AIR UNIVERSITY
review

NOVEMBER-DECEMBER 1978

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from the editor's aerie

One of the pet ideas hereabouts is that power is composed of three elements: people, resources, and ideas. It is the later factor that changes the other two from mobs and heaps of material into organized military force. Thus, in an era of declining numbers of personnel and weapons, only an increase in the quality and quantity of ideas will sustain our national power. We hope, then, that this edition of the *Review* makes a contribution to that power.

Two of our articles, that by Major Don Alberts and Captain Pete Mock as well as the one by Colonel Bob Rasmussen, are samples of how ideas might be used to multiply the effect of the weapons we do have. The Alberts-Mock article, incidentally, is a direct response to one that appeared earlier in the *Review*. We hope this is the beginning of a dialogue that will grow and grow. Two other pieces, those by Ambassador John Patrick Walsh on energy and Colonel Michael Noone on the military-industrial complex, deal with the *material* part of the power equation at another level.

The *personnel* side of the calculus is featured in our Point Counter Point department, a response to the two women-in-combat pieces of July-August 1977. Art Editor Bill DePaola alludes to this topic on the cover, where Dame Liberty beckons to the women of America to join the holocaust. In addition, an Air Force research associate, Colonel Richard Head, treats us to a rare look at the Soviet personnel factor in his study of military education in Russia.

Finally, Captain Don Bishop's review-article reminds us that *ideas* can enter the arithmetic with minus sign attached. His discussion of Peter Braestrup's *Big Story* reintroduces us to the overwhelming power of ideas—even where they are not accompanied by superiority in men and materiel.

With this issue—Volume XXX, Number 1—the *Review* begins its fourth decade of publication. We trust that we have not lost our credibility now that we are thirty years old.

As always, we welcome your comments.

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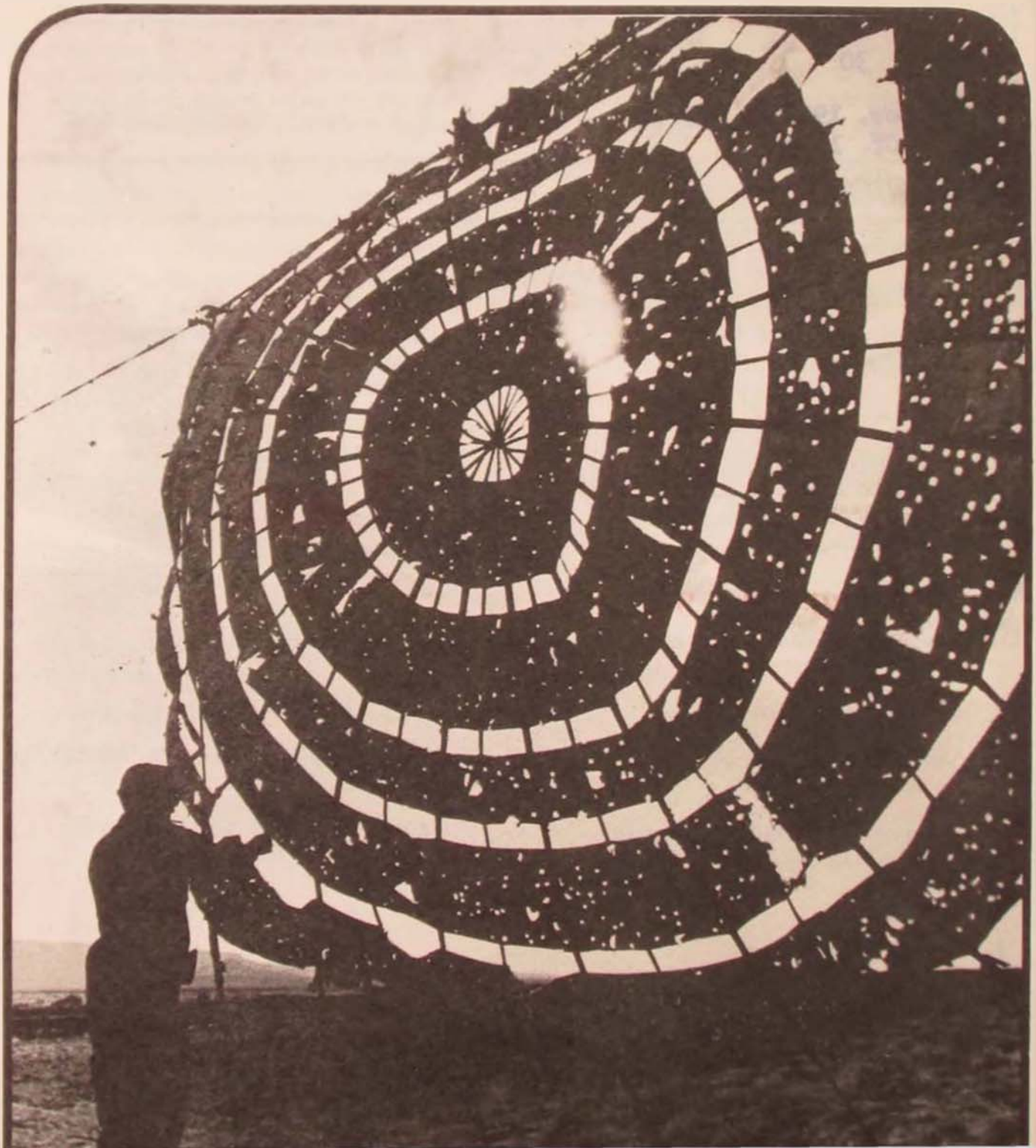
articles

departments

INCREASED AIR-TO-AIR SPECIALIZATION TRAINING

an alternative

MAJOR DONALD J. ALBERTS
CAPTAIN LEROY MOCK



IN THE September-October 1977 issue of *Air University Review*, Major Robert A. Heston posed the question: "Considering the likely threat posed in Europe, are we organized and trained well enough to ensure air superiority?" While never definitively answering his own question, he proposes a training program for multi-purpose fighter aircrews that would seemingly make us, as an Air Force, more capable in the air-to-air segment of air superiority.

> My proposal to specialize the F-4 and F-16 TFT [Tactical Fighter Training] schools and operational squadrons is based on the contention that pilots cannot effectively maintain the proficiency necessary to accomplish both the air-to-air and air-to-ground missions. Survival in the modern aerial battlefield will require intimate knowledge of the mission, and we may not have time to reorient our training after the battle has begun.[1]

We, the present authors, do not violently disagree with the overall philosophy of specialization expressed in that article. But viewing the possible battlefields of the near and intermediate future in both Europe and Asia, we fear the logical implications of further specialization as it would apply to non-air-to-air dedicated units. Further, our concern lies not so much in the area of tactical fighter training schools but rather in the day-to-day training of operational air-to-surface and defense suppression squadrons, the combat readiness of those squadrons, and the ability of the individual aircrew member to accomplish his mission and survive a conventional war of some unknown duration and intensity. Our own viewpoint is from the training problem in a most—perhaps *the* most—diverse tactical fighter wing in the Air Force. Our wing possesses three air-to-surface F-4D squadrons, one defense suppression/Wild Weasel F-4C squadron, one RF-4C tactical reconnaissance squadron, and one MC-130E special operations squadron. The inherent specialized systems, taskings, and missions of these aircraft only add to the spice of life here in the Pacific. We support the position that specialization of air-to-air dedicated units was long overdue, and we worry about the results of increased specialization on the non-air-to-air specialized units.

First, a doctrinal note of key importance to one of the writers is that the United States Air Force, in his opinion, does not presently have, nor is it scheduled to have, a true air superiority fighter in its inventory. While we have superb air-to-air machines in the F-15 and F-16, both of these weapon systems are limited in application because they can fight only half of the air superiority battle, that half of the air battle concerned with countering enemy fighter aircraft. The closest thing the USAF has to air superiority is the ever-forthcoming F-4G. Even the F-4G, an aircraft that can fight the entire battle, when it becomes fully operational, is technologically limited in performance and maneuverability against both the enemy fighter threat and the more advanced surface-to-air missile (SAM) systems. Heston's rhetorical question, from our standpoint, must be answered with a no—we are not organized and equipped or trained to ensure air superiority, nor will we be until we can guarantee the defeat of the enemy's SAM systems and fighters.[2]

Our second major assumption is that the Tactical Fighter Force is currently undergoing a fundamental change in training methodology away from the Designed Operational Capability (DOC) system of Multi-Command Manual (MCM) 51-34 toward the Graduated Combat Capability (GCC) system as outlined in MCM 51-50. Under the old DOC system, which applied until 1 January 1978:

> ...units with multipurpose fighter aircraft (e.g., the F-4) would be assigned a primary and a secondary Designed Operational Capability.... Each DOC entails specialization in either air-to-surface or air-to-air weapons employment. The air-to-air DOC encompasses two segments: air superiority, which involves offensive air-to-air weapons employment; and air defense, which involves area or boundary defense. The air-to-surface DOCs are divided into conventional and nuclear weapons employment.[4]

This guideline was not universally applied, at least not in PACAF, which had already further specialized into single DOC functions and was enlightened enough to have created a defense suppression DOC for an F-4 operational unit. Development of the defense suppression DOC was an evolutionary process, involving almost continual negotiation between the unit and higher headquarters to resolve differing viewpoints on how the aircrews should be trained and what skills the individual aircrew needed to possess in order to be truly mission-ready. This evolution uncovered unexpected doctrinal and procedural problem areas, not all of which have been fully resolved under the GCC system. However, this same process has pointed the way to a possible solution of the overall training problem for air-to-surface committed units, given a degree of flexibility and open-mindedness on both the level of the unit and higher headquarters staff levels. We shall return to this solution later in the discussion.

DOC training involved two separate but related training standards, sorties and events. To stay mission-ready (MR),[4] an individual had to fly no less than a specified number of creditable sorties in a six-month period. Further, in a completely separate count, he had to accomplish a designated minimum number of discrete training events, such as dropping x low angle bombs, y high angle strafe passes, z armed reconnaissance routes, etc.[5] Events and sorties taken together were thought to guarantee skills and proficiency in the use of the weapon system to accomplish mission tasking. Failure to achieve a given number in either category caused regression to a non-mission-ready status. Prior to 1 January 1978, air-to-air training for air-to-surface DOC units within PACAF was limited to 16 sorties per six-month period, of which two sorties had to be basic fighter maneuvers (BFM) offensive and two had to be BFM defensive. Failure to meet these goals did not result in regression (an exception to the general rule) but had to be waived by Hq PACAF/DO.[6]

Graduated Combat Capability training is subtly different from the old standards of sorties and events. The current method of training, in PACAF at least, is based on the philosophy that flying a given number of sortie types, using scenarios that necessitate the performance of real-world tactics, should allow the aircrew to maintain a given combat capability at a certain level of proficiency. For air-to-surface units, nonscenario basic weapons qualification rides are also provided. There are certain prescribed events that must be accomplished, but in general, these are not tied to any specific numbers. "The term 'event' in this context is synonymous with 'task' and is not intended as an item to be 'logged' in any specific numbers."[7] The number of air-to-air sorties depends on the specific combat capability assigned to the unit (here in PACAF, these sorties are currently prescribed).[8] For example, an air-to-surface unit might be assigned the requirement to maintain GCCs of basic air support, basic nuclear proficiency, Maverick air-to-ground missile specialization, and basic

air interdiction. Each of these Graduated Combat Capabilities is separate and distinct, but there is some trade-off in the sorties thought to enable proficiency in each GCC. Not every member of the unit has to be mission-ready in each GCC at any given time. The current number of recommended air-to-air sorties in PACAF for an aircrew member maintaining MR status in the above-mentioned four distinct GCCs is 14. One could argue that the trend exists toward less air-to-air training for air-to-surface and defense suppression units rather than maintaining a stable number or increasing. We feel that if Heston's plan were adopted, this trend toward fewer air-to-air-dedicated sorties for air-to-surface units would become more severe.

Our main concern in this regard centers on dissimilar air combat tactics (DACT) training. DACT involves matching aircraft of one type against a different type of fighter, preferably having a simulated adversary fairly close in performance to enemy aircraft for the sake of realistic simulation and training effectiveness. The present best source of DACT lies in the use of assets from the Aggressor program: F-5Es simulating MiG tactics.[9] Aggressor resources are limited, but some expansion capability is present.[10] However, if Heston's desires are met and the number of sorties devoted to DACT for air-to-air specialized units is doubled over the present level, those sorties must come from somewhere. We suspect that the only real source of increased DACT sorties for air-to-air units lies in cutting back the sorties presently dedicated to air-to-surface units. Frankly, this possibility frightens us, primarily because both authors are in air-to-surface specialized units

One more assumption needs to be examined: in the opening stages of a conventional war, USAF and allied tactical forces will be evenly matched or, more likely, significantly outnumbered. Analysis of simple force posture comparisons indicates the high probability of this eventuality, although Korea is not an open-and-shut case as is Europe.[11] The main concern is with "functional" balance. For example, depending on warning time or lack thereof, we might find ourselves in a war in Korea with the forces on hand. PACAF, USMC, and USN carriers/fighters are available, but it is unlikely, in our opinion, that all available aircraft could be simultaneously rushed to the peninsula. Some USAF/allied/other service aircraft will be required for close air support, others for defense suppression if the ground advance of the enemy is to be halted. While not necessarily so, the North Koreans *could* retain and use the vast majority of their aircraft as an umbrella over their attacking ground forces, or to fill in the gaps caused in their SAM system by defense suppression action.[12] In any case, the targets of enemy defending fighters are rationally (and traditionally) our fighter-bombers attempting to bomb his troops or disrupt his lines of communication. Thus, it is quite likely that USAF pilots will be tasked to perform missions beyond those for which they had been primarily trained.

NOW WE can start to focus on the central uneasiness we feel. Heston tells us that "the tremendous power of specialization and training is evident when considering that the top 15 German aces of World War II accounted for 3574 kills."[13] The contention may well be true. But there is an alternate, or perhaps a corollary explanation: some or all of the 3574 pilots involved in the other aircraft may have been overly specialized in air-to-surface endeavors or may not have been properly

trained to negate the attacks upon them, much less trained to gain the advantage and then destroy their attackers. If Heston's plan is accepted as proposed, and he is correct in maintaining that "there would be a residual capability in the secondary missions, but a combat-ready level of proficiency would be lacking,"[14] then our air-to-surface tactical fighters are unlikely to be able to accomplish their missions in an efficient, survivable manner. To be honest, we need to know some percentages of intended specialization (i.e., how many squadrons would be air-to-air, etc.,) before we can adequately evaluate the full impact of his proposal. However, all the air-to-air-trained crew members would be lacking in the proficiency necessary to perform interdiction and close air support, capabilities vital to stopping an enemy attack. These capabilities may be of paramount short-term importance.[15] We are currently specializing a number of air-to-air squadrons. Increasing the specialization level even further would tend to reduce the air-to-air training resources available to the air-to-surface and defense suppression units and, by the very nature of the proposed specialization, would leave these non-air-to-air units with a "lack of combat-ready proficiency" at air-to-air. This is what is intolerable to us in his proposal.

If one is deployed to Korea as a Wild Weasel aircrew member and committed to combat in the defense suppression role, he *must* be combat ready in both defense suppression and air-to-air or he will not be able to accomplish his mission and/or survive. This is particularly true for the defense suppression squadron but is also valid for all air-to-surface committed forces. Once committed to combat, the aircrew survives the first missions on the skill and experience that have been previously acquired, probably through peacetime training. Our current training philosophy is based on this principle. Realistic training, mock combat, and other similar simulations will hopefully prevent unnecessary losses in the first days of combat. Likewise, if an aircrew is not combat ready in air-to-air, can that aircrew be expected to survive if air-to-air combat is forced upon him?

Again, we return to the probability that defense suppression and air-to-surface forces will be compelled to engage enemy fighters. To a certain extent, this can be viewed as a tactics and planning problem, but unless friendly force posture is such that we can guarantee a majority of aircraft employed as air-to-air combat air patrols, the probability of such engagement is quite high and becomes higher as the percentage of total force devoted to counterair becomes lower. The enemy is free to decide where and when to commit his fighters. Even if air-to-surface or defense suppression aircraft are escorted, the escort can become engaged, leaving those escorted at the mercy of follow-on attack tactics. The authors' personal experiences in both Red Flag and Cope Thunder[16] indicate that, if the enemy attackers are numerous, they will in fact penetrate, outfox, or in some other devious manner, manage to get past the air-to-air protection and "tap" the strike or defense suppression aircraft.[17] While the battle occurs over or near his territory, the enemy can readily continue to commit aircraft to counter the friendly air action. Protecting escorts can be stripped away or outnumbered. One must remember the reason we need air-to-air fighters in the first place. To sweep the skies clear of enemy fighters does little by itself to stop his offensive. We try to destroy his fighters so that they will not stop our bombers from attacking his ground assets. Our air-to-surface committed forces are the prime reason friendly

air forces are operating over enemy territory in the first place.

Today, in a real-war, first-day situation, a choice presents itself to the aircrew once the friendly bomber or defense suppression aircraft is attacked. The friendlies can attempt to retain their ordnance and disengage toward the target, or jettison their ordnance and either turn back toward home or engage the enemy. Engagement would be foolhardy if the concerned aircrew were not combat ready in air-to-air. Engagement under this condition has the built-in disadvantage of automatically meaning a failure of the primary mission—the bombs do not get to the target—the enemy can disengage immediately because once the ordnance goes, so does our threat to his ground forces, supply lines, etc. His defending fighters are automatically successful, regardless of what happens from that moment on. Once the ordnance is gone, there is no compelling reason for anybody to stay around. The first alternative presented, therefore, is preferred from the aspect of mission accomplishment, retention of ordnance, defeat of the enemy attack, and continuation on to target. Without continued emphasis on air-to-air for air-to-surface units, this option of continuing on to target becomes less viable.

For defense suppression aircrews, this dilemma is particularly acute because they, like their air-to-air counterparts, are normally operating in *support* of the primary mission. If enemy air can drive the Weasel off, the strike force and air-to-air escorts become even more vulnerable to SAM attack. The Weasel cannot suppress the SAM if he is not there or has gotten rid of his defense suppression ordnance in order to stay alive. If the strike aircraft are being closely escorted, the escort cannot afford to leave them to aid the Weasels, since that will leave the strike birds vulnerable to air attack and mission failure.

Much of the problem is self-imposed by our concept of air-to-air training. The either/or choice of proficiencies is or can be a false issue. In the past, we may have been too narrow-minded in conceptualization or too demanding in tasking. Let us take the defense suppression mission as an example. Until 1 July 1977, the Weasel in PACAF had a primary DOC of defense suppression and a secondary DOC of air-to-ground conventional. Within the primary DOC, the defense suppression aircrew had to perform (and was limited to a maximum of) 12 defensive combat maneuvering (DCM) sorties. DCM was and remains very clearly defined as negating an enemy attack and is restricted to just that.

To engage in offensive maneuvering, one had to be required to perform air combat maneuvering (ACM) as an event. ACM is differently defined and regulated in training than is DCM. Neither of the two allowed forms of air-to-air training fit the expected combat employment of the Weasel force. The answer, here in PACAF at least, was first to analyze the defense suppression mission. The initial change was the elimination of the primary and secondary DOC concept as redundant. New training events were introduced in the DOC that flowed from the analysis of the Weasel mission. The Weasel was required to train in those things necessary for him to carry out his combat mission. The Weasel does not need to know *all* aspects of air-to-ground gunnery, nor of air-to-air combat. He does need to know and be proficient at *some* aspects of both. Does it make sense to know all there is to know about radar AIM-7 and AIM-9 missiles and their employment, high-angle deflection gun passes, and the total use of the

aircraft cannon in air attack if your probable mission profile indicates you will not have two of those three systems available to you? It certainly does not. In this present case, the Weasel in the performance of his Weasel mission cannot carry AIM-9s and is unlikely to carry a gun since that option takes up a weapon station that will, in all probability, have either fuel or ordnance on it. What the Weasel needs to know is how to employ AIM-7 missiles quickly and effectively with a high probability of single shot kill. He must, to perform his mission, have the capability to negate an enemy attack and either destroy the enemy or drive him off. The Weasel cannot leave the target area if he is to accomplish his mission; he must stay and suppress the enemy SAMs, just as the strike pilot must reach his target with bombs to be successful. Neither the Weasel pilot nor the strike pilot must be a specialist at the air-to-air skill to do this, but he should be well enough trained to fight his machine against the enemy in his combat configuration and with the weapons he has at his disposal.

F-16 tactical fighter training (TFT) in air-to-air employment usually includes three phases: transition proficiency, air-to-air proficiency, and air-to-ground familiarization.

Our first requirement is to analyze the unit mission in detail. Within the GCC concept, individual squadrons should be better able to identify the degree to which their probable wartime tasking will expose their aircrews to enemy air. For example, a squadron with a required GCC of interdiction is, in general theoretical terms, more likely to encounter enemy aircraft in the fulfillment of its mission than is a squadron tasked with close air support. While both need a certain amount of regularized air-to-air training, one squadron may need it more than another. Knowledge of the probable area of employment, enemy strength and weakness, and our own contingency plans is a necessary part of this evaluation.

The most direct solution, in conceptual

terms, appears simple. Earlier we pointed out that the dilemma we face in specialization is perhaps a false one because it creates an either/or choice where none may really exist. There is no need to train an air-to-surface aircrew member in the full range of air-to-air, but he does need to know how to use the weapons at his disposal to drive off or destroy an enemy and continue with his mission. Since we are moving into the use of the GCC system to produce both unit and individual combat readiness, it seems feasible to create a GCC in counteroffensive air-to-air capability.[18] Through proper selection of training tasks to be accomplished, aircrews can master a portion of the total possible air-to-air knowledge and skills, including, it is hoped, that portion directly related to the aircrew's probable combat configuration and weapon availability. In the case of the F-4, such training tasking would logically center on the use of the AIM-7 system. A typical training event sequence, for example, could feature ground-controlled intercept warning of closing bandits, visual acquisition and identification, radar lock-on, and a quick missile firing simulation (within system parameters) to achieve a "kill."[19] Separation or continuation to target from that point would depend on the tactical situation, the number of bandits, etc.

Further, future training under MCM 51-50 would seem to lend itself to progressive scenario training techniques.[20] If these training programs prove successful, training toward a given set of GCCs, including counteroffensive air-to-air, could be regularized with scenarios arranged in building-block fashion. Dissimilar counteroffensive air combat tactics (ACT) should be a planned portion of each aircrew member's progression. Continuation training could progressively expose the inexperienced aircrew member to more difficult simulated combat conditions, with participation in exercises such as Red Flag/Cope Thunder as the capstone of recurring training. After a specified level of proficiency has been reached, counteroffensive ACT should be a planned portion of all tactics rides. The attacker, even if in a similar aircraft, can use basic fighter manuevers or commonly known hostile intercept techniques. If the operational aircrew member cannot reach that level of proficiency, in our opinion he should not be flying fighter aircraft in the first place, for it is clear that he will not be truly combat ready and, therefore, will constitute a liability to himself, his squadron, and the Air Force when he does fly in combat. Further, after a crew member has reached this level of safe, mature performance, he can repeat the entire training sequence from basic fighter maneuvers to advanced handling tactics missions such as dissimilar air combat tactics training, but with simulated combat configurations. Flying an air tactics mission as a "mud-beater" in a clean configuration has its merits,[21] but it is not quite the demanding case that will be necessary in combat if the mission is to be accomplished. There is nothing inherently unsafe in high gross weight maneuvering—unless such handling is unfamiliar to the aircraft handler. Any action within the designed performance envelope of the aircraft can be made safe if it is approached gradually and with full knowledge.

We must still face the larger problem of restrictions on training, especially for inexperienced crews. Maximization of operational continuation training is not possible until many of the often self-imposed restrictions are removed.[22] It is also somewhat paradoxical that we must worry about training to a combat-ready status in the operational squadrons. In

wartime, a young fighter pilot comes out of the replacement training unit (RTU), or in Heston's terms, a TFT, and goes into combat where aircraft loss and death are very real possibilities. Yet, in peacetime, the same young man enters an operational squadron and is faced with multiple restrictions and "can't dos" on his flying activities until he becomes experienced. If we sincerely believe that fighter aircrew members in USAFE, PACAF, and the dual-based units can be committed to combat at a moment's notice, then there is no real excuse for putting limitations on their flying activities. If they are too inexperienced or unknowledgeable to do pop-up attacks or land in weather that has deteriorated to 100-feet overcast with a visibility of one-fourth of a mile, they will not be any better equipped to handle such problems tomorrow morning when the war begins. The enemy probably will not honor a 90° turn, a rocking of wings, and a turn back to course as a signal to knock off an attack because his victim has not been properly certified in DACT. Even if it is peacetime, if any individual in an operational squadron must have restrictions placed on his performance of flying combat-related and required tasks, he is not combat ready! He should not be placed in a position where he can be sent into combat immediately. Even the new GCC concept does not alleviate this problem, although the philosophical trend behind the concept is in that direction.

WHILE somewhat outside the scope of this discussion, there are at least two long-term organizational suggestions that might be further investigated. The first is similar to Heston's proposal for TFTs, but differs in resource intensity. Since it is peacetime, what would be wrong with an extended TFT program that covered perhaps 250 sorties and took 18 months or more to complete? Enough repetition would have to be provided so that the graduate is in fact a fully qualified basic combat-ready fighter pilot. Some specialization would be possible toward the end of the program, based on the GCC concept, so that graduates could then be assigned, fully qualified, to a unit tasked with the appropriate specialties. For the air-to-air portion, the training would include full qualification in the counter-offensive GCC basic level, and those slated for air-to-air tasked squadrons would undergo more intensive training in the weapons used in the full range of air-to-air combat. For the F-16, we have a golden opportunity, since the TFT programs have not yet been finalized, nor is there agreement on probable combat loads, tasking, and basing. The specialization decision here should take into account the residual air-to-air capabilities of typically configured air-to-surface tasking. Counter-offensive air-to-air training would then center on optimum/maximum use of the residual systems.

Another alternative, similar in concept to the extended TFT, would be a two-tier fighter pilot system. After finishing TFT, the young officer would be assigned to a TAC unit that is not dual-based and does not have an immediate stand-by commitment. The young member would spend one full tour in this unit before becoming eligible for overseas front-line duty. The experience problem overseas would disappear, career planning/manning would seemingly be made easier, and there might well be less turbulence in the personnel system. It is even conceivable that remote tours could be coupled with longer tours in the same theater as part of an assignment package. Overseas squadrons could thus concentrate on finding solutions to tactical employment problems they will face in

their areas of operations. If war should break out, TAC augmentation forces would seemingly be no worse off than the overseas operational squadrons are now. We would have a far more highly trained, proficient, and competent initial cutting edge to our air power sword.

RETURNING to the immediate problem raised by Heston in the area of an increase of air-to-air efficiency in our fighter forces, we can think of yet another possible solution. This subject has caused much debate within the fighter community recently. Major Heston cited inexperience as the rationale for having wingmen.[3] While true, at least traditionally, this is only one of two reasons for putting a man on the wing. The second reason is the more germane to this particular discussion. Somebody is needed to cover the leader, to visually sweep his blind spots to keep the leader from being caught unawares. In the parlance of fighter pilots, the wingman's primary historical functional responsibility in all air forces has been to "check six o'clock." In the high speed ("speed is life"), complex, and always confusing modern aerial combat arena, mutual support serves to allow each individual fighter the ability to keep another clear of attack. In multi-aircraft engagements, there seems to be a tendency for fights to break down into "1 versus 1 or more," where mutual support is at a minimum. Further, rumors leaking from Red Flag, Cope Thunder,and other sources indicate that most kills registered against most types of aircraft are "unobserved shots," that is, an enemy being in a lethal position without the friendly pilot seeing him. We strongly suggest that the greatest immediate increase of efficiency to be gained in our air-to-air capability over hostile fighters in future wars lies not so much in increased specialization but rather in increased seating capacity. The arguments on both sides of this issue (two-seat fighters versus single-seat fighters) seem to be grounded more in emotion than in objective, provable fact.[4]

We realize that long-term solutions require long, often painful, periods of transition time before they can be put into effect, but in peacetime time exists to make such transitions. When an air force goes to war, it fights that war with the doctrine, habits, and expertise it has on hand and only painfully and slowly develops new doctrine, tactics, and expertise during the war. In the near term, we live in an exciting time in the tactical fighter business. It took us approximately 18 years before we adopted our present air-to-air tactical concepts, but, once adopted, we have revolutionized ourselves as a force. We are bringing three new combat aircraft and two remade new models (F-4G and EF-111) into the inventory in the next few years. We are embarking on a new concept in gaining and maintaining combat capability. However, we would do well to take a little time to experiment with innovative ideas and derive test results before we lock ourselves in concrete. This is particularly true of the F-16 program.

WHILE we agree with Heston that specialization is desirable for designated air-to-air units, we strongly believe that the minimum degree of air-to-air skill required for air-to-surface and defense suppression aircrews is the full capability for combat-ready counteroffensive tactics and maneuvering, based on the air-to-air weapons and techniques that would be part of the expected combat mission configurations. We are presently specialized, and perhaps some fine tuning is necessary in the percentages of units

dedicated to each role. But much improvement in efficiency is available within our current programs. We cannot afford to have further degradation in the amount and quality of air-to-air training for non-air-to-air specialized aircrews. It will not do any of us much good if, after the next war, the air power historians say that: "USAF counterair units built up an impressive, favorable exchange ratio of 15 to 1; however, the top 15 (*fill in your favorite enemy*) aces accounted for 3574 kills among American strike aircraft." We agree that "even a few capable fliers trained in the best air-to-air fighters can carry out this mission with the highest probability of success,"[25] but we would add, and insist, that the ability to carry out the majority of assigned tactical air tasks successfully ultimately depends on the capability to reach a target with ordnance still on board and then deliver that ordnance. The enemy fighter pilot is also tasked with Richthofen's oft-quoted dictum concerning patrol, destruction of the enemy, and rubbish. However, we prefer to remember the statement attributed to Patton, that our task is not to die for our country but to make some other fighter pilot die for his.

