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SWORD AND SHIELD: — ACE ATTACK OF WARSAW PACT FOLLOW-ON FORCES

General Bernard W. Rogers was appointed Supreme Allied Commander by NATO's Defence Planning Committee with effect from 1 July 1979. He was simultaneously appointed Commander-in-Chief United States Forces in Europe. He has had a long and distinguished career which included a large share of combat experience and was previously Chief of Staff, U.S. Army.

New tactical concepts for Allied Command Europe have been much in the news in the last few months. In a comprehensive contribution General Bernard Rogers, Supreme Allied Commander Europe, presents his ideas of how, by exploiting the West's technological lead, the Allies can best meet the threat of the numerically superior Warsaw Pact forces and so improve deterrence.

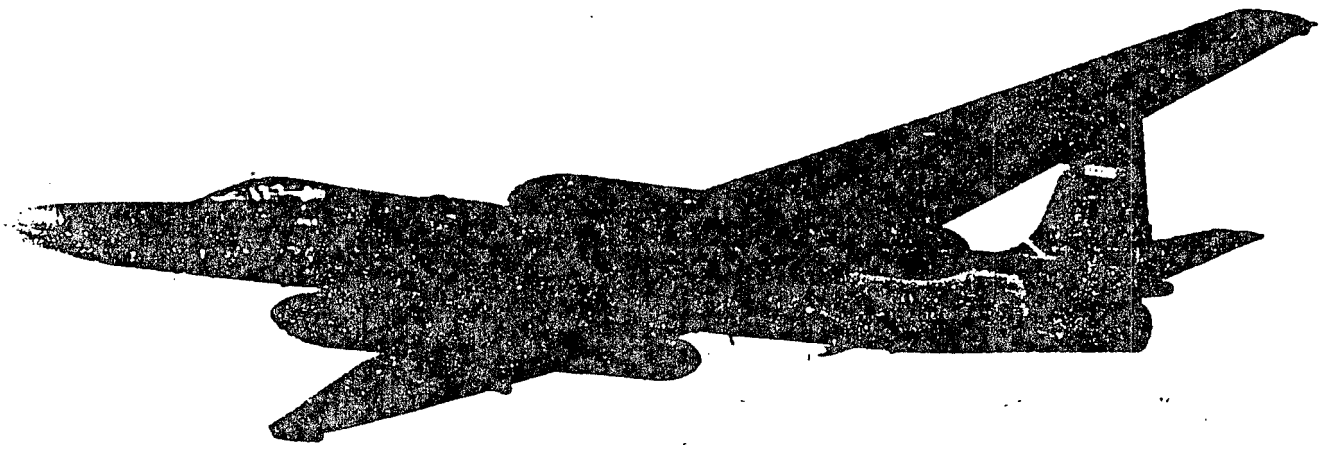
Allied Command Europe (ACE) reexamines constantly its capability to implement the NATO deterrent strategy of Flexible Response. The objective of that strategy is simple and straightforward — to protect our freedom through deterrence of war.

NATO has been remarkably successful in meeting this objective in the 34 years since it was founded, but we must not let our record of success diminish our vigilance. Translated into more specific terms, we must keep strong the triad of forces upon which the successful implementation of Flexible Response rests: strategic nuclear, theater nuclear, and conventional forces. In this article I will describe our efforts to strengthen ACE's conventional capacity. While the focus of this presentation will be limited, the reader will understand that improving one leg of the triad complements the effectiveness of the other legs, thereby achieving an overall enhancement of deterrence.

THE STRATEGIC REALITIES

The ever-growing gap between the conventional force capabilities of the Warsaw Pact and NATO is a cause for serious concern. Although ACE forces improve every year, the Warsaw Pact's unabated amassing of military might, with disregard for the social and economic needs of its societies, places greater demands on ACE's conventional defenses. Our conventional forces must be sufficiently robust to serve as more than just a "delayed trip wire" for escalation. The problem which faces NATO is *not* to seek a new strategy; Flexible Response is as valid today as when first elaborated in the 1960's. Rather, we must determine, within a reasonable level of resource commitment, how best we can strengthen our conventional forces so they can play the crucial role which Flexible Response demands of them. Our task, in short, is to find the means to maintain an effective deterrence by keeping our strategy of Flexible Response flexible.

