mexico

Gendering War Talk edited by Miriam Cooke and Angela Woollacott. Princeton University Press, 41 William Street, Princeton, New Jersey 08540, 1993, 325 pages, $49.50.

When I picked up *Gendering War Talk*, I thought, "Here's another book about women and war." Halfway through the first paragraph of the preface, I realized that I, like many people, had mistakenly assumed *gender* meant women when, in fact, it refers to both men and women. By exposing and subsequently correcting in the preface this misconception about gender, Miriam Cooke and Angela Woollacott skillfully plant the seed for questioning other traditional concepts associated with gender and war. Indeed, the main value of this collection of 13 essays lies in its ability to force readers to rethink traditional views of men and women as combatants and civilians at the front and at home in war and in peace.

In the introduction, Cooke and Woollacott whet the reader's appetite by promising essays that "confirm and challenge" these traditional views and that "examine the dynamic intersections between men's and women's experience of war and its articulation in languages and images." Furthermore, the editors virtually assure readers they will find something appealing by providing a potpourri of cross-cultural and multidisciplinary essays. Readers can select from an assortment of European, American, Middle Eastern, and Latin American models of warriors and their methods of waging war as portrayed in literature, film, drama, history, psychology, and philosophy. Finally, the editors arrange the essays into five sections—Presenting the Unpresentable, War Mythopoeia, Home/Front?, Engendering Language, and The Politics of Representation—providing readers with a thematic road map for exploring the concept of gender and war in words and images.

Of the 13 essays in *Gendering War Talk*, two deserve special comment. In "Gendered Translations: Claude Lanzmann's *Shoah*," Marianne Hirsch and Leo Spitzer offer an intriguing perspective about Lanzmann's treatment of gender differences among the victims of the Holocaust. In *Shoah*, Lanzmann focuses on the Nazi death machinery, which was "designed . . . to degender" Jews as a means of rendering them powerless and ultimately extinguishing them as a people. Hirsch and Spitzer, however, see Lanzmann taking this "degendering" process one step further in his cinematic narration of the Holocaust. They argue that in portraying this process of rendering the sexes sexless, Lanzmann almost completely obliterates women from the screen and thus from the experience. They maintain that Lanzmann's camera lens validates the existence of "degendered" men by focusing on and capturing their experience on film; but his "degendered" women are, at best, only "disembodied" voices and fleeting images across the screen with nothing to validate their experience—

and thus their existence. Hirsch and Spitzer's analysis, therefore, implies that Lanzmann's male victims live to tell the tale because they have identity outside their sexuality, whereas his female victims have no identity without the power of reproduction and therefore no power to give birth to their own experience on film.

In "The Threshold of Thrill: Life Stories in the Skies over Southeast Asia," Stanley D. Rosenberg compares war stories of American combat pilots in World War II, Vietnam, and Desert Storm. His basic premise is that these combat pilots used language to construct an identity that enabled them to cope with "the complex experiences of excitement, self-affirmation, fear, horror, guilt, avoidance, and denial during war." In supporting his argument, Rosenberg shows how the language of combat pilots reflected their fusion with their anthropomorphized aircraft to create an identity of an indestructible and lethal weapon. He also shows how these pilots used metaphors to obscure and transform the nature of their actions so they could "live with death as if death were not real." Rosenberg, however, spends most of his time discussing how the brotherhood of combat pilots with its fraternal language created a "collective defense" that allowed them to be the instruments of death while ignoring its perils and consequences. He ends his analysis with the suggestion that surviving pilots continue to pursue death and destruction in order to feel alive while simultaneously repressing the guilt and shame associated with those acts long after the war guns are silenced.

The remaining articles range in quality from obscure to obvious in their critical analyses and conclusions. But each adds something to the body of knowledge in this new field of academic inquiry and is worth reading.

Lt Col Nancy Linzy, USAF
Maxwell AFB, Alabama

Low Intensity Conflict: Old Threats in a New World edited by Edwin G. Corr and Stephen Sloan. Westview Press, 5500 Central Avenue, Boulder, Colorado 80301, 1992, 317 pages, $18.85.

Of all the major aspects of conflict, low-intensity conflict (LIC) has received the least attention and scholarly analysis during the last decade. *Low Intensity Conflict: Old Threats in a New World* is a major contribution that helps fill the literature gap on low-intensity conflict.

Low Intensity Conflict consists of 15 essays by military officers, State Department officials, and academics. The book provides an outline of the contemporary problems and lays a framework of analysis in several case studies of low-intensity conflict. Most of the authors have the advantage of direct experience in LIC, and the questions asked and conclusions drawn are rooted more in practical experience than in abstract theory.

