

F.A.S. PUBLIC INTEREST REPORT

Journal of the Federation of American Scientists (FAS)

NUCLEAR WEAPONS
AND
NATO

Volume 39, No. 5

May 1986

FACING UP TO FIRST USE OF NUCLEAR WEAPONS

The architects of NATO's nuclear deterrent strategy hoped that the threat of nuclear war would banish the fear of Soviet military aggression from the European continent. Yet NATO's reliance on these weapons of mass destruction has produced a whole new crop of fears, dangers, and dilemmas.

In handling its nuclear weapons, the Alliance is caught in fundamentally unresolvable conflicts between political and military priorities. Military officers of the Alliance worry about the vulnerability of NATO's nuclear weapons to a Soviet preemptive strike, but a paramount political concern is that steps to protect the weapons and prepare them for use might actually provoke Soviet nuclear use. While military plans emphasize the ability of NATO's armed forces to carry out nuclear use in an efficient, timely, and flexible manner, political authorities are more concerned with maintaining absolute political control over nuclear weapons at all times.

In peacetime, the conflicts between the fundamental goals of political control, security against hostile attack, and military operational flexibility are latent and hidden. If NATO ever began to seriously consider nuclear use, however, these competing objectives would become an obvious and very practical problem.

Scenarios for First-Use

Under what circumstances might this occur? NATO might decide to use nuclear weapons in retaliation after Soviet nuclear first-use, or as a reaction to indications that the Soviet Union was about to use nuclear weapons. But since NATO generally concedes that its conventional forces are inferior, the Soviet Union should have no reason to initiate nuclear war on its own. Even if Soviet conventional forces failed to do as well in battle as their quantitative superiority would lead one to expect, it would be more rational for the Soviet Union to accept a cease-fire and the restoration of pre-war boundaries than to risk catastrophe through initiation of nuclear war.

The most widely-accepted scenario for the start of nuclear war in Europe assumes that NATO, losing the conventional war, uses nuclear weapons first in an effort to convince the Soviet Union to halt its invasion. Yet the chance that the various nations of the Alliance would actually get together and decide to start nuclear war is slim.

Under most circumstances, the first-use of nuclear weapons in war is likely to invite Soviet nuclear retaliation. In all probability, therefore, the decision to carry out first-use would be suicidal and irrational, destroying the very societies which NATO attempts to protect. NATO's nucle-

ar powers, which are somewhat removed from the battlefield, will resist pressures to initiate a nuclear war which could bring down devastation upon their homelands. The United States and the United Kingdom might be more willing to use small, short-range nuclear weapons in an attempt to keep nuclear use limited to the battlefield, but West Germany is unlikely to cooperate in such a strategy.

In addition to such considerations, the very process of carrying out coordinated nuclear use in the midst of the chaos of war might prove daunting. All the preparations necessary to carry out nuclear use might simply give the Soviet Union the warning it needed to carry out a preemptive nuclear attack, beating NATO to the punch.

Preparing for First-Use

Despite these political realities, however, the armed forces of the Western Alliance have developed extensive plans to prepare and use nuclear weapons. These plans emphasize the ability of NATO's forces to carry out a variety of nuclear use options, and provide for a certain degree of decentralized control over nuclear operations. Military commanders, for instance, will probably decide such things as the physical location of nuclear units in the field, the extent to which nuclear warheads are matched with their delivery units, and the number of aircraft on nuclear alert.

(Continued on page 2)



Daniel Charles

This newsletter is drawn from a forthcoming book by FAS Research Associate Daniel Charles. The book, entitled *Facing Up to First-Use: Pitfalls of NATO's Nuclear Plans*, will be published by Ballinger Publishing Company in the fall.

(Continued from page 1)

Such military measures may, in the end, catalyze nuclear escalation that everyone hoped to avoid. Dispersal of nuclear weapons from storage sites to combat units, for instance, if uncoordinated by political authorities, could undercut efforts to resolve a crisis. Advance preparations for nuclear use would increase the danger of inadvertent nuclear use by NATO through a loss of control over the weapons. Increased readiness on the part of NATO's nuclear forces (an increase in the number of Pershing II missiles and nuclear-armed aircraft on quick reaction alert, for example) would probably lead to higher alert levels of Soviet nuclear forces such as SS-20 missiles. As a result, decreased warning times and a sense of heightened vulnerability might propel NATO's political authorities into disastrous, but avoidable, nuclear decisions. In addition, if the Soviet Union overreacted to NATO's preparations, they could trigger preemptive nuclear strikes.

Despite political guidelines to the contrary, NATO's nuclear arsenal, and the plans for using them, emphasize the goals of operational flexibility and security against attack at the expense of political control and crisis stability. While a reversal of this emphasis will entail the elimination of certain nuclear "war-fighting" options, we feel that this choice is a prudent one.

Averting War in Europe

In a concluding section of this newsletter, a number of steps are proposed to bring NATO's nuclear posture into line with its rhetorical commitment to political control over nuclear use. These changes can ease some of the pressures which make inadvertent nuclear escalation more likely. Yet the possibility of ill-advised nuclear use in wartime will never be completely banished. As long as nuclear weapons remain in Europe and in naval forces of both alliances—and there is little indication that this will cease to be the case—the chances that nuclear escalation will occur in the maelstrom of war will remain significant.

Crises can quickly turn into war, and in Europe, war may very quickly turn into nuclear war. The most fundamental lesson to be drawn from an analysis of the nuclear dimension of war in Europe, therefore, is that national security planners must have a healthy respect for Murphy's Law—that what can go wrong, will—and exercise extreme caution in the use of military force. As nuclear strategy analyst Desmond Ball put it, "[p]rudence alone should dictate that the focus of thinking and analysis with respect to strategic policy should be directed toward avoiding incidents and managing crises in the first place, as well as toward the means for rapidly disengaging from conflicts should these nevertheless eventuate."

These two themes—that the ability of NATO to manage and control its nuclear forces in time of crisis or war should be improved; and that NATO should never be confident of its ability adequately to exercise this control—may seem contradictory. Yet both of these themes reflect the political and military realities of Europe, and both are equally necessary elements of a responsible policy for the security of Western Europe.

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The FAS Public Interest Report (USPS 188-100) is published monthly except July and August at 307 Mass. Ave., NE, Washington, D.C. 20002. Annual subscription \$25/year. Copyright © 1986 by the Federation of American Scientists.

POSTMASTER: Send address changes to FAS, 307 Massachusetts Avenue NE, Washington, D.C. 20002.

BEHIND THE MYTHOLOGY OF FIRST USE

Supporters of NATO's nuclear strategy have tended to discuss the nuclear forces of the Alliance as one element of an elegantly abstract deterrent formula—weapons whose use is merely a theoretical, not a real possibility. NATO's official policy statements on nuclear strategy give wide berth to specific questions such as where these weapons are deployed, and how they might be used.