We must improve our ability to look deeper and identify rapidly the location and movement of the Warsaw Pact follow-on forces. The TR-1 aircraft, and the NATO AEW Force have already greatly enhanced our capabilities.



The United States Air Force has announced its intention to buy the French-made Matra Durandal runway cratering munition.

A prudent defense concept must take into account, *inter alia*, our strategic objectives, the political and geographical constraints of the theater and the comparative capabilities of our forces and those of the Warsaw Pact. With deterrence as the keystone of our strategy, we must demonstrate both the capacity and the will to respond to any form of aggression in such a manner as to make that aggression too costly a risk. The implementation of our strategy must balance the political and geographical conditions found in the theater of operations with the realities of modern warfare. The increased range, accuracy and mobility of modern weapon systems have added depth to the battlefield. ACE, with limited depth to its planned defenses, is committed firmly to the concept of "forward defense" so as to yield as little of NATO soil to an aggressor as possible. ACE can still achieve greater depth in its defense by extending its conventional fires well beyond the forward edge of the battle area (FEBA), that is, by interdicting enemy follow-on forces throughout the enemy's rear to prevent them from reaching and reinforcing the forward battlefield. At a minimum, our fires must delay those forces and disrupt their combat potential while we are successfully holding the lead Pact divisions.

Achieving such a conventional ability requires that we:

- do better with the forces we currently have, that is bring them up to the established ACE standards for manning, equipping, training, sustaining, and reinforcing;
- continue with essential modernization; and
- ensure that we exploit fully our superior Western technology to develop and procure the conventional means to attack effectively the Warsaw Pact follow-on forces and to jam their communications and blind their radars.

WARSAW PACT FOLLOW-ON FORCES

The Pact would enjoy a favorable balance of conventional forces at the beginning of a conflict, but the *potential* strength of NATO grows over time. Therefore, the Pact concept would be to strike quickly and penetrate deeply, causing ACE's defenses to collapse before the full conventional power of NATO could be harnessed. Seizing a significant portion of ACE's theater nuclear systems and its means to command and control them obviously would diminish greatly the deterrent effect of a NATO resolve to escalate. The Pact places paramount importance on the initial phase of its offensive and has organized its large and highly mobile forces to overrun our defenses quickly and thus deprive us of the chance to react effectively.

In order to breach ACE defenses rapidly and maintain the momentum of the offensive, Warsaw Pact doctrine calls for the commitment of forces in successive waves, or echelons, always keeping great pressure on the defender and seeking to mass sufficient forces for a breakthrough. Pact forces can be expected to employ highly mobile exploitation formations at army and army group (front) levels. These combined-arms forces, called Operational Maneuver Groups (OMG's), are designed to penetrate deeply into the rear of NATO's defense in order to seize critical objectives, cut lines of communications and to limit the ability of NATO forces to respond, especially with our theater nuclear forces.

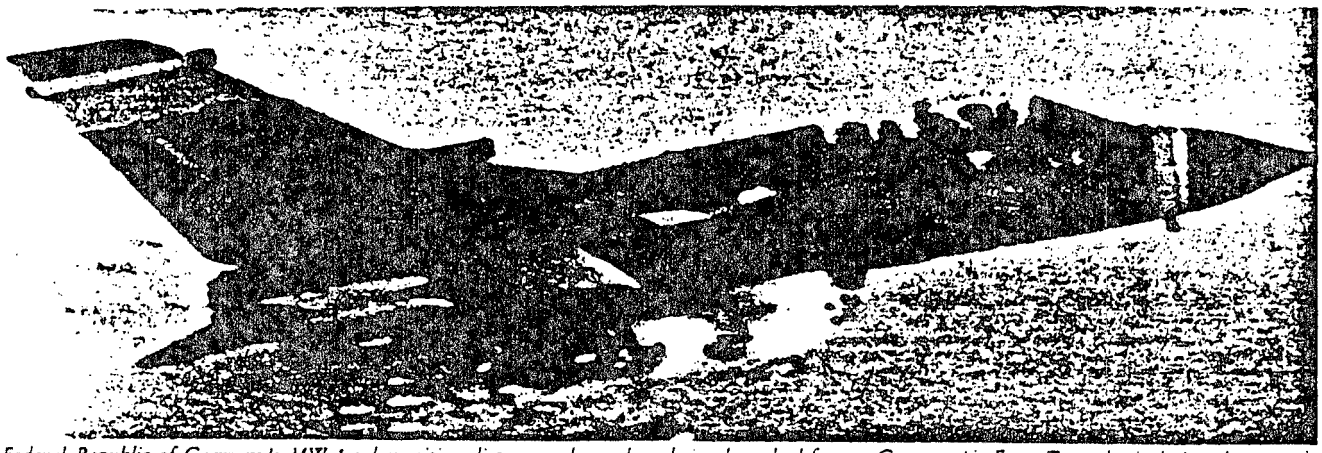
Thus, the term "follow-on forces", as we use it in ACE, refers to the Pact forces (subsequent echelons and OMG's) which have not been committed to the initial attack. If deterrence were to fail and the Pact took the grave risk of attacking NATO, success of our defense would depend upon our ability to attack these follow-on forces conventionally, thereby ensuring that we maintain ground force ratios which permit a cohesive defense. However, this ability to strike deeply is not to be acquired at the expense of our capability at the FEBA. On the contrary, defending the FEBA and attacking the follow-on forces are complementary and mutually reinforcing facets of the ACE concept of operations; defense at the FEBA protects our means to conduct attacks on the follow-on forces, and striking deep will keep the force ratios at the FEBA manageable.

