



THE FUTURE OF CONTAINMENT

AMERICA'S OPTIONS FOR DEFENDING ITS INTERESTS ON THE SOVIET PERIPHERY

Report by the
Offense-Defense Working
Group, submitted to the
Commission on Integrated
Long-Term Strategy

October 1988

For Information Call:

Public/Industry: 202-697-5737

Press: 202-697-5131

The Report of the Commission on Integrated Long-Term Strategy, Discriminate Deterrence, was published in January 1988 and is available for sale by the Superintendent of Documents, US Government Printing Office, Washington, DC 20402 for \$6.50.

Working Group reports and other separate papers which were prepared in support of the Commission on Integrated Long-Term Strategy are being printed in limited numbers by the Department of Defense. There are no restrictions on further reproduction of these Working Group reports and other papers.



COMMISSION ON INTEGRATED LONG-TERM STRATEGY

Assistant to
the President
for National
Security Affairs

MEMORANDUM FOR THE COMMISSION ON INTEGRATED LONG-TERM STRATEGY

Co-Chairman

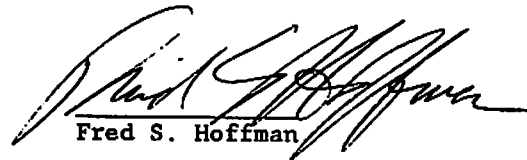
Dr. Fred C. Ikle
Professor Albert J. Wohlstetter

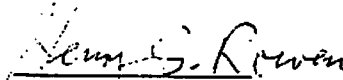
Members

Ambassador Anne Armstrong
Dr. Zbigniew Brzezinski
Judge William P. Clark
Mr. W. Graham Clayton, Jr.
General Andrew J. Goodpaster
(USA, Ret.)
Admiral James L. Holloway, III
(USN, Ret.)
Professor Samuel P. Huntington
Dr. Henry A. Kissinger
Dr. Joshua Lederberg
General Bernard A. Schriever
(USAF, Ret.)
General John W. Vessey
(USA, Ret.)

The Working Group on the Role of Offense and Defense is pleased to present to the Commission on Integrated Long-Term Strategy our report on The Future of Containment: America's Options for Defending Its Interests on the Soviet Periphery.

This report, a product of over one year of research, analysis, and drafting by Working Group members, is consonant with the Commission's report, Discriminate Deterrence. Our report provides more detailed information underlying the findings and conclusions of the Commission's report. However, the present report is the responsibility of the Working Group and the Commission does not necessarily subscribe to all of its details. Our Working Group will also provide to the Commission a separate paper, Extended-Range Smart Conventional Weapon Systems.