In the introduction, Stephen Sloan discusses the problem of adapting to the ambiguity of the New World Order. Since the fall of the Soviet Union, the agencies of the US government have been engaged in nonstop turf battles over aspects of foreign policy and low-intensity conflict. For example, which agency will take over the war on drugs? Is narcoterrorism to be treated as low-intensity conflict? To date, there have been no clear answers to such questions as these.

In their essay "United States Government Organization and Capability to Deal with Low-Intensity Conflict," Edwin Corr and David Miller provide a useful organizational history of the various approaches the US has taken towards low-intensity conflict since World War II. In general, there has been a reluctance by the US government to deal with LIC, owing to what the authors call the "World War II Syndrome"—the political and emotional need to end a conflict with the unconditional surrender of the enemy on the deck of the USS *Missouri*. Low-intensity conflicts rarely end that way. They slowly peter out, such as in El Salvador, or become dormant, as in the Philippines. Because low-intensity conflicts have such an ambiguous nature, organizing a US response and assigning responsibility are major problems. This book will not be popular with the Clinton administration because it argues that only the Defense Department has the true capability for managing and maintaining low-intensity conflict programs. As such, the book is an argument for higher Department of Defense funding in this area.

Low Intensity Conflict contains several useful LIC case studies, especially that of David Palmer on Peru's Shining Path, Edwin Corr's on El Salvador, and Caesar Sereseres's on Guatemala. The first three-quarters of the book is a superior contribution to the field. The final part, however, contains a disappointing essay by Adm William Crowe on "The Implications of Low Intensity Conflict for United States Policy and Strategy"

that is clearly the weakest essay in the book. Crowe's essay lacks substance and reads like an address intended for the local Rotary Club weekly luncheon. With all the military experts who could have provided some serious analysis on LIC, the editors have chosen one who seems unwilling to say anything of consequence.

With the exception of the Crowe essay, *Low Intensity Conflict* is a useful book that should be read by military officers. The editing and organization are well done, and the writing style is clear and direct. I recommend it highly as one of the few good books available on low-intensity conflict.

Dr James S. Corum
Maxwell AFB, Alabama

Gulf Air War Debrief edited by Stan Morse. AIRtime Publishing Inc., 10 Bay Street, Westport, Connecticut 06880, 1991, 232 pages, $24.95.

U.S. Air Force Air Power Directory: World Air Power edited by David Donald and Jon Lake. AIRtime Publishing Inc., 10 Bay Street, Westport, Connecticut 06880, 1992, 232 pages, $29.95.

Published by the London-based *World Air Power Journal*, these two glossy, coffee-table books were an interesting "read." The *US Air Force Air Power Directory* is well organized into eight sections covering US Air Force organization and deployment, war-fighting roles, aircraft (this is the main, and longest, section), ordnance, bases, units, order of battle, and glossary. Amply illustrated with glossy color photographs and line drawings throughout, the book is well put together and overall is fairly accurate. Most of its inaccuracies come in the unit section, where the recent sweeping changes have outpaced just about anything in print. For example, it shows the 28th Wing at Ellsworth AFB, South Dakota, as still having the 4th Airborne Command and Control Squadron (ACCS), when the unit was effectively closed in 1992. Perhaps the most interesting section is that of the aircraft. It is well illustrated with both color photographs and either black-and-white or color line drawings of each of the aircraft currently (1991) in the inventory. Each aircraft has a brief history of its development and employment, a review of armament, roles it is assigned to, current variants and serial numbers, and finally, specifications of each variant, including size, power plant, weight, fuel load and range, speed, and performance statistics. The ordnance section is also interesting and includes details on all known weapons in the inventory, including some details on the conventional-armed cruise missile launched by B-52Gs at the start of Desert Storm. Overall, the book is well done, packed with detail, and is an excellent addition to any library that needs a good reference work.

The *Gulf Air War Debrief*, a slightly misleading title, is not only pilot and crew interviews but also a day-by-day brief outline of the events of the air campaign. The volume is divided into seven major components in chronological order beginning with the invasion and the deployment, the initial air strikes, the concentration in late January and early February in the south, preparation of the battlefield, and then the ground war. This is all rounded out with a brief group of appendices detailing such information as the air order of battle, the aircraft, ordnance, and each of the "shoot-downs" and coalition aircraft losses. The best part of the volume is the "debrief" in which selected members of the various coalition air forces tell of such incidents as the first "kill" of the war, landing C-130s on desert roads, flying from Incirlik, Turkey, in Operation Proven Force, performing tactical recon and helicopter operations, and sitting in the gunner's seat in an Apache in the ground war phase. It is the aircrew's story that makes this an interesting volume. Adding to the volume are several sections exploring such things as laser-guided weapons and how they are used, electrooptical weapons, defense-suppression missions, the airborne warning and control system (AWACS), RC-135 Rivet Joint, and EC-130 Compass Call. Filled with more detail than would be expected from a coffee-table book, *Gulf Air War Debrief* is a fascinating read and perhaps the first to really tell the air war "as it was" from the aircrew's viewpoint.