We estimate that the Warsaw Pact can introduce fresh formations at the FEBA about 36 hours after its offensive has begun and additional fresh forces at similar intervals thereafter. Any counteraction against this closely scheduled employment would have serious repercussions on Pact mobilization and deployment flow. The lines of communication (LOCs) between their home garrisons and the main battle areas are limited in capacity. Attacks against critical LOCs at appropriate times would cause major disruption of deployment plans. Most follow-on movements would depend on the East European railway system, which is vulnerable to attacks on electrical power supplies, central command and control facilities, communication systems, computer stations, switching stations, on-and-off-loading sites, railway beds and river crossing sites. Movement by road is equally vulnerable to disruption resulting from attacks on known choke points. Logistic facilities, communications sites, and assembly areas of combat forces would be targets for deep strike. Because of the highly centralized command and control structure which tends to characterize Warsaw Pact armed forces, use of our electronic warfare assets to neutralize or frustrate operations at any tactical command headquarters will pay dividends in terms of confusion caused in subordinate units.

We do not expect the forces of the Warsaw Pact to follow a precise script which we have written for them. We should and do credit our potential adversary with competence; we cannot expect him to follow a rigid formula for attack, nor can we defend according to one. But we can reasonably expect to improve our conventional defense if we can deliver accurate conventional fire throughout the aggressor's rear area. We should also note the important role that NATO's nuclear deterrent plays in facilitating the attack of Pact follow-on forces. Our nuclear threat compels the Warsaw Pact to echelon its forces as well as raising the risk of massing forces for penetration. (This, incidentally, provides one of the major tactical reasons for NATO *not* to adopt a "no-first-use" policy with regard to theater nuclear weapons; there are other reasons as well.) This interrelationship is an excellent example of how capable NATO forces, both conventional and nuclear, reinforce each other to deter war.

REQUIREMENTS FOR NATO FORCES

Our objective in attacking Pact follow-on forces is to prevent or reduce their influencing the battle at the FEBA. This →



The Federal Republic of Germany's MW-1 submunition dispenser, shown here being launched from a German Air Force Tornado, is designed to attack enemy airfields of armour formations.

can be achieved through their destruction, disruption or delay, depending on the location and configuration of the particular follow-on force formation. Perhaps more than any other NATO operational concept, the effort to target and destroy the enemy's follow-on forces requires joint planning involving all services to achieve the common objective. In addition, developing the capability to stop an attack as far forward as possible, while simultaneously engaging enemy forces in depth, will require the careful exploitation of the West's technological superiority in order to provide the architecture necessary for striking deep.