Kadena Air Base, Japan

Notes

1. Major Robert A. Heston, USAF, "Specialized Air-to-Air Combat Training," *Air University Review*, September-October 1977, p. 84.

2. Major Donald J. Alberts, USAF, "A Call from the Wilderness," *Air University Review*, November-December 1976, pp. 35-45. See also Benjamin S. Lambeth, *Soviet Training and Tactics for Air to Air Combat* (U), R-2163-AF (Santa Monica, California: Rand Corporation, September 1977).

3. Colonel Robert D. Russ, USAF, "Air-to-Air Training under the DOC System," *Air University Review*, January-February 1977, p. 70.

4. Multi-Command Manual (MCM) 51-50, vol. I, 12 August 1977, defines mission-ready status as: "Trained to a specific combat capability for immediate introduction into combat at that level." Under MCM 51-34, the old system, mission-ready was essentially the same, except the criterion was the ability to perform the unit mission as tasked.

5. See, for example, MCM 51-34, 26 April 1976, copies of which should still be available, although the series has been superseded by MCM 51-50.

6. MCM 51-34, Chapter 6 (PACAF only).

7. MCM 51-50, Chapter 6 (PACAF only), draft, n.d.

8. For example, Figure 6 of Chapter 6 (PACAF only) for 51-50 lists 4 sorties for a B1 (basic air support GCC), 6 sorties for A1 (basic nuclear familiarization), 10 for the Maverick specialty (including 4 sorties for B1 and 6 for A1), and a total of 14 sorties for an aircrew member mission-ready at the highest tasked level; in this case B1A1G2G1B2, or, in words, basic air support, basic nuclear familiarization, Maverick qualified, Pave Spike qualified and basic interdiction.

9. "Aggressor Units Hone TAC Pilot Tactics," *Aviation Week & Space Technology*, February 6, 1978, pp. 153-57.

10. Ibid., p. 153. A fifth squadron is possible.

11. Most analyses point to our being outnumbered in both cases, but many qualitative subjective judgments are necessary to describe a meaningful level of either parity or inferiority in Korea. With warning and nonintervention by the People's Republic of China, the friendly allies can have a quantitative combat air power superiority in 48 to 72 hours, depending on where the carriers are and other U.S. reactive measures. See *The Military Balance: 1977-1978* (London: International Institute for Strategic Studies, 1977), pp. 6-7, 60-61, and 107.

12. Several sources can lead one to believe that the Soviets and their doctrinal disciples such as the North Koreans have an option. While the vast majority of war starting scenarios envision a pre-emptive attack on allied airfields, confidence in SAM systems and an air strategic defensive might be a more efficient use of a limited resource—from the standpoint of an intensive equipment-using conflict. The Egyptian Air Force, while engaging in some interdiction/battlefield interdiction work, was used to a great extent in this manner in the October 1973 War. See Nadav Safran, "Trial by Ordeal: The Yom Kippur War, October 1973," *International Security*, Fall 1977. One also vaguely remembers that the Battle of Britain was won on the defensive.

13. Heston, p. 84. Original data cited from Edward H. Sims, *Fighter Tactics and Strategy, 1914-1970* (New York: Harper and Row, 1972), p. 255.

14. Heston, p. 83.

15. Again, the Israeli experience of 1973 is illustrative, as is perhaps the French and Russian experience of World War II. The Israelis wanted to use defense suppression as a technique of gaining air superiority. However, political considerations and initial enemy successes forced the air force into close air support early in the fighting. If one cannot afford to give up ground, the price one is willing to pay to hold that ground can be quite high.

16. Cope Thunder is PACAF's Red Flag. Red Flag is an exercise in TAC where a unit is exposed to mock combat under very realistic conditions of simulation.

17. The proper use of escort fighters is the subject of an open-ended doctrinal debate in the American fighter pursuit field since World War I. Basically there are two main competing beliefs. One school feels that the escorting fighters should stay right with their escorts until the enemy engages them. The other school believes that the fighters should sweep ahead and engage the enemy. Our personal beliefs *tend* toward the former school of thought, with the reservation that we would not be consistent so as to avoid being stereotyped by the enemy. Timing in relation to airspace and the escorted aircraft is critical.

18. In keeping with the nomenclature of the new system, we cannot resist tentatively wishing the "alpha numeric" of the two-level proposed GCC to be termed Counteroffensive 1 and Counteroffensive 2, or CO1 and CO2.

19. It seems easy, but we suspect the first run through would produce some surprises and frustrations. We simply do not train specifically to do these things. We do train to offensively engage and use all our weapons, which trains us in turning engagements that might not be too tactically sound. The Israelis found that getting out of turning dogfights in a multiaircraft engagement, once commenced, was very difficult.

20. PACAF has chosen to experiment with the scenario training idea as its vehicle for building GCCs, both for air-to-air and air-to-surface

training. Interested fighter wing directors of operations can wire 18TFW/DOT for a sample air-to-surface program.

21. The aircraft performs best that way, and it is the way the airplane will fight, if external tanks and ordnance are jettisoned. As pointed out, jettisoning automatically precludes mission success if it occurs prior to the target.

22. We are not opposed to safety. But we would like to see a philosophy similar to that of the Israelis: if the majority of line jocks think a restriction is not a good one, it is amended or eliminated. See MCM 55-200, 20 July 1977. Major command local restrictions and procedures are found in separate Chapter 4s.

23. Heston, p. 86.

24. Unpublished notes from the 1977 Fighter Symposium, "The Single Seat Fighter Again—Still the Best Option" versus "Why Our Next Generation Fighters Should Be Two Seat Aircraft." See also Major Barry D. Watts, "A Comparison of Team and Single Ship Approaches to Aerial Combat" (Unpublished paper, USAF Academy, December 1976).

25. Heston, p. 84. If one is interested in building capability for air-to-surface units, see and digest the two-issue series of articles collectively entitled "Training toward Combat Capability," in the *USAF Fighter Weapons Review*, Winter and Spring 1977 (Nellis AFB, Nevada: USAF Fighter Weapons Center, 1977).

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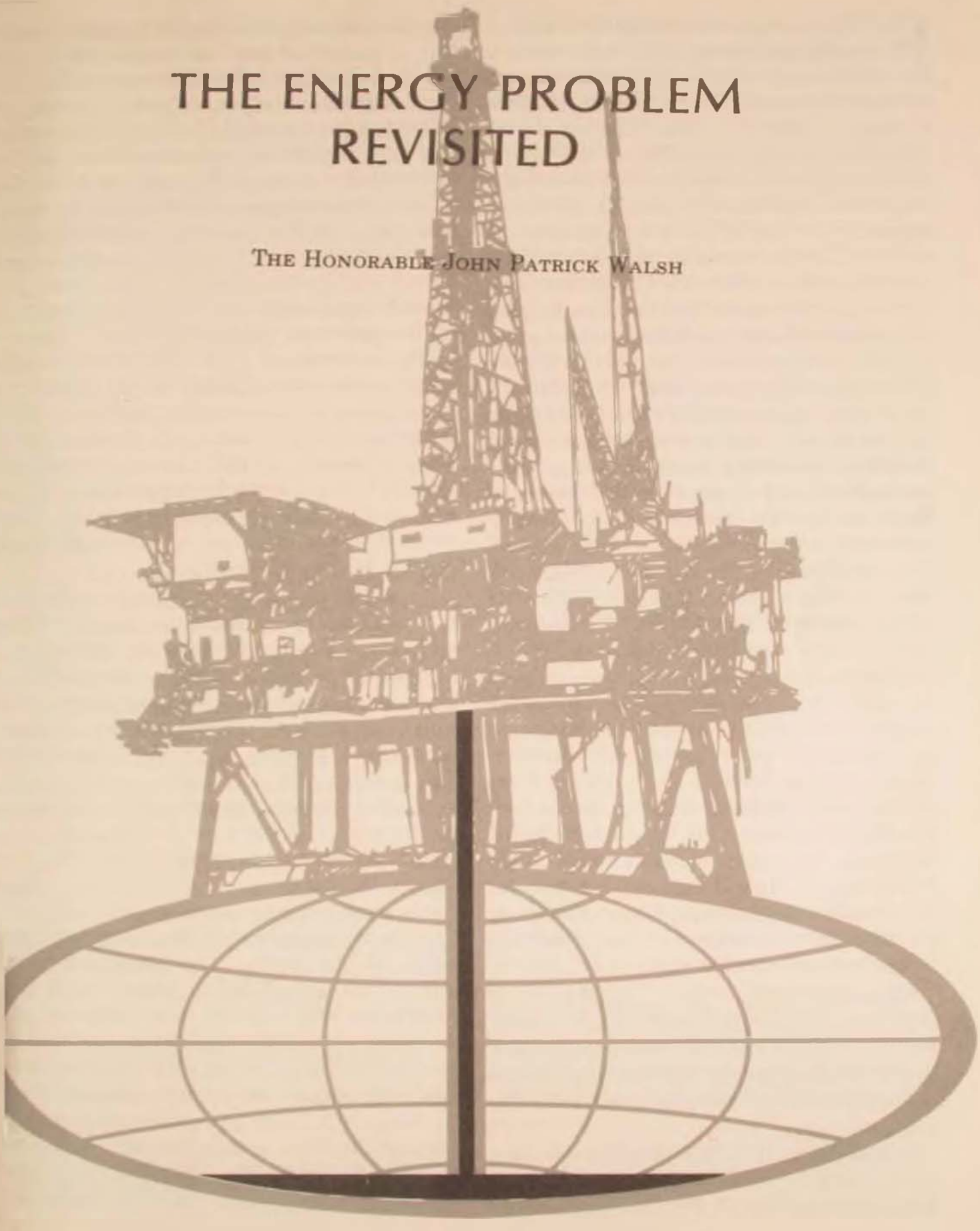
The Editor

THE ENERGY PROBLEM REVISITED

THE HONORABLE JOHN PATRICK WALSH



FEW, if any, domestic and global issues are as complex and controversial as the sundry elements relating to the production and consumption of natural energy. Uncertainties about current realities and future probabilities have deepened with the passage of time. In an overall sense, the energy situation seems to be embedded in a process of metamorphosis, complicating systematic analysis and rational policy judgments.

Nearly five years after the imposition of the Arab embargo and the vast surge in the international price of oil, the United States continues irresolutely to drift with the issue. Public comprehension of the nature of the problem and its looming threat to the safety and well-being of the nation has not prospered in the interim. In fact, public awareness of the issues involved appears to have deteriorated since the President presented his National Energy Plan in the spring of 1977. The Department of Energy has been established, but it remains a hollow facade in the absence of a congressionally approved energy policy. The policy proposals of the administration have been badly lacerated in the course of congressional considerations, which remain incomplete. Some provisions may be enacted in the current troubled session, but the outlook for comprehensive energy legislation is bleak. Furthermore, the administration has yet to unveil its long bruited Phase II plan to promote new energy sources. Drift remains the order of the day.

Meanwhile, the global supply of oil remains in surplus, albeit high priced. OPEC (Organization of Petroleum Exporting Countries) production remains below capacity levels, a restraining factor on fiat price increases.

In the first half of the year, total energy consumption increased in the United States, accompanied by adequate energy supplies. Favorable weather conditions have expanded hydroelectric availabilities from the relatively low levels of last year. Coal production is back to normal following the record strike during the past winter. Nuclear power production has moderately increased. Natural gas availabilities are more plentiful than they were last year. The flow of Alaska's North Slope oil, which began in July 1977, has reached significant levels. And the high price of energy, particularly oil, has inspired some improvement in energy efficiency. These factors, combined with lower economic growth rates, were reflected in the January-June period in a substantial decline in oil imports from the very high level in the similar period of 1977. Since economic growth levels during the remainder of this year and in 1979 are likely to be relatively soft, oil import demand and costs should remain below 1977 levels.[1]

To some extent these favorable short-term trends have tended to obscure the medium- and longer-term energy problems and dangers. High-energy consumption tendencies continue in the society and are unlikely to be curbed unless a comprehensive energy program is enacted. The country is currently heavily dependent on external sources of oil, and this dependency will grow in the years ahead. Oil import costs are major factors in our domestic inflation, in our substantial trade and current account imbalances, and in the softness of the international value of the dollar. The trade compensatory value of North Slope oil will gradually decline in the face of increasing domestic demand. And there are substantial doubts that the existing goals for coal and nuclear energy production will be

Editor's note: The energy problem was previously "visited" by Ambassador Walsh in "The Energy Problem in a Global Setting," *Air University Review*, July-August 1977, pp. 2-14.

reached. Significant energy supplies from esoteric sources will not be available for many years. In addition, the outlook for oil and natural gas production is not particularly sanguine. Higher prices and improved technology are increasing the yield from existing fields, but this process has its limits. The mainland and the Gulf waters have been extensively explored, although exploratory activity continues at high levels. Exploratory activity in the Baltimore canyon off the continental shelf is at an early, inconclusive stage. Increasing the offtake of North Slope oil to the capacity level of the Alyeska pipeline will not occur unless a transmission system across California is authorized and constructed or political decisions are made to permit export to Japan or to the Caribbean for refinement for American markets.

Looming ahead are serious supply and demand relationships. Adequate economic growth levels will be reflected in increased energy consumption with some improvement in the GNP/energy ratio. Maintaining existing hydrocarbon reserve levels will be a difficult task. Unless substantial new fields are discovered, the drain on existing, finite reserves will continue.[2] All projections indicate increased import requirements in the years ahead. This dependency will continue to burden our foreign policy. In the absence of fundamental corrective measures, the inherent dangers to world stability and the safety of the nation will inexorably increase. Time is of the essence.

The World Energy Situation

In an energy-sense, the world appears to be in a false-dawn situation, a calm before the onset of stormier conditions. Energy supplies are now adequate relative to demand, although prices are high.

Oil continues to be the principal energy source and the price leader, closely associated with natural gas. Global oil reserves remain reasonably comfortable at about 678 billion barrels, largely situated in the Middle East, particularly in the Persian Gulf area. With global consumption annually exceeding 20 billion barrels, there is a premium value on exploration, which is now at high levels in increasingly difficult and expensive locales. However, balancing the consumption rate with new discoveries is a difficult and uncertain process. In effect, it would mean bringing in the equivalent of two new North Slope fields each year. And the development time to produce oil and natural gas from new fields is lengthy.[3] The most promising new reserve areas are in southern Mexico, western Siberia, the sea frontier of Argentina, and the continental shelf off the East Coast of the United States. The politically disputed seas off the Asiatic mainland may also prove rewarding in terms of oil and natural gas reserves.[4] Each involves technical problems, heavy capital expenditures, and uncertain time factors. Older fields, most significantly in the United States, Canada, Venezuela, and the industrialized western sections of the Soviet Union are in advanced depletion stages.

Oil is now in surplus in international markets, a condition that is likely to prevail into the middle of next year or longer. This condition reflects surplus OPEC capacity, the increasing availability of North Slope oil, the growing capacity of the North Sea fields, the gradual increase in Mexican production, and the relative slackness of the industrial economies.

Global oil consumption in 1977 approximated 59.6 million barrels a day (mmbd), including about 50 mmbd in non-Com-

munist countries. Assuming moderate economic growth rates in the industrial countries, global consumption in 1978 is likely to be in the vicinity of 62 mmbd, including about 52.5 mmbd in the non-Communist sector.[5] This will include some accumulation of strategic reserves. OPEC offtake in 1977 approximated 31.6 mmbd and is currently running below that level. Since this is less than the productive capacity of the member states, price stability and even some price shaving is likely to continue through the end of the year. Price stability in 1979, however, is less likely. Pressure probably will mount within OPEC for a price hike effective 1 January 1979 to compensate for import price increases and the decline in dollar values.[6]

The U.S. Energy Situation

Nearly five years after the imposition of the Arab oil embargo and the vast OPEC fiat price increase, the United States irresolutely drifts with its energy problems. During this time span, domestic energy consumption grew roughly in proportion with national production growth rates, although the efficiency of energy usage was improving. Since this was accompanied, prior to the availability of North Slope oil, by a decline in total energy output, the gap had to be covered by heavy imports of fossil fuels, particularly oil.[7] Oil imports during the 1974-1977 period increased by nearly 40 percent, representing in 1977 about 47 percent of total petroleum consumption.[8] Simultaneously, there has been a massive shift in the source of the imports and growing dependence on Arab production.[9]

Despite increased coal and nuclear energy output, the nation has become more dependent on oil, which is now almost double the amount contributed by any other energy source.[10] This reality increases the demand for oil imports, which in 1977 rose by about 18 percent. Domestic oil production was marginally above the 1976 level due to the initial availability of Alaskan North Slope output, while natural gas production remained at about the 1976 levels.[11] Coal production declined.[12] Nuclear energy output increased significantly in 1977, contributing 11.7 percent of total electrical generation. The year, however, was also marked by an unprecedented number of nuclear project cancellations.[13] Total electrical production was about five percent higher in 1978.

The average daily consumption of energy in 1977 was two percent above that of the previous year, including an increase of six percent in the use of refined petroleum products.[14] A belated beginning also occurred in 1977 in the accumulation of a Strategic Petroleum Reserve (SPR). In the course of 1978 the accumulation rate is scheduled to increase from one hundred thousand to a million barrels a day. The ultimate goal is an oil reserve of one billion barrels, with an intermediate goal of about 500 million barrels by December 1980.[15] As the accumulation proceeds, the insurance policy value of the SPR will increase.

The energy consumption and production outlook for 1978 is complex. Demand will correlate fairly closely with the levels of overall economic growth, although benefits are being derived from the gradual improvement in the efficiency of energy usage. Total energy consumption in the first quarter increased by 3.1 percent relative to the same period of 1977. The growth in oil use was below that level in part because of a surge in natural gas utilization. On the production side, higher supplies of North Slope oil will increase domestic production. Output from the lower-48 states will approximate 1977 levels. A similar situation is likely to

prevail in respect to natural gas. Significant increases in nuclear energy and hydroelectric generating capacities are indicated. By mid-year, coal production was back to normal. However, strike-generated production losses are unlikely to be compensated for in the course of this year. The gap between demand requirements and supply availabilities will continue to be covered by fossil imports, although below the very high 1977 levels.[16] The supply requirements of the Strategic Petroleum Reserve will grow in importance as the year progresses. Assuming normal economic growth rates, import requirements will edge upward in 1979.

Oil and natural gas exploratory efforts provide some brightness in an otherwise bleak energy picture. In 1977, rotary drill and seismic operations were well above the previous year as were well completions. These high levels of exploration will continue this year, along with the commencement of exploratory efforts off the continental shelf.

Status of the Energy Legislation

American efforts to forge a national energy program are badly bogged down with an uncertain future. The National Energy Program presented to Congress on 20 April 1977 was highly complex and destined to stimulate widespread opposition. As a minimum, however, it provided a conceptual framework for congressional consideration of the energy issue.

The administration's proposals forecast an economic growth rate through 1985, below existing GNP growth rates but in line with traditional trends. Simultaneously, it assumed considerable improvement in energy efficiency, including substantial shifts from the use of oil and natural gas to the plentiful coal reserves.[17] Coal production was to exceed one billion tons by 1985, an increase of about 60 percent, and nuclear energy electrical generating capacity was to more than double. Annual energy demand growth was to be reduced below two percent, and oil imports were to fall to six million barrels a day. The latter would reflect a substantial decline in the annual oil consumption rate.[18]

The program was presented as an integrated whole with mutually supportive and dependent parts. Its prime emphasis was on conservation rather than increased production. A so-called "Phase II plan," emphasizing energy production proposals, has not yet materialized.

Subsequent congressional actions with respect to the original proposals have been tortuously prolonged with disjunctive consequences. In the ensuing political melee, they have been seriously shredded, particularly in the Senate. Widely varying House and Senate proposals were referred to a Joint Conference Committee last fall, which has not as yet completed its work. With time running out on the Ninety-fifth Congress, efforts continue to reach a series of conference compromises. If this can be accomplished in the coming weeks, the joint proposals would have to go to floor votes. Although both bodies are weary of the issue, it is conjectural whether legislative agreement will occur this year. The variances within Congress with respect to this complex subject bear some resemblance to the splinters within the United Mine Workers Union in regard to the 1978 coal contract. Even if an energy program is enacted this year, it will differ widely from the original proposals, and it will fall short of optimum levels in terms of conservation, production, and the efficient use of available energy sources.[19]

In the event of continuing congressional impasse, the administration might choose to impose import duties or import quotas.[20]

However, unless they were quite severe, they would be unlikely to curb import demand significantly. Furthermore, they would have some adverse price and administrative consequences. The administration would prefer that Congress enact the proposed crude oil equalization tax, which would eliminate the requirement for the burdensome refinery entitlement program.

The discord within Congress in regard to the energy problem reflects the public mood. It is evident that the people are confused about the nature of the problem and reluctant to support corrective measures. Meanwhile, dreams of technological breakthroughs linger on as a form of national opiate. Under these circumstances, the formulation and implementation of an effective national energy policy remain a distant objective.[21]

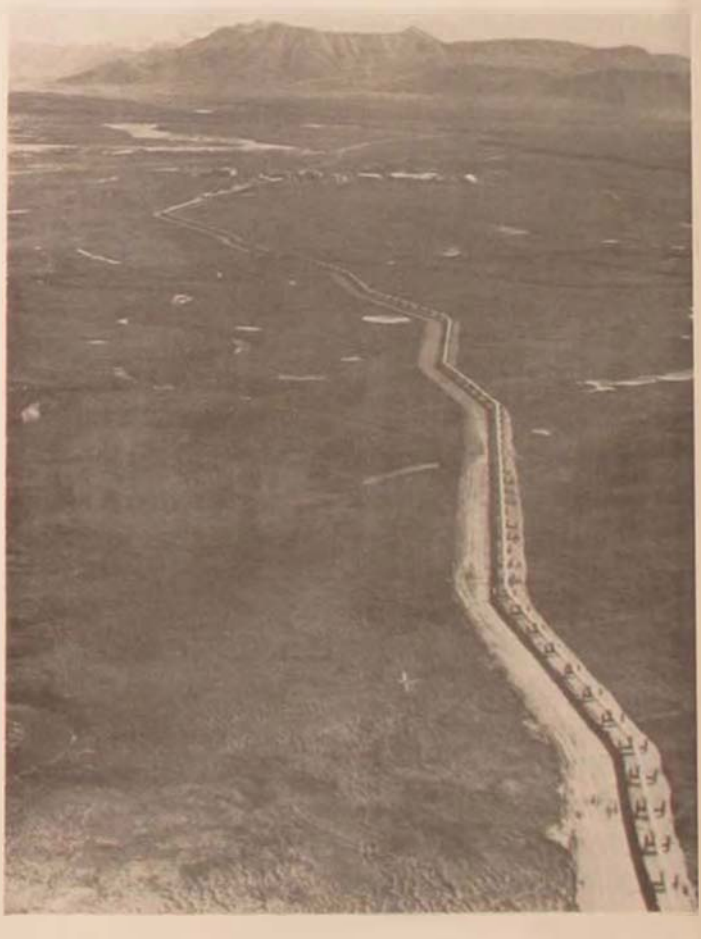
The Medium and Longer-Range Outlook

The energy outlook is both murky and dangerous. Many uncertainties exist with respect to future demand and supply relationships. It seems highly probable, however, that world demand for oil will strain supply availabilities in the course of the next decade.[22] If this occurs, it probably will be accompanied by substantial price increases in real terms. This, in turn, would fan inflationary pressures with adverse production, employment, trade, and balance of payments consequences. If a scramble for available supplies develops, the potentiality for international conflict would increase. The energy outlook, at a minimum, is troublesome, and the significance of resource diplomacy will grow.

The disparate roles of three countries—Saudi Arabia, the U.S.S.R., and the United States—will be particularly important. Saudi Arabia posesses the largest reserves and is the biggest oil exporter. It is also the residual supplier and price moderator in OPEC. Its present production approximates 8 mmbd, substantially below its indicated capacity of 10-11 mmbd. If it is to play an effective role in the next decade as a price moderator, it will have to increase its offtake very substantially.[23] Its tech-

Alaskan Oil

The gravel and insulation workpad underlying the trans-Alaska pipeline (below), on Alaska's North Slope near Pump Station 3, prevents degradation of subsurface permafrost.... The monopod drilling rig platform (opposite) is specially designed to protect it against crushing ice and treacherous currents of the Cook Inlet.



nical capacity and political willingness to do so are subject to considerable doubt. Production capacity will increase into the next decade but at a relatively modest rate.[24]

The U.S.S.R. remains the largest oil producer, but it is falling short of production goals with respect to oil and other energy sources. Its western fields are in the process of depletion, and its main Siberian field, Samotlor, will soon peak. To maintain production levels, the Soviets will have to bring in new fields in more remote Siberian regions in the face of severe environmental, transportation, and technological problems. Capital costs will be very high. Developmental delays would curb their export capacities and perhaps force them into an import mode. Either would tighten global supplies. Nevertheless, the indicated and probable reserves of the Soviet Union are substantial, and it is likely to be in a favorable reserve position relative to the United States at the end of the next decade.

The United States is the largest producer and consumer of energy in the world. In recent years, the magnitude of its oil import demand has provided a flooring for OPEC pricing decisions, has seriously strained American trade and current account balances, and eroded the value of the dollar. The consequences for domestic and global economic stability have been serious.[25] In addition, American foreign policy is now influenced to an important degree by our heavy dependence on imported fossil fuels, particularly from Arab sources. This is a reality with which we must live.

The energy supply and demand outlook in the United States is far from assuring. Domestic oil production peaked in 1970 and natural gas in 1973. The decline in oil production was finally reversed when North Slope oil came on stream in the latter part of 1977. The last large find was at Prudhoe Bay in 1968. The mainland has been extensively explored, and drilling off the west coast of Florida and the Gulf of Alaska has been unrewarding. Exploratory work has recently begun off the continental shelf with inconclusive results and limited optimism. Exploratory efforts in the Bering and Beaufort Sea areas have not been authorized as yet, and the time element in bringing new fields into production is quite long. Higher prices and improved extraction techniques will increase the yield from existing wells, but there are limits to this process. Gradual depletion and ultimate exhaustion of our hydrocarbon reserves appear inevitable.[26]

Simultaneously, there are growing doubts about the accuracy of governmental projections of future coal production levels[27] and nuclear energy generating capacity.[28] In the absence of technological innovations with respect to other potential sources, shortfalls in coal and nuclear output would increase the demand for oil and natural gas.[29] This, in turn, would be reflected in higher hydrocarbon import levels, if the external supply were available.

The 1985 oil import estimates in the National Energy Plan of 6 mmbd were highly optimistic.[30] At the Bonn summit meeting, the administration pledged to reduce imports to 9 mmbd from a projected level of 11.5 mmbd. Projections of this type reflect a variety of assumptions and are highly complex. As a minimum, however, they indicate very heavy American dependence on oil imports in the years ahead.

Higher costs will stimulate greater efficiency in the use of energy. The administration has established a goal of maintaining a ratio between GNP growth and energy demand at or below 0.8. Nevertheless, if the economy remains vibrant, the nation will be faced with

higher fossil import requirements in the years ahead. This likelihood raises serious questions of a supply, cost, and security nature.

Existing and projected global oil production capacities should be able to accommodate the likely level of world demand growth into the early years of the next decade. Beyond that point, however, global supplies probably will tighten unless Saudi Arabian capacity, in particular, is significantly increased. There is considerable doubt from a technical and policy viewpoint that this will occur. If the supply demand ratio does tighten, substantial price increases in real terms are probable.

The vast surge in recent years in energy prices has already had serious economic and political consequences which are continuing. The inflationary effects have been painful. Investment patterns have been altered; production and employment losses have occurred; severe international payments problems have developed; and heavy capital shifts, particularly to the small Arab oil exporting countries, have strained the international monetary system.

In the case of the United States, the fossil import bill soared from $7.7 billion in 1973 to about $45 billion in 1977.[31] This was a basic element in last year's record trade and current account deficits. Oil imports this year will probably be about ten percent below 1977 totals at an approximate cost of $40 billion. Despite this welcome development, the 1978 trade and current account deficits will approximate or exceed the unfavorable 1977 totals.

The heavy trade and current account deficits contributed to the serious and disequilibrating sag in the international value of the dollar. While this development increases the competitiveness of our exports, it has adverse inflationary consequences. Better synchronization of the economic growth rates of the industrial countries would benefit our trade accounts. However, if our trade imbalances remain high, the strain on the dollar is likely to continue unless there is a compensating inflow of foreign investment capital. There is an evident need to curb our voracious energy appetite and expand our exports.

Fundamental security issues are involved in the efforts to maintain stable economic growth rates. Unless we expedite the requisite actions to adjust to our changed energy circumstances, the economy and society could be subject to considerable shock in the years ahead. This could occur as a result of future oil price surges or as a result of tightening oil supplies. This could simply reflect supply and demand factors in international markets.