Maj M. J. Petersen, USAF
Maxwell AFB, Alabama

A Woman at War: Storming Kuwait with the U.S. Marines by Molly Moore. Charles Scribner's Sons, 866 Third Avenue, New York 10022, 1993, 336 pages, $22.50.

During the 100-hour ground war with Iraq that capped off Operation Desert Storm, attention focused on the "left hook" in the western

section of the combat theater, where the US Army spearheaded the surprise drive that won the war. Far less has been written about the US Marines in the east who breached Iraqi defenses, stormed occupied Kuwait, and liberated Kuwait City.

Molly Moore has put right this long-standing omission. Moore, the *Washington Post*'s Pentagon correspondent for five years leading up to the Persian Gulf War, accompanied Lt Gen Walter Boomer's fast-moving command post—a few vehicles, "down and dirty" on the battlefield—during the hours when Boomer's Marine expeditionary force took on a numerically superior Iraqi army. After several other journalists passed up the opportunity, Moore became one of the few reporters and the only woman ever to go into battle with a ranking American field commander.

A Woman at War is meant, in part, to compensate for Moore's inability to file timely dispatches with the *Post*, thanks to rapid movement and communications glitches. There is little of the "big picture" here. Instead of grand strategy, Moore provides glimpses into personalities, including an abrasive side to Gen H. Norman Schwarzkopf that at times strains his conversations with Boomer.

Despite its title, more than half of Moore's volume deals with Operation Desert Shield and with the five-week air war that preceded ground fighting. Moore went with Defense Secretary Dick Cheney for his August 1990 call on King Fahd and "jumped ship," remaining in Saudi Arabia throughout the buildup and conflict. She offers numerous insights into the practical difficulties of working with the Pentagon's pool system; the desire of virtually every newspaper and broadcast station to have its own reporter on the scene resulted in crowding, pressure on able-but-hard-pressed public affairs officers, and silly behavior by inexperienced amateurs not accustomed to covering military affairs. Female reporters immersed in rigid Saudi culture faced added difficulties: to get around a local rule against a woman staying in a hotel unescorted, Moore and others had to carry an authorization from the American Embassy that became known as the I-Am-Not-a-Whore letter.

Many, but not all, of the Iraqis who swarmed around Boomer and Moore at night on the desert were bent on surrendering rather than fighting, as it turned out. No one could have predicted this, but it does make Moore's tale somewhat anticlimactic. The reporter compensates by taking us into the world of Capt William F. Delaney, a young Marine tank platoon commander, at intervals throughout the action. Her close-up look at the life of this company grade officer in combat is described with a keen eye for detail. The dialogue crackles. The burden of responsibility weighing down on this Marine officer is apparent without being overstated. Moore sees the captain as "jugg[ling] three roles . . . part military commander, part social worker, and part father to the men of his platoon."

Though she deserves credit for writing in plain English, with a minimum of jargon and acronyms, Moore runs repeatedly into other problems. She confesses that she had never heard of air campaign commander Lt Gen Charles Horner before the war, even though Horner commanded Ninth Air Force and was well known in his service. A Pentagon reporter should be less awkward with military terms than Moore is. She repeatedly uses an especially irritating construction of the media, *fighter jet*, when she means jet fighter. Female airmen become *airwomen*. Navy squadron VF-143, known as the Pukin Dogs, becomes the Puking Dogs, while a Learjet is called a C-12 (it's actually a C-21). Moore also tells us (page 146) how she learned the plan for the ground war hours in advance and gave it away over an open telephone to her editors!

In a world where many are at work to end discrimination on the basis of sex, Moore had an opportunity with this book to move our world a giant step closer to being gender blind. All she had to do was entitle this book *A Correspondent at War*. Instead, Moore seems to be in search, repeatedly throughout the text, not of equality but of special favor due to her gender. Though her report of General Boomer's ground war is welcome and overdue, this reviewer thought more of Moore before reading this book than after.

Robert F. Dorr
Oakton, Virginia

Warthog: Flying the A-10 in the Gulf War by William L. Smallwood. Brassey's (US), 8000 Westpark Drive, McLean, Virginia 22102, 1993, 241 pages, $23.00.

William Smallwood spent the summer of 1991 interviewing 143 of the pilots from the A-10 squadrons who deployed for Desert Shield and then flew into history during Desert Storm. More than just a dry recitation of facts, *Warthog*

takes the reader into the cockpit of the A-10 through the eyes and minds of the pilots who flew it day and night into the skies over Kuwait and Iraq. Within just a few pages, it becomes obvious that the author became emotionally involved with his story, which adds to the book's appeal rather than detracting from it.