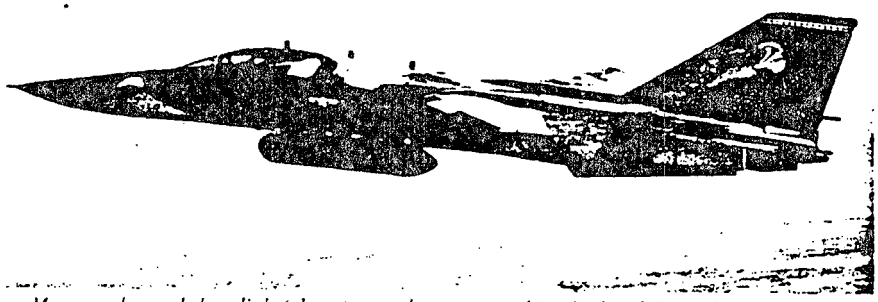
The ingredients of such an architecture are:

— Real-time surveillance, target acquisition and intelligence means which are sufficiently precise to enable us to launch attacks against the most vulnerable elements of the Warsaw Pact reinforcement flow and to assess the success of our attacks.

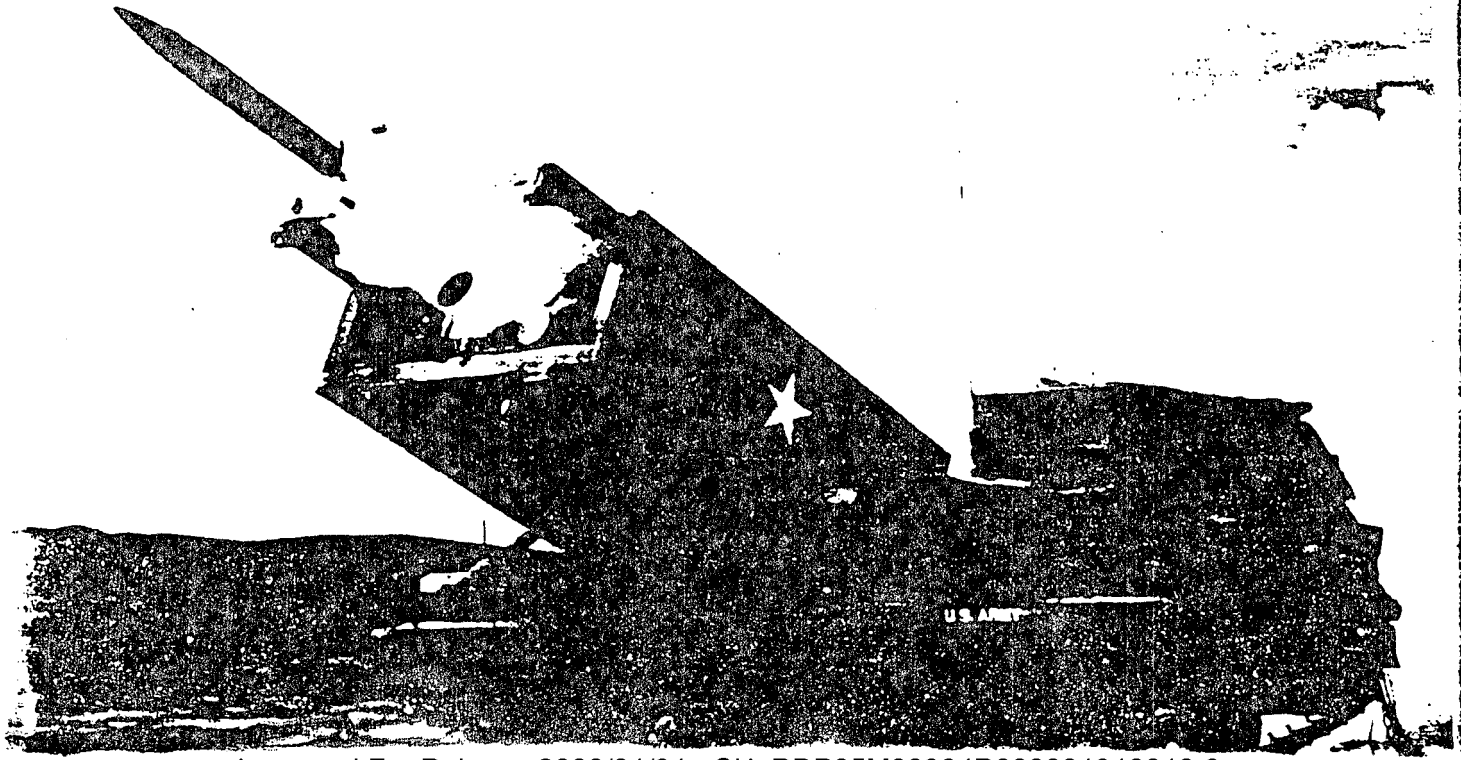
— A survivable, responsive command, control and communications system which can transmit intelligence information and attack decisions in a timely fashion.