European governments, in particular, prefer to discuss nuclear weapons as though they formed a sort of disembodied deterrent force unaffected by the sort of logistic and training procedures governing other weapons. Any suggestion that the Alliance engages in planning for nuclear "war-fighting" provokes vehement denials, and details of nuclear weapon deployments are kept out of the public eye. As a result, American and European publics, and even responsible public officials often know little about NATO's nuclear plans.

The problem with this is not only that nuclear policies thereby escape democratic control. Details matter, and the minutiae of military operational plans could determine what political decision-makers in a crisis can and cannot do to prevent nuclear use on either side.

NATO's Nuclear Deterrent

Underneath the surface of official proclamations regarding the role and purpose of NATO's nuclear forces lies the real substance of NATO's nuclear deterrent, consisting of the weapons themselves and the complex system of military procedures for directing, handling, and using them. If deterrence truly rests on one's ability to use these weapons in an effective way in wartime—and this is the conviction of most current military thought—then this substratum of the nuclear posture, and not the political rhetoric surrounding the weapons, should demand our closest attention when examining NATO's nuclear deterrent.

NATO maintains that any decision to use nuclear weapons would be made at the highest political level. Yet because of the size and complexity of the military structures involved in carrying out the use of nuclear weapons, the details of the process will be subject to decentralized control.

The conflict between centralized political control and decentralized operational command could have two very different consequences in time of war. The very complexity of the process may mean that it will not work at all in the chaos of wartime, and that NATO will not be able to carry out the use of nuclear weapons under any circumstances. On the other hand, the machinery of military planning for nuclear use, intended as a means of ensuring the credibility of deterrence in peacetime, but which would become operational reality during war, could create its own momentum in the direction of nuclear escalation, making nuclear war more likely.

Could the plans and procedures of NATO's nuclear posture come into conflict with the Alliance's stated nuclear policy and tie the hands of political authorities in a crisis? If this is possible, NATO's nuclear arsenal, which many regard in peacetime as a comforting guarantor of deterrence and peace, could turn into a dangerous source of instability

in time of crisis, or something even worse in wartime. What we don't know, in such a situation, truly could hurt us.

This issue of the *Public Interest Report*, and the book on which it is based, attempt to bridge this gap between policy and plans, and to clarify the operational as well as the political factors which affect NATO's ability to carry out its nuclear strategy.

TO ALERT OR NOT TO ALERT: NUCLEAR WEAPONS IN A TIME OF CRISIS

Why worry about war in Europe? Most observers of European politics agree that the prospect of a premeditated Soviet attack on Western Europe is so remote that such a scenario amounts to fantasy. War in Europe would be a calamity for the Soviet Union, endangering the USSR's hard-won and still shaky empire in Europe, the Soviet economy, and in the event of nuclear war, the nation's existence itself.

The collision of American and Soviet interests worldwide spawns recurrent crises, however, which have brought the two nations closer to the brink of actual military conflict. In times of tension, the danger grows that unforeseen incidents or miscalculation could be the spark that turns a crisis into war.

Historical Precedents

The most famous historical precedent for military alert measures leading to war is the summer of 1914, when mobilization decisions by national leaders often unconscious of the wider consequences of their actions helped propel Europe into World War I. But more recent history also illustrates the danger of events getting out of hand.

According to Scott Sagan, the Cuban missile crisis is one such example. Despite efforts by President Kennedy and Secretary McNamara to monitor and directly control military operations, military commanders took a number of possibly provocative steps on their own authority.

War in Europe is more likely to result from ill-considered actions at a time of East-West tension than as a result of careful Soviet calculation of Western military weakness. NATO officials, recognizing these dangers, have been reluctant to authorize more than the most limited military alerts in the past. The nightmare of NATO's military planners, in fact, is not so much a sudden Soviet attack out of the blue as it is the possibility that Western leaders will refuse to authorize military preparations in the face of warnings of Soviet mobilization.

"In any future crisis with the Soviet Union, American decision-makers are likely to perceive a severe tension between the need to alert nuclear forces in order to reduce vulnerability and signal resolve and the fear that such actions could move out of control, increasing the likelihood of tragic accidents, inadvertent escalation, or nuclear preemption."

Scott Sagan, "Nuclear Alerts and Crisis Management," *International Security*, Spring, 1985.

Particularly if Soviet mobilization steps take place in the context of popular unrest in Eastern Europe, the ultimate purpose of many Pact military measures may remain ambiguous for some time. When the Soviet Union orchestrated an alert of Warsaw Pact forces which culminated in the 1968 invasion of Czechoslovakia, for instance, NATO declined to take any widespread military readiness measures.

Dispersing NATO's Nuclear Arsenal

Nuclear weapons, at least as much as other military forces, will be caught between the political need to avoid steps which may worsen a crisis, on the one hand, and pressures to prepare for the worst, on the other. The primary alert step which NATO officials will confront is the dispersal of nuclear warheads for land-based forces from their peacetime storage sites.

"(W)e believe it is vital to the execution of NATO strategy that the weapons be dispersed well in advance of a Soviet attack, (deleted)," said Richard Perle in a secret Congressional hearing in 1985. "Once the weapons are dispersed, they present not a handful of targets but many hundreds of targets, and the Soviet capacity to destroy all of those would be very doubtful indeed."

But Will It Happen?

The Defense Department has commissioned a variety of detailed studies of the problem of nuclear warhead dispersal, which analyze warhead storage structures, transport vehicles, warning times, and vulnerability of storage sites to various forms of attack. Yet the most serious obstacle to the implementation of dispersal plans is political, not technical in nature. Although NATO has never publicly spelled out exactly who is able to order the dispersal of nuclear weapons, many authorities believe that the military cannot initiate dispersal on its own; the decision is one for political authorities, perhaps the NATO Council, to make.

Dispersal has never been realistically practiced. Even during the NATO "command post" exercise of WINTEX, during which the Alliance goes through the motions of approving nuclear release in response to a hypothetical military conflict, there has been little discussion of the dispersal decision.

The apparent lack of attention that NATO pays to this step in exercises does not mean that dispersal is a routine and noncontroversial topic. In fact, it seems that the very sensitivity of the decision is what keeps NATO from discussing dispersal of nuclear weapons in detail.

In the spring of 1983, General Bernard Rogers, Supreme Allied Commander, Europe (SACEUR) is said to have proposed that NATO defense ministers approve the development of standing plans to implement dispersal of warheads at an early stage of a crisis. According to NATO officials, Rogers' suggestion ran into serious opposition from some NATO defense ministers, and the proposal was dropped. This episode showed two things: that Rogers has some doubts about the willingness of NATO governments to agree to prompt dispersal in a crisis; and that his doubts are well-founded.

Yet despite these political sensitivities, the trend within the military is toward a greater emphasis on even earlier

dispersal. Under the Pentagon's Theater Nuclear Forces Survivability, Security, and Safety program (insiders call it TNF S3), scores of defense consultants and contractors have prepared plans to simplify and speed up procedures for getting nuclear weapons out of harm's way.