More than just a story of a war, it's the story of an airplane literally built around a two-ton, 20-foot-long, 30-mm Gatling gun. The Warthog was specifically designed to attack Soviet tanks on the plains of Central Europe. Once accused by the CBS program "Sixty Minutes" of being "a near-useless airplane, unwanted by the Air Force, and the pork-barrel project of self-serving politicians protecting lucrative defense contracts in their districts," it proved itself beyond a shadow of a doubt not only in its tank-killing role, but also in roles it was never designed for. By the end of the war, the A-10 and its pilots had convinced even its most senior unbelievers. For example, Lt Gen Charles Horner, Air Force commander in Operation Desert Storm, says, "I take back all the bad things I've ever said about the A-10. I love them."

Beginning with the terror of flying a completely manually operated airplane across the Atlantic at night, in formation, through thunderstorms, A-10 pilots had to plug into tanker refueling booms more times in this one flight than they had in the past two years. Smallwood then briefly traces the A-10's development before he returns to the real story and the initial deployment into Saudi Arabia. The book offers insight into the tactical perspective of preparing for the war. Early on, the squadrons discovered their tactics would have to change, and here Smallwood does the reader a real favor by carefully describing the thoughts of the pilots and their commanders as they threw out the tactics book and started from scratch. Here's the development of the "Night Hogs"—and the discovery that the Maverick missile could be used as a very rudimentary forward-looking, infrared radar (FLIR) night vision device, the "Recce Hog," the "Observation Hog," and the "Fighter Hog." By the end of the war, the pilots believed their Warthogs could do anything.

In addition to the flying and fighting, there is humor. There are the stories of the successful and unsuccessful attempts to circumvent the alcohol-free environment they found themselves in, the hundreds of cases of Macadamia Nut Crunch shipped by a sympathetic company from the States after a friend went pleading, the successful attempts to ship steaks packed in dry ice, and the "sanitary kits" sent by sympathetic wives.

Really more than just a story of the A-10, this book becomes a tribute to the flexibility of air power. The Warthogs began the war flying missions they had never planned on—battlefield air interdiction, search and rescue escort, Scud hunting, and shooting up ground control intercept (GCI) sites. Improvising tactics such as dive-bombing Iraqi tanks at night like their Luftwaffe counterparts did during World War II, the A-10 and its pilots proved themselves over and over again. This is an excellent book—well worth reading by everyone. You get a real glimpse into what it's like to plan, prepare, wait, and then go to war in a very personal way.

Maj M. J. Petersen, USAF
Maxwell AFB, Alabama

Working Scared: Achieving Success in Trying Times by Kenneth N. Wexley and Stanley B. Silverman. Jossey-Bass Inc., 350 Sansome Street, San Francisco, California 94104, 1993, 176 pages, $24.95.

With today's trend in both the public and private sector toward total quality, the title of this book seems to capture the feeling of most workers. *Working Scared* describes what many workers are experiencing in a time of dramatic change and uncertainty in the business world. Wexley and Silverman use an innovative approach to help the reader cope with this new business philosophy and paradigm called *total quality management.*

Wexley and Silverman cover eight major areas of organizational change caused by the turbulent times workers face today. The first change, *less supervision*, occurs as organizations cut back on the number of managers and supervisors, resulting in the remaining managers having more employees report to them and not being able to give them as much time. The next change is *team culture*, which means that nowadays employees of all kind—factory workers, service people, technicians, supervisors, and managers—are expected to work in a team environment. The authors argue that many find it difficult to function as an effective team player at work. The next area, *focus on quality*, is much like a total quality management (or *Quality Air Force* as we coin the term) primer. This chapter explains what total quality is all

about and presents a who's who of the quality movement gurus such as Deming, Crosby, Feigenbaum, Ishikawa, Juran, and others. It provides an excellent review of total quality concepts, tools, and quality awards. Next, Wexley and Silverman discuss *downsizing*, which is characterized by layoffs, cutbacks, retrenchment, reductions in force (very applicable to today's military force), and so forth. Our economy has caused many organizations to conclude that they must get "lean and mean" if they are to survive. After all, most of these organizations are responsible to their stockholders, who emphasize profits. So, large numbers of American workers are working scared, fearing that they might be the next to go. Prior-service captains and majors, along with many colonels and lieutenant colonels, know that feeling. Following this, the authors talk about *mergers and acquisitions*—when two companies combine or one company gobbles up another. These forces of business affect every single person within the organization. Next comes an *increasingly diverse work force* and Wexley and Silverman's contention that the American work force is steadily becoming more and more diverse. For many American employees, working collaboratively with others who are culturally different can be scary. The authors also expand on this theme with the *international environment*. They maintain that some workers consider an international assignment exciting but many see it as scary, especially if it means uprooting their family for several years. Coping in a foreign country is stressful, and returning home is not always an easy adjustment. The authors conclude with *innovative pay strategies*. They assert that in the years ahead, employees will experience changes in the way they are remunerated. Regular paychecks based on straight salaries or number of hours worked or number of units produced are becoming a thing of the past.