Fred S. Hoffman


Henry S. Rowen
Working Group Chairmen



**THE FUTURE OF CONTAINMENT: AMERICA'S OPTIONS
FOR DEFENDING ITS INTERESTS ON
THE SOVIET PERIPHERY**

**A REPORT OF THE OFFENSE-DEFENSE WORKING GROUP
PREPARED FOR
THE COMMISSION ON INTEGRATED LONG-TERM STRATEGY**

September 1988

TABLE OF CONTENTS

| | |
|--|----|
| MAIN POINTS | 1 |
| INTRODUCTION | 8 |
| I. INTERESTS, THREATS, AND CONTINGENCIES | 10 |
| A. The Soviet Outlook | 13 |
| B. Single Theater vs. Multiple Theater Conflicts | 15 |
| C. Is There a New Soviet "Defensive" Doctrine? | 16 |
| II. U.S. OBJECTIVES AND BROAD STRATEGY | 18 |
| A. Problems with Our Strategy | 18 |
| B. The Problem of Western Cohesion | 19 |
| C. The Role of Nuclear Weapons | 19 |
| D. The Need to Integrate Arms Control into Defense Strategy | 21 |
| E. A U.S. Strategic Approach | 22 |
| III. POTENTIAL CONTINGENCIES AND U.S. OPTIONS | 27 |
| A. The Persian Gulf Region | 30 |
| B. The Southern Flank of Europe | 38 |
| C. The Northern Flank of Europe | 39 |
| D. The Central Region of Europe | 41 |
| E. Northeast Asia | 48 |
| IV. THE IMPORTANCE OF PRECISION WEAPONS AND OTHER KEY FUTURE TRENDS | 51 |
| A. Future Soviet Strategy | 51 |
| B. Future Alliance Relations | 52 |
| C. Some Possible Implications of Smaller Defense Budgets | 54 |
| D. Some Implications of Standoff Precision Attacks | 54 |
| V. COMMAND, CONTROL, COMMUNICATIONS, AND INTELLIGENCE TO SUPPORT STRATEGY | 72 |
| A. Warning | 72 |
| B. C3 Infrastructure | 73 |
| C. Longer Range Support of Theater Operations | 74 |
| D. Space Warfare in Theater Warfare | 75 |
| E. C3I as a Target for Non-Nuclear Strikes | 77 |
| F. C3 Endurance and Nuclear Conflict | 77 |
| G. Conclusions on C3I in Long-Term Strategy | 78 |
| VI. THE ROLE OF CHEMICAL WEAPONS | 80 |

| | |
|--|-----|
| VII. ACTIVE VS. RESERVE FORCES AND DEFENSE MOBILIZATION | 82 |
| VIII. ISSUES OF NUCLEAR STRATEGY | 83 |
| A. Overview of Impending Issues of Nuclear Strategy | 83 |
| B. The Role of Theater Nuclear Weapons in NATO Strategy | 85 |
| C. Protection of Critical Theater Targets | 90 |
| D. Intercontinental and Sea-Based Nuclear Offensive Forces | 95 |
| E. An Assessment of CONUS Defense | 113 |

MAIN POINTS

All of the countries on the periphery of the Soviet Union are threatened by its conventional military power, those in the Persian Gulf area the most, Japan the least. The Soviet Union has centrally positioned, flexible, ready forces together with interior lines of communication that permit their rapid movement among regions. On the whole, Soviet access to potential areas of conventional conflict near their borders has greatly improved in the last 30 years, while Western access to bases, ports, and air space has become more constricted. As a result, within each of the regions surrounding the Soviet Union, the Soviets can bring to bear, at points they might select to invade, a stronger force than the West can muster in time to resist them in the ambiguous circumstances of plausible attacks.

Furthermore, all of the countries on the periphery of the Soviet Union are faced with formidable Soviet nuclear forces designed to discourage quick resort by the West to a nuclear response in the event of a Soviet conventional invasion. Soviet nuclear forces might also be used if increased Western conventional strength left Soviet leaders uncertain that they could achieve their objectives with conventional forces alone, or if those forces were stymied in battle.

The recent changes in the Soviet Union have created much uncertainty about the future of the Soviet Union. Gorbachev seems to be looking for a breathing space within which to revive the economy and its long-term military potential. Soviet foreign policy reflects this including its approach to arms agreements and its declaratory policy on military doctrine. So far, the main tangible changes on the ground are the beginnings of withdrawal of forces from Afghanistan. However, the recent changes in the Soviet Union have yet to be translated into actions that fundamentally lessen the Soviet military threat to their neighbors over the next 20 years. Such a lessening might emerge and the West should explore means of fostering it, but until it does, containment of Soviet military pressure on its neighbors should remain a major objective of U.S. security strategy and a primary determinant of U.S. military posture, including overseas deployments.

In general, those countries that have an U.S. military presence (Japan, South Korea, Central Europe) are less at risk to conventional attack than those that do not; those, such as Norway, that border on the Soviet Union and have no U.S. presence, but are members of the North Atlantic Treaty Organization (NATO), are more exposed; and the region that has neither, the Persian Gulf, is the most vulnerable.

The United States has a strong interest in the Persian Gulf region, most obviously in its oil. The oil market is a single, global one as several supply disruptions have demonstrated; and the U.S. economy is closely linked to others. We also have an interest in preventing Soviet control of a resource on which the West will become progressively more dependent to the year 2000 and beyond.