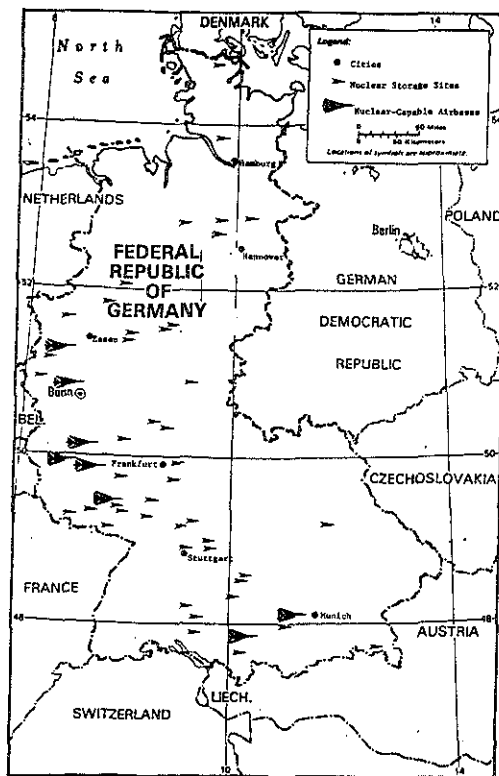
"A lot of [these improvements] have to do with being able to move the weapons into a more survivable posture during the crisis period before the shooting starts or just as the shooting starts," said Assistant Secretary of Defense Richard Wagner in May, 1984 as he described efforts to modernize American nuclear forces in Europe. As a consequence of this effort, operational units are required to be capable of retrieving their nuclear warheads from storage sites in two hours or less, and an effort is underway to shrink this time requirement even further.

Opening Pandora's box

"Dispersal may be, per se, an escalatory act," wrote one Defense Department consultant firm in a study of storage site survivability in 1978. Indeed, while one can argue that a situation in which nuclear warheads are dispersed and hidden is more stable than a situation in which NATO's nuclear warheads are in a few vulnerable storage sites, the decision to move these warheads from storage sites to the field could prove destabilizing.

Dispersal is not necessary to insure the survival of NATO's nuclear weapons in the face of *nonnuclear* attack if the weapons are placed in hardened and protected storage structures.

Dispersal would be necessary, however, to protect the warheads against nuclear attack. The evacuation of fixed



Nuclear Weapon Storage Sites in West Germany

Source: William Arkin and Richard Fieldhouse, Nuclear Battlefields, (Ballinger Publishing Company, 1985). Map does not include some three dozen storage sites for nuclear anti-aircraft weapons which are scheduled for withdrawal.

storage sites, therefore, could be taken as an indication that NATO expected the war to "go nuclear," perhaps through the imminent use of some of its own nuclear weapons.

According to Stephen Meyer of MIT, whose writings on Soviet strategy are among the most comprehensive to be found in the public literature, Soviet nuclear forces give highest priority to the mission of neutralizing NATO nuclear forces. In Warsaw Pact military exercises, Soviet nuclear forces train to react to signals that NATO is preparing to use its nuclear forces, and attempt to preempt such nuclear use.

"It has never been quite clear what 'anticipating enemy preparation to use its TNF (theater nuclear forces)' has meant. Dispersal might indeed be the primary indicator," writes Meyer in a 1983 *Adelphi Paper*, referring to a typical phrase in Soviet military writings.

If NATO began to evacuate its nuclear storage sites, Warsaw Pact officials would probably learn about it fairly quickly, through direct espionage, satellite reconnaissance, or monitoring radio transmissions. How would they regard the news that NATO was systematically unloading its nuclear storage sites and sending the weapons into the field? Would they assume that NATO was simply taking a non-threatening precautionary measure? Or would they assume the worst, that the crisis had reached a critical stage, and that NATO was preparing for all-out war?

No one knows, of course, but the possibility of Soviet overreaction might be great enough to give the governments of NATO pause. Even if the Warsaw Pact did not go so far as to carry out a preemptive nuclear strike, it would probably react by increasing the readiness of its own nuclear forces.

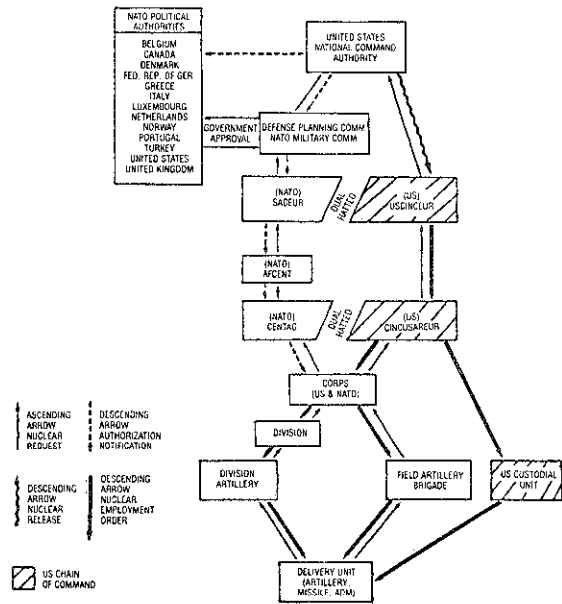
Losing Control

Fear of the Warsaw Pact reaction is not the only consideration which will discourage NATO's political leaders from approving an increase in the alert level of nuclear forces. Early dispersal, if and when it occurs, will also introduce a host of complicating factors into the task of controlling these weapons.

Nuclear storage units will proliferate, rendering the job of centrally controlling them and ensuring their security more difficult. The use of less familiar communications systems and procedures will increase the risk of missed messages and breakdowns in control.

All American nuclear warheads in Europe are equipped with Permissive Action Links (PALs), locks which require that a special code be entered in them before the warhead can be used. In an actual wartime situation, if NATO sends locked nuclear warheads away from storage sites to delivery units without the corresponding PAL codes, the process of later trying to match the PAL codes to the correct warheads will add an additional element of complexity to the process of releasing the weapons for use.

"Practically speaking, a strong pressure exists to release any needed codes at the same time that the weapons are dispersed from their storage sites," writes Paul Bracken of Yale University, who once authored a classified history of the PAL program for the Defense Department.



Command structure for land-based nuclear weapons of NATO. Source: William Arkin, Institute for Policy Studies.

At NATO headquarters, one is told that PAL codes will be transmitted to the unit controlling the nuclear warheads at the last minute, along with the order to launch a nuclear strike. Bracken, however, suspects that such plans will be abandoned under wartime pressures. Even in peacetime, he asserts, the PAL codes are handled a good deal more casually by the U.S. military than NATO rhetoric on nuclear security suggests.

The PAL system cannot be considered foolproof, particularly in wartime. If dispersal actually means that military commanders at corps level or below gained the physical ability to fire their weapons, the possibility of unauthorized use will be a powerful reason for NATO political authorities to reject such a move.

In view of the enormous consequences of any miscalculation of the risks involved in dispersal of nuclear weapons, the nations of the Alliance may shy away from a decision to do anything dramatic with these forces.