On the other hand, it could occur as the result of political, paramilitary, or military factors. The outlook for a peace settlement in the Middle East is not bright, although the current quarrelsome impasse need not give way to a fifth Arab-Israeli war. It could lead, however, to decisions by the main Arab oil producers to use the leverage of leveling-off, reducing, or embargoing exports. Such actions would have adverse economic consequences and would intensify political tensions, possibly leading to military conflict. If the fifth Arab-Israeli war does occur, an oil embargo would be a high probability. Adroit sabotage might have similar consequences in respect to supply availabilities. And, in the event of a conventional war involving the Great Powers, even if severely limited, the likelihood of continued oil supplies from the Middle East would be slim. The issue would be insignificant in the case of strategic warfare.

TAKEN AS a whole, the global and national energy outlook, particularly with respect to oil, is quite serious. Time is of the essence, but we are collectively drifting with the problem. This is a severe test of democracy—a looming crisis without a visible energy shortage. There are increasing dangers that the situation could become critical before the general public recognizes its inherent seriousness.

Air University (ATC)

Notes

1. Import demand may stiffen in the fourth quarter, reflecting stockpile requirements and anticipatory buying. Imports for the Strategic Stockpiling Reserve will reach substantial daily levels before the end of the year. Furthermore, OPEC may choose to raise prices effective in 1979. This possibility may be reflected in anticipatory petroleum purchases in the late months of this year.

2. Optimum conservation measures are highly desirable, but they could only delay by a few years the eventual effective exhaustion of existing fields. Their prime value relates to balance of payments considerations. Lower oil demand diminishes the demand for imported oil, not for domestic oil.

3. The National Academy of Engineers Project "Independence" study estimated that it takes from 3 to 10 years to produce oil and gas from new fields.

4. As oil prices increase in the years ahead, it seems likely that small fields will be exploited in many parts of the world. In a collective sense, such a development could produce considerable oil.

5. Industrial country consumption of oil increased in the first quarter of 1978 by 3.4 percent relative to the same period of 1977.

6. OPEC is confronted by serious dilemmas in maintaining the purchasing power of their oil revenues. Oil prices are denominated in dollars. Pricing quotations for the varying qualities of oil are keyed to the $12.70 price per barrel established 1 January 1977 for Saudi light crude. Rising import costs and the decline in the value of the dollar in the intervening period have reduced the purchasing power of their oil revenues. The degree of losses has varied within OPEC, largely reflecting the trade orientation of the individual countries. Those who trade heavily with countries whose currencies have strengthened relative to the dollar have been hit hardest, particularly Nigeria, Indonesia, Iraq, and Kuwait. Strong pressures exist within OPEC to raise the base price of Saudi crude and to shift quotations from the dollar to a basket of currencies. Such actions, however, could have disequilibrating consequences for the world economy and for dollar values. Such a development would adversely affect world oil demand and OPEC investments in the United States. Furthermore, shifting currencies could boomerang since current dollar quotations are low. The Saudi and Iranian governments have hitherto opposed changes in the existing price and currency quotations in the face of growing resentments from the other members.

7. Total domestic energy production in the 1973-1976 period declined at an annual rate of 1.2 percent, due to drops in oil and natural gas output. The overall decline was essentially checked in 1977 as the result of the initial production from the Alaskan North Slope, although the December coal strike dropped it fractionally below 1976 levels. Total energy production in 1977 is estimated at 60.2 quadrillion BTU, only 0.1 percent below the 1976 level but more significantly below the 1972 total of 62.9 quadrillion BTU.

8. In the same time period, imports of fossil fuel rose from 19.5 to 25.8 percent of total energy consumption.

9. In 1973, OPEC producers provided 70 percent of U.S. oil imports, with Arab producers accounting for 22 percent. During the first quarter of 1978, OPEC's share had risen to over 85 percent, with more than 41 percent coming from Arab sources. The Arab increase reflected substantial declines in Venezuelan and Canadian sales to the U.S.

10. In 1977, refined petroleum represented 48 percent of the total energy consumed in the nation, natural gas, 26 percent; coal, 19 percent, nuclear energy, 4 percent; and the drought-plagued hydroelectric units, 3 percent.

11. At the end of 1977, domestic oil production approximated 8.5 mmbd, including about 0.7 mmbd from the North Slope. Production from the lower-48 states peaked in November 1970 at 10,089,000 barrels a day. The subsequent decline exceeded 21 percent. Natural gas output peaked in 1973. Since then it has declined more than 13 percent. This has been reflected in increased demand for fossil fuel imports.

12. Because of the coal strike, which began in December, coal production in 1977 dropped to 672 million short tons relative to 678.7 million tons in 1976.

13. At the beginning of 1978, the nation had 65 fully operating reactors with maximum dependable capacity of 45,737 electrical megawatts. In 1977, sixteen nuclear power projects with an indicated capacity of 18,000 megawatts were canceled. The cited reasons were uncertainties about government policy, the need for licensing reform, environmental actions, and uncertainty about electricity demand growth. While it seems probable that available capacity will exceed 100,000 megawatts in 1985, this is far less than earlier predictions. With some hyperbole, Secretary Schlesinger observed that "nuclear energy is barely alive" (Associated Press, May 19, 1978). It is certainly steeped in controversy.

14. The increase in total energy consumption was less than in 1976, at least in part due to a decline in the rate of GNP growth as well as some improvement in the efficiency of usage. On the other hand, the rate of growth in the consumption of refined petroleum products was higher.

15. The SPR was established by the Energy Policy and Conservation Act (PL 94-163), enacted on December 22, 1975. At the end of April 1978, there were 21.5 million barrels in the SPR. Average April deliveries, including transport, cost $14.95. The SPR goal for the end of 1978 is 125 million barrels.

16. Import dependence in the first half of 1978 was 41.2 percent relative to 48.5 percent in the same period of 1977. Imports were down by 12.8 percent, largely due to the availability of North Slope oil. Domestic production in June at 8.9 mmbd was up 10.9 percent. Import costs in the first half of the year were $19.2 billion, 9 percent below the totals for the comparable period of last year.

17. Oil and natural gas represent about 75 percent of our energy consumption and about seven percent of our proven energy reserves. Coal supplies about 19 percent of our energy while representing about 90 percent of our proven energy reserves.

18. U.S. oil consumption grew at an average annual rate of 4.4 percent from the end of the Second World War through 1973. The vast OPEC price increase at the beginning of 1974 and the accompanying recession resulted in consumption declines in 1974 and 1975. However, consumption rose by 7.6 percent and 5.0 percent in 1976 and 1977, respectively. Holding the annual growth rate in the years ahead to about 2.0 percent would be a considerable accomplishment.

19. There were 113 proposals in the original energy plan, which could be separated into five basic elements: coal conversion, utility rate structural reform, conservation measures, natural gas pricing, and the crude oil equalization tax. The latter two are the most significant and controversial. In a tactical sense, the Senate intends to consider each separately, while the House leadership wishes to consider at least the first four as a package. In mid-July, the Senate passed a watered-down coal conversion bill. Although the conferences have also reached agreement on the utility and natural gas provisions, the task of drafting legislative language had not been completed by the end of July. No agreement had been reached at that time with respect to conservation measures or the so-called well-head tax. The outlook for the latter is particularly bleak.

It will be a difficult task to complete legislative enactments prior to adjournment for the election period. If this does not occur and Congress does not reconvene in November, the Ninety-sixth Congress would inherit the problem when it meets next January.

The energy situation was a major factor of consideration at the mid-July summit meeting in Bonn. In the final statement, the participants recognized that the overall situation "remains unsatisfactory." Recognizing its particular responsibility, the United States pledged to

reduce its dependence on imported oil and "to have in place by the end of the year a comprehensive policy framework within which this effort can be urgently carried forward" (*New York Times*, July 18, 1978). Fulfillment of this commitment would require a noteworthy degree of congressional accord and activity.

20. Presidential authority in these matters flows from the Trade Expansion Act of 1962. The Senate has voted to rescind this authority. Similar action by the House appears doubtful.

21. In a report released in mid-June, the Trilateral Commission sharply criticized the United States for failure to enact "a comprehensive, coherent energy policy of any kind." The report stated that "the reasons for this were at heart political: deep disagreements between the executive and the Congress on the best way to proceed, lack of consistent White House leadership, and, closely related, a mounting cynicism and sheer lack of understanding of the scope of the problem among the general public" (*New York Times*, June 14, 1978).

22. James R. Schlesinger, Secretary, Department of Energy, foresees in the mid-1980s a notional worldwide oil shortage of about 5 mmbd. The effect, in his view, would be to drive up prices or slow down economic activity to balance the available supplies against demand. Those who disagree with his assessment of looming shortages in large part assume that there will be a global recession or at least very slow economic growth in the industrial countries. This would be a severe price to pay to delay an energy shortage. *U.S. News and World Report*, July 10, 1978.

23. In an April 1977 release entitled "The International Energy Situation: Outlook to 1985," analysts of the Central Intelligence Agency projected the global demand for OPEC oil in a range of 47 to 51 mmbd, including a requirement for Saudi production ranging between 19 and 23 mmbd. Production at this level would risk rapid reserve depletion and heavy gas flaring. The financial implications are staggering.

24. Following discussions in Saudi Arabia, Energy Secretary James Schlesinger forecast Saudi capacity in 1983-84 at 12 mmbd. He said the Saudis are not planning to match the soaring demand. *New York Times*, January 24, 1978.

25. In press interviews before the July summit meeting, President Valéry Giscard d'Estaing of France and Chancellor Helmut Schmidt of West Germany expressed deep concern about the magnitude of U.S. oil imports. The French President said, "At the present time, an important reduction in United States oil imports is the precondition for an improvement in the world economy." The German Chancellor said, in respect to U.S. oil imports, that "In my view this is the most important single source of the upheaval in the worldwide network of trade and payments and it should be corrected." *New York Times*, July 13, 1978.

26. This has direct military implications. The transportation sector of the economy is almost completely dependent on petroleum products, as are military operations. Transportation uses about 25 percent of total energy consumed and about 60 percent of the petroleum that is utilized. The Department of Defense is a relatively small petroleum user, consuming in 1976 about 2.8 percent of total national consumption. Over half of the DOD total is used by the Air Force. Military requirements in wartime are assumed to be 2.5 times greater. When correlated with probable secure wartime supplies, largely domestic in nature, these requirements reach substantial magnitudes. Furthermore, the availability of fuel for future defense operations is completely dependent on nondefense efforts.

27. Productivity in the coal industry has been declining for some years. In addition to this problem, reaching the 1985 production goals of over one million tons of coal would require a substantial expansion in the labor force, the opening of many new mines, a marked improvement in transportation facilities, expensive equipment adjustments, and environmental problems. The capital requirements would be very high, and the formulation of an integrated managerial approach to the overall problems would not be an easy task. Secretary Schlesinger has stated that current projections indicate a shortfall of about 200 million tons relative to the 1985 production goals.

28. The national mood in respect to nuclear energy is indecisive at best. Estimates of on line nuclear generating capacity in 1985 have steadily declined in recent years, falling from 240,000 electric megawatts in 1974 to a May estimate of 111,000. Lead times are very long, and plant deferments and cancellations have been high.

29. The production and use of 85 million tons of coal are the equivalent of the use of one million barrels a day of oil.

30. In June 1977, the Library of Congress Research Service estimated 1985 oil imports at 11.8 mmbd; in July, the GAO forecast imports at 10.3 mmbd; in August, Exxon estimated the 1985 rate at 12.5 mmbd; in October, the GAO revised its estimate to a range of 11.9 to 12.9 mmbd; in November, the Petroleum Industry Research Foundation estimated the 1985 rate at 9.6 mmbd, in March 1978, Standard Oil of Indiana predicted that oil imports would average 9.8 mmbd in 1980 and 10.4 mmbd in 1985; in May, the Department of Energy suggested a range between 9.1 and 12.5 mmbd, based on varying conditions.

31. In 1977, customs statistics (FAS) listed petroleum imports at $42.1 billion, nearly 30 percent of total imports. In addition, $2.6 billion of crude oil was imported into the Virgin Islands to be refined for U.S. consumption. The delivered cost of imported crude rose from $4.08 per barrel in 1973 to $14.60 last year.

Acknowledgment

The photographs accompanying the article are used through the courtesy of the American Petroleum Institute.

THE A-10 IN CENTRAL EUROPE

a concept of deployment-employment

COLONEL ROBERT D. RASMUSSEN

THE HISTORY of warfare and the profession of arms is replete with examples of technological advances having revolutionary impact: the stirrup, the longbow, the musket, the machine gun, the stick, etc. The stick? Well, maybe not all the revolutionary impacts were due to advances in technology. When Swiss foot soldiers defeated feudal armies of mounted armored knights in the fourteenth century, simply by unseating them with long sticks, the achievement was hardly attributable to technology. It resulted from optimum employment of a simple but *potentially* decisive weapon. Until that battle in 1339, the pike had not been employed to its full potential. This article will examine the role of the A-10 aircraft in Central Europe, in an effort to ensure that we employ "the stick" to its full potential.

In 1970, the United States Air Force took a revolutionary step backward—in order to take two steps forward—by requesting proposals for the competitive development of a specialized close air support aircraft, the A-X. In 1974, the Department of Defense authorized the Air Force and the Fairchild Republic Company to proceed with production of the A-10—winner of the A-X competition—the first Air Force aircraft ever designed and developed specifically for the close air support mission. In a military service and a civilian industry both noted for their necessary pressing of the technology frontier, we have seen developed a weapon system that achieves by design the basic aerodynamic performance of an era over thirty years past. Yet that same aircraft gives us certain superior capabilities never before seen over the battlefield. But the question remains: Do we know how to employ this "revolutionary" system optimally? We may need to rethink some of our current habits in managing and employing aerospace weapon systems—habits that have been developed over a long time—some perhaps for as long as thirty years. In the parlance of economists, the A-10 is a "labor-intensive" system; we are accustomed to employing "capital-intensive" systems.

the weather

The weather confronting the A-10 in Central Europe is so basic to the mission problem that it deserves to be classified as part of the threat. Although the particular weather obviously varies with the time of year, a common condition is low overcast with rain. Approximately one out of three mornings during the fall and winter presents ground fog, which may not lift until midday. The highest incidence of low ceilings is in the winter and, in particular, from December through February. Army Field Manual 100-5 advises ground commanders that during those months they can "expect a one-third degradation in close air support missions" because of ceilings that are 1000 feet or less.[1] More specifically, weather conditions of better than 2000-foot ceilings and two-mile visibility exist for 73 percent of the time on an annual basis and 53 percent during the winter months. But weather conditions equal to or better than a 1000-foot ceiling and one-mile visibility exist 85 percent of the time on an annual basis and 73 percent during the winter.[2] Thus, the weather in Central Europe becomes a primary factor in the formula for solving the close air support problem.

Since the Air Force does not yet have the capability to kill a tank in *all* weather conditions, the next best thing is to maximize one's capability to do so in *adverse* weather, i.e., in visual (but minimally so) conditions. The A-10 was designed to that specification. The maneu-

verability criterion was devised to afford a capability for mission performance under a ceiling of 1000 feet with one-mile visibility.[3] That goal was essentially attained. In flight evaluation, the aircraft has demonstrated a capability to perform the visual ground attack mission in reduced visibilities down to one and one-half miles.[4] As any pilot knows, visibility is the more critical of the two weather factors. With good visibility beneath the ceiling, ceiling becomes less of a problem—provided the pilot can get, *or stay,* under it.

the armor

The forward-deployed Soviet ground forces in East/Central Europe—outside the Soviet borders—are organized into four "Groups of Forces" totaling 31 ground divisions. These four are the Group of Soviet Forces, Germany (GSFG), Northern Group (Poland), Central Group (Czechoslovakia), and the Southern Group (Hungary).

Added to these Soviet forces in the four satellite countries are the indigenous forces of the host countries: 37 divisions, including the 6 in Hungary, making a total of 68 Warsaw Pact divisions in those four countries. However, not all of the non-Soviet divisions are maintained in a Category 1 state of readiness. If we exclude the forces in Hungary (as the Pact does in defining the "Central" region) and those non-Soviet divisions that are not earmarked for immediate employment, there remains a total of 48 divisions available for employment *without additional reinforcement.** There are 16,200 main battle tanks in operational service with the divisional formations presently in Poland, Czechoslovakia, and East Germany.[5] By contrast, the corresponding number of tanks on the NATO side in the same region is 6405.[6]

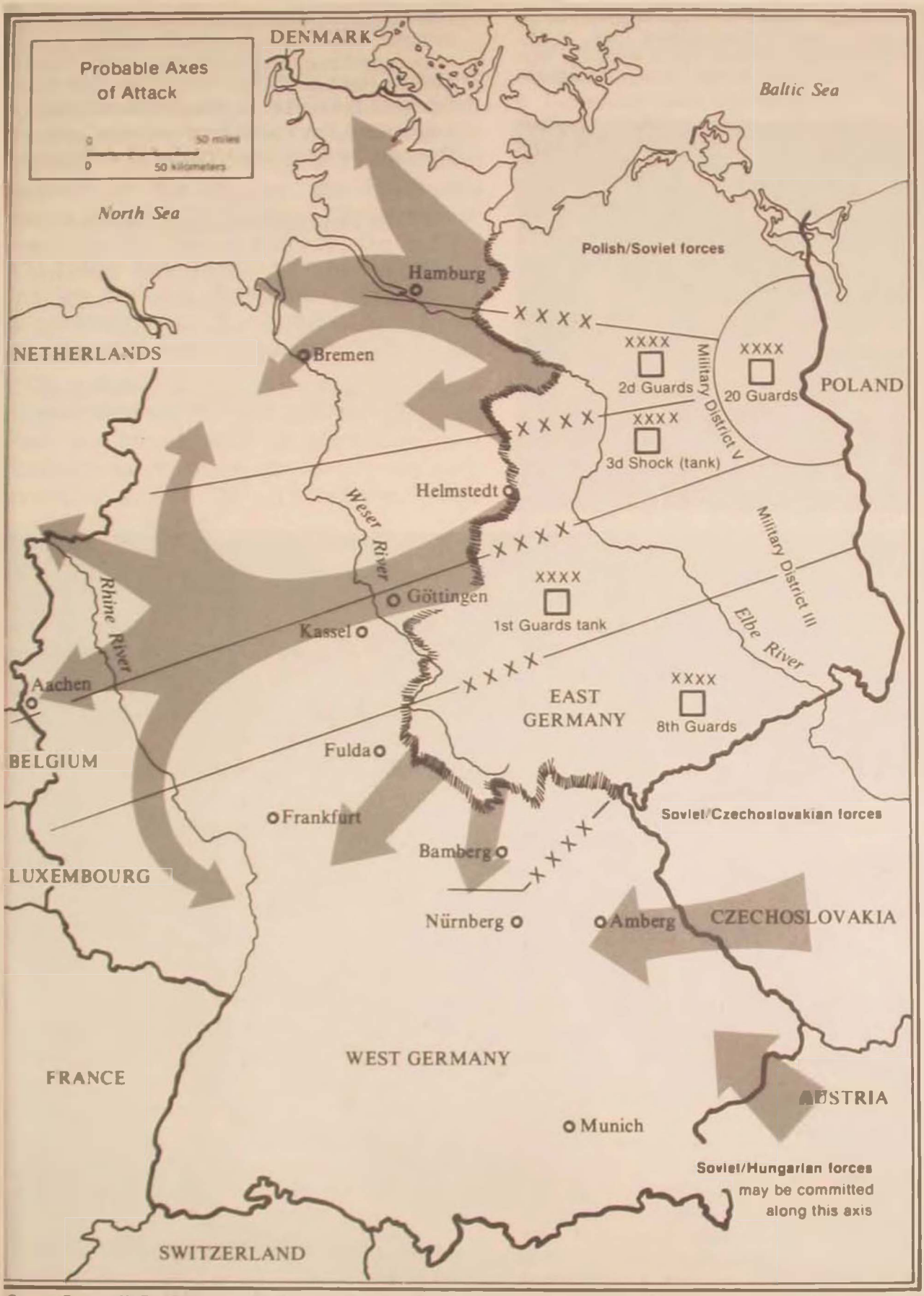
The 20 Soviet divisions in the GSFG are organized under five army headquarters: two tank armies and three combined-arms armies. The GSFG has all the ingredients of a Soviet wartime "front" (army group), and this is obviously the role that the GSFG would play in a Warsaw Pact-NATO military conflict.

invasion scenario

Based on the known strength, disposition, and organization of the GSFG, an invasion scenario can be postulated in accordance with Soviet doctrine and training; this postulation has been formulated by Graham Turbiville. (See Figure 1.) "It must be assumed that the main mission of the GSFG Front will be to defeat the most powerful groupings of enemy forces in West Germany, secure Rhine crossings and drive to the English Channel."[7] In this scenario, the GSFG front, with East German divisions integrated, would cover the West German border from the vicinity of the Elbe to the Czechoslovakian border. Polish and Soviet Northern Group forces would cover the northern flank, while the Soviet Central Group with Czechoslovak units would operate on the southern flank. These forces could be joined by the Southern Group and Hungarian units, either through the Danube valley, if Austrian neutrality were violated, or through Czechoslovakia.

The invasion scenario has the 3rd Shock and 1st Guards tank armies, the heavy offensive punch of the GSFG, in a combined thrust on a common axis along the Gottingen-Aachen line, "the rough dividing line between NATO's Northern and Central Army Groups [NORTHAG and CENTAG]."[8] In the words of Turbiville:

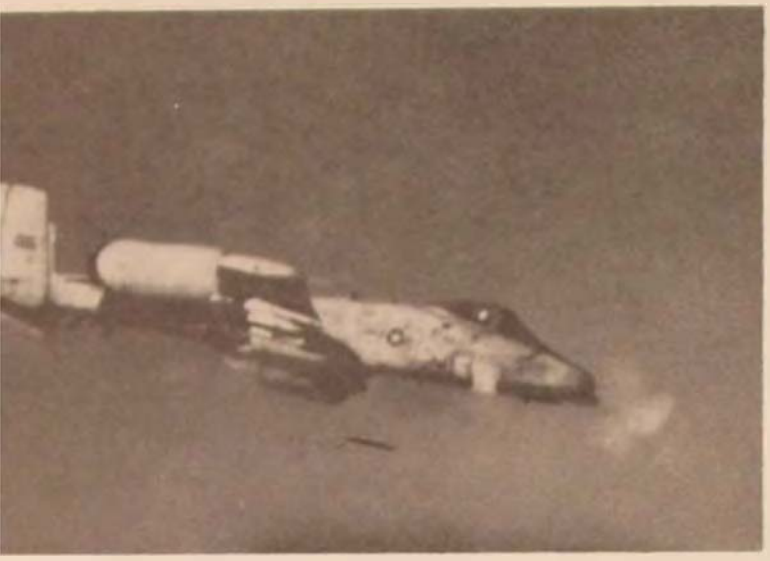
* The Warsaw Pact Ground Forces were discussed at length in the July-August 1978 issue of the *Review* (Colonel Robert D. Rasmussen, "The Central Europe Battlefield: Doctrinal Implications for Counterair-Interdiction," pp. 2-20).



Source: Graham H. Turbiville, "Invasion in Europe—A Scenario," *Army*, November 1976, p. 19

Figure 1. An invasion scenario

The A-10 close air support aircraft with GAU-8 A 30mm gun has demonstrated its tank-killing ability in cannon tests against the Soviet T-62 main battle tank (bottom).

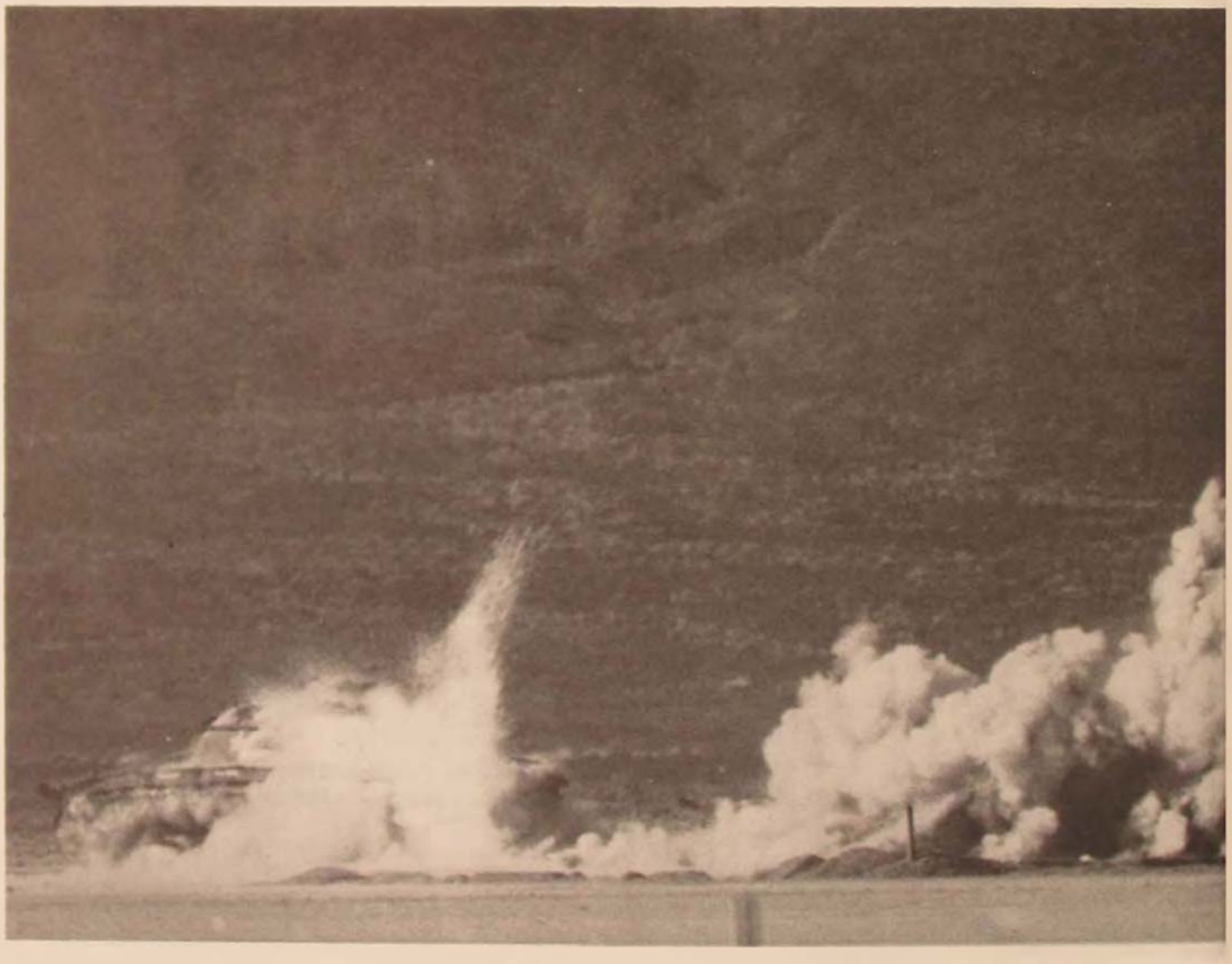


It is along this axis that the weight of the two armies' 3,100 tanks would probably advance, seeking to split the two NATO army groups, isolate U.S., Canadian and West German forces in southern West Germany and send armored spearheads racing through the Low Countries to the Channel.[9]

A-10 Deployment-Employment

The A-10 is now operational within the Tactical Air command, but has not yet been based in Europe. A news report in the fall of 1977* stated that the A-10 was likely

* Editor's note: This article in somewhat different form was presented by the author to the 1978 Air University Airpower Symposium in February 1978.



to be based in Great Britain and West Germany.[10]

According to the International Institute for Strategic Studies, "NATO suffers from having too few airfields." After noting the superior numbers of Warsaw Pact tactical aircraft in the theater, the Institute's report for 1977-1978 states: "Since squadrons can be moved quickly, the NATO numerical inferiority ... could rapidly be redressed *if enough airfields were available.*"[11] The Defense Secretary's Annual Report for FY 1977 (published in January 1976) noted then the continuing buildup of new tactical aircraft in the Soviet/Warsaw Pact air forces, and in particular, the "substantially improved range, payload, avionics and ECM capabilities." The report then stated:

> Most dramatic is the increasing ground attack capability which has enabled the Pact's tactical air forces to engage in a broader range of offensive as well as defensive missions, in particular the capability to conduct strikes against most of European NATO's airfields without prior redeployment.[12]

This dual NATO problem—a shortage of airfields and vulnerability to Pact airstrikes of those already employed—argues for introducing the A-10 onto airstrips *not presently supporting NATO air combat units.* An A-10 deployment of this type would avoid aggravating the airfield shortage problem and, at the same time, reduce the effective vulnerability to Pact airstrikes by compounding their target coverage requirement. This alternative basing concept was presented with an "avoidance of negative" rationale. Now let's turn to an "achievement of positive" rationale.

the multipliers

The A-10 aircraft has certain distinctive characteristics and capabilities designed into it through specifications. Those characteristics are lethality, survivability, simplicity, and responsiveness.

Lethality was achieved through the A-10's capability to carry as much as 16,000 pounds of conventional weapons, but in particular through its specially developed 30mm gun. The A-10 with GAU-8/A 30mm gun has demonstrated its tank killing ability against the Soviet T-62 main battle tank.[13] The A-10 will also employ the other antiarmor weapons available, such as the Maverick missile and the Rockeye cluster munition.

Survivability of the A-10 was attained through its maneuverability at appropriate airspeeds and altitudes and through its design and construction as a hardened aircraft. The A-10 has been proved through tests to be capable of defeating the Soviet 23mm cannon.[14] While the A-10 can be absolutely lethal, its survivability is obviously a relative quality. In short, when taking hits, it is more survivable than any other aircraft. Thus, its employment, obviously, must still be sensitive to attrition-limiting considerations.