Even those regions where Soviet armed aggression is less likely, such as Central Europe, are by no means secure in an absolute sense. Improvements in Soviet armor, artillery, and tactical air have outpaced those of NATO. The Soviet Union also has superior capacities in chemical warfare and in the wartime uses of space. U.S. dependence on comparatively few satellites, the vulnerability of many of these to direct attack or electronic interference, and the superior Soviet satellite replacement capacity in war is responsible for this Soviet advantage in space. Nonetheless, the Soviets have weaknesses; not least is their heavy dependence on East Europeans, whose performance in a war with NATO is uncertain.

The existence of these force imbalances does not imply a high probability of Soviet attack. For one thing, the Soviet Union now enjoys the political benefits of having military power without using it. For another, Soviet leaders are conscious of weaknesses within their empire and within the Soviet Union itself; and they have reason to fear that Western response would lead to a wider war and serious damage to the Soviet Union.

Soviet leaders are evidently worried about the stagnation of the economy, which, in part, is the consequence of the enormous share of national resources taken by the security sector, about 25 percent of the nation's gross national product. This is roughly 4 times the U.S. defense share. This crisis of the system is motivating Soviet leaders to seek the creation of a breathing space while they try to rebuild the economy--and its military potential. But, meanwhile, Soviet strength remains formidable, and there is, as yet, no sign of a slacking in total military spending.

In general, in any military campaign, it would be in the Soviet interest to limit the geographic scope of operations to a region in which it is superior and to control escalation. In contrast, in responding to a Soviet attack, it is likely to be in the U.S. interest to mobilize the largest possible coalition against the Soviet Union--i.e., not to fight only in a place of the Soviet's choosing--and also to undertake wider naval and air operations. The combined strength of the countries along the Soviet periphery exceeds that of the Soviet Union and its allies, but the lack of political cohesion among the Soviets' neighbors makes them less formidable than the sum of their resources suggests. Nonetheless, the possibility of a collective response by Western countries should be a strong deterrent to a Soviet move against any point on its periphery. This is one reason why the United States should not pull back from, or write off, any region on the Soviet periphery, neither one that seems relatively secure, such as Northeast Asia, nor one that is much more difficult to defend such as the Persian Gulf area.

For over 4 decades, a central goal of U.S. security policy has been the prevention of a direct Soviet attack at the periphery of the Soviet bloc. While this goal should remain, the means need to be altered. One possible shift concerns the center of Europe. While the region's geostrategic importance has led us to make our largest commitment of defense resources here, this region is not among those at greatest risk of Soviet

attack. Also, West European nations have the clear capacity to do more for their own defense.

The protection of western Europe and Northeast Asia from direct attack should remain a high-priority U.S. goal (second only to the defense of North America). But having a high place in our priorities does not necessarily imply sustaining the current allocation of resources to these regions. Most of these countries have the capacity to do more for their own defense, and some (Japan is the clearest example) are not very susceptible to conventional attack. In contrast, the flanks of Europe and Southwest Asia are more exposed, and successful Soviet aggression in these regions could threaten the security and unity of the Western coalition as a whole. The defense of these regions therefore warrants an increase in relative effort by the United States.

One possibility is to improve the U.S. alliance's conventional capabilities by shifting the mix of U.S. forces at the present U.S. level of resources for the defense of this region in favor of those activities in which we have a comparative advantage: intelligence, surveillance, active air defense, and air and missile offensive forces, with less going to ground forces, either in the continental United States (CONUS) on reserve status or in Europe. However, U.S. ground forces up front signify commitment to the territory where they are located; therefore, the Working Group favors their retention in sufficient numbers to make clear the continuing U.S. commitment. This approach would call for complementary adjustments by allies to provide a balanced force mix. Another possibility is to reduce the total of resources devoted to that region--again favoring those activities we are best at--while sustaining or increasing our support for the relatively more exposed NATO flank areas and the Persian Gulf region.