The Political Balancing Act

Nuclear planners, in their conviction that nuclear alert measures such as dispersal are necessary, may regard the possibility of such political indecision as a trap to be avoided. Yet efforts on the part of the military to carry out nuclear alert measures without political authorization are greater dangers than a political refusal to authorize them. Since the evaluation of the risks associated with nuclear alert measures hinges on an assessment of the political motivations for the crisis, only the political leadership of the Alliance is in a position to make this decision.

The risks of military alert measures, and the tension between reducing one's vulnerability and avoiding provocation are present in any crisis. The mix of nuclear weapons and massive conventional firepower facing each other across the inner-German border, however, gives this political balancing act in Europe a particularly hair-raising quality.

The proliferation of nuclear weapons and decisions re-

garding them, if they begin to create additional tensions and increased risks in a time of crisis, will turn into the nightmare of Western leaders. Instead of a reassuring "seamless spectrum of deterrence," as Pentagon officials like to call their theater nuclear strategy, NATO's nuclear arsenal, in all its complexity, will seem more like a frightening, uncontrollable Frankensteinian creation.

THE EXTINCTION OF CONVENTIONAL WARFARE IN EUROPE

With thousands of nuclear weapons present within Europe, and thousands more, outside Europe, poised to attack targets there, no war between NATO and the Warsaw Pact can be considered truly "conventional." Nuclear weapons will make their presence felt on the battlefield long before they are actually used.

Even in peacetime, military forces of both NATO and the Warsaw Pact engage in a sort of shadow boxing with their nuclear forces, deploying and training them to inflict crushing blows on the opponent while escaping fatal damage themselves. In time of crisis or war, this process will shift into high gear, becoming a hidden nuclear dimension to the conflict. Far from being a sort of last-ditch reserve force, nuclear weapons, whether based on aircraft, on land, or at sea, will be caught up immediately in any conflict.

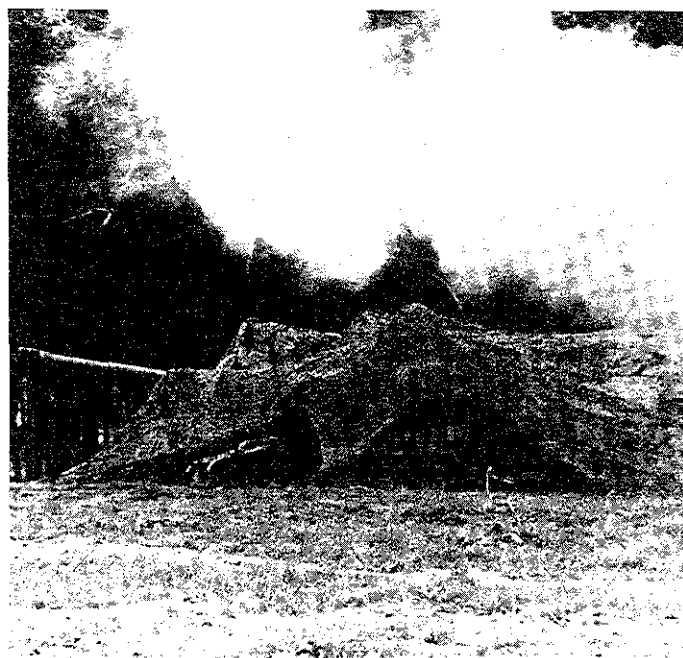
In wartime, and after nuclear warheads have been transferred to delivery units, mobile weapons such as Lance missiles will move from place to place, attempting to keep potential targets within range while at the same time avoiding detection and staying out of range of Pact forces. Aircraft or missiles on alert will need only to receive the order and perhaps the code unlocking their PAL devices, before they take off or fire. Nuclear weapons, if not on a hair trigger, will at least be cocked and ready to fire.

Being threats, of course, nuclear weapons will also become targets. Each side plans to do all it can to find and destroy the other's nuclear weapons before they are launched, and methods for accomplishing this have become increasingly sophisticated in recent years. An equally important task for these weapons, therefore, will be to stay hidden from possible attack.

Nuclear Triggers

Nuclear weapons, by virtue of their sheer destructive power, have the capacity to transform dramatically and suddenly the character of a war fought with nonnuclear weapons, and military planners of each alliance fear the ability of the other to carry out a militarily decisive nuclear first strike.

During war, American and Soviet forces will watch nervously for any indications of imminent nuclear use on the part of the enemy. Soviet nuclear doctrine calls for nuclear forces to "anticipate enemy preparation to use its TNF," writes Stephen Meyer of MIT. As one Soviet writer quoted by Meyer put it, "Much depends on the skill and timeliness of the political leadership to discover the aggressor's immediate preparations for an attack, to figure out his intentions, and to take the decision to inflict annihilating strikes."



Self-propelled 8-inch howitzer hiding under camouflage in West Germany during an exercise in 1983. This cannon artillery weapon, the Army's largest, can fire both nuclear and nonnuclear shells. (Defense Department photo)

But how, in the chaos of war, are political leaders supposed to divine an enemy's intentions? How, indeed, are "immediate preparations for an attack" to be distinguished from preparations whose purpose is simply to shorten one's reaction time in case of a hostile nuclear strike?

Military commanders and political authorities will be forced to rely on observable signals of such nuclear preparations by hostile forces. These signals will be subtle and ambiguous, including the movements of particular nuclear-capable units, the changing format and location of radio transmissions, and preparations such as an increase in the number of aircraft on nuclear alert at key airbases.

Alert and Dispersal

Reacting to such signals, each side may place additional nuclear forces on alert, disperse nuclear units more widely to increase their chances of surviving a nuclear attack, and attempt to destroy hostile nuclear weapons with nonnuclear forces such as aircraft or special operations forces. But these steps, by provoking similar measures on the part of the opponent, may feed directly into a vicious circle leading to nuclear use.

NATO and Warsaw Pact officials will be painfully aware of the fragility of their own nuclear forces and command structures, and uncertain of their ability to carry out retaliation after a hostile nuclear attack. Confronted with incomplete intelligence assessments of vulnerability and indications of increasing risk of attack, these leaders, in wartime, will be unwilling to assume that an opponent will exercise restraint and act rationally. If decision-makers accept worst-case assumptions regarding enemy intentions and their own vulnerabilities, preemptive nuclear strikes may come to seem rational.

Nor can the possibility of irrational decisions be discounted, considering the conditions under which political

leaders will be placed. The psychological pressures on decision-makers in time of war, contemplating a growing threat of nuclear use, will be enormous, though one cannot predict their effects. In a situation of political deadlock over nuclear use, as is likely to occur within the Alliance, crisis developments and sudden intelligence flashes may play a greater role in driving nuclear decision-making than the sorts of political considerations NATO has formulated in its formal guidelines for nuclear use. If an enemy seems vulnerable to a quick, decisive, nuclear attack, particularly if hostile nuclear use seems imminent, military pressures to take advantage of the situation may prove irresistible.

Once the firebreak has been crossed, and nuclear weapons fired, nations at war are unlikely to confine nuclear use to limited and symmetric exchanges, staying at one level of Herman Kahn's "escalation ladder." Any nuclear use is more likely to set off a race up that escalation ladder, as each side tries to anticipate and preempt retaliatory strikes on the part of the other.