Simplicity and responsiveness. The operational mission rationale for simplicity in the A-10 was to maximize its sortie rate and minimize its maintenance requirements. This simplicity was intended to be instrumental in its responsiveness, not only in its reliability and availability but also in basing flexibility. In the words of General William Momyer, the principal Air Force witness at the Senate Close Air Support Hearings in 1971:

> The responsiveness of the A-X close air support aircraft will be enhanced by its special capabilities and the options they provide: a fast enroute time from either ground or airborne alert, a capability for long-loiter time over the battlefield and *a forward basing capability when required.*[15]

To achieve this forward-basing option, the Air Force requested a forward airstrip takeoff performance of 1200 feet with a reduced fuel load and payload.[16]

The A-10 has demonstrated a takeoff distance of 1900 feet in the high desert, with four 500-pound bombs and 750 rounds of 30mm ammunition;[17] at lower altitudes and without bombs the distance would be less. The USAF specification for this forward airstrip profile was a 50 nautical mile (nm) flight to the forward edge of the battle area (FEBA), 30 minutes in the battle area, and then a 150nm flight back to a rear base for refueling and rearming.[18] General Momyer described the concept:

> We would base further to the rear on a main operating base; and then we would have a forward operating base where we would come in periodically with a squadron and then advance as far forward as we thought the situation would permit. I would call it a forward operating location at which we would have a flight based and we would then rotate through it.[19]

forward basing

The Air Force has always been skeptical about forward-based ground alert, and for good reason. The primary argument always advanced in favor of forward ground loiter was the reduced response time possible. But this reduction in time is only in relation to rear-based ground alert at a greater distance from the FEBA. The airborne alert or air loiter option provides response times superior to either of the ground alerts. Add to this fact the problems associated with forward-basing, i.e., logistic support, night and adverse weather recoveries, security problems (from sabotage to artillery to tanks), and the added expense, then one has good reason to doubt the concept of forward-basing.

The Air Force never did intend for the forward-basing option to entail a forward logistics base; it was a staging through concept—through an austere forward location "with little or no ground support."[20] As reflected in the profile noted above, the aircraft would get its main load of fuel and ordnance at a rear base and then land at the forward location to be available for scramble. But if the airborne alert is better for quick response, why did we want the forward-basing option? General Momyer's answer dates from 1971:

> In some cases, it may be desirable for the A-X to stage through forward operating locations on ground alert when this will significantly reduce enroute time to the target area *and the expenditure of airborne alert time is not justified.*[21]

This extended waiting on-call, in the air or on the ground, envisions a scenario in which there may be no targets available—or at least none requiring close air support (CAS)—for extended periods of time. But this is a South Vietnam-type scenario. One can hardly argue that there will be any shortage of targets in Central Europe! In fact, the Air Force, with its eye on the Central European scenario, has tested and demonstrated the A-10's "sortie surge" capability. In February 1977, two A-10s flew 34 sorties (17 each) during an 11-hour period; these were 120nm missions dropping four 500-pound bombs and making two 30mm strafe passes on each sortie.[22] Even in Vietnam, once the ground unit had a contact and the air support—whether scrambled or diverted—kept coming out the end of the pipe overhead, the ground commander did not care from whence it came. And in Europe, once the war begins, there will be no need to sit and wait for targets for any extended period of time. In short, the benefit of forward-based ground alert is derived in the situation wherein there is no present need for close

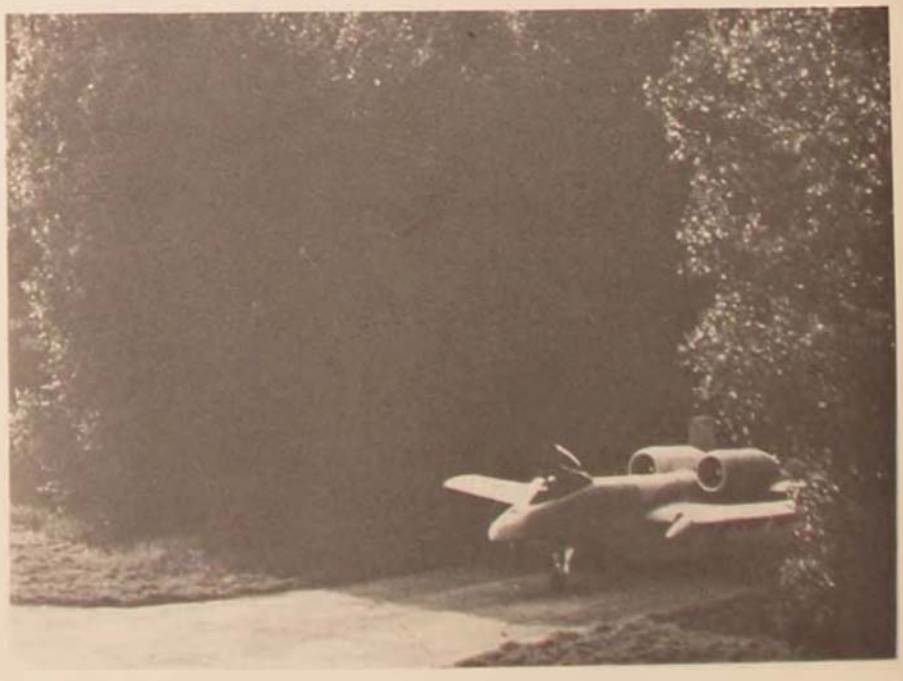
air support capability in the air. In Europe, once the battle starts, we will need it in the air! In that case, let us see if there is a rationale to be found in having the close air support capability on the ground, at a forward location, *prior* to the start of battle.

There is one area in which the Air Force has always been at a disadvantage in the inevitable comparisons with the air support provided by the Army or Marine Corps to their own ground units: the asserted benefits of "air troops living with the infantry."[1] With the exception of units such as the 1st Air Cavalry Division in Vietnam, it would seem that this distinction has been somewhat tenuous in practical effect. The Marine Corps attack air units operated in Vietnam from fixed bases remote from the front lines and were also dependent on the forward air controller (FAC) for interface with the ground unit. The majority of the Army's attack helicopters were normally assigned to units at corps or higher and attached to divisions for particular operations. The Air Force has maintained that the air liaison officers (ALOs) and FACs permanently assigned to the ground units have sufficiently established the desired interface between air and ground. Even the new Marine concept of Harrier employment does not disperse the aircraft to live with the troops in the front lines. And proximity itself does not ensure any great benefits associated with living in. The fighter pilots flying out of Bien Hoa in Vietnam may have been based only 15 miles from the 1st Infantry Division unit they were supporting, but the troops in the air and on the ground lived and worked in two different worlds. So what is the primary advantage derived from the Army's and Marine's forward-basing of air support? It would seem to be, in practical terms, in the form of joint planning, coordination, and training, *prior* to the start of battle.

direct interface and joint training

The Central Europe setting for the A-10 has several unique features that seem to argue for an increased direct interface between the A-10 and the ground units. It should be obvious that ALOs and FACs assigned to ground units have a better understanding of the ground commander's capabilities and limitations, force dispositions, and battle plans than does the fighter pilot who flies over the unit only periodically. Often in Vietnam, it was the ground unit's FAC who had the most knowledge within the unit of the terrain in the unit's tactical area of responsibility. This knowledge, of course, was gained from frequent and regular visual reconnaissance flights over the area (low and slow). It would certainly be desirable if the supporting CAS pilot had the same type of knowledge and understanding of the ground unit's situation and the same intimate familiarity with the terrain in the supported unit's area of responsibility.

Another factor to consider is the operational environment once combat starts. The forward air controller in the Central Europe combat scenario will not be the solid interface with the ground unit that he was in Vietnam. First, there will be no airborne FAC (as presently equipped) *over* the battlefield. Second, communication with the ground FAC will probably be unreliable, due to jamming. Third, the bedlam that can accompany a defensive battle on the ground against strong odds would degrade the ground FAC's ability to be in the right place at the right time for effective strike control. All these factors add up to a need for the CAS pilot to assume more responsibility for his own air strike and the need to be able to *com-*



The A 10 should be a full-time partner in the ground battle and thus a regular member of the combined-arms team, as suggested here by a TDY deployment to "forward airfields" in Germany.

municate (not just talk) directly with someone in the ground unit (whether battalion or company commander or forward artillery observer). The concept of a FAC airborne in a scout helicopter appears to hold promise, but, regardless, this rationale still applies. Similarly, there can be a role in traffic control for the airborne FAC, at a safe distance behind the FEBA, but this does not change the requirement for the CAS pilot to be able to control his own air strike in consonance with the ground unit's needs.

Dedicated mission. For the first time in Air Force history, we have an aircraft that is essentially dedicated to the CAS mission. While there are collateral roles the aircraft can play, no one envisions the A-10 fleet being pulled off the CAS mission, in Central Europe, to seek out MiGs or perform *deep* interdiction. The specialization of the aircraft thus limits it to battle—and training for battle—in the vicinity of the FEBA. In the past, with our multipurpose aircraft, we could never afford to commit our units to this degree of dedicated CAS mission training, because of the training demands of other missions. It appears now that we can and should, to maximize mission effectiveness.

Combined-arms training. The Central Europe setting provides the unique opportunity of providing routine training, in peacetime, in the exact ground setting and with the same units that will be involved in the battle if and when the war breaks out. CAS pilots, in regular and routine continuation training, could meet face-to-face with the supported ground units' key personnel in planning and critique sessions before and after regular joint training. Let's face it, the A-10 needs to be a full-time partner in the ground battle and, thus, needs to become a regular member of the combined-arms team in its training. This partnership can be achieved—to the extent feasible—by routine forward training operations out of army unit locations with collocated airfields or airfields immediately adjacent to the supported army unit. Again, the key measure of merit in this concept is the ability for air troops and ground troops to meet face-to-face before, during, and after the joint combined-arms training. Thus, operating from an airfield five miles away from the ground unit is not, of itself, sufficient; and neither is once or twice a year.

The Labor-Intensive System

As already noted, the A-10 is a simple aircraft; as such it is a labor-intensive system. Our present crop of fighter pilots, generally at the rank of major and below, has little, if any, experience with such systems (unless they have served a FAC tour). The A-10 does not even have an inertial navigation system (INS). Every Air Force pilot who has gone through fighter training in the F-4 or A-7 has had the luxury of learning to navigate with the INS. Low-level navigation training is intended to teach pilotage, but, because of the INS, that pilotage ability in our average young fighter pilot is relatively weak—in relation to other days and systems. (As a recent F-4 squadron commander, I can say that in at least 90 percent of the cases when a squadron crew got off course or missed a target in a visual low-level navigation training problem, it was because the INS failed or had an error that was not recognized or corrected for; and I include myself in this group.) The F-4 weapon system operator, especially if he is expert with the radar, can save the pilot from the error of his ways; but too often he also succumbs to the lure of the INS. The point here is that technology has become a crutch, and without it we wobble. The A-10

pilot must learn (or relearn) to walk without a crutch. And the high-level managers who devise training programs and control procedures must learn (or relearn) to adapt their thinking to the labor-intensive system.

A recent news article, narrating an A-10 temporary deployment to Western Europe, reported that the pilots "were vehement in their opinions that the aircraft needs an inertial navigation system to permit it to get to the target areas while flying at 100 ft or less in hazy conditions."[24] I agree with that. The INS is a tremendous aid. But in the meantime, and also after installation of an INS, there are things we can do in our training and management programs to enhance the capability of this labor-

California Tactics Testing

The U.S. Air Force and the Army joined forces for tactics development and testing at the Hunter Liggett Range in California.

intensive system. Remember, it also has no radar.

Since the A-10 is intended to be a low-level and adverse weather weapon, that is the realm and those are the conditions under which it should train in Europe. And, in particular, it needs to train over the very ground where it will fight, i.e., between the inter-German border and the buffer zone and under the buffer zone itself. We need to develop in the A-10 pilot the same type of familiarity with the border area terrain that is possessed by the Army helicopter pilots authorized to fly the border patrol. This would obviously be done in a structured and graduated training program, and the pilots would be progressively certified by sectors of the border area until familiarized with the entire border. Since the border is long, there could be primary, secondary, and even tertiary (if need be) sectors and levels of familiarization and certification. For example, half the pilots could have one NATO army group area as primary and the other army group area as secondary. As an example of training, the first border flight could be with an Army helicopter pilot who could expertly point out the pertinent terrain features and ground unit areas of responsibility. The point is to develop in the A-10 pilot in Europe the ability to operate in the area and in conditions we expect him to perform his primary mission—including under a 1000-foot ceiling with visibility of two miles or less. Let me cite some examples, including personal experience, to illustrate the concept.

Every pilot who has flown extensively out of any particular airfield knows he gains an intimate familiarity with the local terrain and built-up areas in the immediate vicinity of the field. When he penetrates a ceiling in the vicinity of the field, he recognizes features on the ground that tell him where he is, and he proceeds from instrument navigation to visual contact navigation—even if he cannot yet see the field. If a pilot regularly flies a particular low-altitude route under visual conditions, he gains a familiarity with that general route that enables him to put away the maps and disregard the navaid instruments. At my last station, I could take off from the home base, and, at low altitude and under restricted visibility conditions, proceed via a circuitous route through the local area to the local range without ever referring to a map or the INS. There was nothing special about it; I just knew the various checkpoints and the general heading to the next one.

That is the kind of battle area familiarity we need to establish with the A-10 pilots in Europe. Then they can proceed via familiar routes to any of a selected number of familiar checkpoints, from which they know the heading to the particular target area, which they will recognize when they get there. And they can do all this beneath a ceiling of 1000 feet—or even 500 feet—and with a visibility of two miles or less. The critical factor is that they need to have enough visibility to keep unveiling checkpoints out in front of them before they overfly them. (And, we should note, the airspace control system must let them proceed *all* the way at minimum altitude, under the cloud ceiling, by visual flight rules—whenever they need to.)

This realistic training to establish the necessary familiarity with the local battle area can be facilitated and enhanced by operating the A-10 aircraft out of army airfields collocated with the units to be supported, wherever feasible. This operation out of army airfields is not necessary to achieve the desired battle area familiarity, but it would reinforce it and tie in with the proposed concept of face-to-face combined-arms training.

Centralized Control of the Air Arm

Operational control of the A-10 resource in Central Europe has a relationship to basing concepts. In the proposed concept of forward operating locations with army units and the regular participation in combined-arms training, the principle of centralized control is firmly adhered to. The U.S. Army must understand this fact at all levels. Air power, and the A-10 in particular, will still be a scarce resource, and the employment principles of centralized control and decentralized execution will be of vital importance to the outcome of the ground battle. The proposed direct interface and full-time partnership between the A-10 fleet and the army units do not incorporate an approach to organic status. Mission dedication must not be confused with unit dedication. The U.S. Army should welcome the interface and the partnership because they will benefit also, but they must not be misled concerning the type of partnership.

The Army obviously endorses the principle of mass. The principle of concentration in the employment of the A-10 in its counter-armor role should be readily endorsed by the Army also. All that should be necessary is to illustrate the problem in the postulated invasion scenario presented above, and the need for centralized control should be obvious. If the main thrust is north of Kassel, then 100 percent—or even 50 percent—of the A-10 fleet could not be left committed south of Kassel; they would be inapplicable to the war. We could win the battle in CENTAG and lose the war for NATO. Similarly, if the main thrust were identified in the vicinity of Fulda, then CENTAG and V Corps would receive the preponderance of the A-10 effort, as long as that priority was maintained. If the front was stabilized, then breakthroughs would receive the priority.

The reader may even question the need to address this subject, and perhaps rightly so. But the U.S. Army, at all levels, seemingly has such an affinity for organic air support that I feel it necessary to clarify the concept. It would be a shame if a newly productive partnership were injured on the rocks of a frustrated rise in expectation. One duty in a partnership is to establish and maintain a working rapport.

It should be possible, within the established NATO tactical air control structure, to preallocate an equitable number of A-10 resources between the Army Groups/ATAFs, and then down to Corps/ASOC level (as in Vietnam, post-1968). If a tentative allocation, for planning purposes, could be made down to the divisions, it would facilitate the joint planning and training advocated herein. At all levels, the caveat attached to the allocation, i.e., subject to higher priorities at higher levels, would be understood.

Forward-Deployment Concept

On the foregoing foundation of available problem solutions, unique opportunities, and potential force multipliers, we are ready to build a more detailed concept of deployment. The proposed concept of forward-deployment is at least a two-rank deployment, and possibly three ranks. The rear rank will be in West Germany or Great Britain. The most forward rank, in general, is that proposed to be at the army airfields collocated with major maneuver unit headquarters. The key features we seek in the rearmost rank of basing are security and logistic supportability. (Remember that responsiveness, once the battle starts, will be served primarily by the airborne stream.)

Rear base security is obviously a relative quality, generally measurable by distance

from the FEBA (in relation to the range of various threats) and by the interposition of any obstacles to attack. In terms of air attack vulnerability, as a generalization, the Warsaw Pact East European-based first and second generation tactical aircraft can cover all of West Germany; the third generation aircraft can additionally cover Great Britain.[25] Of crew-served ground force weapons, the maximum range weapons in each category are noted in the accompanying chart.[26]

Weapon	Designation	Caliber	Range
mortar	M-240 heavy	240mm	10km
antitank gun	T-12	100mm	20km
tube artillery	S-23	180mm	30.4km
		180mm (RAP)	43.8km
multiple rocket launcher	BM-25	250mm	56km
free-flight rocket	Frog-7	(nuclear, chemical, high explosive)	70km
tactical ballistic missile	Scud-B	(nuclear, chemical, high explosive)	280km
tactical ballistic missile	Scaleboard	(nuclear only)	900km

Using the range figures in the chart, we can see that the Scaleboard (nuclear only) will cover all of Western Europe. From the westernmost points of the inter-German border, the Scud-B will cover all of West Germany and the Benelux countries, but it does not reach Great Britain. From the East German border, the Frog-7 leaves most of West Germany uncovered, but it reaches some of the forward army airfields (which is no problem to peacetime forward operating location training operations). Looking for major natural obstacles to an east-west ground attack, other than mountains that serve only to channel the invasion, we find the Weser River, the Rhine River, and the English Channel. The only one that will stop Warsaw Pact tanks is the English Channel.

When one considers the logistic supportability of the rear main base area, it seems clear that Great Britain is more supportable than the continent, by both air and sea, especially once war begins. The north-south lines of communication from the ports to the southern CENTAG area could be severed by a main thrust in the center sector.

Three-Rank Deployment

Thus, Great Britain is the preferred rear main base area.* It is both more supportable with logistics and more secure from the East European threat than is West Germany. We will employ the forward-basing concept that was quoted in the Senate hearing testimony in 1971: the rear main operating base or bases (MOBs) in Great Britain, the intermediate forward operating bases (FOBs) in West Germany, and advancing on forward, more numerous forward operating locations (FOLs), collocated with army units. The MOBs will be where the A-10s are permanently based and from where they will continuously be deployed forward on temporary duty (TDY) at the several FOBs in West Germany. The majority of the unit's continuation training should be flown while on TDY to the FOBs in West Germany. Unless special requirements (such as range availability for live Maverick firings) dictate otherwise, the maximum possible A-10 training should be accomplished in West Germany, with

* The U.S. Air Force announced on 27 January 1978 that an A-10 wing would be based at RAF stations Bentwaters and Woodbridge in early 1979. It was then announced on 15 March 1978 that the Federal Republic of Germany had agreed in principle to the establishment of forward operating locations in Germany for the A-10 aircraft based in the United Kingdom.

the remainder done in Great Britain. To deploy to Spain for routine gunnery training, in the better weather of the Iberian peninsula, would be counter-productive to mission capability. We need to train over the terrain and in weather conditions of the future battle area, and dive bombing is not what is needed.

Forward operating location. A sample listing of potential FOLs in the CENTAG area is shown in Table I. These Army airfields, at first glance, appear to be collocated with the major U.S. Army maneuver unit headquarters in the V Corps and VII Corps areas. To the extent feasible, the A-10s, while TDY to the FOBs for training, should be further deployed forward to the selected FOLs for their joint training. As in the original concept, these FOLs would be austere locations; their security would be provided by the in-place army. Flying operations—at least landings—would be planned for day-visual conditions only. Night recoveries would be at FOBs. It might be feasible to stock them with a minimal fuel supply to support turnarounds; if not, the aircraft would land at their home FOB for refueling. The aircraft would then stage forward to the FOL to continue the ground phase of the joint training and fly the next training sortie out of the FOL. This FOB turnaround would also exercise the quick turn skills of the ground crews at the FOBs, which will be their primary function when the war starts.

Particular FOLs that may be used could also have special qualities inviting their continued use as combat turnaround bases (e.g., Wiesbaden). Otherwise, forward-deployed A-10s at the FOLs will return to and operate out of the FOBs when battle begins. They could fly their first combat mission out of the FOLs, if configured properly. If the maintenance of battle configuration at the FOL is feasible, then all aircraft at the FOLs could be routinely placed on 12-hour alert status while deployed forward. This alert status would allow normal training and normal lifestyle to continue until the alert status would increased. Once the war starts and the covey of A-10s at the FOLs is flushed airborne, then the job of the FOBs will be to *keep them airborne*—and loaded for tanks!

The runway length that will be required for the FOLs is not known. What a commander will consider acceptable for combat or emergency operations is something different from what he will desire for routine training operations. A combination of the demonstrated forward airstrip takeoff distance of 1900 feet and the standard 80 percent factor (i.e., maximum takeoff distance allowed equals 80 percent of available runway) yields a minimum required runway of about 2400 feet. To allow the desired margin for routine training operations and varying conditions (e.g., wet runway), a 3000-foot airstrip should be sufficient for peacetime training. In Table I, six army airfields that meet the criteria are collocated with or adjacent to U.S. Army major maneuver unit headquarters. There are two more qualified army airfields in the allied army training area at Grafenwohr, making a total of eight in the V and VII Corps areas alone. Probably most of the other army airfield runways could be lengthened by the several hundred feet required to achieve the desired distance; either asphalt or perforated steel planking would suffice.[27]

To achieve the direct interface and joint training desired, the ideal would be to have an FOL and a constant deployment at every maneuver brigade and cavalry regiment location. However, because of runway and aircraft availability limitations, that may not be feasible. A more

Unit	Location	Runway
V Corps Hq	Frankfurt	
11th Arm Cav Regt	Fulda	2200'
	Bad Hersfeld	2200'
	Bad Kissingen	1700'
8th Inf Div	Bad Kreuznach	2200'
1st Bde	Mainz	-
2d Bde	Baumholder/Boehmer AAF	1800'/2200'
3d Bde	Sandhofen (Coleman AAF)	- (2700')
3d Arm Div	Frankfurt	-
1st Bde	Kirchgoens	-
3d Bde	Friedberg	2200'
Div Arty	Hanau	3000'
4th Bde/4th Inf Div	Wiesbaden	7000'
VII Corps Hq	Stuttgart	-
2d Arm Cav Regt	Nurnberg (Feucht AAF)	- (3400')
	Bamberg	2100'
	Bindlach	-
	Amberg	-
3d Inf Div	Wurzburg (Emery AAF)	- (2200')
1st Bde	Schweinfurt	2200'
2d Bde	Kitzingen	7300'
3d Bde	Aschaffenburg	2000'
1st Arm Div	Ansbach	2300'
1st Bde	Illisheim	3000'
2d Bde	Erlangen	2200'
3d Bde	Bamberg	2100' (also 2d ACR)
3d Bde/1st Inf Div	Göppingen	2800'
2d Bde/2d Arm Div	Grafenwöhr (present)	3300'
2d Bde/2d Arm Div vic.	Bremerhaven (future)	2600' (grass)
Major Army Training Areas		
Grafenwohr area	Grafenwöhr AAF	3300'
	Vilseck AAF	3500'
Hoenfels area	Hoenfels AAF	2200'
Wildflecken area	Wildflecken AAF	2200'

*A listing of Army airfields collocated with the major U.S Army maneuver unit headquarters. Units with no runway listed have only heliports Where a unit location with no runway has an AAF close by, that AAF is indicated in parentheses

Source: DOD Flight Information Publication

Table I. Army airfields

probable arrangement would be to have at least one FOL with each division and an FOL with each independent brigade and armored cavalry regiment. If need be, the number of aircraft available for forward deployment could be rotated among the FOLs.

At an absolute minimum, we need to establish FOLs associated with the major army training areas and then participate in the combined-arms training conducted there. Those areas and that training should also provide the opportunity for live-fire training with the 30mm gun, including joint tactics. It would also provide the opportunity for training with the West German army units that use those areas also.

The OV-10 fleet in West Germany should be tasked with the added mission of supporting the A-10 FOB-FOL network with the movement of personnel and materiel as required. This would be the means of promptly moving spare parts or technicians to fix aircraft at FOLs that could not be flown to FOBs.

To achieve the interoperability and combined capability we need for alliance warfare, under centralized control of the air arm, we also need FOLs at allied army unit locations. These could be less in number than with U.S. Army units, but at a minimum they should be one per German Corps and one per other-national army. The object is to have A-10 pilots familiarized with the terrain and friendly force dispositions along the entire eastern border. Training operations in all those areas are thus required. The major army training areas in NORTHAG (e.g., Bergen-Hohne) require the same consideration as those in CENTAG.

Forward operating bases. The basic criterion for our FOBs in this concept is that they should be airfields not presently supporting U.S. or allied air combat units. This means support bases, training bases, or any other military airfields that do not house a combat capability inviting a Pact first wave strike. In addition to air force and naval air bases, we should consider minor military airfields such as Bückeburg in NORTHAG and Mendig in CENTAG. If an FOB was collocated with an army unit, that would be a bonus in this concept. Again, a decision on runway length is required, but a range of 5000 or 6000 feet should be sufficient. We obviously want these FOB runways to handle the A-10 with a full fuel load and whatever is envisioned as the maximum payload required in the continental operations. The airfield must also have or be equipped with the minimum necessary facilities to enable night-adverse weather operations. From the available candidate FOBs, the selection will be guided by supportability and security.

HOW MANY of what type of bases does this concept entail? That will depend to a great extent on how large an A-10 fleet is to be based in Europe. News reports have varied from one to three wings. For an illustration exercise, let's deal with percentages of whatever the total aircraft number turns out to be. I would advocate two or more bases for the rear MOBs. We should be able to keep 50 percent of our aircraft fleet deployed forward to the FOBs. (This should be the only regular TDY commitment, and the pilot manning could be adjusted as required, e.g., 1.5 crew ratio.) The number of FOBs required would be, at a minimum, the number required to support 100 percent of the European-based A-10 fleet in combat operations. (When the war starts, the aircraft at the MOBs in Great Britain move forward to the FOBs.) It would probably simplify management if the number of FOBs were kept symmetri-

cal to the number of MOBs (e.g., two or three FOBs per MOB). The number of FOLs would be determined in accordance with the objectives, criteria, and limitations outlined earlier, but aircraft should be deployed to the FOLs by at least pairs. As many as 100 percent of the aircraft from the FOBs could be kept deployed forward to the FOLs. I would envision a dozen or more FOLs in each army group area.

That wraps up the proposed concept of deployment-employment for the A-10 in Central Europe. In sum, it is hoped that what has been presented can contribute to actualizing the truly unique and possibly decisive potential of "the stick."

Hq USAF

Notes

1. FM 100-5, *Operations*, Department of the Army, 1 July 1976, p. 13-12.
2. U.S. Congress, Senate, Committee on Armed Services, *Close Air Support Hearings before the Special Subcommittee on Close Air Support of the Preparedness Investigating Subcommittee*, 92nd Cong., 1st sess., October-November 1971, p. 214. Hereafter cited as *Close Air Support*
3. Ibid., p. 182.
4. "A NATO Preview," *NATO's Fifteen Nations*, April-May 1977, p. 92. Confirmed by telephone conversation with pilot involved.
5. *The Military Balance: 1977-1978* (London: The International Institute for Strategic Studies, 1977), p. 110.
6. Ibid. These tank numbers are the figures with which the NATO negotiators are concerned in the mutual reduction of forces negotiations. These figures do not include reserve stocks.
7. Graham H. Turbiville, "Invasion in Europe—A Scenario," *Army*, November 1976, p. 20. Turbiville was a Soviet military affairs analyst for the Defense Intelligence Agency from 1969 to December 1975, when he resigned to pursue doctoral studies.
8. Ibid.
9. Ibid.
10. *Aviation Week & Space Technology*, September 19, 1977, p. 53.
11. *The Military Balance: 1977-1978*, p. 108. Emphasis added.
12. *FY 1977 Annual Defense Department Report*, January 27, 1976, pp. 98-99.
13. *USAF Fact Sheet, A-10 Close Air Support Aircraft*, Office of Information, Air Force Systems Command, May 1977, p. 4.
14. Ibid., p. 2.
15. *Close Air Support*, p. 181. Emphasis added.
16. Ibid., p. 193.
17. *USAF Fact Sheet*, p. 7.
18. J. Philip Geddes, "A-10—USAF Choice for the Close Air Support Role," *International Defense Review*, February 1974, pp. 72 and 74.
19. *Close Air Support*, p. 212.
20. Ibid., p. 241.
21. Ibid. Emphasis added.
22. *USAF Fact Sheet*, p. 12.
23. *Close Air Support*, p. 239.
24. David A. Brown, "A-10 Pilots Stress Navaid Requirements," *Aviation Week & Space Technology*, September 19, 1977, p. 52.
25. R. Meller, "Europe's New Generation of Combat Aircraft," *International Defense Review*, February 1975, pp. 180-81.
26. *Understanding Soviet Military Developments*, AC of S for Intelligence, Department of the Army, Washington, GPO, 1977, pp. 69-74; FM 30-40, *Handbook on Soviet Ground Forces*, Department of the Army, 30 June 1975, pp. 6-39 to 6-55.
27. The A-10 is designed to have an "unprepared airstrip" capability, but as of this writing, it has not been tested, except for a desert dry lake, which is too hard a surface to be meaningful. *Aviation Week & Space Technology*, June 20, 1977, p. 88.