— Conventional weapons systems for attack operations which can accurately and decisively engage targets well to the rear of the FEBA.

Although NATO nations currently contribute to each of these ingredients, we need to improve these resources on a continuing basis.



Pace Mover radar and data link (above), seen here mounted in the bomb bay of an F-111E, is an essential reconnaissance prerequisite for the success of attacks on the second echelon forces.
An example of a weapons delivery system whose capacity will be greatly increased by improved warheads is the MLRS (below), produced in the United States and co-produced by a European consortium.



INTELLIGENCE COLLECTION AND FUSION

Intensive intelligence preparation is necessary to provide a framework for successful attacks on follow-on forces. Critical information, such as the location of choke points where units are vulnerable to attack, lines of communication and likely enemy assembly areas, can be derived from map and terrain analyses and from surveillance of Warsaw Pact exercises. Fixed targets, such as bridges, tunnels and defiles, can be easily determined. Stored and adjusted in a data base and made available to decision-makers in time to support the envisioned attack on follow-on forces, this information establishes a basis for the assessment of further intelligence information as it is received.

During periods of tension or conflict, the rapid identification of Pact mobile forces, especially the Operational Maneuver Groups and their associated command posts and air support, is essential. Currently, much of this intelligence information can only be obtained from sensor systems with limited ranges. To implement our concept successfully we must improve our ability to look deeper and identify rapidly the location and movement of the Pact follow-on forces. In this regard, the deployment of TR-1 aircraft and utilization of our multi-national NATO, Airborne Early Warning Force in its air surveillance role have already greatly enhanced our capabilities. The development of the *Pave Mover* radar as the target acquisition element of the U.S. Assault Breaker program will provide a radar which, while operating over friendly territory, will be able to survey areas deep in the enemy's rear, track the ground targets and direct in-flight course corrections to the attack missiles.

As an Alliance, we must coordinate our many national intelligence efforts. Each nation has an important contribution to make in the intelligence field. The larger nations have technologically sophisticated collection means while many of the smaller nations have well-developed intelligence organizations with excellent analytical capabilities.

The concept of attack on follow-on forces requires better intelligence fusion, i.e., the timely coordinated collection, conversion, and melding of data inputs from different sources into a usable product for decision makers. We must make our intelligence collection means more effective by better tasking of Alliance systems and by providing the means for rapid transmission of critical intelligence information to achieve faster dissemination to decentralized users. To assist in these endeavors, ACE is bringing into theater the latest intelligence data processing and display equipment which is linked to the intelligence sources. This equipment provides the capability to analyze and collate data from the various sensors with an extensive data base and to display it for the targeting element and the decision-maker. It also provides the means to transmit critical data and intelligence products to the appropriate users in a concise and usable format.

Developing the capability to identify and target mobile elements in the Warsaw Pact rear areas is one of the most significant intelligence challenges of this decade. The cycle which takes raw data, interprets it, provides it to the decision-maker and disseminates the essential information to the appropriate weapons system must be accelerated if we are to engage mobile targets effectively. Also, continuous assessment of the effects of attacks on follow-on forces during a conflict will be a key factor in enabling NATO forces to maintain the coherence of the defense.

This enhanced intelligence capability will serve a significant role beyond actual defense. Such a system which can identify mobile targets during a conflict will also provide a resource to detect better the build-up of Warsaw Pact forces before an attack, thus giving political authorities more time to consider the key decisions needed to permit our responding. The timely communication of our resolve to respond remains a critical factor in the deterrence of any attack.

Peacetime intelligence preparation for deep interdiction and improved joint and combined intelligence collection activities are essential elements in anabling ACE to target the enemy's follow-on forces. A second prerequisite to success against these forces is to shorten the time between target acquisition and target attack. If we are to have a major disruptive effect by impeding a Warsaw Pact advance, we cannot be dependent upon the transmission of information to the decision-maker and then to the appropriate weapons system by a C^3 system which is too vulnerable and time-consuming.