Little Distinction Between Nuclear and Conventional Weapons

In wartime, the thresholds between conventional and nuclear weapons, or between short- and long-range nuclear weapons, will become blurred. Both NATO and the Warsaw Pact plan to use nonnuclear bombs and missiles, for instance, to attack the nuclear weapons and facilities of the enemy. And if the Soviet Union wished to preempt NATO's use of short-range nuclear weapons on the battlefield, it would need to use long-range nuclear weapons to destroy NATO airbases and warhead storage sites.

To make the situation even more explosive, parts of the Soviet strategic nuclear infrastructure are within range of NATO's Pershing IIs, sea- or land-based cruise missiles, attack submarines, or tactical aircraft. "From the Soviet perspective, the proximity of the USSR to the European battlefield (or any other likely theater) makes it an obvious target for NATO nuclear strikes as well as strikes by Europe's independent nuclear forces," writes Stephen Meyer. "Though avoidance of general nuclear war may be possible, it is hard to imagine."

THE NUCLEAR DIMENSION

Military policy-makers of NATO and the Warsaw Pact appear to agree on at least one thing; if there is a way to avoid nuclear war and still accomplish their objectives, they will try to find it. Neither alliance intends to use nuclear weapons immediately in the event of war in Europe, and each side believes this to be true of the other.

Most of NATO's member nations will almost certainly wish to explore all possible alternatives to nuclear use. Soviet leaders, meanwhile, will be much more interested in exploiting their quantitative superiority in nonnuclear weapons than in risking the nuclear destruction of their homeland. According to General Bernard Rogers, Soviet doctrine does not foresee early use of nuclear weapons because "(t)hey fear it would lead to a strategic nuclear exchange with the United States."

But nuclear forces will be busy during this phase of

battle, even if their use has not been ordered. Indeed, the manner in which these weapons are handled in wartime before they are used will play a large role in determining whether they are ever used at all.

NATO has adopted somewhat different wartime procedures for each type of nuclear weapon in its arsenal. Artillery shells are among the most numerous of nuclear weapons in the American arsenal in Europe. A closer examination of wartime plans for this weapon illustrates some of the considerations involved in NATO's deployment of nuclear weapons in wartime.

The Biggest-Bang Guns in the World

While much public attention has been drawn to long-range nuclear weapons such as the Pershing II, cruise missiles, and bombers based in Europe, relatively low-level Army commanders control the deployment and preparations of nuclear weapons as well. The most common of these battlefield nuclear weapons are nuclear artillery shells.

Nuclear-capable artillery systems can be found in the armed forces of every major NATO nation, including those of West Germany, the United Kingdom, Belgium, the Netherlands, Turkey, Greece, Italy, and the United States. Over 1500 of these shells are currently in Europe, and two-thirds of them are deployed with the U.S. Army.

The present nuclear shells have a maximum range of about 12 miles. New nuclear shells under development will extend that range to some 18 miles. The yield of the warheads they fire varies from .1 kt to perhaps 10 kt, which approaches the yield of the Hiroshima bomb. Although these cannons are all capable of firing nuclear shells, most of them will be busy firing conventional munitions.

Since these short-range weapons need to stay near hostile troops in order to be effective, they are relatively exposed to attack from Warsaw Pact air and ground forces. But the large number of artillery guns capable of firing the shells allows NATO to play a sort of shell game with its nuclear warheads, hiding them among a large number of cannons, any one of which is capable of firing the shells.

Various NATO nations have developed different patterns of nuclear artillery deployment. The U.S. Army, which has a much larger number of nuclear warheads delegated to its delivery units than other NATO forces, trains all its artillery units to deliver nuclear shells. During wartime, these artillery batteries will be responsible for conventional operations, but any one of them can fire nuclear shells if assigned to do so.

The warheads probably will be kept by small custodial and security teams located near several artillery delivery units. Once the order to carry out a nuclear strike comes, helicopters may fly the warheads to the right spot, or trucks and armored vehicles may transport the weapons.

The West German Army, in contrast, trains only a few of its artillery teams to handle and fire nuclear shells. American nuclear custody units are integral parts of these specially-trained nuclear artillery teams. Once conflict starts, the West German nuclear teams will move to the field with their accompanying American nuclear warhead custodians, but will stay in hiding until ordered to carry out

a nuclear strike. At that time, they will go to one of a number of designated howitzers, bump the other firing squad from the gun, fire the nuclear rounds, and leave again.

At present, the British Army on the Rhine, the Dutch Army, and the Belgian Army follow yet a third pattern. Certain artillery units, along with their howitzers, are designated as nuclear delivery units. Under this system, the warheads are kept with the cannons until they are used or destroyed. According to NATO officials, the British and Belgian armies are considering adopting the German system, since it offers more flexibility.

The Dilemmas of Nuclear Planning

Deciding what to do with nuclear weapons before they are actually used will not be a simple matter, for a commander's objectives for his nuclear weapons will be somewhat contradictory. These weapons must be kept as safe from attack as possible. But the measures necessary for maximum security may conflict with two other important objectives: assuring constant control by higher authorities over the disposition of nuclear weapons, and maximizing the ability of military commanders to quickly use the weapons in any one of a variety of possible situations should that become necessary. These latter two objectives, in turn, also conflict with each other.

You Can't Have It Both (Or All) Ways

The conflicts between the three fundamental objectives to be considered in handling nuclear weapons—political control, security from enemy attack, and operational flexibility—cannot be completely resolved. Given a stockpile anywhere near the size of the present one, NATO could choose to satisfy any two of these goals, but would thereby ignore the third.

To ensure political control at the same time as security from enemy attack, for example, the weapons would be hidden in a few well-concealed, dispersed sites, and ordered to keep radio silence. These weapons would be almost unusable in the way the military currently plans to use them, however, so operational flexibility would be lost.

If NATO opted for political control and operational flexibility, the communications involved in keeping everyone informed of the deployments of nuclear weapons, their status, movements and plans would probably reveal what was going on to the Warsaw Pact, and NATO would be vulnerable to preemptive attack before any nuclear use by NATO. Intensive use of encryption, dedicated radio nets, and similar command and control innovations in order to increase security would then have the effect of slowing down the process and decreasing operational flexibility.

If the Alliance instead decided to maximize security and operational flexibility, which is the third logical possibility, the planning and carrying out of nuclear operations would be drastically decentralized and delegated to military commanders. In this case, NATO's political authorities could play only a rubber stamp role in most nuclear decisions, since most of the details of deployments of weapons, targeting for battlefield strikes, and timing of the use of the weapons would be out of their grasp.

None of these possibilities is politically acceptable within the Alliance, at least at the present time. NATO's military planners will continue "muddling through," accepting a degree of vulnerability for its nuclear forces and a certain amount of operational inflexibility, while attempting to ensure a high degree of political control over its nuclear weapons.