For the Persian Gulf, the U.S. strategic goal is to increase expectations that Soviet armed intervention in the region would meet timely, robust, and sustainable resistance. The main strategic tasks are to continue: (1) improving arrangements for bases enroute to the area and in it; (2) improving our sea-based and long-range air ability to deliver accurate conventional air and missile power; (3) improving our airlift and sealift capacity; and (4) maintaining a sea line of communication. An ability to interdict Soviet air operations in the region and deliver adequate numbers of smart, standoff weapons, together with local resistance, might delay the advance of Soviet forces long enough for a viable defense of the region to be mounted. Turkey would constitute a dilemma for the Soviet Union if it were contemplating an invasion of the Persian Gulf. The Soviets would face the choice of attacking Turkey, a member of NATO, or leaving their flank exposed. In this way, NATO strength on its southern flank and Turkish confidence in the NATO guarantee can serve as major contributors to deterring Soviet aggression in the Persian Gulf.

The Soviets may not currently harbor designs on the Persian Gulf area and their Afghan experience may discourage future interventions into Moslem countries, but this report addresses the next several decades during which much could change. This region is highly unstable politically; therefore, a crisis that could draw in Soviet military power

is more likely to arise here than in other regions. A necessary condition for such an intervention would probably be a Soviet judgment that the West could not or would not militarily counter such a Soviet move.

Geography and logistics make the situation of Northeast Asia relatively secure--with the important caveat that North Korea still poses a clear and present danger to South Korea. South Korea's growing economic and political strength should increasingly enable it to defend itself against a North Korean attack, but U.S. forces, especially air and naval ones, will still be needed to help defend Korea against an attack supported by the Soviet Union (or China) and to provide regional stability. Also both Korea and Japan need a deterrent against nuclear attack.

Japanese forces are improving in quality, and Japan is taking on wider responsibilities at sea. But Japan's greatest incremental contribution can come from economic help to such strategically important countries as the Philippines (where the future of major U.S. bases is uncertain), Pakistan, and Turkey. A large increase in Japanese defense spending does not seem necessary.

Unlike the center of Europe, a U.S. presence in this region is not very costly because most of the Pacific forces are flexible naval and air forces, the size of which is determined by global criteria. In a crisis elsewhere in the world, elements of these forces are likely to leave the Western Pacific; consequently, forces of the countries in the area would need to be mobilized as a substitute until U.S. forces returned. This contingency should be the object of explicit planning. In any case, the growing economic strength, and military potential, of Japan and Korea implies that they should take on a greater responsibility for defense than in the past. Eventually, the Japanese-U.S. security relationship needs to be changed from one in which the United States is committed to defend Japan, but not vice versa, to a more symmetric one. The essential point is that Japanese and U.S. security should continue to be planned on the basis of interdependence.

Our approach to arms agreements with the Soviets has proceeded on a track independent of, and increasingly divergent with, our defense strategy. These need to be integrated. We need a clearer long-term strategy relating the purposes of our nuclear and non-nuclear forces to guide our arms-negotiating policy. Especially, we must prevent nuclear arms negotiations from worsening instabilities resulting from the imbalance in conventional arms. We should shift the focus of arms negotiations towards reducing the Soviet invasion threat to countries on its periphery. This means emphasizing asymmetric reductions in conventional forces to reduce Western inferiority, while avoiding agreements designed to limit nuclear arms but that would effectively impede Western efforts to redress the non-nuclear balance. In particular, we need to assure that our conventionally armed cruise missiles, especially sea-based ones, are not constrained by nuclear arms agreements. This is a principal Soviet aim and we should resolutely deny it. We should also recognize that, in the long-term, very deep cuts in Soviet and U.S. nuclear forces would increase the need for

active defense systems, not only against aircraft but also against missiles, to ensure against cheating and to protect against third countries or accidents. And, to create an option for deploying effective defenses, we need to avoid constraints on testing antiballistic missile (ABM) systems.