The ACE concept requires that the allocation of combat assets to specific tasks be made with great precision. With pressure from attacking first echelon units on ACE forces at the FEBA, the attention of decision-makers will be drawn to that initial conflict. At the time when the battle at the FEBA is in progress, the simultaneous dedication of resources to the attack on follow-on forces is a delicate matter of judgment, for both the battle at the FEBA and the deep battle must succeed. The C^3 structure must be sufficiently robust to handle all of these critical communications.

To meet the increased demands which attacking the follow-on forces will place on our C^3 structure, we must point our efforts toward developing systems which can facilitate joint operations, handle and discriminate among a large volume of information and withstand the stress of battle. The attack on follow-on forces requires an integrated effort of air and ground forces, for in modern warfare the distinctions between the Services are blurred. ACE has joint command post elements in existence today (army group/ATAF) which will manage close air support for the land battle as well as the deep interdiction attacks on follow-on forces with an array of land and air-delivered weapons.

With respect to the flow of intelligence, we must focus our efforts on being able to manage an increased quantity of information. We must be able to sort out quickly

POSSIBLE SCENARIO

The forces of the Warsaw Pact (including air forces) attack NATO conventionally. (1) O.M.G's participate early in the fight, seeking to penetrate NATO defenses and drive deep into NATO's rear after the first echelon makes contact with NATO forces on the FEBA. The second echelon front is forming in the rear.

(2) O.M.G's are attempting to destroy NATO's C^3I structure and its nuclear assets. NATO forces simultaneously utilize all sources of intelligence to produce a usable targetting picture of the Warsaw Pact rear areas.

(3) Two battles are fought: the battle at the FEBA and the attack on follow-on forces. Frontline NATO units contain Warsaw Pact first echelon forces and blunt the drives of the O.M.G's. The attack on follow-on forces has destroyed or delayed the second echelon front, and that success has kept manageable the force ratios at the FEBA.

(4) The coherence of the NATO defense line is restored. Surveillance of follow-on forces continues. Agonizing decisions for future action are faced by the Warsaw Pact: to withdraw or to be the first to escalate to theater nuclear weapons.

the wheat from the chaff, the important from the unimportant. A primary challenge will be to establish a mechanism for the rapid selection and transmission of only the key and essential elements of information to the decision-makers; current technology will let us meet this challenge. Our C³ structure must possess the capability to adjust rapidly to the actions of a versatile adversary and to the changing conditions of the battlefield. The cohesion of our defense depends upon the survivability of our C³. As we acquire advanced data systems for C³, we will need secure, anti-jam, advanced data communication for the tactical forces and for linking ACE communication nets to those forces.

The satellite-based NAVSTAR Global Positioning System, with its very precise position location and navigation support capabilities, will provide the long-sought common grid system for targeting enemy forces, positioning our forces and for such requirements as artillery surveying. It will also greatly improve our capability to pinpoint enemy forces and targets in relation to our weapons. This system, along with our satellite communications systems, exemplifies the use of space age technology to support tactical operations.

ATTACK CAPABILITIES

The final set of requirements needed to implement the concept of attacking follow-on forces pertains to the weapons delivery systems and munitions necessary to engage those forces decisively before they can be brought forward to join the battle. While some conventional weapons systems which are well adapted for follow-on forces attack exist now in national inventories, it will be necessary to dedicate additional effort and resources in order to develop the full range of assets needed to ensure successful implementation of the concept.

The major systems available today for deep conventional operations are manned aircraft. Since the early 1970's the NATO interdiction mission has been shared by U.S. F-111's and U.K. Buccaneers. The Tornado conversion program currently in progress will not only provide additional aircraft for this mission but will also enhance our ability to perform under night and adverse weather conditions.

As we expand our capabilities to strike deep, we must achieve the most effective match of delivery systems, munitions, and targets. New munitions being developed today offer great promise in making air sorties more effective. Among the most promising technological improvements are munitions containing large numbers of sub-munitions which can cover wide areas, either to attack large formations or to deny the area for use by Pact forces. Area denial weapons will improve ACE's ability to engage mobile follow-on forces. By creating barriers at fixed points, we can halt or delay the mobile Warsaw Pact units, making them targets which would be lucrative even for general purpose bombs. Several nations have development programs underway with possible candidates to satisfy this need. The Federal Republic of Germany's MW-1 submunition dispenser is designed to attack enemy airfields or armor formations. The United States Wide Area Anti-armor Munitions (WAAM) program will eventually provide a similar capability.