This article represents the views of the author and does not necessarily reflect the official opinion of Air University (ATC) or the Department of the Air Force.

We (aviators of World War I) could see the utter helplessness of the armies on the ground. They were merely thousands of men led to shambles, as a result of a faulty system which was entirely oblivious to the meaning of modern war.

Brigadier General William (Billy) Mitchell
"Memoirs of World War I," *Liberty Weekly*, 1928

military affairs abroad

SOVIET MILITARY EDUCATION

COLONEL RICHARD G. HEAD

IN THE Soviet Union war is a science. As a science, its meaning, method, and conduct can be analyzed, taught, and learned. But until recently analysts in the United States knew little about the Soviet philosophy of military education, its purposes, institutions, courses of instruction, and methods of teaching military science. In one of the rare instances of Soviet-U.S. military cooperation, a group of U.S. officers had the opportunity to visit several Soviet institutions of higher military education in the spring of 1977. The purpose of this article is to report on that trip and integrate what we learned into the broader framework of comparative military education.

The Soviet Ministry of Defense extended an official invitation to the United States to send a delegation of senior military students from the National Defense University in early 1977. Two previous groups of National War College students had visited Russia in 1960 and 1964, but the last *official military* exchange had been in 1957. During the spring of 1977, relations between the United States and the Soviet Union appeared to deteriorate in the wake of the U.S. proposal for deep cuts in strategic arms and Soviet sensitivities over President Carter's human rights statements. In this atmosphere we wondered what the motives of the Russians could be in inviting us. We did not find out until the last day of the trip.

The U.S. delegation consisted of nine officers, led by Lieutenant General Robert G. Gard (USA), President of the National Defense University; Lieutenant Commander Steve Kime (USN), faculty member; six National War College students, and one student from the Industrial College of the Armed Forces. The delegation departed Washington on 9 May 1977 and spent one week in the Soviet Union, visiting the Malinovskiy Armored Forces Academy in Moscow, the Grechko Naval Academy, and the Frunze Naval School in Leningrad, and touring the historic battleground of Volgograd (formerly Stalingrad). We requested a visit to the General Staff Academy, but it was refused for "lack of time to prepare."

During the final ceremonies, Colonel-General Makarov,[1] head of the Department of Military Education, Ministry of Defense, told us the motivation for the visit. Soviet military officers believe that most, if not all, U.S. writing about East-West issues is biased and inaccurate. Soviet historical experiences are neglected, and their motives are misunderstood. He made it apparent that the Soviet Union wanted to begin a series of military-to-military exchanges, free from contentious discussions of foreign policy, SALT, force levels, and human rights.[2] He stressed historical ties between the two countries, the Soviet desire for peace, and the necessity for cooperation to constrain arms competition. Our own conclusions were somewhat different, but we readily agreed that the two countries approach the issue of defense with unique frames of reference. Part of the contrast can be traced to differences in officer education, which became evident on our visit to three of their military schools.

Soviet military education institutions comprise a vast network within the U.S.S.R., but they do not have to begin from scratch to develop military officers. The Russian educational system is highly authoritarian, structured, and militarized.[3] By the time a young man applies to an officer commissioning school, he will already have completed ten years of general education with strong emphasis on basic science, technology, and mathematics. He will have participated in a whole series of military-patriotic programs, including tactical military games as a regular part of the ten-year school.[4] In addition, he will probably have been a member of the Komsomol (Young Communists) and DOSAAF (All-Union Voluntary Society for Assistance to the Army, Air Force, and Navy).[5]

Soviet Military Officer Schools

Soviet military officer institutions are of three types.[6] First, middle schools train undergraduates, have a two-year curriculum, and are comparable to Western secondary technical schools. (See Tables I and II.) Second, higher schools are also undergraduate institutions, but they generally have a four-year program, and

	Middle Schools	Higher Schools
Strategic Rocket Forces	-	7
Ground Forces		
combined arms	1	9
tanks	-	9
artillery and rockets	1	12
artillery engineers	-	3
troop air defense	-	5
airborne[a]		
Troops of National Air Defense		
surface-to-air missiles	-	6
flying training	-	3
radio-technical	5	-
Air Forces		
flying training	-	13
aviation-engineering and technical	2	10
Navy[b]	1	10
Total	**10**	**87**

Sources: William E Odom, "The Militarization' of Soviet Society," p 38; and William F Scott, "Changes in Tactical Concepts within the Soviet Forces," in *The Future of Soviet Military Power*, p 87

[a] Airborne troops are actually a semiautonomous arm

[b] Little is known about the navy schools. At one time naval pilots were trained at the Yeysk Higher Military Aviation School

Table I. Soviet middle and higher military schools

Table II. Military and higher military schools not specifically associated with any one service

	Number of Schools
Ministry of Defense	
political officers	9
rear services or logistics	6
signal	12
military engineers	3
motor transport	4
chemical defense	3
military-technical	2
civil defense	1
road and engineer	1
building and construction	4
finance	1
Not run by Ministry of Defense	
KGB (border guards)	3
MVD (internal security)	5
Total	**54**

Source: William F Scott, "Changes in Tactical Concepts within the Soviet Forces," in *The Future of Soviet Military Power*, p 88

many are extending to five years. They offer a higher education degree, similar to the U.S. bachelor of science. Third, the academies or military universities conduct professional military education (PME) and are similar to U.S. intermediate and senior service schools. (See Table III.) They offer graduate studies, some research opportunities, and the highest academic degrees ("candidate of sciences" and "doctor of sciences"). Finally, although it is nominally an "academy," the General Staff Academy is, in fact, on a higher level, similar to the National War College in prestige and promotion potential.

Frunze Naval School

The Frunze Naval School was established in Leningrad (then St. Petersburg) in 1701 and has about 1000 students. It is one of the higher military schools, accepting cadets from ages 17 to 22 years (normally 17-18). Entrance examinations are required, and the dates and testing locations are widely publicized around the country. (One of the publicity/information documents was entitled, *For Those Who Wish to Study in Military Schools and Academies.*)[7]

The five-year curriculum consists of a wide range of subjects, including 150 hours of naval history (much of it czarist), naval tactics, navigation, ocean science, fire control, ship handling, and political economy. Twenty-five percent of the curriculum is devoted to political indoctrination, ideology (Marxism-Leninism), and cultural trips to museums and monuments. Much of the training is done at sea during summer cruises, and one entire year is spent with operational forces. No cadet training is done on nuclear submarines, and training in amphibious warfare is extremely limited. (Soviet naval infantry officers are trained

Voroshilov General Staff Academy
Frunze Academy
Malinovskiy Armored Troops Academy
Kalinin Artillery Academy
Dzerzhinskiy Rocket Forces Academy
Gargarin Air Academy
Zhukovskiy Military Air Engineering Academy
Govorov Air Defense Engineering-Radio-Technical Academy
Zhukov Air Defense Command Academy
Grechko Naval Academy
Kuybyshev Engineering Academy
Budenniy Signals Academy
Timoshenko Chemical Defense Academy
Lenin Political-Military Academy
Makarov Rear Services and Transportation Academy
Kirov Medical Academy
Military Academy of Air Defense of Ground Troops
Military Research Institutes (7)
Total 24

Sources: Compiled from information provided by Harriet Fast Scott, National Defense University, 22 March 1977, and Air Force Soviet Awareness group

Table III. Soviet military academies and institutes

and provided by the Soviet army.) Some study is made of Allied military operations during the Normandy invasion, but Pacific amphibious operations are generally considered irrelevant to Soviet strategy.

Perhaps because the use of the Soviet navy in World War II was generally limited to its utility as a seaward extension of the land front, the current curriculum at the Frunze seemed to emphasize the Imperial Czarist use of the navy and its global projection of Russian influence. This would appear to be consistent with Admiral Gorshkov's writings in the last few years.[8]

While a cadet's education at the Frunze (and other undergraduate schools) is broader than at many Soviet schools, it is considerably more specialized than in the United States. This is due to the "engineering philosophy" that prevails in Soviet education and the requirement to train cadets specifically for service in their school's branch. Frunze graduates do not go into nuclear submarines, naval aviation, or naval infantry. The mission of the school is to graduate loyal surface fleet officers who are capable of immediately assuming positions as navigators, gunnery officers, and hydrographers.

Grechko Naval Academy

The Grechko Naval Academy is the Soviet navy's only senior service school. Its faculty included many more admirals than did the Frunze. The students are lieutenant commanders, commanders, and some captains, with ages 30-35 years. All naval officers (including naval aviation) holding positions above the regiment (wing) level are graduates of this school. Some Soviet air force officers are assigned to the faculty, but no air force officers are permitted in the student body. (This policy of strict separatism in education leads one to wonder if cooperation among the Soviet armed services is as good as it could be.)

The curriculum is two to three years in length and consists of political training in Marxism-Leninism, foreign languages, naval history, naval tactics, force structure, ship construction, and fleet operations. As in other Soviet military schools, there is strong emphasis on automation, the study of cybernetics, and narrow technical research involving operations analysis. Oddly enough, there appears to be no attempt to use modeling or prediction in simulation exercises at the Grechko Academy, a paradox that has been pointed out by John Erickson.[9] It is a paradox because the students participate in three or four large tabletop exercises per year. These extensive battle simulations and war games are used to heighten student interest, teach specific tactical "lessons,"

In the spring of 1977 a delegation from the U.S. National Defense University spent a week in the Soviet Union, visiting military schools and historic sites. At Volgograd (formerly Stalingrad) the Americans visited the historic battleground and the spectacular Mamayev World War II memorial (above), reflecting Soviet predilection for formalism and giantism.... At the Soviet Tank Academy (right), the U.S. visitors posed more formally with the commandant and senior faculty members of the school.

and acquaint each of the students with the various roles of the air force commander, submarine commander, surface forces commander, etc.

Whereas the Frunze Naval School had been relatively austere, the Grechko Academy was handsomely appointed and well equipped. The facilities included a submarine torpedo laboratory with ana logue and digital computer simulation. A second laboratory housed a low-speed, 16-square-foot hydrodynamic water tunnel used to investigate and demonstrate the effect of wave action on mines and to study the firing, control, and stability properties of submarine torpedoes.

Students participate in a common core program and then specialize to conduct research and write scientific papers. The majority of instruction appeared to be by lecture and laboratory; there was no evidence of any political-military education or seminar facilities. The emphasis on Marxism-Leninism was markedly less than at the Frunze. Military education at the Grechko Academy was remarkably nonideological but was aimed instead at tactical fleet operations and technical weapon capabilities. We were to find much the same emphasis at the armored school.

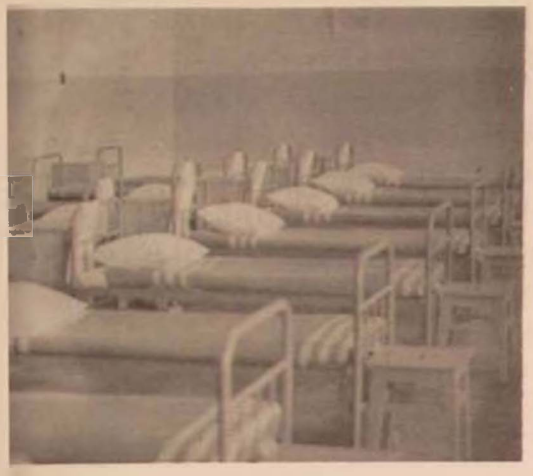
Malinovskiy Tank Academy

The Malinovskiy Tank Academy was founded in 1932 as the Stalin Academy of Mechanization and Motorization of the Red Army. Today it has the mission of training Soviet and Warsaw Pact commanders, staff officers, and engineers for armored and mechanized units. The best qualified graduates are also selected for the centralized operations division of the General Staff. Students enter as captains and majors (with some lieutenant colonels), indicating it is about on an intermediate level with the Army's Command and General Staff College at Fort Leavenworth, Kansas, and the Air Command and Staff College at Maxwell AFB, Alabama. The program of instruction is three years for commanders and staff officers and four years for engineers.

The Commandant, Marshal O. A. Losik ("Hero of the Soviet Union"), and more than fifty percent of the faculty were veterans of combat in the Great Patriotic War. Of the remaining faculty, all combined academic degrees with troop experience, except for a few recent graduates who had been permitted to join the faculty in the capacity of technical specialists. All faculty and students were members of the Communist Party.

Instruction at the Tank Academy

Marshal O. A. Losik, Commandant of the Malinovskiy Tank Academy and a Hero of the Soviet Union, warmly welcomed the visiting Americans to his school.



At the Frunze Naval School in Leningrad, American visitors were surprised at the austerity of the cadet bunking accommodations.... They were briefed on the curriculum and visited a celestial navigation classroom at this naval school.

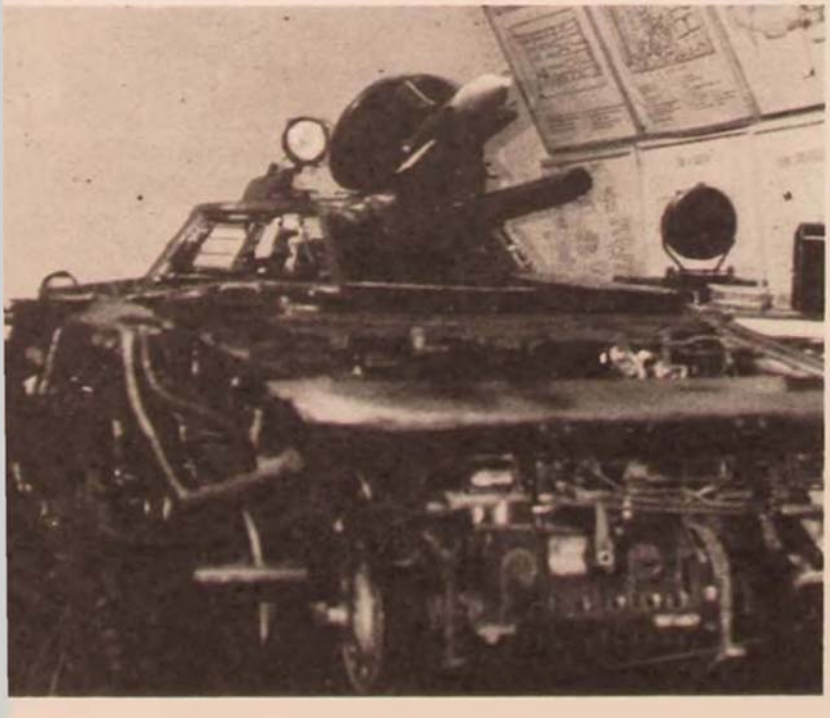
includes political training (12 percent), cultural visits, military theory, operations research engineering, tactics, and field exercises. The facility has over 300 classrooms, laboratories, and lecture halls (again no seminar rooms), but 60-70 percent of the time was allegedly devoted to practical studies outside the classroom. Some of this time is allotted to detailed study of full-scale, operating models of Soviet armored equipment, including a T-62 tank and a BMP-1 armored fighting vehicle. Further exemplifying this hands-on training, the students are taken on

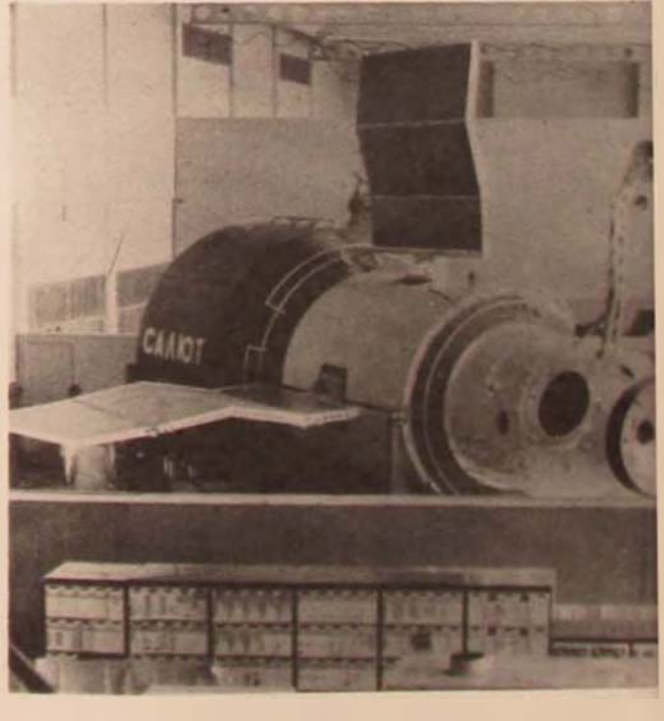
numerous field trips to view military exercises and learn to drive tanks, fire guns, and repair vehicles. Although this type of technical training is expensive in terms of student time, it is justified under the philosophy that the officer must know the duties of all those below him. More than at any other school, the veneration of World War II was evident at the Tank Academy. Three long halls contain graphic descriptions of historical battles and tank development. Movies taken in 1943-45 by Russian combat photographers are used extensively as teaching devices in battle simulations ranging from maneuver exercises to very realistic command, control, and communication jamming problems.[10]

Soviet military thought is dominated by the strategy and tactics of armored warfare. Soviet officers at the Tank Academy outlined their offensive battle doctrine, which is further spelled out in Sidorenko's *The Offensive*.[11] It included the following elements: the land battle is the deciding factor in warfare; joint combined arms will win the land battle; tanks play an important—but not an exclusive—role; armored troops can achieve victory only with the assistance of tactical aviation; and, finally, the Israeli 1973 lessons are limited to those of a "local war" and not generally applicable to Europe. (We know from other sources, however, that the Soviets have thoroughly examined the October War, and its lessons have become part of an ongoing doctrinal debate on the role of antitank weapons.)

Comparisons with U.S. Military Education

While the information collected on this brief excursion of Soviet military schools is limited, it can be compared with other





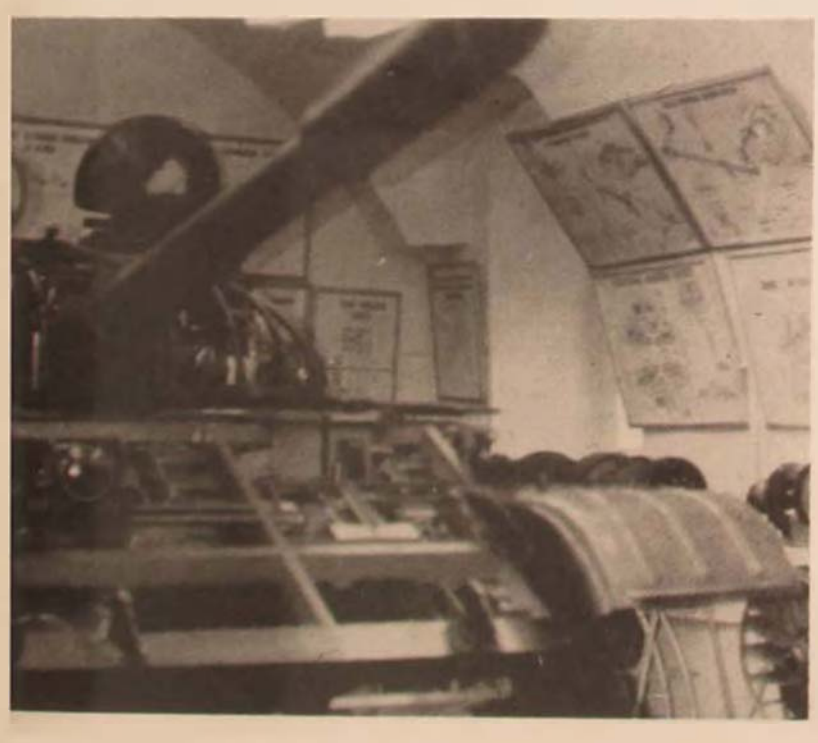
information and certain tentative conclusions drawn. First, Soviet military education is more extensive than that in the United States or Western Europe, and it has grown significantly since World War II. (See Table IV.) In 1939 there were approximately 109 undergraduate, officer-commissioning schools, and 14 "academies." By 1975 the number of undergraduate schools had burgeoned to 151, and the number of academies increased to 17. In addition to these large numbers, some Soviet civil universities give military training similar to ROTC and graduate commissioned officers, primarily in the support and logistics specialties.

Table IV. Growth in Soviet officer education

	1939	1975
Officer-commissioning, middle and higher schools	109	151
Academies	14	17
Military institutes	?	7
Totals	**123**	**175**

Source: Marshal A. A. Grechko, *The Armed Forces of the Soviet State*, 1974, p. 207 and Tables 1-3

Second, Soviet military education institutions are not only numerous but they also command an impressive portion of the total Russian investment in education. (See Table V.) Despite some uncertainties in the numbers, military officer-training schools constitute more than fifteen percent of the undergraduate institutions and thirty percent of the postgraduate universities. To a degree, these numbers must be adjusted, however, because military schools are not as large as civilian schools. The average number of civilian students per institution is apparently about 2850, whereas the military schools have traditionally had only 1000 to 1100.[12] In any case, it is apparent that the proportion of Soviet resources devoted to



The American visitors also saw some of the instructional hardware at the Soviet schools they visited. At the Malinovskiy Tank Academy they were shown mock-ups of the BMP (far left) and the T-62 tank (right), and at Star City Cosmonaut Training Center a Soviet manned space vehicle (center) is featured.

	Military	Civilian	Total Military	Percentage
Institutes of higher education	141[a]	811	952	15%
Universities, academies, research institutes	24	52	76	30%

[a] This figure does not include military "middle" schools
Source: Data from William E Odom, "The 'Militarization' of Soviet Society," p 37 and Tables I, II, and III

Table V. Soviet military officer education institutions as a percentage of total higher education

military education is impressive.

Third, Soviet military courses of instruction are two to three times longer than their U.S. counterparts. No U.S. professional military school is longer than one year, while Soviet schools appear to average two to three years and some run to four years. U.S. military services educate officers at various military-technical schools like the Air Force Institute of Technology residence course, but the numbers of these programs are extremely small.The Soviets apparently do not believe in sending large numbers of military officers to civilian schools for graduate education, yet this has been one of the most beneficial U.S. programs.[13]

Fourth, comparisons of the role of faculties provide some contrasts. Soviet faculty members appear to be much older and of much higher rank than their U.S. counterparts. Commandants of "academies" are, by Soviet law, rank equivalent to military district commanders. Also by law, academy heads of departments must be general officers. Between 250 and 350 generals and admirals are assigned as commandants and faculty members in military schools. There are very few civilians and almost no women on military faculties, and those so employed are utilized in specialist capacities like teaching foreign languages.

On the subject of quality, there are some indications that Soviet military faculty officers have more influence in their services than do U.S. faculties. Colonel-General N. A. Lomov, editor of *Scientific-Technical Progress and the Revolution in Military Affairs*, had been a professor at the General Staff Academy. Colonel A. A. Sidorenko, author of *The Offensive*, is a Doctor of Military Science and a faculty member of the Frunze Military Academy. These are just two examples, but they suffice to make the point: Soviet military faculties and educational institutions appear to be key ingredients in developing and explaining Soviet military doctrine, strategy, and tactics.[14]

There are several partial explanations for this difference. It is true that the compartmentalized nature of the Soviet system inhibits civilians from writing on military matters. It is also accurate to say that the U.S. body of strategic and military thought is more diffused among physical and social scientists, strategic analysts, congressional staff members, industrial researchers, public interest advocates, and executive policy-makers. These justifications suffice to explain why most U.S.

strategic conceptual innovations are the product of civilians rather than of military officers. They *do not* demonstrate why U.S. military school faculties do not produce more high-quality studies of strategy and tactics.

Fifth, military history is the thread that ties the educational curricula together. Each school seems to emphasize a slightly different period in Russian history, depending on the perceived role of the service or branch at that time. For the Russian navy, the closest historical analogue appears to be the late Czarist

Among the ceremonial gestures of the visiting American military delegates was the formal presentation of a flower arrangement at Piskarevskaya Memorial Cemetery in Leningrad.

period; for the armored forces, it is clearly from the battle of Kursk in 1943 to the battle for Berlin. Military history reinforces the role of strategic and tactical doctrine, and teaching these three subjects is high among the primary objectives of the schools.

The overall broader purposes of Soviet military officer education appear to be: to give the officer a broad background in Russian national history and contemporary culture; to prepare him ideologically for long-term political and military competition with the West; to specialize him in military skills for duty in his school's branch; to prepare him to cope with increasingly complex science and technology and "the revolution in military affairs;" to identify the most promising officers for promotion and duty in the General Staff; and to further socialize the officer into the centralized, command-directed military profession. To accomplish these objectives, entrance and graduation examinations are required in the subjects of Marxism-Leninism, military art, strategy, and military doctrine. Successful completion of one of the academies is a mark of distinction and status, prominently displayed in the form of a badge worn on the officer's tunic.

THE *quality* of Soviet officer education is most difficult of all to compare. To a Western observer, the education appears to be technically specialized, tactically oriented, and steeped in traditional military history. Yet it most probably meets what the Soviets perceive as their requirements.

The content of the training appears to foster control more than initiative, centralized authority more than independent action, and a narrow technical approach rather than systems integration. To the degree that this is a correct assessment, Soviet military education would appear to mirror Soviet civil education. In the final analysis, the question is whether training for control is more important than education for initiative. While Western liberal education has overwhelmingly been devoted to the latter, Soviet civil and military education is a unique product of Russian history and an authoritarian regime and is well-suited to a growing scientific-technological power with a war-fighting doctrine.

Council on Foreign Relations
New York, New York

Notes

1. A Soviet colonel-general wears three stars and is equivalent to a U.S. lieutenant general; a Soviet lieutenant-general wears two stars; and a major-general wears one.

2. This common desire for a multiplicity of communication channels and increased military exchanges was further exemplified by the invitation to U.S. Brigadier General John C. Bard to lecture at the Institute of Military History in Moscow. His lecture was on the subject of U.S. Army amphibious assault tactics in the Philippines in World War II. The lecture took place in Moscow on 26 September 1977 and was followed by a similar lecture in Leningrad two days later. A reciprocal visit by Major-General Ivan Efimovich Krupchenko, Head of Chair of the History and Art of Wars, Military Academy of Armored Troops, was conducted in November 1977. General Krupchenko lectured at the Army War College and the Army Command and General Staff College. For details see the *Washington Post*, 27 October 1977, p. 18.

3. For a detailed, though somewhat dated, description of the Russian educational system, see Alexander G. Korol, *Soviet Education for Science and Technology* (New York: Wiley and Sons, 1957).

4. Hedrick Smith, *The Russians* (New York: Quadrangle/The New York Times Book Company, 1976), p. 320. Smith's graphic and moving report of living in Moscow with his family for three years is an indispensable insight into the Russian character, its political institutions, and social system.

5. Another excellent, though little known, study of the inner dynamics of the Soviet system is William E. Odom, *The Soviet Volunteers: Modernization and Bureaucracy in a Public Mass Organization* (Princeton, New Jersey: Princeton University Press, 1973). Odom, an Army colonel now on the staff of the National Security Council, applied the methods of organization theory and political analysis to the study of DOSAAF and its predecessor organizations in the 1920s and 1930s.

6. For an in-depth description of these schools for air force officers, see Lieutenant Colonel Michael P. Murray, Jr., "The Education and Training of Soviet Air Force Officers," *Strategic Review*, Spring 1977, pp. 83-88.

7. William F. Scott, "Changes in Tactical Concepts within the Soviet Forces," in *The Future of Soviet Military Power* edited by Lawrence L. Whetten (New York: Crane, Russak, 1976), p. 86.

8. Admiral of the Fleet of the Soviet Union Sergei G. Gorshkov, "Navies in War and Peace," United States Naval Institute *Proceedings*, in eleven parts, January-November 1974. See also Siegfried Breyer and

Norman Polmar, *Guide to the Soviet Navy*, 2d ed., (Annapolis: U.S. Naval Institute, 1978).

9. John Erickson, "Soviet Military Operational Research: Objectives and Methods," *Strategic Review*, Spring 1977, p. 68.

10. There are many verifications of the Soviet emphasis on the lessons of World War II. One of the most cogent is that of General of the Army I. Pavlovsky, Deputy Defense Minister and Commander in Chief of the Land Forces. "Thirty years have elapsed since the final battles of the Second World War, in the course of which the Soviet Land Forces enriched themselves with experience in the theory and practice of battles and operations. . . . In spite of the qualitative post-war changes in weaponry and in the methods of their use, this rich experience has not lost its significance and is now an important source of knowledge for training and educating the troops. Scientifically generalized, this experience has found its expression in all manuals of the Soviet Armed Forces." Cited by Arthur J. Alexander, *Armored Development in the Soviet Union and the United States*, The Rand Corporation, R-1860-NA, September 1976, p. 10.

11. Colonel A. A. Sidorenko, *The Offensive* (Moscow, 1970); translated and published under the auspices of the United States Air Force, Washington, D.C., 1974.