Within this framework, however, shifts toward one or another of these nuclear objectives are possible. At the present time, there are efforts within the military to increase operational flexibility and security at the expense of political control, but it is not clear these efforts will succeed. Political authorities within NATO, if given the choice, will probably reject any such changes out of hand.

During the "pre-nuclear battle," pressures leading toward nuclear use will grow. Vulnerability to nonnuclear as well as nuclear attack will lead to measures to safeguard nuclear weapons and prepare them for use. These measures, whether undertaken by NATO or the Warsaw Pact, will heighten pressures on the other side to follow suit. Eventually, such pressures may lead to increased decentralization of control over nuclear weapons, such as distribution of PAL codes to lower levels of command. Combined with high alert levels and advanced preparations for use, this will raise the risks of nuclear use greatly.

Political leaders of NATO's member nations will face a difficult task in maintaining control of these developments, so as not to be rushed into ill-considered nuclear first-use. The complex process of consultation within NATO on nuclear questions will be in high gear, but it will be irrelevant unless control over the weapons is maintained.

DECIDING WHAT TO DO

Despite much talk of "the nuclear threshold," no one can be sure what circumstances might provoke a decision by NATO to use nuclear weapons. The details of carrying out NATO's nuclear first-use option have been left for political authorities of the Alliance to settle on at the last minute. Even the most detailed discussions within the Alliance on first-use have stopped well short of establishing precise criteria for nuclear use.

Instead of agreeing on precise guidelines for decisions regarding possible nuclear use, NATO's members promised to follow agreed-upon consultation procedures in a crisis. "The agreed NATO guidelines state that in times of crisis the procedures for general consultation should be set in motion at the earliest possible stage in the crisis," states a 1973 report of the Senate Foreign Relations Committee. According to the report, "the normal forum for consultation would be the Defense Planning Committee, where member governments would be able to express their views, in particular on the political and military objectives of the proposed use of nuclear weapons, the methods of use and the possible consequences either of use or non-use."

Inescapable Dilemmas

NATO's Nuclear Planning Group (NPG) spent nearly a decade after its founding in 1967 trying to formulate political guidelines for nuclear use, with few clear results to

show from all the discussion and paper-drafting. The simplest reason for NATO's inability to come to a consensus on a coherent set of guidelines for nuclear use is that none of the possible options is a palatable one.

The idea that NATO would use its nuclear weapons to win the war outright with extensive and devastating strikes was rejected out of hand by NATO's defense ministers when they began their deliberations in 1967. The Europeans were particularly adamant about this, with U.K. Defence Minister Denis Healey articulating the view that extensive use of nuclear weapons meant the destruction of the societies NATO was trying to defend, and that there was therefore no point in planning to win a theater nuclear war.

The approach on which NATO ministers settled was to use nuclear weapons in carefully selected strikes designed to make the seriousness of the situation apparent to the opponent, hopefully inducing the aggressor to halt the attack. The criteria for such "initial use" remained relatively constant through the years of discussion: the political signal to the enemy was to be unmistakable; the risks of escalation were to be kept under control; damage to civilian populations was to be minimized; and any decision to use the weapons was to be made by the highest political authorities of the nuclear power following consultations.

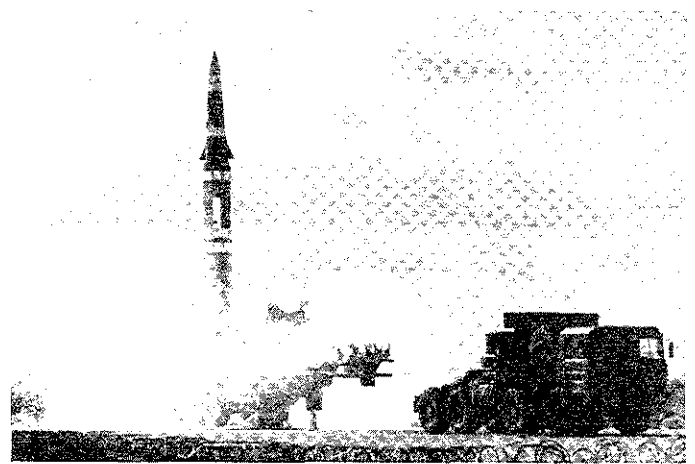
The NPG never got much beyond these general criteria. Studies of possible forms of nuclear use showed that if the Soviet Union retaliated, NATO would be unlikely to gain any military advantage from nuclear use, although damage to civilian life would be enormous. In short, the NPG was unable to find any purely military rationale for the use of nuclear weapons.

Limited Nuclear War?

Any initial use of nuclear weapons by NATO would raise the risk of Soviet nuclear retaliation. Even if NATO's initial nuclear strike was militarily insignificant, such as a "demonstration blast" over the North Sea, the Soviet Union might respond with a widespread nuclear counterattack if it regarded this crossing of the nuclear threshold as a signal that nuclear war had become inevitable.

Some maintain that demonstration use of nuclear weapons might have enough political shock value to force an end to a conflict which had inadvertently gotten out of hand. But it seems hard to imagine that NATO would authorize even the most limited nuclear strike unless that conflict had reached extremely serious proportions. In such a situation, any nuclear use at all would be more likely to escalate the conflict than to bring about its end. Realizing that nuclear use might amount to national suicide, NATO's leaders will search for alternatives to nuclear use.

Different members of the Alliance do have certain naturally occurring differences in how they see the issue of nuclear first-use, and each nation will have good reasons for abstaining from the use of nuclear weapons. West Germans, for example, are unlikely to accept widespread use of nuclear weapons on the battlefield. "Anyone who fires nuclear weapons onto West German territory becomes the enemy," one member of the West German parliament told this author recently. Not only is the prospect of setting off



Test launch of a Pershing II missile. (Defense Department photo)

nuclear blasts in one's own country a repugnant one; the concentration of NATO's forces in West Germany means that practically all areas of the country are dotted with prime military targets for Soviet nuclear retaliation.

Historically, West Germany has favored more immediate nuclear use, and the employment of longer-range nuclear weapons than other members of NATO. Henry Kissinger portrayed the conflict with particular bluntness in a 1979 speech, saying that "the secret dream of every European was, . . . if there had to be a nuclear war, to have it conducted over their heads by the strategic forces of the United States and the Soviet Union."

According to Kissinger, the actual use of American strategic forces in the defense of Western Europe is clearly contrary to U.S. interests. "And therefore I would say, which I might not say in office, the European allies should not keep asking us to multiply strategic assurances that we cannot possibly mean, or if we do mean, we should not want to execute because if we execute, we risk the destruction of civilization," said the former presidential National Security Advisor and Secretary of State.

It is not difficult to foresee a dramatic conflict between the United States and West Germany on the form of first nuclear use, for a number of statements from U.S. officials indicate an American preference for use of short-range battlefield systems in an effort to keep the nuclear exchange limited.

In 1983, General Sidney Davis, Director of Nuclear and Chemical Affairs for the U.S. Army, told the Senate Armed Services Committee that "The best thing we have is the short-range nuclear round that will go out and hit the enemy. We want to keep it down low. We want to keep the escalation down low. . . . if we can blunt the attack, we have something going."