For each of those eight dimensions presented above, the authors begin by explaining the environment or situation that is making the employee uneasy. They then present an anecdote about a real person (Pat, Mike, Lois, Terry, etc.) and how he or she is affected by one of these particular challenges. Following this lead-in, the authors present what I think is the most important part of the book—strategies for both the worker and manager to cope with the challenge, thus reducing their anxiety and fear. The book is well organized and provides a very helpful how-to approach in coping with those eight dimensions that are causing many employees to work scared. It is an excellent book for employee and manager alike, and I recommend it for anyone feeling even a little bit uneasy working in trying times.

Maj Eugene D. Barr, USAF
Kelly AFB, Texas

Future Wars: The World's Most Dangerous Flashpoints by Col Trevor N. Dupuy, US Army, Retired. Warner Books, Inc., 1271 Avenue of the Americas, New York 10020, 1993, 334 pages, $21.95.

Many recent books that describe future wars have delved into the apocalyptic scenario of World War III. Since the collapse of the Iron Curtain and the dissolution of the Soviet Union, many people have dreamed of a world free of armed conflict. Many have forgotten the hard lessons taught by history.

The potential for major regional conflicts dominates the current international environment. For example, current tinderboxes include many states of the former Soviet empire (e.g., Russia, Moldavia, Armenia, Georgia, and Ukraine), as well as countries on nearly every continent (e.g., Rumania, the former Yugoslavia, Cambodia, Pakistan, India, North Korea, Peru, Nicaragua, Angola, Sudan, and Iraq). Ethnic and religious violence as well as economic and ideological power struggles are the norm in history. The "traditional" disputes "on hold" during the cold war are now resurfacing with a vengeance.

It is this environment that Colonel Dupuy, the prolific military historian and writer, describes in this, his latest book. In it he succinctly presents 10 scenarios for armed conflict that could develop by 1996. (Interestingly enough, in only two cases does US military power play an active role.) The scenarios are narrated as if the author were discussing events that recently transpired. In each case, Dupuy works from current events (as recent as early 1991) and extrapolates a situation that could lead to war. Every scenario is plausible and hauntingly realistic in light of current events.

In his introduction, Dupuy thanks the people who helped him and disavows any ability to foretell the future. This disclaimer illustrates his implied belief that anyone aware of current international news will easily recognize the potential for armed conflict on a wider scale around the

world. (Clairvoyance aside, some of the scenarios raised by Dupuy are still unfolding today.)

However, two points arise to detract from this otherwise pleasurable reading. The first drawback is that Dupuy does not adequately explain why he chose the book's particular 10 scenarios out of the more than 20 he considered for inclusion. What were these other scenarios? Why were they discarded in favor of the ones he chose? The lack of explanation detracts from the reader's ability to fathom why one scenario was considered a better candidate than another for inclusion in the book. The second drawback, also minor, is the lack of a clear point (or date) to mark where Dupuy departs from factual reporting and starts his extrapolation from "current" historical events. (We only know that the introduction was penned in August 1991.) While this is a tribute to Dupuy's clever writing, it prevents the reader from gauging the extent of Dupuy's "clairvoyance."

In any case, the fast-paced text which quickly involves the reader in the Sixth Arab-Israeli War, the Fourth India-Pakistan War, the Second Civil War in Russia, the Second War for Africa [Angola versus South Africa], the Third Gulf War, the Second Korean War, the Second Sandinista War, the War for Transylvania [Hungary versus Rumania], Egypt's War with Libya and Sudan, and the Sino-Russian conflict. Each scenario includes a page or two of the results of the Tactical Numerical Deterministic Model that Dupuy used to analyze some of the pivotal battles. In every case, the background for war is succinctly set with a discussion of the politico-military context. Then Dupuy concisely outlines the operational planning of both sides before he describes the campaign that follows. In his discussions of the plans and the actual operations, Dupuy stays at the strategic and operational levels. He includes the key assumptions; the force ratios; quality of equipment, troops, and leadership; the governing factors; the enemy's likely courses of action or reaction; and every other item that is usually taught in our various professional military courses that touches on the operational art of war. In the case of the US military involvement, he discusses the importance of forward presence, strategic lift, and prepositioned equipment. In every case, all the points we seek to see raised in the staff's estimate of the situation are covered.