The ability to strike deeply against Warsaw Pact air bases is a key element in the conventional attack on follow-on forces, for such strikes would not only reduce Pact air support at the FEBA, but would also reduce the number of Pact sorties which could be directed against NATO's C³ structure and other facilities. The United Kingdom is developing the JP-233 runway denial weapon for this purpose, and the United States Air Force has announced its intention to buy the French-made Matra Durandal runway-cratering munition. The U.S. Counterair 90 concept for air base attack, if pursued, will add significantly to the destruction of Pact air bases.

However, we must not rely solely on manned aircraft for deep strikes. The deeper an aircraft penetrates, the greater its exposure to enemy air defense. For this reason, NATO nations are developing long-range, conventional stand-off missiles which can be air-or surface-launched. As in the case of manned aircraft, munitions are being developed for missile delivery systems already fielded. The *Lance* missile, deployed by several NATO nations, can be fitted with improved conventional warheads. In the United States, a longer-range, more accurate *Lance* missile is presently being considered as a candidate for the *Assault Breaker* program, one of the most important efforts in the development of a technological capability to attack follow-on forces. This joint United States Army/United States Air Force project is developing ways to attack and destroy large Pact armored formations deep in their own rear area. Work is proceeding in developing very accurate precision-guided missiles with warheads filled with terminally-guided anti-armor submunitions.

Another example of a weapons delivery system whose capability will be greatly increased by improved warheads is the Multiple-Launch Rocket System (MLRS). Under an agreement reached in 1979 among the United Kingdom, France, West Germany and the United States, and subsequently joined by Italy, the MLRS will be produced in the United States and co-produced by a consortium of companies from the European nations. This weapon will be invaluable for the close-in battle at and just beyond the FEBA. With a terminally guided warhead the MLRS will acquire a far more potent anti-armor and precision attack capability.

We must also supress Warsaw Pact air defenses with electronic counter measures. Presently, the U.S. EF-111 and F-4G are the workhorses in this effort. As we expect the Warsaw Pact air defense to be intense, we must now use current technology to develop an anti-radiation warhead which can penetrate the Pact's air defenses.

All of ACE's defensive means must be carefully integrated to achieve appropriate effectiveness. Fixed targets, such as bridges, railway yards, or power stations, can be programmed in advance for destruction by conventional guided missiles. As these weapons succeed in creating barriers which then cause mobile units to stack up, other means of delivery, to include manned aircraft, can engage these targets of opportunity. These flexible means of delivery can also be redirected laterally into sectors where a breakthrough is threatened or into the path of a penetrating OMG. The overall effect of being able to mass fires at long ranges will be to give our conventional defense greater stability.

ENHANCING DETERRENCE AND DEFENCE

The concept of attacking Warsaw Pact follow-on forces provides NATO a reasonable prospect of being able to carry out its strategy of Flexible Response in the manner intended by its authors. At the present time, primarily as a result of our lack of sustainment (manning, ammunition, replacements for materiel losses), the forces of ACE could not conduct an effective direct defense against a Pact conventional attack without having to resort fairly quickly to an escalation of the conflict. We must and can strengthen our conventional forces so they are not a *de facto* trip wire for nuclear escalation. An essential element — but not the only one — for raising the nuclear threshold is the ability to attack successfully the Pact follow-on forces. But, we must also improve our readiness and sustainability so that our forces on the FEBA can hold the leading attack echelon. In addition, we must exploit our technology for electronic warfare so that we can attack the Pact forces in the medium of the electromagnetic spectrum.

By combining the capability to blunt the leading echelon with an ability to delay, disrupt and ultimately prevent the advance of the follow-on echelons, we can reduce the possibility of a Pact attack by establishing the credible prospect that our conventional defense will succeed. Then, both our deterrent and defensive posture will be enhanced and the nuclear threshold raised. Thus, improved conventional defense helps to strengthen deterrence across the entire spectrum of possible conflict. Under those conditions, we will have taken great strides toward achieving our ultimate goal of preserving a long-lasting peace with our freedom intact, for this kind of resolute deterrence can provide the Soviet Union with added incentives to negotiate seriously for balanced arms reductions and verifiable controls which offer the best hope for the future all of us seek.