The potential for applying advanced technology to the defense of all of these regions on the Soviet periphery is very great. Advances in the technologies of information (surveillance, target acquisition, accurate weapons), long-range power projection, and low-observable vehicles offers great promise in being able to block invading forces. Of particular promise is the use of accurate standoff missiles launched from the sea, from mobile ground launchers, and from tactical aircraft and long-range bombers.

Our reliance on these weapons will place an increasing premium on having highly effective wartime command, control, and intelligence capabilities. To achieve this, we must now give high priority to assuring the wartime viability of space systems supporting our command and control functions. This implies having both the ability to destroy Soviet satellites (in part to deter Soviet attack on our own) and the ability to replace destroyed satellites rapidly from mobile launchers. The Defense Advanced Research Projects Agency's (DARPA) LIGHTSAT program promises to be a crucial component in creating viable wartime space capacity.

To realize the full potential of weapons employing advanced technology, we will need them in larger quantities than currently planned. This means that we will have to reduce their cost greatly. With design for lower cost manufacture and use of modular components, the cost of a substantial inventory of smart weapons--perhaps tens of thousands--would still be less than the cost of a single major weapons system. Achieving this full potential will entail substantial changes in the Department of Defense's (DoD) development and procurement practices and would require continuing high-level attention to overcome bureaucratic obstacles.

Advanced non-nuclear weapons will bring to future non-nuclear combat some of the aspects currently associated with nuclear war. Specifically, they will increase the vulnerability of critical theater targets, deep as well as shallow, and so raise the possibility of decisive strikes at the outset of non-nuclear combat. Critical NATO targets face especially severe threats, given the very short reaction times available in the event of coordinated attacks by Soviet conventionally armed ballistic missiles and air-breathing vehicles of varying range. (The Intermediate-Range Nuclear Forces [INF] Treaty eliminates elements of this threat but is far from removing the danger.) A combination of passive defenses and active defenses, including anti-tactical ballistic missile defenses, will be needed for protection against this threat.

In a war in which U.S. and Soviet forces were engaged in combat, both sides would have strong incentives to pursue their objectives without the use of nuclear weapons. Nevertheless, any major war involving the forces of nuclear powers would be fought under the shadow of their possible use.

And, if they were to be used--to try to avoid impending defeat or to decide the war's outcome--the incentives would be strong to direct such use discriminately against military targets, while deterring a massive and indiscriminate response by the enemy.

Technically, advances in sensors, precision guidance, and warheads make possible the selective use of nuclear weapons with great military effect and small collateral civilian damage. Soviet early use of a comparatively small number of nuclear weapons on airfields, command centers, and nuclear storage sites in Europe, or other regions might preclude an effective NATO resistance to a predominantly non-nuclear Soviet invasion. NATO must assure that its future posture for non-nuclear as well as nuclear combat does not present such destabilizing opportunities for selective Soviet first use of nuclear weapons. NATO must retain the ability to respond not only to a massive and indiscriminate Soviet nuclear attack--however implausible; it is essential that NATO also have the ability to employ these weapons selectively to support theater operations by attacking key military targets, including military forces inside the Soviet Union. Both advances in technology and the INF Treaty will increase the importance of forces based externally to the theater in providing nuclear strike capabilities to support theater operations. Changes in the nuclear postures of both sides will continue to pose both threats and opportunities affecting incentives for preemptive attack and therefore for stability in a crisis and for the mix of forces that we have. Increasingly, the nuclear forces of both sides are becoming better protected against sudden attack, largely through increased mobility. To the extent that this occurs, the incentive to launch weapons rapidly (e.g., on warning or under attack) will diminish. For one thing, this trend promises to reduce the pressures for making vital decisions about nuclear response within a very short period of time; for another, it should cause us to raise the relative priority that we give to stopping invading Soviet armies as a goal for the employment of nuclear forces.