Two items stand out: the pivotal role that air power plays in each of the conflicts (Dupuy obviously believes that air power can be decisive and that air superiority is a prerequisite to victory) and the necessity of conflict-termination planning. The second is of particular interest to all of us since it is a very timely topic in the service schools. Woven into each scenario is a discussion of the belligerents' termination goals, or of the lack of clear and achievable goals on the part of one or more of them, before and during the hostilities. The use of military force to coerce or drive a "favorable" solution is always fraught with danger, especially if the other side is willing to fight for its survival with no holds barred, including the playing of the nuclear card. In almost every case, at least one belligerent errs, inaccurately analyzing how neutrals and potential allies of the enemy would react. In every case, the aggressor fails to correctly calculate costs in terms of personnel, equipment, and international support.

In summation, Dupuy's book is an engrossing compendium full of pertinent and concrete examples of operational warfare. The discussion of the diplomatic backdrop before, during, and after each conflict helps to highlight the importance of clear and achievable political goals in war. Anyone who deals with deliberate or crisis action planning should read this book. Anyone who believes that the current world is kinder and gentler must read this book.

Lt Col Ricardo G. Cuadros, USAF
Norfolk, Virginia

AIRPOWER JOURNAL Volume VIII

AUTHOR INDEX

TITLE INDEX

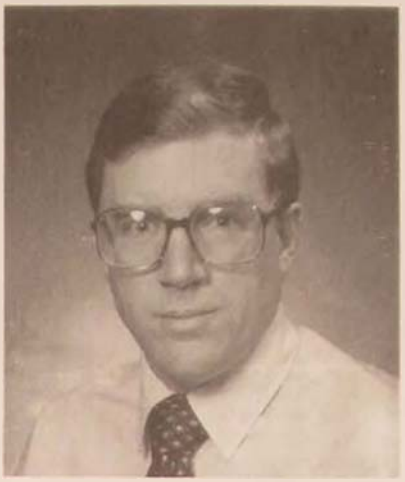
SUBJECT INDEX

apj CONTRIBUTORS

Col Edward Mann (BS, Pepperdine University; MA, University of Southern California) is chief of the Doctrine Research Division, Airpower Research Institute, College of Aerospace Doctrine, Research, and Education (CADRE), Maxwell AFB, Alabama. He is a command pilot with 5,200 hours in the KC-135 aircraft. Previously, he was deputy chief of the Airborne Command/Control Division, Headquarters Strategic Air Command, Offutt AFB, Nebraska; National Defense Fellow, International Security Studies Program, Fletcher School of Law and Diplomacy, Tufts University, Medford, Massachusetts; and a military doctrine analyst at CADRE. He has written for *Military Review*, *Air Force Times*, and *Airpower Journal*. Colonel Mann is a graduate of Squadron Officer School, Air Command and Staff College, and Air War College.

1st Lt William D. Casebeer (USAFA) is chief of the CENTAF command staff briefing team. Previous assignments have included intelligence school at Goodfellow AFB, Texas, and the US Air Force Academy, where he was a member of the adjunct faculty.

Col Richard Szafranski (BA, Florida State University; MA, Central Michigan University) is the first holder of the Chair for National Military Strategy at the Air War College, Maxwell AFB, Alabama. Colonel Szafranski's duties have included staff positions in the headquarters of Strategic Air Command, United States Space Command, North American Aerospace Defense Command, and Air Force Space Command. He has commanded B-52 units at the squadron and wing level, most recently as commander of the 7th Bomb Wing, Carswell AFB, Texas, from 1991 to 1993. He was also the base commander of Peterson AFB, Colorado. His writings on military strategy and operational art have appeared previously in *Airpower Journal* as well as in *Parameters* and *Strategic Review*. Colonel Szafranski is a graduate of Air Command and Staff College and Air War College.



Dr James H. Toner (BA, St. Anselm College; MA, College of William and Mary; PhD, University of Notre Dame) is professor of international relations and military ethics at the Air War College, Maxwell AFB, Alabama. Dr Toner, who previously taught at Norwich University in Vermont, is the author of *The American Military Ethic: A Meditation*, *The Sword and the Cross: Reflections on Command and Conscience*, and *True Faith and Allegiance: The Burden of Military Ethics*.

1st Lt John T. Dillaplain (BS, Texas A&M University) is chief of research support for the Air Force element at the Rand Corporation. He provides security authentication services for Project Air Force researchers and performs liaison functions between the Air Force and the Rand Corporation. This is his first assignment after completing the Intelligence Applications Officer Course at Goodfellow AFB, Texas.

Capt Edward P. O'Connell (BS, University of Maryland; MS, Joint Military Intelligence College) is a research fellow representing the assistant chief of staff for intelligence, Headquarters USAF, at the Rand Corporation. During Operations Desert Shield and Desert Storm, he served as a target intelligence advisor at the Defense Intelligence Agency, led a mobile-missile-targeting initiative sponsored by J-2, and deployed on a CENTAF-sponsored damage-assessment team into Iraq. He recently served on the USS *Kennedy*, providing intelligence support for the initial airdrops into Bosnia. Captain O'Connell is a distinguished graduate of the Joint Military Intelligence College.