12. William E. Odom, "The 'Militarization' of Soviet Society," *Problems of Communism*, September-October 1976, p. 38.

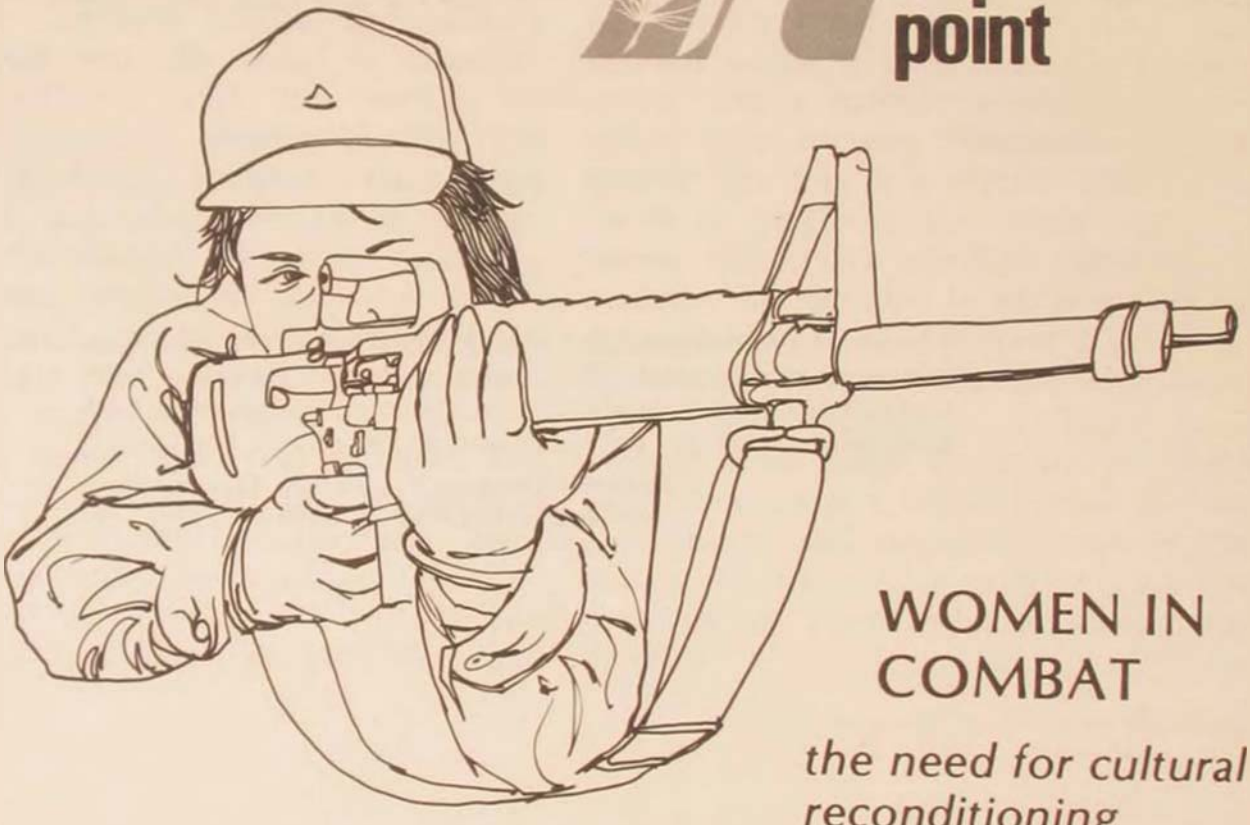
13. For a persuasive argument in favor of civilian graduate education, see Sam C. Sarkesian and William J. Taylor, Jr., "The Case for Civilian Graduate Education for Professional Officers," in *American Defense Policy*, fourth edition, edited by John E. Endicott and Roy W. Stafford, Jr. (Baltimore: Johns Hopkins University Press, 1977), pp. 567-72.

14. Although the last two decades have seen a flourishing of Soviet writings on strategy, tactics, and weapon development, it has not always been so. During the life of Stalin, his personal dominance of military affairs inhibited the discussion and development of strategic studies. For instance, in 1935 a series of lectures on strategy was prepared at the Frunze Military Academy, but they were never given. Paradoxically, after the death of Stalin in 1953, the Soviet military was still unsure of its role. During the four years between Stalin's death and Khrushchev's denouncement speech, strategic studies and military history were both severely curtailed. For an excellent discussion of this ebb and flow, see Harriet Fast Scott's edition of *Soviet Military Strategy* by Marshal of the Soviet Union V. D. Sokolovskiy (New York: Crane Russak, 1975), pp. xviii ff.

I hope I have not sounded like the football coach who was addressing his squad. "Remember, fellows," he said, "that football develops individuality, independence, initiative, and leadership. Now, get out there and do exactly as I tell you."

General Thomas P. Gerrity, Commander
Air Force Logistics Command, 1967-68

point counter point



WOMEN IN COMBAT

the need for cultural reconditioning

CAPTAIN JUDITH M. GALLOWAY

IN THE past few years, the debate over the role of military women has evolved to the point where the Department of Defense is now recommending to Congress that Title 10 to the U.S. Code be changed to allow women to serve aboard aircraft or on ships engaged in combat.

The ban on women in combat is the last barrier to equal opportunity for military women. However, the issue cannot be resolved on the basis of equal rights but rather on the basis of mission effectiveness. The problem is that mission effectiveness is not measured by com-

petence alone. There is much evidence to suggest that women would be competent as fighter pilots, or in any other combat role for which they are physically and mentally qualified. Women have not been kept out of combat because they are unqualified but because their presence makes men uncomfortable.

The idea of a woman being tortured as a prisoner of war is unbearable for many men because it somehow implies that they have failed in their role as protector. If women are to be smoothly integrated into nontraditional military roles, there must be some cultural reconditioning.

Foremost among the critics of the exclusion of women from combat roles is Major General Jeanne Holm, USAF retired. Last year, in a prepared statement before the congressional Subcommittee on Priorities and Economy in Government of the Joint Economic Committee, General Holm said:

> I have no problem with the idea of women as members of combat aircrews. Rated officer training programs are voluntary. Anyone who applies must face up to the risks involved including the possibility of being shot down over enemy territory.[1]

The utilization of women in the Air Force today is more extensive than it has ever been. However, for most of us who are really interested in a full career, the limitation on our role as combatants seriously affects the kinds of challenging jobs we will be allowed to hold and our promotion potential. This is why many military women are concerned about the limitations on their duty status. General Holm put her finger on the problem rather well in her testimony:

> Increased utilization of military women has always been a difficult concept for the military to accept. They [military decision-makers] have traditionally thought of military women as the resource of last resort, after substandard males, minorities, and civilians.[2]

General Holm further cited that the root cause of the problem is the inescapable fact of cultural conditioning. The deeply ingrained belief that national defense is a man's job is not easily altered.

In the all-volunteer force of the 1980s, it will become increasingly difficult to recruit good quality male high school graduates as the pool of 18 year olds will be considerably smaller than in this decade.[3] This will continue the need for expanded utilization of women. In recognition of this, the Air Force is continuing to increase its representation of women in the active force in a planned, steady manner.

Women are responding to these opportunities in greater numbers than ever before. The young woman who enters the military today does so with high expectations of equal opportunity and treatment. The impact of her first supervisor may or may not be quite so ideal. Nevertheless, the utilization of women in nontraditional career fields has been widely publicized and is considered by many an unqualified success.

Yet, there remains some tension, and, on occasion, even open hostility is evident in

previously all-male work groups. These cases have been documented by Social Actions offices as well as by the Leadership and Management Development Center traveling teams. Of the statistics compiled from more than 150 field visits to date, women's problems rank as one of the more frequently encountered issues.[4]

If women are experiencing difficulty in gaining acceptance and being fully integrated into the work force in nontraditional fields such as aircraft maintenance and security police, what problems are we likely to be facing if we include them in combat specialties where resistance may be even greater? There is continuing concern on the part of senior planners and policy-makers that women just will not fit in well in certain combat-related, male-dominated functions without adversely impacting on mission effectiveness.

The success of women in pilot and navigator training is a testimony to their determination and capability. However, the real test will come only after they have been flying on the line for several years. The requirement for frequent TDYs, sometimes for considerable lengths of time, is quite likely to cause some strain on the home life of both men and women aircrew members. How well this situation is handled will determine the real success or failure of women in this role.

One of the reasons, in addition to the combat issue, that women were not allowed to serve in missile launch crew positions for so long was that some wives of crew members violently opposed the idea of their husbands being isolated with another woman for extended crew alert periods. Despite the sniggering of some "dirty old men" who would like to think otherwise, the real issue is not one of sexual promiscuity. The real issue centers around greater contact with one's co-workers than with one's spouse, and this may be particularly true in the missile business. The lack of time with one's family is likely to cause resentment and even hostility. When that is compounded by the fact that one's co-workers happen to include a member of the opposite sex, the likelihood of jealousy is even greater. One must not overlook the fact that many military women are also military wives.

Women have now entered Titan II training on a trial basis. If that program succeeds—and there is no reason to expect it will not—women may ultimately be placed on other SAC missile crews as well.

With the exception of World War II, women have not been needed by the Department of Defense in nontraditional roles. Now the all-volunteer force and the projected decline in males eligible for military service may bring the issue of the utilization of women to a head, and women may at last achieve full participation across the entire spectrum of military roles.

The issue remains one that will only be resolved by further analysis of current and future Air Force needs and careful assessment of the impact of women currently serving in operational roles. If women will seriously jeopardize the combat readiness of combat crews by instigating petty jealousies and rivalries merely by their presence in these groups, then we cannot risk admitting them to these career fields. However, if we can reasonably establish that this will not happen, then we owe it to the women to make the best possible use of this resource.

Women have a tremendous responsibility to make the transition from previously all-male career fields to integrated ones as smooth as possible. There are adjustment problems on both sides. Most military women, however, are better equipped to deal with the stress and pressures of being in a previously all-male

unit because they have experienced it before. We owe it to the mission and the men we work with to be patient and understanding instead of overreacting to every joking remark that could possibly be misinterpreted as a male chauvinist attitude. Berating them for their prejudice will only cause male backlash. We must not be too proud to do more than meet them halfway.

THE INCLUSION of women in combat roles need not undermine the institution of marriage nor the professionalism and effectiveness of the military. The careful staffing by our senior military and civilian leaders in planning for the admission of women to the Air Force Academy and to pilot and navigator training is obviously also being applied to the entrance of women into the security force specialist, enlisted aircrew, and missile operations career areas. There is no reason to expect that women will seriously upset the combat readiness of our operational units if the past performance of women in other areas is any indicator. Only time will give us all the answers, but while we are waiting, every professional military woman must do the best job she possibly can wherever and in whatever capacity she is presently serving.

Sheppard AFB, Texas

Notes

1. U.S., Congress, Senate, Joint Economic Committee, *The Role of Women in the Military: Hearings before the Subcommittee on Priorities and Economy in Government*, 95th Cong., 1st sess., July 22 and September 1, 1977, p. 96.
2. Ibid., p. 95.
3. Sam Nunn, "National Security with the All-Volunteer Force," *AEI Defense Review*, no. 5, 1977, p. 14.
4. *USAF Management Consultation Information System Special Report: 1976 1977*, Composite Analysis Report Number 1 (Maxwell AFB, Alabama: Leadership and Management Development Center AU, 15 January 1978), p. 20.

We have tried since the birth of our nation to promote our love of peace by a display of weakness. That course has failed us utterly.

General George C. Marshall

WOMEN IN COMBAT
a demurrer

LIEUTENANT COLONEL EDD D. WHEELER

IF WE assume that arguments against permitting women in combat were not exhausted in companion pieces appearing in the *Review* (July-August 1977), then what more can or should be said about the subject?

First, a scan of the terms might be in order. Should women be permitted in combat? The operative words are "permitted" and "combat." At present women in the Air Force and Navy are exempted from combat service by law, Army women by policy. Ratification of the congressionally approved Equal Rights Amendment would change this and permit women to be eligible for combat duty. A ratified amendment would not translate into the trooping of America's daughters to the trenches. It simply would mean that women might lose their automatic exemption from combat, that they conceivably could serve, if they are qualified and if such service is determined to be in the best interests of the nation.

It is difficult to overemphasize the highly conditional nature of the entire picture. The Equal Rights Amendment first has to be ratified, a prospect by no means assured. Women then must be found fully qualified for combat, which many see as the crux of the problem. There is considerable controversy. More will be said on it below. Finally, the interests of the nation, and presumably those of the military, would be taken into account before coming to any conclusive determination concerning women in combat roles. The final decision will be as much a function of cultural and psychosocial values as of management and physiological considerations. One of the few statements that can be made outright on the proposal to permit women as warriors is that it is as yet illusory.

Permission for women to serve in combat categories, if and when it comes, is not so likely to affect women collectively as individually. Given the American emphasis on egalitarianism and individual freedoms, it is difficult to visualize a qualified person determined to pursue an activity not expressly prohibited by law being denied permission to pursue that activity. It is entirely conceivable, therefore, that the future will be permissive of what Margaret Mead calls "...the deviant individual.... The violent woman in a society that permits violence to men only...."[1] But individualized behavior does not equate to collective behavior. In any case, permission for individual women in combat would not be the same as license for battalions of Amazons. Or would it?

What also of the term "combat"? It is a word with varying shades of meaning. We

are told that piloting fighter aircraft is a combat category but that piloting cargo aircraft is not. The logic of this classification might be questioned, however, particularly by pilots who flew tactical cargo missions into such contested locations as Khe Sanh during the last decade. The Air Force has taken care that, in accordance with law, its first women pilots are to be assigned noncombat jobs. Instead, they are to fly cargo transport, tanker, trainer, weather reconnaissance, and medical evacuation aircraft.[2] But the assignment of females to pilot vehicles which carry no combat ordnance does not mean that those women will not see combat. The nature of a military organization often makes it difficult to discern what is noncombat service.

The missile crew specialty also poses interesting questions. In practice one might see this as a noncombat assignment. Yet these personnel are members of what we explicitly term "missile *combat* crews." They receive specific recognition for "combat readiness," and certainly they have at their fingertips the wherewithal for waging ultimate combat.

The physical demands of missile crew duty are not great. They could certainly be performed by most women. Many observers hold that women are better suited than men for tasks requiring patience, adaptability, and attention to detail. They might view women as ideal candidates for the peculiar rigors of missile crew duty.

The Air Force has announced plans to begin training women this year to fill officer and enlisted positions on Titan II missile crews. While this initiative is a new precedent, there are a few bothersome questions for those who might otherwise herald it as a breakthrough. For instance, there is always the possibility in a litigious society of a challenge in the courts by those maintaining that to place women on missile combat crews breaks existing laws. More material for our purposes, though, are other questions.

It is interesting to note that the Titan II system was selected for the new program. By assigning women to missile crews consisting of four persons, the Air Force, temporarily at least, has exhibited sensitivity to those persons or groups who might find this policy unpalatable if it applied to the more numerous two-person Minuteman crews.* One individual's perception of Victorian sentiment is another's idea of an awkward situation. What to some is concern with sexist preoccupations is to others concern for practical logistics. A dilemma of our time is how to pacify at one stroke the ideologist and the plumber. At any rate, it will be interesting to follow what lessons, if any, the experiment in underground missile capsules has for less technological concerns in the field.

THE subject of women in the military is laden with uncomfortable questions and issues. For example, it is possible to view the problem as an economic or social construct, a biological or psychological one, or as a crisis in culture. Fortunately, these constructs are beyond the intent, scope, and competence of this article. It would not be useful here to engage in a search for reactions to status deprivation or excessive adrenal secretion, though these factors are perhaps very significant.

Nevertheless, there is a larger canvas of which my subject is a part, and it is important to identify a few of these

*One might suggest that we prepare ourselves for Minuteperson crews. But the joker must be careful today, lest his attempt at brittle humor be judged brittle indeed by persons whose singular dedication to cause permits too often only an iron-tongued and humorless approach to what are admittedly our problems.

features before proceeding. Do women desire and deserve equal pay for equal work? We can nod our answer in benign and enlightened agreement, but for some there may be a gnawing concern over the word "equal." That is, are we talking about equal performance in every respect? And what price equality? Could it be that there are certain categories of work, even in this century of the machine and heightened social awareness, which rightly defy the impulse toward complete occupational equality? An affirmative answer to this last question could invite censure, but a negative one might be equally troublesome, for there is at least the possibility that it invites delusion.

To proceed without disclaimers would invite both censure and delusion. Hence, let me say that I challenge neither the role nor the record of women in the military. I do challenge any argument which suggests that their role, particularly with regard to combat, is unaccompanied by major problems.

Part of the problem is in ourselves. We are captivated by the stereotypes that we have helped to create. Among those captivated are persons professing knowledge. One author, after recounting the supposed feats of martial women for eighteen chapters in his book, *Women in Battle*, gives expression to his own feelings on the subject in the epilogue:

> But I deplore all the variety of circumstances which take women into war. A woman's place should be in the bed and not the battlefield, in crinoline or terylene rather than in battledress, wheeling a pram rather than driving a tank. Further, it should be the natural function of women to stop men from fighting rather than aiding and abetting them in pursuing it. One of the great inducements to the end of a war is the intense desire of men to return home to woman and bed. If a man is to have women at war with him, if he is to think of women as comrades-in-arms rather than mistresses-on-mattress the inducement disappears.[3]

Now, this may be partially tongue-in-cheek, but it is also quite enough to fog up the glasses of the Gloria Steinems of the world. It is a stereotype, but stereotypes, containing whatever fragments of falsehood and truth, must be contended with. They are not likely to be legislated out of existence.

The simple truth is that the female does not appear to be the best of combatants. This fact has been recognized by one of the most influential and articulate of the feminists, Simone de Beauvoir, who writes:

> Aggressiveness is one of the traits of the... male; and it is not explained by competition for mates, since the number of females is about equal to the number of males; it is rather the competition that is explained by this *will to combat*.... He is in general larger than the female, stronger, swifter, more adventurous;... he is more masterful, more imperious. In mammalian societies it is always he who commands.[4]

One might argue that the above observation is intended to apply as biological data to mammals at large rather than to humans per se, and further that, with the replacement of the club by gunpowder, it loses its validity even to humans. But I find such argumentation deficient. The human female is no doubt more akin in size and strength to her male counterpart than is the female gorilla to hers, but she remains a mammal, enjoying the capabilities and subject to the limitations of others of her gender in that class. The laws of biology do not cease suddenly at the human border. The point should neither be labored nor stretched to concession: men possess a decided superiority in their potential for effective performance in combat.

So what? To a disbeliever who asks that question in complete seriousness perhaps no satisfactory response is possible or necessary. Although one might venture to

add that even an automated battlefield is still a field on which battle is done, sometimes, if not often, in a manner that is simple, direct, and, above all, physical.

We have been reminded by an advocate of women for combat, that "warfare has moved away from an emphasis on physical prowess."[5] So far, so good, but the observer includes other statements not so readily acceptable. It may be true that certain "experiences indicate that the sight of women under fire has a bracing effect on male soldiers," but the same might be said of the introduction of children into the lines. At any rate, one has to strain in order to accept the assertion that "no group banned from combat training and combat service can hope to achieve equality." Surely it cannot be said that persons found medically or physically unqualified for combat—and here we actually mean that they are not as qualified as others available for service—have, as a group, been denied equality. The military cannot be expected to become apologist for heart murmur or flatfeet—or for lack of torso strength in women. To take note of such physical features seems far removed from violation of the equal protection clause of the Constitution.

I would argue, without being insensitive to other well-reasoned points made by this observer, that his emphasis on the battlefield as a melting pot for the sexes is perhaps misplaced. Combat can generate quite enough heat on its own accord. When that occurs, the general objective is to control the fire, or at least keep from getting burned, rather than demonstrate anew the robustness of the American system of social justice. One way of protecting that system, as the writer himself correctly stresses, is through "increased military efficiency." I would add only two words to this phrase—"in combat." He fails to convince me that he perceives efficiency and efficiency in combat as separate entities, requiring possibly very different approaches and ingredients.

Four woman-squadrons, armed from top to toe

Aristophanes, *Lysistrata*, line 454

In a sense, the question of women in combat is absurd and mooted. The fact is that the involvement of women in war has been a rather common occurrence throughout history. They have provided support from the sidelines; they have suffered their share of casualties. But for the most part women have been caught up in combat as victims rather than as participants. Their loss of innocence has been largely an involuntary one.

Admittedly, the occasional Joan of Arc, the Molly Pitcher, has appeared on the scene of battle. The list of names is unsurprisingly short. We can remember it because it is brief, novel, anomalous. Participation by women in combat has been more at the symbolic level than the real. Frequently, the symbols are not decided on until later. The Maid of Orleans carried a religious banner, not a sword, as her weapon. And her canonization did not occur until the twentieth century, in the flush of French victory after World War I.

Even the example of Russian women in World War II should not be overstated. Soviet women were expected to people the production lines rather than the battle lines. "*In 1945*," emphasizes Alexander Werth, "*fifty-one percent of all industrial workers in the Soviet Union were women.*"[6] Women were also looked to for the urgent business of replacing the nation's 20 million lives lost in the war. The Order of Mother-Heroine was established in 1944 in recognition of women bearing ten or more live children as opposed to women bearing arms. Soviet women at

war were expected to produce armaments and children. To the extent that they were used at all in actual combat has been described by one thoughtful commentator as "an exercise in public relations, designed to impress the outside world with the underdog position of [Russia]."[7]

There can be no doubt that the contemporary scene, one of comparative peace and not of war, represents the highwater mark to date of women's participation in the military. Some might suggest that it is only because we presently enjoy peaceful times that increasing participation is possible. Others might go even further and suggest that only during periods of intellectual thermidor, when events either sweep less urgently or are perceived to do so, could the issue of women in combat receive serious attention.

Speculation aside, there are at least two interesting features concerning the degree of female participation in present military systems. First, more women serve under American colors than in all other countries combined where data on women are available. There were more than 108,000 American women in uniform in 1976. Today there are more than 120,000. The total number of women statistically known to serve in foreign countries in 1976 was less than 70 percent of the American figure.[8] Second, it is not the small nation in arms and "under siege" that reflects the greatest utilization of women. For example, the participation rate for women in Taiwan is less than three percent.[9] Although the rate is five percent for Israel, that is still less than for the United States and New Zealand. The degree of service participation by women in the Soviet Union is less than one-quarter of one percent.

I would chance a conclusion of sorts concerning these statistics. On the basis of admittedly limited data, it appears that women are most likely to serve in contemporary societies either where manpower is not readily sufficient to cope with potential military exigencies (e.g., Israel) or where Western, and especially Anglo-American, social conscience is pervasive. The latter case is by far the more common one. The evolvement to date seems clearly one of social experimentation rather than of necessity. The experiment may—all trust shall—prove eminently successful in the West. It may even spread eastward. But whatever its future development or pace, the impetus behind incorporation of military womanpower has been essentially political.

How far should this experiment be taken? Perhaps one possible answer is, wherever it leads. That response doubtless contains elements of both adventurousness and wisdom. But who is supposed to be shepherding whom? The experimenter should maintain at least outward control over the experiment. The thing which I find most troublesome about the experiment is that it may be driven by data which are externally imposed rather than by those that are internally derived.

Does the experiment lead to women in combat? As with most questions worth answering, some say yes, some no. The important consideration, however, is why one responds as he or she does. Is it from informed belief, sheer emotionalism, political expediency?

In 1972 Secretary of Defense Melvin R. Laird stated: "I don't see why there shouldn't be a woman fighter pilot...."[10] About a year later, the Commander of Strategic Air Command, General John C. Meyer, himself an ex-fighter pilot, was quoted as saying, "Physically, intellectually or emotionally, I cannot see any reason why some women can't be first-rate fighter pilots."[11] We have here either parallelism of opinion or mere adherence

to policy. Surely the burden of proof must be on those who would claim that it is the latter. Such proof is of course very difficult. In this case, it is impossible: one individual is no longer in government; the other is deceased.

However, it is not impossible to see that there exists no unanimity on this subject among senior military men. Retired General William Westmoreland expressed himself in an interview as being unreceptive to the idea of women warriors:

> Q: Do you think that women will ever be placed on the field of battle?
> A: I hope not.... I'm for women in the military services. They can do most jobs as well as, some of them better, than men and they're doing it right now. But I don't believe that we have such a shortage of quality among our men that we have to force women to do the jobs that men have traditionally done throughout history.[12]

This represents the view of one whose knowledge of troops in combat is not theoretical. Of the many officers and officials who have expressed themselves explicitly on the subject, General Westmoreland is the only one who has recent combat command experience at the theater level. This fact and his present apolitical status do not make his views sacrosanct, but they do lend credence to his position.

This divergence of opinion may be the difference between one general's frame of reference and that of another. It may also represent a difference between the combat service requirements of the Air Force and the Army. Long-term tests are now being conducted by the services to determine requirements insofar as they pertain to the use of women in combat. It would seem that physical and intellectual factors might be sorted out most readily. The emotional dimension may prove more resistant to analysis.

How does one determine battle stress without battle? For sure there are methods for intelligent approach to this question, but they should be pursued very carefully. It may be that certain women are found equal or superior to the average male with regard to emotional stability in the face of violence. However, that proposition has yet to be demonstrated on anything approaching a general scale. I emphatically am not saying that women are uniformly giddy or unstable under duress. I am saying that there is evidence to suggest that the emotional constitution of women is basically different from that of men. Again, the research of Mlle. de Beauvoir appears illuminating:

> Instability is strikingly characteristic of woman's organization in general.... Irregularities in the endocrine secretions react on the sympathetic nervous system, and nervous and muscular control is uncertain. This lack in stability and control underlies woman's emotionalism, which is bound up with circulatory fluctuations—palpitation of the heart, blushing, and so forth—and on this account women are subject to such displays of agitation as tears, hysterical laughter, and nervous crises.[13]

Before women are "armed from top to toe" and readied for combat, there is a wide range of questions that must be explored. Some of these questions we doubtless as yet do not even know how to ask. It can only be hoped, for the sake of all interested parties, that we do not light upon the answer before the question.

I AM NOT certain, but I do not believe that men are jealously protective of their role as combatants. Combat is not something to be coveted. Certainly, the military owes every judicious consideration to those women who, for whatever reason, seek to become combat participants. Perhaps it would not be chauvinistic to say that we owe to them almost as much consideration

as we do collectively to those who would be assigned to fight at their left and right, almost as much consideration as must be given to the legions of nonparticipants who stand to the rear and whose lives may be affected irrevocably by the outcome.

Arlington, Virginia

Notes

1. *Sex and Temperament in Three Primitive Societies* (New York: William Morrow & Company, 1935), excerpted in Alice S. Rossi, editor, *The Feminist Papers* (New York: Bantam Books, 1974), p. 667.
2. "Women Receive Air Force Okay to Become Pilots for First Time," *Washington Star*, August 9, 1977, p. 5. Of the 20 females carefully selected for pilot training, ten are to graduate from the program. This performance is described as "comparable to that of successful male students."
3. John Laffin, *Women in Battle* (New York: Abelard-Schuman, 1968), p. 185.
4. *The Second Sex*, translated by H. M. Parshley (Middlesex, England: Penguin Books, 1972), p. 56. (Emphasis added.) Lest I misrepresent Mlle. de Beauvoir's essential message, I should also quote her fine closing passage of the book: "It is for man to establish the reign of liberty in the midst of the world of the given. To gain the supreme victory, it is necessary, for one thing, that by and through their natural differentiation men and women unequivocally affirm their brotherhood." (p. 741)
5. See Kenneth P. Werrell, "Should Women Be Permitted in Combat? Yes," *Air University Review*, July-August 1977, pp. 64-68.
6. *Russia at War: 1941-1945* (New York: Avon Books, 1965), p. 905. Werth's italics.
7. George M. Quester, "Women in Combat," *International Security*, Spring 1977, p. 81.
8. See Martin Binkin and Shirley J. Bach, *Women and the Military* (Washington: Brookings Institution, 1977), p. 114. The table of 21 "selected countries," for which information was available, did not include either the People's Republic of China or Cuba, countries where one would expect the rate of female participation in the military to be relatively high.
9. Ibid.
10. Quoted in Werrell, p. 68.
11. Ibid.
12. T. I. Wells, "William Westmoreland," *Atlanta Constitution*, August 1, 1977, p. 10.
13. *The Second Sex*, p. 64.

That Wilbur Wright is in possession of a power which controls the fate of nations is beyond dispute.

Major B. F. S. Baden-Powell
British Army Officer, 1905

THE ISRAELI FIGHTING WOMEN

myth and facts

CECILE S. LANDRUM

THE AMERICAN public has recently become more aware of the role of women in the military services. Questions dealing with the kinds of jobs women can perform, the numbers of women who can serve, the locations in which they can serve, and personnel policies that affect their status are all very much a part of the general interest in the all-volunteer force.

As a result, the Israeli military, the only force in the world to require full conscription for both men and women, has erroneously been looked on as the true example of equality of the sexes in the military. The image of the Israeli fighting woman, standing side by side with her male peer, rifle in hand, is a vision most Americans believe to be true. Yet it is an idealistic view of a country fighting for its survival. It is a myth.

The misconceptions of the role of women in the Israel Defense Force (IDF) were first brought to light in 1974 by Colonel Verna J. Dickerson, a U.S. Army Reserve colonel who spent one month with the women in the Israeli forces as part of her Army War College research effort.[1] Colonel Dickerson generally concluded that Israeli women serve in administrative and technical jobs requiring little or no training in order to free men for other jobs. The Israelis believe that minimal training of women is desirable because most women leave the military for marriage and motherhood. Colonel Dickerson also concluded that our military, under pressure

to meet the manpower requirements of the all-volunteer force and in view of changing cultural attitudes, is going far beyond the Israel Defense Force with respect to equality for women.[2]

Despite Colonel Dickerson's findings, the myth has continued probably among a majority of Americans. In 1978, journalist Lesley Hazleton recognized these inconsistencies and wrote that "the women of Israel are still clearly second-class citizens, severely restricted by law and custom." She continued that "they move in a male world of reality in the false guise of equals."[3] As to the role of the Israeli military woman, Ms. Hazleton stated that "the army exists to protect Israel's women, not to endanger them in its ranks."[4]

Utilization of the Israeli Military Woman

All women are drafted into service as enlisted personnel at the age of 18 for 24 months.* The men serve for 36 months. The young women have several exemptions that ultimately result in only about 55 percent of the women entering the service as opposed to 95 percent of the men. Marriage, pregnancy, religious convictions, and lack of education are all reasons for exempting women from this obligation. It is significant that about 18 percent of the women are excused because of their orthodox religious practices and another 19 percent do not enter the services because they lack the ten-year minimum educational requirement.