Research and development (R&D) on ballistic missile defenses should be directed at evolutionary deployment; neither an endless research program nor one that delays deployment until extremely high effectiveness is reached will be worth its cost. The debate over the Strategic Defense Initiative (SDI) has focused excessively on the merits and feasibility of defending against a Soviet attack that devotes massive forces to urban targets in disregard of the disastrous consequences to the Soviet Union. Concentration on an implausible Soviet attack has led to neglect of potential contributions in more plausible attacks by active defenses of far more modest capabilities, technical difficulty, and cost than an essentially leakproof "Astrodome" defense. An initial deployment objective should have the goal of protecting against small attacks including unauthorized or non-Soviet ballistic missile launches, low-warning precursor attacks, or selective attacks on critical military facilities in the United States to preclude effective support of military operations in an overseas theater of combat. Depending on the progress of R&D and the future strategic situation, the initial active defense goals should be expanded by subsequent deployments.

Our long-term strategy for the allocation of our defense resources should have an explicit time dimension. While Gorbachev's policies have not changed the relevant military balances, they have made war seem less likely and therefore have heightened pressures for smaller Western defense budgets. Unreciprocated reductions by the West would inevitably increase the risks associated with unexpected crises or unpredictable changes in Soviet behavior. However, if the Soviet Union reduces its forces, the West will be safer. Even then, we would still need to prepare to respond if, after a breathing space to repair their economy, the Soviets became more threatening later. This means we should give priority to measures that would enable us to increase our strength in the mid or late 1990s and beyond. In assessing this aspect of our strategy, we should be mindful that the U.S. commitment to mutual defense, and allied confidence in it, would probably be the most difficult element to rebuild if we were seen as now making a strategic withdrawal.

With stable or declining budgets (whether justified by Soviet reductions or not), our future combat potential will depend largely on improving existing major weapons platforms by introducing better sensors and munitions and by continuing to improve our command, control, communications, and intelligence (C3I). These areas should receive the highest priority in resource allocation. We should also protect our technology base and exploratory R&D programs, a small part of our total spending and the seed corn for our ability to respond in the distant future.

With stable or declining budgets, these priorities imply smaller forces, fewer purchases of major weapons platforms, and lower readiness and sustainability. We should, however, be in a position to expand our ready forces over a period of about 1 year by keeping the necessary personnel cadres and warm production bases. Procurement of major weapons platforms will have to be restricted to those that offer major improvements, such as low-observability. Meeting supply objectives for extended, large-scale wars, most obviously a general engagement between NATO and the Warsaw Pact, will have to be deferred.

Force structure cuts would also require at least proportionate cuts in our forward-deployed forces to avoid major personnel and training problems. Such cuts would make it even more important to carry out only the most important functions with forces stationed abroad. And, of course, any cuts in forward-deployed forces should be preceded by thorough consultation with allies.

Finally, to return to the question of future Soviet behavior, although it now seems unlikely, the possibility cannot be excluded of a fundamental and sustained reduction in the Soviet military threat to its neighbors and others. This possibility--without illusions as to the prospects--needs to be encouraged; if it occurs, it will have profound implications for Western security. These possibilities are not explored in depth in this report. However, in contemplating them it is important to keep in mind that an important contributor to the changes that are occurring in Soviet policy, possibly reversible changes, is the sustained Western effort to contain Soviet power.

INTRODUCTION

This report addresses the U.S. strategy for defending our interests in the security of countries on the periphery of the Soviet Union. Since World War II, the protection of those U.S. interests have been the primary motivation for this country's national security policies, the major source of the adversarial relation between the United States and the Soviet Union, and a primary determinant of our military posture.

Yet much of the U.S. discussion on strategy and on possible conflict with the Soviet Union has had a strongly bipolar focus. That is, there is a tendency to assume that in a war with the Soviet Union the United States would be engaged only with the Soviet Union and vice versa; or at least, implicitly, that the role of other countries would be relatively unimportant. This bipolar paradigm fits few contingencies and not the ones arguably most likely to occur. More likely, these are conflicts on the periphery of the Soviet Union, or ones in the Third World into which the Soviet Union and the United States could get drawn. In such cases, regional factors would necessarily be prominent and probably predominant, and most of the military forces engaged are likely to be ones from the area in contention.