Col Owen E. Jensen (BA, University of Illinois; MA, University of Oklahoma; MA, Naval Postgraduate School) is vice commander, Fourteenth Air Force, Vandenberg AFB, California. Previous assignments include key roles with US Air Force space efforts at Space Command and at Headquarters USAF, and as commander of the 73d Space Group during its activation as the nation's first and only space control unit. He served three years as an air attaché with the US Embassy in Ottawa, Canada. He has published several articles on military space operations.

Maj David W. Schneider (BA, Wittenberg University; MS, California State University, Stanislaus) is a B-52 test flight commander in the 346th Test and Evaluation Squadron, Ellsworth AFB, South Dakota. He previously served as chief of current operations, 93d Operations Support Squadron, Castle AFB, California.

Order Processing Code:
* 5476

Superintendent of Documents
Subscription Order Form

Charge your order.
It's easy!

MasterCard VISA

To fax your orders (202) 512–2233

❑ **YES,** enter ____ subscription(s) to the **Airpower Journal** magazine, (AURE) at $13 each ($16.25 foreign) per year.

The total cost of my order is $ _____.
Price includes regular shipping and handling and is subject to change.

For privacy protection, check the box below:
❑ Do not make my name available to other mailers

Check method of payment:
❑ Check payable to Superintendent of Documents
❑ GPO Deposit Account ☐☐☐☐☐☐ – ☐
❑ VISA ❑ MasterCard
☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐
☐☐☐☐ (expiration date)

Thank you for your order!

Company or personal name (Please type or print)

Additional address/attention line

Street address

City, State, Zip code

Daytime phone including area code

Purchase order number (optional)

Authorizing signature 4/94

Mail To: Superintendent of Documents
P.O. Box 371954, Pittsburgh, PA 15250–7954

Tear Out and Remove

Order Processing Code:
* 5476

Superintendent of Documents
Subscription Order Form

Charge your order.
It's easy!

MasterCard VISA

To fax your orders (202) 512–2233

❑ **YES,** enter ____ subscription(s) to the **Airpower Journal** magazine, (AURE) at $13 each ($16.25 foreign) per year.

The total cost of my order is $ _____.
Price includes regular shipping and handling and is subject to change.

For privacy protection, check the box below:
❑ Do not make my name available to other mailers

Check method of payment:
❑ Check payable to Superintendent of Documents
❑ GPO Deposit Account ☐☐☐☐☐☐ – ☐
❑ VISA ❑ MasterCard
☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐
☐☐☐☐ (expiration date)

Thank you for your order!

Company or personal name (Please type or print)

Additional address/attention line

Street address

City, State, Zip code

Daytime phone including area code

Purchase order number (optional)

Authorizing signature 4/94

Mail To: Superintendent of Documents
P.O. Box 371954, Pittsburgh, PA 15250–7954

Want a Subscription to the *Airpower Journal?*

Detach one of these cards, fill it out, and mail it along with a check, VISA, or MasterCard number to:

New Orders, Superintendent of Documents
P.O. Box 371954

New Orders, Superintendent of Documents
P.O. Box 371954
Pittsburgh, PA 15250-7954

New Orders, Superintendent of Documents
P.O. Box 371954
Pittsburgh, PA 15250-7954

Tear Out and Remove

AIRPOWER JOURNAL COMMENT CARD

We are always interested in hearing from our readers. Please use this card to comment on this issue _____ _____
Issue Article

PLEASE PRINT

Rank/Title First Name Initial Last Name

Street City State/Country Zip Code

AIRPOWER JOURNAL COMMENT CARD

We are always interested in hearing from our readers. Please use this card to comment on this issue _____ _____
Issue Article

PLEASE PRINT

Rank/Title First Name Initial Last Name

Street City State/Country Zip Code

FEEL LIKE SPEAKING UP?

Fill out one of the attached comment cards and

AIRPOWER JOURNAL
401 Chennault Circle
Maxwell AFB AL 36112-6428

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY LABEL
FIRST CLASS PERMIT NO. 200

POSTAGE WILL BE PAID BY ADDRESSEE

AIRPOWER JOURNAL
Airpower Research Institute
401 Chennault Circle
Maxwell AFB AL 36117-8930

AIRPOWER JOURNAL
401 Chennault Circle
Maxwell AFB AL 36112-6428

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY LABEL
FIRST CLASS PERMIT NO. 200

POSTAGE WILL BE PAID BY ADDRESSEE

AIRPOWER JOURNAL
Airpower Research Instititute
401 Channault Circle
Maxwell AFB AL 36117-8930

The *Airpower Journal* (ISSN 0897-0823), Air Force Recurring Publication 10-1, is published quarterly. Subscriptions may be ordered from New Orders, Superintendent of Documents, P.O. Box 371954, Pittsburgh PA 15250-7954. Annual rates are $13.00 domestic and $16.25 outside the United States. The GPO stock number is 708-007-00000-5.