After completing their basic commitment, the women are assigned to a reserve unit and assume reserve commitments until they are 22, while men are committed (must serve) until they are 54. The rationale for this decision and many other policies is that women will probably become wives and mothers. Therefore, the country cannot afford to do more than train them minimally and expect no more than service in jobs that require minimal training.

The protective attitude that the men have toward the women clearly has an impact on their utilization. The men state that they have a great fear of their women being on the perimeters, crossing lines, or being taken as prisoners of war. An interesting note is that the military leaders are sensitive to what the concerns and demands of the mothers of these women might be. Since the women are so young and so close to home, their mothers are not only more aware of what is happening but their influence is also more significant than it is in our country. Therefore, much thought is given as to how the mothers will react to different policies.

The women themselves enjoy this protective status and do not view themselves as being in competition with the men. They feel that they are joining the men to serve their country. Several of the women I spoke with said they feel that American women compete with their men.[5] This feeling was also indicated in 1974 when the head of the Women's Corps (CHEN), Colonel Ruth Muscal, told Colonel Dickerson: "It is just as well that we have no significant 'women's lib' movement in Israel, at least in the military. In the IDF, we have neither the time nor the money to play around with it. Perhaps in a larger and more affluent country, which is at peace with its neighbors, it is feasible and worthwhile. But not in Israel."[6]

training process

All women conscripts train at one base outside of Tel Aviv for 3½ weeks. This time

*Most of this section is based on the author's visit in February 1978 to the women's training base and interviews with the director of the CHEN (the Women's Corps of IDF), the deputy director at the women's training camp, and General Uri Talmor, Director of Personnel Air Force.

period has been cut back since Colonel Dickerson's visit because of growing personnel requirements. The men, on the other hand, train for several months. The women live at the camp, and all their personal needs are met during that period.

The training itself is also quite different for men and women based on the different manpower requirements—and the economics of not investing heavily in women because of their short payback time. The women's training is basically a transition from freer civilian life to that of the more disciplined military way.

The women have no field exercises nor any night training. They do take a short hike, but more for physical fitness than for meeting any requirements. Their use of weapons is at a bare minimum, and emphasis is put on familiarity rather than use. Many soldiers carry their weapons to and from their homes when they live in certain outlying districts that could be dangerous.

The training serves as a means of explaining the military structure and mission to the women. Their role is presented as that of filling jobs that can free men for field duty. The women are then given a basic exposure to what men do. Despite the fact that a majority of the women were born in Israel, most of their parents were immigrants from such diverse places as Russia, Argentina, and South Africa. Thus, the military becomes a melting pot of the different backgrounds.

There are also distinct differences between the women from the kibbutzim (farm settlements) and those from the cities. The women from the kibbutzim are tougher, more independent, egotistical, know what they want, are very organized, and "know everything."[7] The girls from the cities do not possess this level of self-confidence.

The main cultural difference is not with those who are from the kibbutzim and those who are not but rather between those women with an education and those without. Contrary to some people's thinking, kibbutzniks often have very high levels of education. Therefore, even with the cultural differences, the kibbutzniks have much in common with those from the cities who have similar educational levels.

instructors

It is difficult to get instructors for the women. Only female instructors train the women, and most women want to meet men and not just be exposed to other women. Furthermore, the instructors work overtime, and the work is hard and repetitive.

With the 3½ week period of instruction and the continuing need for manpower, the training cycle is a sort of mass-production process. One group finishes on a Thursday, and a new group arrives on Sunday. This schedule leaves the instructors with little free time and little time for developing personal relationships. Since students do not leave the base during the week, the instructors and commanders must also remain on base.

Often the instructors are young women who remain in the military for a limited time beyond their initial commitment just to have a paying job until they enter school or a new job. They do not become regular soldiers and, therefore, do not mind the extra time as an instructor as much as someone who plans a longer-term commitment to military service.

assignments

Before training is completed, a special group of officers comes to the training base and sorts out the available jobs in the Defense Force. They then try to match the women's wishes with the recommenda-

tions of their leaders and the needs of the Israel Defense Force.[8] The women also want assignments where they can most easily meet men, but they accept whatever is assigned them though they feel that most jobs are dull.

The women receive their assignments on the last day of training. Although they are assigned to a particular service according to their job, they are still controlled by the CHEN.[9] They wear their branch uniform with the CHEN insignia on it. Each service has a CHEN officer who regulates policy regarding women. Each base also has its own CHEN officer who advises the women and resolves problems they might have. The women seem to want to maintain their separate status, apparently enjoying the privileges granted them.

officer selection

Neither women nor men, except for pilots, start out as officers. Women officers are selected through identification in training and by interview. Formerly, women were selected through a testing process during the training as it still is with the men. Since there is only a slight deviation of success in the selection process without the tests, it is more economical for the military to select women officers this newer way. Most of the officers are about 19 or 20, but if a woman is a sergeant major for three years, she can become an officer, too. This can be a good source for officers as some of the qualified women do not initially enter officer corps training, often because they are not motivated to take on an officer's responsibilities at the time or they do not think of the service as a profession.

marriage and child care

Women conscripts are freed of their military obligations if they get married or pregnant. Only regulars have the option to remain in the military if they marry or have children. About 10 percent of the women conscripts become regulars.

Very few regular military women are married to military men. Several married officers told me that most people consider it too difficult for a married military couple because of mission requirements. The women with whom I spoke gave me the clear impression that it is more attractive for women to have military careers than for men (except for the pilots who are considered an elite group). One reason is that regular female military personnel can retire with full pensions at a much earlier age than male members. It appeared to me that whereas men were expected to serve in the military, maintain their reserve status, but go on and do other work for the country, the women had not really moved into the marketplace. This point was emphasized by Lesley Hazleton, who stated that only one-third of Israeli women work outside their homes. Most jobs women get are low grade. For example, Hazleton states that few top-ranking civil service jobs are filled by women, only two percent are full professors, one percent engineers, and six percent employers or self-employed.[10]

The small size of the country and the fact that service is required only within Israeli borders are factors that make it possible for a wife and mother to manage a military career without continually disrupting her family. Families continue to live in one place even when service members are transferred to another base; thus, a spouse's working situation need not be negatively affected.

On-base day-care facilities are provided from 0800 to 1600, and at 1600 military mothers go home to be with their children. Despite this arrangement, however, the country itself is not prepared for the growing numbers of working women.

Schools still let out at noon, leaving many children alone or without supervisory care for several hours.

It was apparent to me that in Israel the family still comes first, and, despite the fact that the country is so small, women are still not very mobile. Military policy planners take this into account in their utilization plans for women. Woman's immobility was emphasized by the deputy director of the women's training camp, who stated that she has declined several jobs that were conducive to promotion because of her family's needs.

Nontraditional Jobs

Assignment of women to nontraditional jobs is a recent phenomenon in the Israeli forces. The decision to make this move was based mainly on existing shortages in manpower. Many women elected to move into these jobs when they became available because they found them more challenging and interesting than serving in what they considered dull desk jobs.

The military leadership carefully examined those jobs to which they felt women could adapt and decided to open the avionics, airframe mechanic, engine mechanic, and electronics fields.

Since women normally serve for only 24 months, some policy changes were made in opening these fields. It became necessary for women to volunteer to serve an additional year in order to enter these nontraditional fields. Since the technical training takes about a year, it was not considered economically feasible to train women one year for only a year's service. Some women did not like the idea of an additional year because they had made plans prior to their enlistment for the period immediately following their service. Completion of their education is usually their primary goal.

Presently, women stay in the technical training schools longer than the men (one year compared to 4-6 months) because the men in these fields have graduated from technical high schools and have the required basic skills. For the first time the Haifa technical school, with 3500 students, will have 25 to 30 female students next year. As a result, these women graduates will get the same training as the men when they enter the service.

Despite the advantage of technical training, the women will still have to comply with the three-year commitment, but they will benefit in other ways. There are two separate pay scales in the military—one for conscripts and one for the regulars. It was determined that women

with technical training would get regular pay in their third year while men continue to draw conscript pay the entire three years. On the other hand, whereas marriage normally frees women from their service obligation, given the investment in the advanced training, women in the nontraditional jobs will not be released for marriage. They will get the regular salary upgrade once they are married if they are in the first two years of conscription.

The selection process for nontraditional job candidates has been designed very carefully. The Israel Defense Force can select the best qualified women for these jobs while the best qualified men go into pilot training. The women selected have a minimum of twelve years of education and high IQs, as determined by special tests that are also given to the men. The recruiting goal for each group graduating from basic training is 30 out of a pool of about 1400. The Israel Defense Force expects that 300 women will be in these career fields by 1979. The testing proves to be a screening procss, but recruitment is on a much more personal level. A group of high-ranking personnel leaders and a win commander visit the women during their initial training. These leaders appeal to the women by telling them of their country's needs and ask them to volunteer. They tell them of the unpleasant things as well as of the positive aspects of the jobs. The military leaders pledge to fulfill any commitment they make to the women entering these fields; for example, women can refuse to go to certain base locations.

The U.S. Air Force's new recruiting films, which address the full scope of the nontraditional jobs, have been recently viewed by the Israel Defense Force, which plans to incorporate similar films into the recruiting process. In addition, as a means of getting more women in these fields, policy-makers have sent letters to women already in service, asking them to serve in these fields. The military leaders, however, are still soul-searching the problem of how many women they can assign to these nontraditional fields. The military leaders feel that it has been good so far, and they are considering putting women into 15 percent of the jobs. However, they expressed concern about how women will do on the big engines.

General Uri Talmor stated that women have demonstrated they can do about 80 percent of the work. The Israelis agree, he found, that a woman's presence is better than not having enough men and doing nothing about it. Some men did not want the women, feeling that men can do a better job. But the real issue presented to them was that either there would be no men or only very low-quality men available. Therefore, having highly capable women to fill these gaps is a far better solution.

special program

A program has been established for a limited group of women who do not meet the minimum educational requirements. This program was designed partially to meet manpower needs but also in part as a social endeavor to help elevate some women from their poor backgrounds. The planners also took into consideration the fact that these women will be the mothers of future soldiers, and the leaders would like them to understand the ways of military life.

General Talmor, in his discussions with me, stated that about 500 women who have had only four or five years of schooling were selected for this program. They receive seven weeks of basic training, in which they learn such basics as manners, history, and culture. There are only four jobs that these women can hold, mainly

very low-level technical jobs in the Air Force. I observed a group of these young women being trained who, on completion of their training, will be working as technical assistants in hospitals. These women expressed some displeasure at their pending assignments; they want to feel like soldiers, and working in hospitals does not seem a very soldierly role. Many of these women have come into the service with personal problems and require much attention. Despite the country's sense of urgency, the military leaders, in placing emphasis on these problems rather than working on defense, believe they are filling a social service to the country.

Women are required to reach the eighth year level of education before they can complete their military service. Some women, though, try to stay on in the service because of a lack of other opportunities.

women as pilots

Since in the past the U.S. Air Force had interpreted the combat restriction of Section 8549, 10 U.S.C., to mean that women could not fly planes,[11] it was with great interest that the news of women training to be Israeli Air Force combat pilots began to circulate in late 1977. Actually there were women pilots in the Israeli forces 15 years ago, but that was stopped because the women were having problems pulling Gs; also, the men feared that the women would become POWs.[12] The Israelis started training women pilots two years ago without changing any policies. These women had to pass the same tests as the men in order to enter the program. Since the Israelis train only attack (combat) and helicopter pilots and all planes must cross the border, by definition the women would be flying combat. The test program started with one

woman. Four more were subsequently added in groups of two. Four of the five women had already attrited from the flying course, and the day I visited the fifth woman was informed that she had not met the criteria to stay in the program. The dilemma the Israelis presented is that they train only for combat. Those who do not perform at the top as fighters become the cargo pilots—but only after they have completed the very rigorous fighter training. Also, all their planes are consigned to combatants. Whereas women might make good cargo pilots, they, too, must first finish combat training in order to be selected as cargo pilots. The Israelis do not feel that they can afford to change the selection process or their training system to accommodate the few women who might become cargo pilots and remain in the military.[13]

Therefore, on 7 December 1977 the Israel Defense Force set forth a new directive precluding any more women from pilot training. It is apparent that the mission of the Israeli military and its existing culture create a very different atmosphere for the use of women. Realistic manpower goals, economics, and the country's survival are the prime concerns of the country in determining its personnel policies.

THE MILITARY role of Israeli women is and will continue to be predominantly a helping role, and their role as wife and mother will continue to be a dominant factor in determining their use in the military. Any comparisons we make beyond the numbers and kinds of jobs in which women serve must reflect these cultural differences. The Israeli military woman certainly cannot be considered a role model for the American military woman. In fact, just the opposite may be true.

Hq USAF

Notes

1. Verna J. Dickerson, *The Role of Women in the Defense Force of Israel* (Alexandria, Virginia: Defense Documentation Center, May 1974).
2. Ibid., p. ii.
3. "The Women of Israel," *Time*, February 20, 1978, p. 102.
4. Ibid.
5. In February 1978 during a visit to the women's training camp and the air base where pilot training is conducted, I had the opportunity to speak to several women in the Israel Defense Force.
6. Dickerson, p. 13.
7. Although this may seem to be strong language, it reflects descriptions (using even some of the same terms) made by General Talmor and the deputy director of the CHEN.
8. Most of the young women want to be assigned near their families. Colonel Dickerson was asked during her visit how the U.S. military managed to assign its girl soldiers within commuting distance of their homes in such a large country! Dickerson, p. 18
9. CHEN is an acronym for Cheil Nashim (Women's Force). The Hebrew word "chen" also means charm. Since the majority of the women in the Israel Defense Force are about 18, they are called girls. Thus, CHEN refers to charming girls.
10. "The Women of Israel," p. 102.
11. The U.S. Air Force graduated its first group of female pilots in late 1977 and a second group in early 1978.
12. Interviews with Brigadier General Uri Talmor (Air Force Personnel Chief) and brigadier general in-charge of the flying training school, Israeli Air Force, February 1978.
13. Ibid.

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books and ideas

THE MILITARY-INDUSTRIAL COMPLEX REVISITED

COLONEL MICHAEL F. NOONE, JR., USAF (RET.)

REVISIONIST sentiment in modern American historical studies has substantially diminished the reputation of Dwight D. Eisenhower. As a wartime leader, he is now seen as little more than the chairman of a coalition that worked successfully only because American power was overwhelming. His postwar tenure at Columbia University is nearly forgotten. His domestic policies as President are criticized for their lack of direction, while his character is denigrated for his alleged failure to "stand up to McCarthyism." And, of course, his foreign policy is seen as a disastrous follow-on to the unwarranted anti-Soviet stance that President Truman had taken. Yet, in one regard, Eisenhower's reputation remains untarnished. He (or rather his speech writer, Malcolm Moos) coined the term "the military-industrial complex" and then warned the American people of the threat that group posed. For that reason alone, his stature in the academic community is somewhat greater than his fellow President/generals—Grant, Taylor, and Harrison. We can individually debate the validity of the revisionists' judgments and, if so inclined, can chuckle at the pundits' reliance on such an ostensibly weak reed to justify their judgments on military affairs. But we must collectively recognize that the term (with its pejorative overtones) has become part of the American vocabulary and that it cannot be disregarded simply because it suggests that we military customers have somehow conspired with our industrial suppliers to overcharge the American taxpayer.

The term has had its benign effects as well. By creating a new conceptual category, it encouraged specialists in military affairs to study the relationship between industry and defense. These studies may ultimately raise the level of political discourse and enable all those concerned with defense issues to put them in a more realistic context. In this regard, the historical perspective that these studies offer is particularly useful to decision-makers and staff officers who can benefit from the mistakes—and tri-

umphs—of their predecessors. This sense of history is most necessary in the realm of weapon procurement since new products and purchasing techniques cause us to think—mistakenly, I submit—that the problems themselves are new.

The American military's involvement with industry, both domestic and international, is now 125 years old. When European visitors to the New York Exhibition of 1853 returned to their own countries, they quickly incorporated the novel "American system of interchangeable manufacture," developed in the armories at Springfield and Harpers Ferry, into production lines from Birmingham (England) to Tula (Russia). Ever since that time, military affairs have been intertwined with the technological revolution and the growth of industry. Yet, the reluctance of the armed forces to acknowledge that fact is exemplified by the listing of only one research paper under "Industry and Defense" in the *Air University Abstracts of Research Reports for 1976;* there are no listings for 1977.

ON THE OTHER hand four recently published books suggest current public interest in the field, and one of them, *War, Business, and American Society: Historical Perspectives on the Military-Industrial Complex,* also offers a number of models for the military student attempting a research paper in this area.† Dr. Cooling, assistant director of the Army Historical Research Collection at Carlisle Barracks, Pennsylvania, solicited twelve authors' contributions on the subject. The papers average a dozen or so pages in length, have few scholarly impedimenta, and, while they have more than their fair share of awkward constructions and academic jargon, the topics they consider and the conclusions they reach merit our attention. The bibliography and bibliographic notes, prepared by Dr. Cooling, are invaluable.

The first impression one gets is an almost overwhelming sense of déjà vu. Yes, we have been here before as we read of the unsuccessful efforts (in 1877) to close redundant military installations; of Josephus Daniels's decision, after he became Secretary of the Navy in 1902, to move naval shipbuilding from Republican Northeast to Democratic Norfolk and Charleston; of excess profits and technological breakthroughs in the production of armor plate between 1894 and 1918; and of the Army's disastrous experiences in small arms procurement since 1945.

No longer than the average Air Command and Staff College or Air War College paper, these essays illustrate what can be done with an imaginative topic. That is not to say that all the papers are equally stimulating or equally well researched. In my judgment, the best of the lot is Edward C. Ezell's "Patterns in Small-Arms Procurement since 1945; Organization for Development." One of the two authors not associated with a university, Ezell has taken a complex, controversial subject, researched it thoroughly, and has produced a paper whose conclusions have far broader applications than the title suggests. Johannes R. Lischka's "Armor Plate: Nickel and Steel, Monopoly and

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†Benjamin Franklin Cooling, editor, *War, Business, and American Society: Historical Perspectives on the Military-Industrial Complex* (Port Washington, New York: Kennikat Press, 1977, $12.50), 205 pages.

Profit" uses business histories to good effect and serves to remind us that narrative descriptions of the procurement process are often imbalanced by their focus on the buyer, simply because governmental data are more accessible. The other paper that merits particular attention is Alvin R. Sunseri's "The Military-Industrial Complex in Iowa," which argues a thought-provoking thesis—that defense-related expenditures are so substantial and pervasive that they can convert communities into supporters of "unnatural levels" of defense spending. Unfortunately, the paper suffers from a number of shortcomings: the rubric "defense spending" is stretched to cover NASA, AEC, and VA spending as well; although it relies heavily on survey data and regression analysis, neither the formulae nor the data are displayed; and, as evidence of the casual approach apparent in the paper, Representative Les Aspin's name is misspelled both times it appears.

NOT ALL THE papers in the Cooling book share President Eisenhower's implicit assumption that both the demand for and cost of modern weapon systems are inflated by buyer and seller for reasons of profit and prestige. A recent study of the F-111 program† concludes that unit acquisition costs have increased 1000 percent in the last twenty years because of the "military's sustained pursuit of maximum performance through an inflexible development process..." (p. 387) and asserts that recent and proposed changes in the system's acquisition process are only cosmetic. While he agrees that there is merit in "pushing the state of the art," the author argues that the development process is not designed to resolve anticipated technical problems before they become actual and offers a series of examples from the F-111 program: engine-inlet compatibility problems (cost to fix: $100 million); fatigue problems in the wing box (cost to fix: $100 million); unanticipated aft-end drag (not fixed). It is a fascinating story, thoroughly documented and of interest to both buyers and flyers. Neither the book nor a subsequent application of its thesis ("Inter-Service Weapons Rivalry," 33 *Bulletin of the Atomic Scientists,* no. 6, June 1977, pp. 25-36) suggests that the participants in the weapon acquisition policy are acting in bad faith. Exorbitant costs are attributed to institutional biases.

Why was President Eisenhower concerned about a military-industrial conspiracy? I can tentatively suggest two reasons. First was sheer frustration at his inability to control systems costs. In his pre-election "Morningside Heights Agreement," he promised that he would save $3 billion in the defense budget by eliminating inefficiency. After election, he could find savings of that magnitude only by curtailing the B-52 program[1] and continually found himself justifying excessive defense expenditures to the Taft wing of his own party. To his annoyance, he found that these expenditures were supported by the uniformed services. That may explain the military half of the equation. The second reason, which may explain the industrial half, rests on Eisenhower's experiences years earlier as a major

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†Robert F. Coulam, *Illusions of Choice: The F-111 and the Problem of Weapons Acquisition Reform* (Princeton, New Jersey: Princeton University Press, 1977, $21.50), xiii and 432 pages.

assigned to the War Department. In 1929, he became assistant executive to the Assistant Secretary of War, responsible for assuring wartime industrial mobilization. In 1930, he developed a mobilization plan that would have limited manufacturers' profits to "6 percent on 'what it is claimed is the investment'"[2] and publicized it the following year in *The Infantry Journal.* Subsequently, as aide to the Chief of Staff of the Army, he must have followed the hearings of the special committee investigating the munitions industry that began in the fall of 1934 and concluded in 1936. It may be that the Nye Committee's "Merchants of Death" theory (unproved) confirmed his own beliefs regarding industry and profits. We do not know.

WE DO KNOW that the "Merchants of Death" theory is still alive and well as illustrated by the third book under review, *The Arms Bazaar.*† Although Anthony Sampson admits that there was not and is not evidence of an international armaments ring, he concluded that the nature of the industry and its relations with the military lead to immoral and unethical practices. The book is little more than an update of the late George Thayer's magisterial *The War Business* (1970), which traced the development of the arms trade in Western Europe and the United States from the 1880s through Vietnam. Sampson, best known for his book on the multinational oil companies, the *Seven Sisters* (1975), has updated Thayer by covering the Northrop, Lockheed, and Dassault scandals, the civil war in Lebanon, and Iran's growing importance in the arms trade, but there is nothing here that has not been reported by the press. The introduction's two-page list of acknowledgments, ranging from Lieutenant General Howard M. Fish, USAF (then Director of the Defense Security Assistance Agency) and George Ball to Gavin Lyall, the author and film writer, suggests more than it produces—a weak closing paragraph concluding, "the more the public is informed and involved, the more prospect there will be of achieving a saner world." Is that all we can expect from 340 pages of text?

THE ARMS BAZAAR does reveal a basic animus toward multinational corporations, an animus that represents the modern media and academic attitude. The fourth book is a scholarly examination of the reasons for those feelings.†† On a rational level, multinationals are seen as interfering with a country's right to autonomy and choice, i.e., with its politicians' right to decide what is best for the citizens in terms of resource allocation and income distribution. The Harvard Business School Multinational Enterprise Project has been collecting data on the subject for fifteen years, and any serious discussion on the role of international business will have to incorporate Dr. Vernon's wise and well-substantiated conclusions. Unfortunately, most discussions and judgments about the

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†Anthony Sampson, *The Arms Bazaar* (New York: The Viking Press, 1977, $12.95), 352 pages.

††Raymond Vernon, *Storm over the Multinationals: The Real Issues* (Cambridge, Massachusetts: Harvard University Press, 1977, $12.50), vii and 260 pages.

subject are at the trivial and irrational level, and at that level the vocabulary is politically charged with what an English author recently described as the "anti-big-business demonologies long characteristic of primitive socialist or populist radical movements."[3] Thus, we find ourselves again facing the spectre of the military-industrial complex, wearing its industrial guise.

THIS SPECTRE is not to be shrugged off. As purchasers and users, looking for the best product at the lowest cost, we have a particular interest in assuring that American industry can meet our needs. But what can we do to remind critics of defense spending that cooperation with industry is not synonymous with collusion? First, we can all reflect the concern for economy and efficiency expressed by our civilian and military leaders. We must show the public that the Air Force does care about costs. For a good example, read Lieutenant General Bryce Poe's "Getting Weapons That Do the Job."[4] Second, we have to think, and read, and write as much about defense spending as our critics do. Third, we must make sure that our relations with industry give no support to our critics. Then, God willing, the next 125 years of our relationship with industry will be as successful as the first.

Alexandria, Virginia

Notes

1. Paul Nitze's Testimony before the Senate Budget Committee, March 1976, p. 172.
2. Peter Lyon, *Eisenhower: Portrait of the Hero* (Boston: Little, Brown & Co., 1969), p. 67.
3. Bill Warren, "Nations and Corporations," *Times Literary Supplement* (London), November 11, 1977, p. 1328.
4. *Air Force Policy Letter for Commanders*, no. 6, June 1977, p. 14.

We strive for a balance between the ability to innovate and the discipline required for orderly procedures. Both ingredients are vital.

Robert C. Seamans, Jr.
Secretary of the Air Force
23 April 1969

THE PRESS AND THE TET OFFENSIVE

a flawed institution under stress

CAPTAIN DONALD M. BISHOP

THE Tet offensive of 1968 must surely be regarded as one of history's chameleon campaigns. When the North Vietnamese and Vietcong troops assaulted targets throughout the Republic of Vietnam at the end of January 1968, they expected to trigger an uprising of the South Vietnamese people against their government. Despite some spectacular early successes, the attacks failed. The South Vietnamese did not embrace the cause; thousands of sappers, assault troops, and cadres met their deaths before overwhelming allied counterattacks; and the insurgent infrastructure was so decimated at the end of the fighting that no large enemy offensives could be mounted for four years.

Nonetheless, the Tet offensive was a turning point in the war, and the North Vietnamese were successful in altering the course of the war far beyond the accomplishments of their army. The American people were shocked that the Vietcong/North Vietnamese Army (VC/NVA) possessed the strength to make the widespread strikes. In the public clamor that followed, President Lyndon Johnson announced a bombing halt and withdrew from the 1968 Presidential race. The policy of Vietnamization was launched, and many Americans concluded that the war was too costly to pursue.

It has always been clear that the press played a vital role in this dramatic shift of opinion. It has been evident that dissatisfaction with the war among media opinion-makers helped form an American public attitude of discouragement. Nonetheless, much of the assessment of the media's role in the war has heretofore been impressionistic and conjectural.

The publication of *Big Story* now replaces impressions with fact, conjectures with cold analysis.† The book presents the findings of a truly staggering study of the role of the press in this crucial military event.

Correspondent Peter Braestrup, who reported for the *Washington Post* during Tet, prepared the study and interpreted the findings. A former Marine infantry officer in Korea and an experienced war reporter (Algeria and Vietnam), Braestrup brought to the study both firsthand experience and a personal dedication to truth. He amassed detailed content and photo analysis of both print and TV reporting, a review of public opinion findings, and his own investigation. Braestrup read every word published on the Vietnam fighting by three media groupings: the Associated Press and United Press International, the *New York Times* and the *Washington Post*, and *Time* and *Newsweek*. In addition

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†Peter Braestrup, *Big Story: How the American Press and Television Reported and Interpreted the Crisis of Tet 1968 in Vietnam and Washington*, 2 vols. (Boulder, Colorado: Westview Press, 1977, $45.00), xxxviii and 740 pages, index, and 706 pages of appendices, tables, and story and photo indices.

he viewed tapes of every telecast aired during the offensive by the three networks.

media misconceptions

The sheer volume of press and TV reports on Tet is intimidating, and, of course, almost every conceivable interpretation of events can be found in them. Nonetheless, Braestrup's analysis points to the emergence of several themes that came to dominate the coverage. The sober examination of these themes with hindsight reveals important misconceptions.

Misconception: There had been no warning of a coming offensive. Actually, the press ignored cautions expressed by General Earle Wheeler and General William C. Westmoreland in December and January.

Misconception: The offensive was a victory for Hanoi. The press corps, it is now clear, was stunned by the initial Tet attacks, many of which occurred in Saigon. When the allies met some initial reverses, the press reacted by emphasizing the enemy's successes. As the weeks wore on and military intelligence clearly indicated defeat for the insurgents, the press still interpreted the offensive as a "psychological victory" for the Vietcong/North Vietnamese Army, who "held the initiative," "decide who lives and who dies... which planes land and which ones don't," who were unconcerned with losses, and could "take and hold any area they chose." There was little objective analysis of the many enemy failures or of the severe toll that allied counterblows exacted from the enemy.

Misconception: The North Vietnamese military initiative bared the unreliability and inefficiency of our own allies, the South Vietnamese. Government of Vietnam (GVN) troops were described as "lolling in the sun," failing to carry their load, and complacent. The press reported that the offensive shattered GVN control over the countryside and conclusively undermined the loyalty of the people.

A more truthful assessment: the GVN "muddled through" the crisis, Army of Republic of Vietnam (ARVN) performance was initially inhibited by the fact that half the Vietnamese troops were on Tet leave when the enemy struck, and many ARVN units gave a good account of themselves in the subsequent fighting. Press pronouncements that the offensive eroded loyalty to the GVN were ill-informed.