The fact that a very high proportion of the crisis and war contingencies that might occur with the Soviet Union would involve alliances on at least one side, and perhaps both, has been taken too little into account in our analyses and planning. Whenever there is an alliance, there is bound to be a question as to the extent of the overlap in interests among its members and about their behavior in a crisis or war. It has been awkward to discuss this subject regarding NATO because such a discussion seems to cast doubt on Article Five of the NATO Treaty, which says that "an attack on one is an attack on all." (Of course, when France withdrew from NATO's military institutions in the 1960s, the question of France's behavior in a war in Europe became unavoidable.) The price of not attending adequately to this subject is that it causes us to neglect a central feature of Soviet strategy: the aim of fragmenting any opposing coalition of nations and inducing as many members as possible to opt for neutrality.

The Soviet Union also participates in several alliances, most notably the Warsaw Pact; it also has security ties with North Korea and a number of Third World countries. The issue of alliance cohesion is at least as important for the Soviet alliance systems as it is for Western ones.

A more immediate problem of U.S. strategy is the temptation--to which many commentators have yielded--to conclude that the evident economic crisis of the Soviet Union, the beginnings of its withdrawal from Afghanistan, and the signing of the Intermediate-Range Nuclear Forces Treaty herald a fundamental and enduring shift in Soviet foreign and defense policy. This might happen. But, so far, there is no evidence of a reduction in the Soviet Union's military power; moreover, the power that

Source: <http://www.albertwohlstetter.com>

it has amassed would, in any case, not quickly erode and a possible reversal of any near-term reduction in forces might occur, as happened in the early 1960s following Khrushchev's military cuts in the late 1950s. While we should not miss any opportunity to reduce the likelihood of war and to lower the level of armaments, prudence calls for the West keeping its guard up.

Advocates of U.S. retrenchment and withdrawal also point out that the economic power of U.S. allies has grown relative to that of the United States since the period of U.S. supremacy in the aftermath of World War II, allowing U.S. allies to bear a larger share of the joint burden of defense. These advocates couple this with assertions that limitations in U.S. resources, supposedly reflected in the U.S. budget and trade deficits, make it necessary for the United States to reduce our military spending and overseas commitments. Yet the reasons that made it necessary in the past to commit resources and forces to support mutual security arrangements persist. None of our allies is strong enough to resist Soviet military pressure alone; regional political coherence has not become strong enough to substitute for a U.S. commitment; and most of our allies are non-nuclear powers that must continue to rely on a U.S. nuclear guarantee. The United States, for its part, requires the cooperation of the allies to achieve its own security objectives effectively. Changes in the capabilities of the United States and our allies may offer opportunities for adjustments in respective contributions to the needed defense posture but containment of Soviet military pressure on its neighbors should remain a major objective of U.S. strategy and a primary determinant of the U.S. military posture, including forces and overseas deployments.

Finally, one portion of the Commission on Integrated Long-Term Strategy's report, Discriminate Deterrence, evoked a critical response from some distinguished Europeans.¹ Their most important criticism dealt with the report's discussion on nuclear weapons doctrine in Europe which was interpreted as recommending that any such use be limited to Europe, i.e., that the Soviet Union be spared. This interpretation of the report was rebutted by several Commission members who said that it was a misunderstanding.² The members reinforced the report's position that discriminate force be used against military forces in the Soviet Union in response to an attack against Europe as well as against an attack on the United States.

This report lays out in greater detail than did Discriminate Deterrence some possible consequences or changing military postures and technology on nuclear doctrine. Like the Commission work itself, it lends no support to the idea of a nuclear war limited to Europe. In fact, it goes beyond that to raise the possibility that a future non-nuclear conflict might extend to the homelands of the U.S. and the Soviet Union.