The *Journal* welcomes unsolicited manuscripts. Address them to Editor, *Airpower Journal*, 401 Chennault Circle, Maxwell AFB AL 36112-6428. Submit double-spaced, typed manuscripts in duplicate. All submissions will be edited in accordance with the standards set forth in the *Air University Press Style Guide*. *Journal* telephone listings are DSN 493-5322 and commercial (205) 953-5322.

Spring Readings

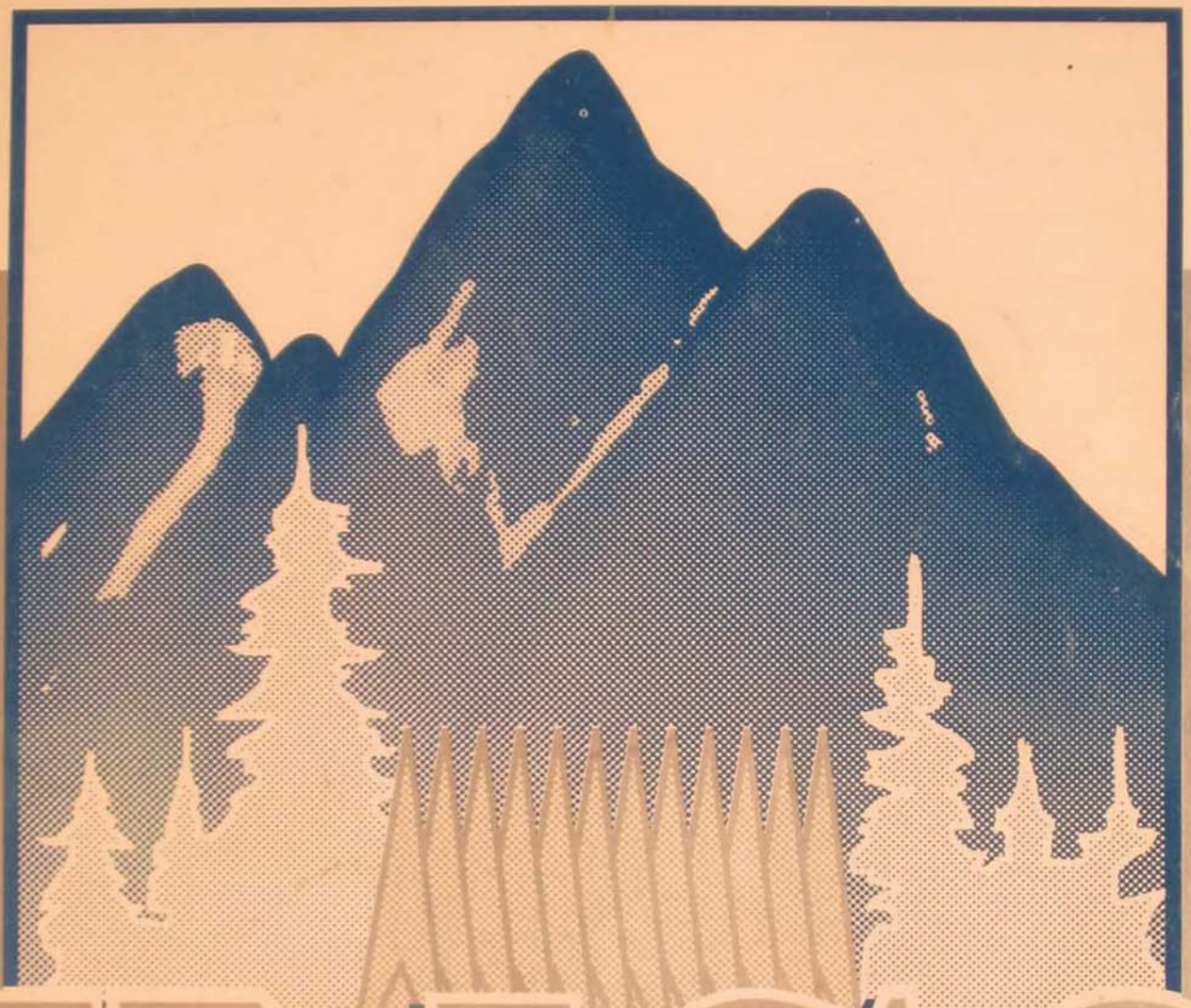
Information Warfare

AU PRESS

AIRPOWER JOURNAL

SPECIAL EDITION

Special Edition 1994



INSS