Don't anybody shoot! We're hostages!

Nuclear use will bring a quantum increase in destruction on the battlefield. In addition, it will also immediately broaden the geographic scope of the war. For nations removed from the full brunt of the war, such as the United States or Great Britain, the use of nuclear weapons will dramatically raise the risk of Soviet nuclear retaliation against their homelands.

Spain, France, Canada and Iceland do not even maintain troops on the front lines, but these nations do contain important NATO facilities and infrastructure, many of them nuclear related. These will be prime targets for retaliatory SS-20 or nuclear air strikes following NATO first-use. It is likely, therefore, that they will oppose any nuclear use by NATO until all other options, including diplomatic initiatives, are exhausted.

Could a few European nations have any significant effect on American nuclear decisions? While NATO's consultation guidelines do not require a consensus on the question of nuclear use, certain key nations are regarded as having an implicit veto over nuclear use. According to guidelines adopted by the Nuclear Planning Group in 1968, special weight is to be given to the views of the country on or from whose territory the weapons would be employed; of the country providing the delivery system for the nuclear strike; and of the country providing the warhead.

Going It Alone

If consultations within the Alliance were at an impasse, could the United States go ahead and use its own nuclear weapons over the objections of its Alliance partners? This is one of NATO's most sensitive questions, and has been asked privately in Europe for many years. NATO guidelines do provide an apparent escape clause to the consultation agreements. Consultation shall happen, say the guidelines, "time and circumstances permitting."

In one sense, the answer is simple. If the United States (or France or the United Kingdom) decided to use its own nuclear weapons, it could do so. Control over nuclear weapons is not shared; indeed, under terms of the Nuclear Non-Proliferation Treaty, such control cannot be shared. Even in the case of warheads designated for use by Allied forces, American personnel maintain physical custody of the nuclear warheads during combat, although they depend on the Allied forces for physical security.

The command structure for U.S. forces in Europe, in fact, is designed to allow for unilateral American control over nuclear weapons. A 1973 report to the Senate states that the U.S. president could "unilaterally direct [SACEUR] in his national capacity as commander of U.S. forces in Europe to employ nuclear weapons."

The need to bypass the NATO command structure does practically eliminate the possibility of using some U.S.-controlled nuclear weapons in Europe—those deployed with troops from allied nations. And in the case of air-delivered weapons, NATO air operations are so highly coordinated internationally that the process of assigning and carrying out a nuclear strike might prove susceptible to sabotage. Nuclear-capable aircraft based on U.S. Navy carriers, however, could be more easily used as part of unilaterally-commanded operations.

The kinds of nuclear use which would be easiest to carry out in secret—the use of American ICBMs, Poseidon SLBMs delegated to SACEUR, or sea-based cruise missiles—are precisely those kinds of nuclear strikes which the United States would be most reluctant to authorize, due to the likelihood of Soviet retaliation.

An attempt by the United States, France or Britain to use nuclear weapons against the wishes of the rest of the Alliance could spell the end of NATO military cooperation. As a result, such unilateral use would be a step toward "winning the battle but losing the war" in the most literal sense. Without the active support of the rest of NATO, the American position in Europe, and the huge U.S. troop contingent there, would be lost.

As a matter of fact, the United States would have as little rational interest as European nations in starting a nuclear exchange in Europe. As Jeremy J. Stone wrote in the November, 1984 issue of this newsletter, with "first-use of nuclear weapons having such a high likelihood of escalating to the point where the United States would be destroyed, the U.S. will have an interest in considering losses of territory in Western Europe as *fait accomplis* to be dealt with later—as we have dealt with two other such losses of Western European territory in this century."

RECOMMENDATIONS

Two specific aspects of NATO's policy guidelines for nuclear weapons deserve special emphasis, for there is a danger that they would not survive the pressures of crisis or war: the commitment to political consultations among NATO's member nations on important nuclear decisions; and the requirement that political control over nuclear deployments and use be maintained.

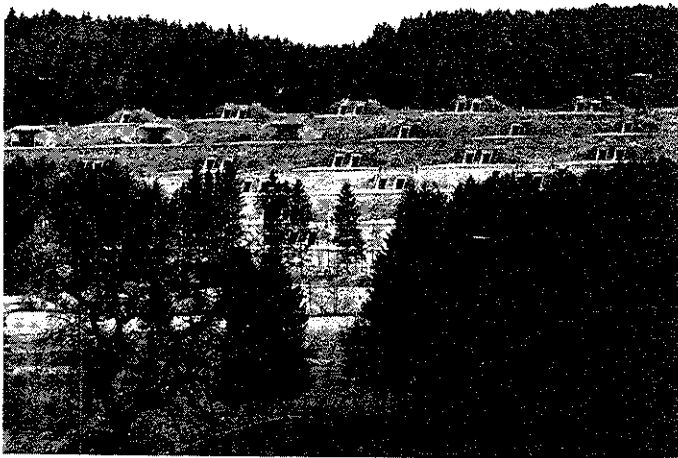
Consultation

Nuclear first-use by one of NATO's nuclear powers without prior consultation with other NATO allies is technically possible, but politically unsanctioned. Over the last twenty years, growing political pressures to include all of NATO's major members in nuclear decisions have translated into strengthened procedures for consultation, and formal guidelines on how that consultation is to be carried out. As former Defense Department official James Thomson wrote in 1982, "[t]here is every reason to believe that this commitment (regarding nuclear consultation) is a solemn one."

The crucial question, however, is whether NATO's nuclear stockpile and employment plans will create constraints that, at least in the eyes of those responsible for carrying out the plans, preclude consultation and require nuclear use. It should be the responsibility of NATO's Nuclear Planning Group and Military Committee to review plans for the possible use of nuclear weapons and ensure that these are not so rigid that they preclude adequate time for consultation within the Alliance.

In the final analysis, whether time and circumstances permit anything is a subjective judgement based on the perceived acceptability of the alternatives. The Alliance should ensure that that judgement itself is left up to NATO's political leadership.

While NATO's guidelines only apply to consultation between the various members of the Alliance, the discussions which would inevitably take place within NATO member governments are another dimension of the same process. Since attempts to circumvent NATO's consultation guidelines would be politically foolhardy, such at-



Nuclear weapons storage site in Bavaria. (Photo by Andreas Orth)

tempts might be more likely if single decision-makers, perhaps overcome by the stress of the moment, failed to take advantage of wise counsel. Steps taken within individual governments to safeguard the integrity of their own national decision-making process on first-use would thus strengthen confidence in NATO's consultation procedures.

In the United States, such intra-governmental consultation should probably involve Congress, for both constitutional and political reasons.

Such a veto is at least consistent with present NATO guidelines governing the use of nuclear weapons. Indeed, such an arrangement might help enforce the practical application of these guidelines.

Will Political Authorities Stay In Control?

Unless political authorities maintain control over nuclear operations, however, the consultation process will be meaningless. If political control is lost, either through excessive delegation of authority over nuclear use or the breakdown of security systems designed to prevent unauthorized use, nuclear first-use may occur without any well-considered decision to employ these weapons.