Misconception: The characteristic American response was to destroy city districts and villages with overwhelming, indiscriminate firepower. This misconception was fueled by the ill-advised comment of an Air Force officer at Ben Tre that "we had to destroy the town to save it" and by television clips focusing on urban damage.

The unavailability of weapons well adapted to street fighting (the 106mm recoilless rifle, for instance) forced some difficult decisions by tactical commanders. Press reports, however, suggested that destruction was typical. Some reports from Saigon indicated the city was a giant scarred battleground; from the air, however, reporters could see that 95 percent of the city was relatively unharmed.

American and ARVN commanders did have to use heavy weaponry in urban areas, but the response was not characteristic of the counteroffensive.

Misconception: The sapper raid on the American embassy, the fighting in Hue, and the siege of Khe Sanh typified the war. In fact, these engagements were not typical, but exceptional. Scores of press reports, however, identified these battles as microcosms of the war because they were visible, tangible, and conventional. The reassertion of government control

throughout South Vietnam by American and GVN troops was virtually ignored.

Misconception: Khe Sanh was to be America's Dien Bien Phu. The comparison between these two battles was a powerful media theme, always with dramatic forebodings of disaster. Braestrup demolishes the comparison with a cold historical examination of the two battles. The similarities existed mainly in the minds of reporters, who badgered officials in Vietnam and the United States with the "parallels." General Westmoreland was completely confident of American victory with good reason (our superiority in airlift and firepower), but Washington decision-makers—e.g., President Johnson, General Taylor, and Walt Rostow—were intimidated by the spectre of defeat by Giap.

The effects of these errors of fact and interpretation in the United States were pronounced. The impact appeared less in opinion polls than in the minds of Washington policy-makers. Because the press had ignored earlier cautions expressed by military leaders, the public was "jolted into gloom and foreboding," and a "credibility gap" emerged. In Congress and the bureaucracy, criticism became vocal, reflecting the "disaster" themes portrayed in the press and on TV. The embattled President announced the bombing halt and withdrew from the Presidential campaign.

a flawed institution

How could the press err so greatly in its Tet coverage with such impact on the nation? There is no simple answer to the question.

Braestrup dismisses the idea that newsmen as a group were ideologically opposed to the war. Rather, the Tet coverage represents the institutional defects or flaws in the gathering, interpretation, and dissemination of news in Vietnam and the United States at the time of the offensive.

Flaw: The press corps lacked military experience and the ability to grasp and present matters of strategy and tactics. Press reports contained some remarkable errors in this regard, like the time the fall of the Special Forces camp at Lang Vei left a gaping hole in U.S. lines, or Harry Reasoner's report that North Vietnamese trucks (having traveled at night through the A Shau valley) were "unloading at communist-held entrances in the wall" of the Hue Citadel. The press's lack of knowledge and maturity resulted in a lack of discrimination in the presentation of hastily gathered or incomplete facts and contributed to the disaster theme.

The views of experienced military commentators like Joseph Kraft and Hanson Baldwin and the analyses of Douglas Pike were virtually ignored. The press reflected American ignorance of Vietnamese language and culture, had no expertise in the area of pacification, and almost no sources on the South Vietnamese government or army.

Flaw: The press was impressionable. General Bruce Palmer succinctly summed up the problem when he stated that the foe "took the battle down around the Caravelle Hotel and, so, from the standpoint of the average reporter over there, it was the acorn that fell on the chicken's head and it said 'The sky is falling.'"

Flaw: There was no willingness to admit error or correct erroneous reporting after the fact. The classic example was the Associated Press's continued assertion that sappers had entered the U.S. Embassy building in Saigon more than twelve hours after it was clear the attack had been repulsed on the grounds.

Flaw: By the time of Vietnam, it had become professionally acceptable in some media to allow reporters to "explain"

news, not merely report it. This interpretative reporting has generally improved the quality of American news, but Braestrup judges that in Vietnam the press corps lacked the competence to provide accurate analysis.

Flaw: In their commentary on events in Vietnam, reporters "projected" to the American public their own opinions and fears based on incomplete data and their own inclinations. This tendency is best described by the author in comparing the television clips on Khe Sanh and a comprehensive photo essay by *Life* photographer David Douglas Duncan.

> One looks at the pictures by Duncan and remembers Khe Sanh. One views most of the film footage, especially those nervous standups, and remembers one's own fears, those of a civilian suddenly thrust into an isolated, unfamiliar battleground amid strangers and unpredictable dangers. The Khe Sanh garrison comes through on TV film as an assemblage of apprehensive, unorganized, even hapless, individuals—like the exhausted reporters—not as a group of trained soldiers, organized into fighting units... (Vol. 1, p. 384)

The problem was that the reporters often had very little to go on, and events were confusing. But facing the need to give impact to their products, reporters—usually by inference—projected their own concerns even if facts were cloudy.

Two particular journalistic tendencies obscured this defect. One was the tendency to quote the opinions of "officials" or "observers." "Observers" seems to have referred to media people themselves, and many of the "observations" communicated to the American public were little more than Caravelle Hotel speculation. Braestrup remarked of this tendency: "...the reader is left in the dark as to the relative importance, knowledge, or authority of the 'officials' or 'certain officers' quoted. None is identified as 'senior,' 'junior'—or 'drinking companions.'"

A second tendency was the skill with which reporters chose their words to give impact. Ordinary events could be given undue emphasis with a well-chosen phrase or comparison. Marines fought "foot by blood-soaked foot." Saigon was in "rubble" and appeared "like the flattened German city of Dresden." Hue was described as "Monte Cassino" and "Iwo Jima" both. NVA troops were "suicidal" or "diehard." Standoff attacks were "devastating." Pacification was "torn to shreds." Events were "ominous." Even without explicit commentary, the choice of such words and phrases contributed to the dominant media theme that Tet was a "disaster" for the United States.

Flaw: Stateside editors and gatekeepers manipulated the inputs from their Vietnam reporters to support preconceptions or to emphasize the dramatic. Thus, journalism managers far from the scene altered the tone of the news.

Flaw: The press corps in Vietnam was ill-fitted for the immensity of the task. At the time of Tet, Military Assistance Command, Vietnam, had 179 American media representatives on its press roster. Perhaps only sixty, however, were active newsmen; the others were TV crews, relatives of reporters, stringers, freelancers, and representatives of obscure publications. On the shoulders of these sixty, then, fell the necessity to report and interpret the most complex campaign in American history. They often lacked military experience, they were generally ignorant of the Vietnamese language and culture, and they deployed in and out of Vietnam on short tours, which gave them insufficient time to develop real expertise.

Because of the competitive nature of news organizations, these sixty were not spread throughout Vietnam. Rather, they clustered in certain areas—Saigon, Da

Nang, Hue, and Khe Sanh—duplicating each others' coverage and failing to report diverse stories from different areas. To get their stories into print, they had to ensure that they had "impact" and "significance." In addition, they had to beat deadlines and work on stories chosen by stateside editors. TV reporters had their own special pressures dictated by the need for visual drama, a quick story, and the economics of cable and satellite transmission. Some TV men recorded commentary to match film they never even saw.

SUMMING up the impact of the press, Braestrup argues that the Tet reporting was an extreme case of crisis-journalism. The result was a "portrait of defeat" for the allies because "the special circumstances of Tet impacted to a rare degree on modern American journalism's special susceptibilities and limitations." Braestrup's final chapter is a discussion of how the susceptibilities and limitations are unchanged, with a warning that a similar crisis could repeat the errors of Tet.

For that reason *Big Story* should be read, taught, and used at the Defense Information School and at all courses and schools for commanders. Significant portions could be developed into case studies and gamed, to avoid plowing through 792 pages of text. It seems in retrospect that more awareness of the press's limitations and techniques might have enabled military spokesmen to counter the misinterpretations. Careful reading of the book suggests ways that the military might have helped the press in its work, with the result of better reporting.

I suspect that a number of readers of this essay are now saying "Dammit! We knew the press was giving us the shaft even then, but no one would believe us because we were military!" This opinion, once widespread among military professionals, is a variant of another theme: that the politicians, press, and peace advocates stabbed us in the back in Vietnam.

This reminds me of an earthy analysis of military critics by one of my old commanders. "Whenever I hear someone say 'those guys are really screwed up,'" he would comment, "I can always expect to discount whatever he has to say. He's up to his own ass in alligators, can't solve his own problems, and he expects to be able to set someone else straight!"

Any thoughtful military reader of *Big Story* must sympathize with the problems imposed on the press by its organization and institutional procedures. The problems of the media should stimulate in military professionals the parallel need of the armed forces to examine internal flaws that impede mission performance. Who can criticize the press for short rotations and ignorance of Vietnamese culture when the same flaws characterized our military effort? What writer of officer efficiency reports can carp about the abuse of words by reporters? What military officer has not formed opinions and advocated programs based on incomplete facts, or facts interpreted to support a predetermined solution? The professional value of *Big Story*, then, is not limited to information officers. Rather, the book, in a fearless analysis of the limitations of one key American institution, the media, should evoke a like concern for our own military institution by professional officers.

United States Air Force Academy

POTPOURRI

Dispatches by Michael Herr. New York: Alfred A. Knopf, 1977, 260 pages, $8.95.

In his book *Dispatches*, Michael Herr accents the tragedy of the American presence in Vietnam. Herr, a journalist who covered the Vietnam War for *Esquire* magazine in the late sixties, wrote that the United States concentrated an enormous amount of energy in Vietnam. "If that energy could have been channeled into anything more than noise, waste, and pain," he concluded, "it would have lighted up Indochina for a thousand years." (p. 44) Instead, according to Herr, that manpower and technology served a war which destroyed or injured virtually everyone and everything with which it came in contact.

Nothing characterized that waste of energy more, from Herr's perspective, than the American defense of Khe Sanh, located near what was then euphemistically described as the demilitarized zone. Significantly, Herr devotes the largest single portion of his book to the battle at Khe Sanh, and his emphasis suggests the complete futility of the war. In a posture antithetical to their philosophy, thousands of U.S. Marines huddled in defensive positions protecting a parcel of land that Herr called of "negligible" military value. (p. 104) During the North Vietnamese siege, hundreds of Marines were killed and hundreds more were wounded. The North Vietnamese, however, eventually disappeared into the jungle, and the Marines withdrew shortly afterward, allowing the jungle to reclaim Khe Sanh. The territory that military leaders had referred to as the "Western Anchor of our defense," (p. 104) Herr reminds us, had become strategically meaningless within a few short months.

Herr leveled his protest primarily against the Vietnam War, but in a deeper sense he has written a book decrying all war. Notwithstanding his frequent references to the so-called uniqueness of the Vietnam War, such as air-mobility, cassette tape recorders, and widespread drug abuse, Herr demonstrates graphically the similarities between this war and all wars. The major victims are the young—a young soldier, a boy, killed while riding with Herr in a Chinook; a young Vietnamese girl lying on the operating table, her leg amputated; a Vietnamese peasant, holding his dead baby in his arms.

Conscious of the war's horror, Herr admits that he failed at the time to grasp the significance of his Vietnam experience. Indeed, after returning to the United States, Herr actually told listeners that "whatever else, I'd loved it there too." (p. 251) Only recently, according to Herr, has he seen the war clearly, and the revelation has created within him great spiritual agony. *Dispatches* resulted from this anguish, for it reflects the catharsis that Herr underwent in his personal struggle to understand the war. "I went to cover the war," he wrote, "and the war covered me." Discovering simultaneously that "you were as responsible for everything you saw as you were for everything you did," (p. 20) Herr confronted his own complicity. The self-knowledge that he unlocked casts a huge burden on the rest of us who also saw, but have perhaps failed to understand.

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Women and the Military by Martin Binkin and Shirley J. Bach. Washington: Brookings Institution, 1977, 134 pages, $7.95 (cloth), $2.95 (paper).

One of the most important challenges that face the military today is that of personnel. Spiraling military costs as well as the increasing sophistication of modern warfare emphasize the need for able, dedicated, and trained personnel. As the military responds to pressure from the public, Congress, and from within to make better use of all resources, it has come to consider one heretofore underutilized resource, women.

In the last six years the status and numbers of women in the military have dramatically changed, while studies and comments on the subject have been both numerous and bewildering. A recent book published by the influential Brookings Institution is a timely and useful addition to the literature and will, for a time at least, be a convenient and logical starting point for any discussion of the subject.

Martin Binkin and Shirley Bach describe the background of the situation in a concise yet adequate fashion. They note that as recently as 1972 less than 2 percent of the military were women, a figure which rose to more than 5 percent in 1976, and which is expected to reach 7 percent by 1982. Along with these numerical changes has come an expansion of jobs women can hold, from the 35 percent of enlisted jobs before 1972 to more than 80 percent open to women in 1976. One result of the increasing numbers of women is to alter the socioeconomic composition of the services. Compared with male enlisted men, women are about one year older and less likely to be black; as a group, over one-third more have graduated from high school, and they have scored ten points higher on intelligence tests.

The authors trace the role of women in the military, especially after World War II, and make clear the restrictions placed on servicewomen and the often overlooked fact that federal laws limit women less than do the policies established by the services. The changes in the 1970s are noted as are the current policies and the implications of these policies for each of the four services.

But the chief arguments about women in the military probably revolve around three issues: attitudes, costs, and effectiveness. Each issue is discussed in a chapter, together comprising over half of the book's text. On the subject of institutional attitudes, the authors conclude:

> All in all, the foregoing analysis underscores the ambivalence of national attitudes toward the role of women in the armed forces. With respect to this issue, the so-called will of the American people proves to be elusive, judicial opinion is unclear, attitudes within Congress are not sharply drawn, and the reactions of the military establishment, which is still suffering "growing pains" on the issue of sex integration, have escaped reliable assessment. (p. 52)

The chapter on the economics of further integration of women into the military discusses one-time adjustment costs, attrition, absenteeism, retirement, and recruitment. The authors maintain that costs will be no higher and emphasize that the most important consequence of greater integration of women will be the ability of the services to retain quality standards.

The longest chapter, entitled "Military Effectiveness and Sex Composition," centers around individual performance, group performance, and how women in the military will affect our image abroad. It concludes that:

> In occupations in which women have traditionally been employed, there is little question that they can perform *at least* on a par with men.... How effective women would be in the remaining jobs is less clear and in need of further study.... Some women will be at least as capable as some men to do the most demanding military tasks, including combat. (pp. 98-99, 101)

However, the study rejects feminist demands that all barriers be removed.

> This is not to condone the existing system, which permits blanket prohibitions based on sex. It says, however, that the removal of these prohibitions should be preceded by a resolution of the fundamental issues discussed in this chapter. To do otherwise would court undue risk to U.S. national security interests. (p. 101)

The final chapter discusses what each service is now doing and suggests how these policies could be modified. Binkin and Bach suggest an experimental program in which each service would integrate women into some combat units.

Women and the Military is an important study because of its scholarship, currentness, and the importance of the subject. If America is to have the best and most cost-effective military, all resources must be utilized to the fullest. To best employ women, tradition and emotion must be overcome. This study provides a framework as well as data from which a rational discussion of the subject can be made. Surely this study will be much noted and quoted. It should also be read. Thus, it is highly recommended for all service personnel and for others interested in either the military or women in the military.

Kenneth P. Werrell
Leavenworth, Kansas

The Cavalry edited by James Lawford. New York: Bobbs-Merrill Co., 1976, 176 pages, $19.95.

Nothing less than the boldness of a Murat would suffice to attempt in one volume a global history of horse cavalry from the sixth century B.C. through World War I, yet a group of British essayists has undertaken just that mission in *The Cavalry*. For the most part their audacious venture carried the day.

Written in a lucid, graceful style and illuminated with a generous supply of appealing artwork, the anthology traces the evolution of cavalry weapons, formations, and tactics from the time of the first horse soldier. An introductory section provides sufficient background knowledge for comprehending the fundamentals of mounted warfare; the remainder of the book examines the significant changes that have occurred in techniques of employment, each change illustrated by an appropriate battle.

The Cavalry is a brief survey that tends to whet but not satisfy the appetite of the thoughtful reader. American students in particular will regret the omission of the charge at Resaca de la Palma, the pursuit of Geronimo, the rearguard actions of the Philippine scouts in 1942, and other examples that would attest to the substantial contributions United States cavalrymen have made to the art. Unfortunately, the authors allude to some of these contributions without developing them fully.

Although a popular account, the work holds a serious message for the modern professional officer. *L'arme blanche* was, after all, as much a state of mind as a branch of service. In this regard, the book makes it clear that as long as speed, decisiveness, and élan have meaning in combat, the old-time "yellowlegs" will still have important lessons to teach.

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Where Does the Marine Corps Go from Here? by Martin Binkin and Jeffrey Record. Brookings Studies in Defense Policy series, no. 14. Washington: Brookings Institution, 1976, 93 pages, $2.95 paper.

The Marines are structured for the past. They must be reorganized and reduced in size. Such is the judgment of Binkin and Record, currently/formerly with the prestigious Brookings Foreign Policy Studies program. Each has previously prepared several defense policy studies.

The authors portray the USMC as an anachronism, evidently requiring de-emphasis in the interests of overall military preparedness. They note, for example, that:

—Marines have not engaged in actively opposed landings for more than 22 years;

—Our most probable future adversaries, Russia and China, are large, nearly self-sufficient continental powers against which amphibious assaults would be pointless;

—The United States faces generally diminished prospects for direct foreign military intervention by its forces, undercutting the Marines;

—USMC forces are intrinsically vulnerable to decimation by modern, precision-guided munitions;

—USMC ground units are inferior in firepower and mobility to the sophisticated, heavily armored forces likely to meet them;

—USMC quick-reaction capabilities are inferior to those of the Army's 82nd Airborne Division;

—The great amphibious assaults of World War II in the European theater—against North Africa, Italy, and France—succeeded without USMC participation.

If the Navy needs its own army, why not create an elite navy within the Air Force? Why not have *four* fully three-dimensional services? No other nation, past or present, has maintained analogous forces. Objectively, the USMC is superfluous. This obvious conclusion never occurs to the authors. Instead, they expound four possible alternatives for perpetuating a modified Marine Corps. None of their palliatives addresses the real issue.

Marine Corps faithfuls will be quick to take umbrage at this book.

Captain Steven E. Cady, USAF
Loring AFB, Maine

Soldiers, Statesmen, and Cold War Crises by Richard K. Betts. Cambridge, Massachusetts: Harvard University Press, 1977, 292 pages, appendix, notes, sources, index, $15.00.

> No one who seeks to fix responsibility for disasters in cold war crises by blaming only the military or only civilians will find comfort in the evidence taken as a whole. There is enough blame to go around for both camps. (p. 2)

In this study, Richard Betts examines numerous cold war crises and compares the advice given to the President by both military and civilian advisers. He attempts to answer four basic questions: First, what did the military recommend compared to the civilians? Second, what effect did the military advice have, and how was influence brought to bear? Third, what accounts for apparently substantial differences in advice between different military officials? Finally, how should a President choose and organize his military advisers?

In addition to analyzing the specific advice given, Betts attempts to explain why and how these decisions were reached. In so doing, he examines the personalities and institutional processes that impact on decision-making at the national level. He arrives at several generalizations, one of which is used as the opening quotation of this review.

The study is based on an extensive search of available documentation and an impressive series of interviews. Among others, those interviewed include a former assistant to the President for National Security Affairs, two former Secretaries of Defense, three former Chairmen of the Joint Chiefs of Staff, and nine other former Chiefs of Service.

Presently a research associate at the Brookings Institution, author Betts has previously lectured in the Department of Government at Harvard University and served as a staff member in the National Security Council and the Senate Select Committee on Intelligence. This book is the author's first major published work and is a condensation of his doctoral thesis.

Well written and extensively documented, *Soldiers, Statesmen, and Cold War Crises* may withstand the test of time and become a reference work for future studies in the area of national decision-making. The book is recommended reading, particularly for those currently serving or about to serve in the Washington policy-making arena.

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The Marble Man: Robert E. Lee and His Image in American Society by Thomas L. Connelly. New York: Alfred A. Knopf, 1977, 249 pages, $10.00.

A professional historian recently remarked to me that it was his current misfortune to have to read tons of unit histories regarding the Vietnam War. He said he had to pinch himself continually to keep it in mind that we lost the war. How was it that a uniform record of success resulted in an overall failure? How was it that we won all the battles except the last one? Henry Ford once said that "History is bunk!" Is military history military bunk? In the minds of too many USAF commanders, the public relations and historical functions are identical. The Chief of Air Force History has been trying to correct this misconception for some time. Why bother? An old cliché has it that only the losers learn the lessons of a war—and the reason is that only they bother to go beyond the public relations literature to delve into history. Perhaps a look at another age would help.

Thomas L. Connelly has written a splendid history of the history of a great and good man. This latter history elevated the great man to sainthood; in it all the battles were won except the last one; it so obscured the human blemishes of Robert E. Lee that he became "the marble man." Why? The answer is complex. The fund-raising efforts of Washington College (later Washington and Lee University) were part of the cause. Lee, as the college's president after the war, did some good work—but when he died, his utility did not end. Long thereafter, the school leaned heavily on his image to attract potential donors. The sanctification of General Lee also sprang from the desire of other Confederates to restore or sustain their reputations. Around 1900, the hero was nationalized as the personification of those middle-class virtues supposed to be the lifeblood of the new industrial-democratic society. Connelly even relates the phenomenon to Richard Hofstadter's famous thesis that the American middle class was having a crisis of status resulting in an exaggerated concern for reform and the founding of the Progressive Movement—an intriguing idea that he should have explored further. The image was further polished during the Depression because of a psychological need to show that the virtuous, even the saintlike, can meet with disaster whatever their own merits.

So, what was lost? If a hero was needed during Reconstruction and the Depression, what does it matter that the flaws were ignored and the virtues highlighted? The real human being that was Robert E. Lee was lost to history! When one leaves Lee's frustrations out of the equation, in a way his achievement is dimmed. His character development is the more remarkable when we think of his father's ultimate disgrace, his frustration with family separation, and the complications of marriage to a cantankerous, obsessed, ill woman. What of the Lee who considered himself a failure and a sinner? What of the disappointment of the 54-year-old Lee who was still only a lieutenant colonel 31 years after commissioning? (Today's up-or-out policy would have driven him out three years earlier!) What of the blunder of ordering Pickett's charge?

But much more than one man's reputation is at stake when an eclectic approach to history is taken! He who has the more accurate historical input to the decision-making process will always have an advantage over his adversary. Unit history, like biography, is one of the raw materials of military history. If countless commanders insist on a positive approach and purge the human blemishes from the record, then our input to the decision-making process is bound to be faulty. And history becomes bunk! *The Marble Man* should, therefore, be required reading for all who would become commanders.

D.R.M.

The Changing World of the American Military edited by Franklin D. Margiotta. Boulder, Colorado: Westview Press, 1978, 490 pages, $22.00 hardback, $10.75 paper.

Twenty years ago, with B-52Gs rolling off the production line, the United States was preparing for the future. The Titan intercontinental ballistic missile (ICBM) was about to be deployed, and the Air Force was developing the B-70 bomber, the F-108 Mach 3 interceptor, the Minuteman missile, and nuclear propulsion for aircraft. There have been some changes in that future—not just in strategic concepts and weapon technology but also in the composition and deployment of the forces and in societal attitudes and perceptions of the military. What will the U.S military be like in 1998? If the past is any indication, it will be different from what we expect. And the leaders of that military will be those who can best anticipate and adapt to change.

In October 1976, the Inter-University Seminar on Armed Forces and Society held a research conference at Air Command and Staff College to examine recent changes and their potential for shaping the American military in the 1980s. Lieutenant Colonel Frank Margiotta has assembled a selection of the papers from the conference and presented a collage of change for military professionals and social scientists to ponder. And ponder they must, for the book does not seek to present any answers as to what the future may bring. Instead, and rightly so, the authors of the twenty-four papers sift the evidence of change and point out the trends. For the most part they have stayed away from such typical topics as changing technology and its impact on weapon systems, warfare concepts and doctrine, and have looked at such varied areas as the institution of the military, the role of Congress, the growing number of service families, military unions, attitudes of youth toward the military, and elitism in the academy-trained officer corps.

The views of the authors are diverse, as you might expect from an interdisciplinary group, but the authors do share the one common thread of change. Margiotta has taken this thread and woven it through the book and into his superb summary perspective. It is more than just a conclusion—it is a challenge. For example, Professor Charles Moskos identified trends toward regarding the military as an occupation rather than an institution. He recommended understanding these changes as a means to resolving other concerns, such as unionism. Margiotta proposed further specific research. When is an occupational model appropriate for a given organization or individual? Is the trend toward the occupational model caused by economic competition in the marketplace as Moskos suggests, or is it other factors? Each of the articles is similarly treated. If the weave of this final chapter is somewhat loose, it drives home the point that the future leader must consider a wide variety of issues amid conflicting advice and with less than perfect knowledge.

Tying diverse thoughts together is a formidable task, but the task has been accomplished. The authors have had the opportunity

to edit and revise their papers, and they have been able to relate their work clearly to the others in the book. But this review process has taken nearly two years, and therein lies the biggest flaw in the book. Heralded as new research, at least seven of the chapters have by now been published separately (including one by Professor Robert Pfaltzgraff in *Air University Review*). Moskos's ideas on the institutional/occupational state of the military contributed heavily to and have been widely publicized as part of Impact '77, the Air Force study. One article even refers to the pending B-1 decision. Even if some of the material is familiar to the reader, the interplay between concepts and ideas provides the trigger to further thought, and that far outweighs any lack of timeliness.

The future will always be there, and so will change. The value of this book is not that it predicts what will change and how, for it does not, but that it gives the reader a framework for thinking about change. That is the first step in adapting.

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AWARD

The Air University Review Awards Committee has selected "Myths about the Defense Budget" by Francis P. Hoeber as the outstanding article in the September-October 1978 issue of the *Review*.

attention

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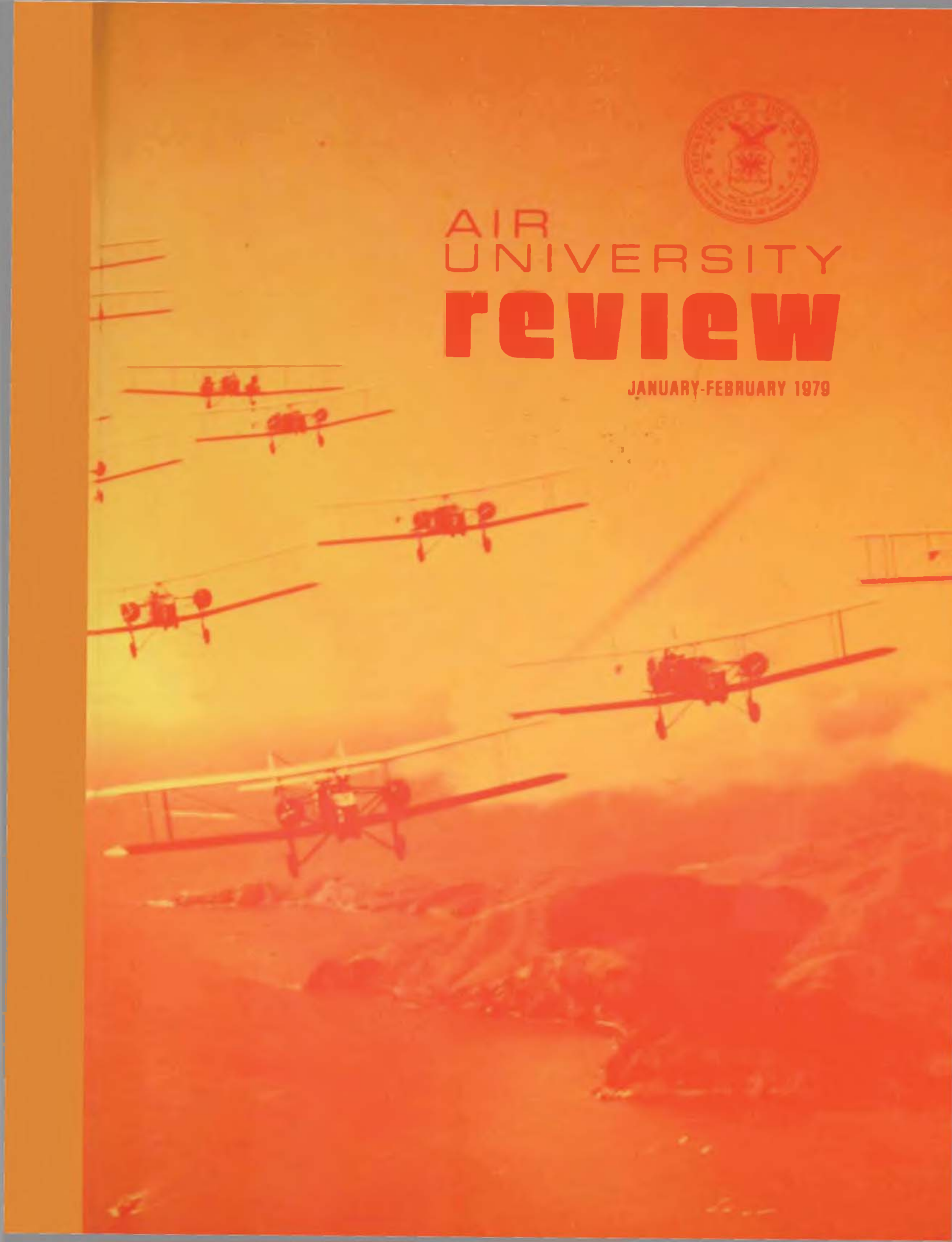

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