It is clear that NATO is committed to maintaining absolute political control over nuclear weapons. Permissive Action Links, locks on warheads which prevent them from being used without proper codes, represent just one of the measures that the United States has introduced to help eliminate the danger of unauthorized use.

Reducing the possibility of nuclear first use without a clear decision by NATO's political leadership to use the weapons, however, involves more than simply putting better locks on nuclear warheads. A greater danger than unauthorized use may be the risk that preparations for nuclear use in a crisis and during the initial stages of a war will create the expectation of nuclear use within NATO's military machine. If military operations begin to assume nuclear escalation, this will be reflected in the range of options which military leaders present to political authorities.

Preparations to use nuclear weapons by NATO will inevitably stimulate similar measures on the part of the War-

saw Pact, and vice versa. Through action and reaction, an operational momentum leading toward nuclear use can be created. Under such pressures, NATO's political leaders may be unable, in the short time available to them, to create political or even military alternatives to nuclear use.

Suggestions that predelegated authority to use nuclear weapons may be necessary are a particularly blatant manifestation of this danger. But any efforts to set up routine and standard operating procedures for nuclear weapons in a crisis have the potential to take important decisions (such as warhead dispersal) out of the hands of political authorities. Such proposals should be resisted, for they increase the difficulties of coordinating efforts to politically terminate the conflict, raise the danger of ill-considered first use, and encourage the other side to assume that nuclear use is inevitable.

While extensive discussion during peacetime of the implications of dispersal of nuclear warheads from storage sites would be useful, NATO should not set out precise conditions under which dispersal would become automatic in time of crisis. Such an approach to dispersal could take an extremely important and potentially escalatory decision out of the hands of political authorities.

The Nuclear Planning Group, while reviewing nuclear operational plans, may identify other key decisions besides dispersal which affect nuclear alert levels and deployment patterns. These key decisions should be made subject to political authorization.

Eliminating Nuclear Artillery Weapons

Elimination of certain battlefield nuclear weapons would reduce the risks of a breakdown in political control over nuclear escalation. Because of the short range of nuclear artillery shells, it would be next to impossible to centrally control decisions regarding their deployment, targets, and the exact time of their use.

Nuclear artillery weapons have long been criticized for being practically unusable and vulnerable. In addition, plans for their use are difficult, if not impossible to reconcile with the requirements of political control over nuclear escalation. NATO should withdraw them along with atomic demolition munitions and nuclear anti-aircraft missiles, which suffer from similarly intractable command and control problems, and are currently being shipped out of Europe.

The concentration of nuclear bombs at airfields in Europe should be drastically reduced. The main NATO airfields at which nuclear bombs are kept are quite vulnerable to nuclear attack. At the same time, they are the single largest repositories of NATO's land-based nuclear potential in wartime. As such, they create strong incentives for the Soviet Union to preempt with nuclear weapons, forcing more rapid nuclear escalation than NATO should desire.

Montibello's Ambivalent Legacy

In recent years, NATO has cultivated the perception that it is reducing the role of nuclear weapons in its military planning, and attempting to eliminate some of the pressures leading toward nuclear escalation. One prime piece of evidence cited to demonstrate this trend is the Monti-

bello decision of 1983, in which NATO agreed to reduce its nuclear stockpile in Europe by 1400 warheads. In addition, improvements in command facilities and communications systems, including those for nuclear weapons, indicate that the Alliance may be moving toward a greater ability to monitor and control nuclear weapons during any future conflict.

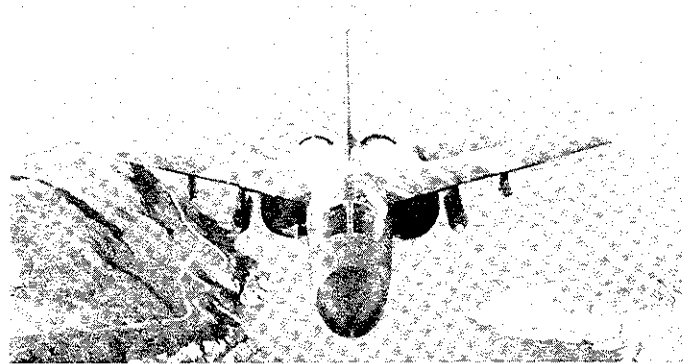
A quick look at the future direction of NATO's nuclear forces, however, reveals that despite NATO's current rhetoric in favor of raising the nuclear threshold in Europe, the gap between NATO's political realities and its plans for the use of nuclear weapons will remain, and may even widen.

Reducing Nuclear Warheads

The number of nuclear warheads which NATO maintains in Europe will indeed decrease over the next few years, as Nike-Hercules anti-aircraft missiles are replaced with nonnuclear Patriot missiles, and atomic mines are withdrawn. In addition, aging nuclear artillery shells will be replaced by a fewer number of new nuclear shells, and the replacement of Pershing Ia with Pershing II missiles (in U.S. forces) will mean a net reduction of warheads, since no spare missiles of the Pershing II will be deployed.

For the most part, however, these changes amount to "cleaning out the attic," as *The Economist* put it when recommending such reductions in 1979, and not a reappraisal of nuclear plans. In fact, when one considers the introduction of Pershing II and cruise missiles, the current production of two new kinds of nuclear artillery shells, the development of a modernized replacement of Lance missiles, the possible introduction of a nuclear missile fired from tactical aircraft, and the redistribution of nuclear warheads around a refurbished system of storage sites in Europe, one must conclude that at least one major point of this housecleaning has been to make possible more efficient exercise of NATO's nuclear war-fighting options.

Ignoring the basic political dilemmas which make the nuclear threat an implausible one, NATO's current nuclear modernization program attempts to improve the credibility of the Alliance's nuclear threat through technical and operational measures. After completion of this nuclear



F-111 nuclear-capable bomber of the U.S. Air Force 48th Tactical Fighter Wing, shown flying over the British coast. (Photo by General Dynamics)

modernization program—the other, secret part of the Montibello decision—NATO will be left with a rationalized, streamlined, and, at least in the eyes of nuclear planners, more usable nuclear arsenal. And even after reductions, some 4,600 U.S. nuclear warheads will remain in NATO's European inventory.

Some of these modernization measures, those which eliminate obvious vulnerabilities and upgrade communications systems, could improve the ability of NATO's political leadership to maintain control over the Alliance's nuclear forces. Yet in the larger context of NATO's modernization program, such steps may simply add to an existing emphasis on more flexible and operationally credible nuclear employment options.

The current round of nuclear reductions and modernizations, therefore, seems likely to bring about a significant increase in NATO's technical ability to carry out nuclear operations, and a modest increase in the Alliance's ability to control these operations and see that they fit into some sort of political strategy. Should the refinement of military plans for nuclear use continue to outpace efforts to improve political control, the net effect of all this may be a further shift toward the primacy of military considerations in nuclear planning. As a result, the danger that control over nuclear deployments and preparations will slip from the hands of political authorities in a crisis or during wartime may increase.

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