1 Article in the International Herald Tribune, January 4, 1988 by Michael Howard, Karl Kaiser, and Francois de Rose.

2 Article in the International Herald Tribune, February 24, 1988 by Zbigniew Brzezinski, Henry Kissinger, Fred Iklé and Albert Wohlstetter.

I. INTERESTS, THREATS, AND CONTINGENCIES

The United States has strong interests in nations on the periphery of the Soviet Union. We take as axiomatic our interest in democratic freedoms, especially those of Western Europe, Japan, and the Republic of Korea whose growing economic strength is paralleled by growing political diversity.

Our interest in Southwest Asia centers on the region's oil, the world's largest low-cost energy resource. The United States is not significantly less vulnerable than Europe and Japan to disruptions of oil supply, as several oil supply disruptions have demonstrated. Moreover, oil aside, any movement of Soviet power to the Persian Gulf would have major political repercussions in the Middle East, South Asia, Africa, Europe, and beyond.

Our interest in China is more complex. We welcome the move of China towards a market economy, a move that promotes individual liberties; this shift will increase Chinese economic strength and, therefore, its potential military strength over the next several decades (as discussed in the report of the Future Security Environment Working Group). In any case, differences in our political systems remain fundamental, and our core strategic interests in China lie in its not threatening our friends and in its continuing to be a counterweight to Soviet power.

All the countries in these regions are exposed directly to the military power of the Soviet Union to differing degrees. The differences stem from geography, logistics, local defense efforts, the presence or absence of U.S. forces, and the existence or absence of alliance ties. In general, those countries on the periphery of the Soviet Union that have a U.S. military presence (Japan, South Korea, Central Europe) are less at risk to conventional attack than those that do not; those, such as Norway, that border on the Soviet Union and have no American presence, but are members of NATO, are more exposed; and the region that has neither, the Persian Gulf area, is the most exposed. Although the Working Group did not examine the situation of China in detail, it appears that the Soviet Union has the capacity to occupy portions of Northern China.

Even those regions that are relatively less exposed to Soviet power, such as central Europe, are by no means secure in an absolute sense. Soviet forces in each region are generally stronger than those that they face. It has centrally positioned, flexible, ready forces together with interior lines of communication that permit their rapid movement; while U.S. flexible forces that could be moved rapidly to threatened areas are of modest size. (See Figure 1.)

FIGURE 1: IN-PLACE AND RAPIDLY DEPLOYABLE NATO AND WARSAW PACT AIR AND LAND FORCES, BY REGION*



NOTES:

*Includes rapidly deployable and POMCUS forces. Includes those U.S. forces whose equipment is stored in Europe and high-readiness Soviet forces in the Baltic, Belorussian, Carpathian, Odessa, Kiev and North Caucasus military districts. Also includes separate Soviet airborne divisions. All Soviet forces in the Leningrad and Transcaucasus military districts and NSWP mobilization bases are considered in place. Excludes artillery divisions. France and Spain are not part of the NATO integrated military command structure and are not included. NATO forces on the Southern Flank include forces based in Italy.

**Includes air power from 3 U.S. aircraft carriers.

[†]Includes air power from 1 U.S. aircraft carrier.

As of September 1986

However, the existence of even large force imbalances does not imply a high probability of Soviet attack. Soviet leaders might expect a Western response leading to an unwanted larger war, and they might perceive weaknesses or risks inside their system that would make such actions appear reckless. Also, any war poses risks. Moreover, they perceive political benefits from having a preponderance of power without using it. But the Soviets have invested enormous resources in creating this military preponderance and under some circumstances it might be used.

The Soviets also enjoy advantages in theater nuclear forces. They have a local monopoly of nuclear weapons in the Nordic area and in Southwest Asia. After the implementation of the INF Treaty they will have more short-range, land-based mobile missiles in Central Europe, a less concentrated--and therefore less vulnerable--infrastructure, and a more robust command and control structure. However, these Soviet local advantages are partly offset by U.S. dual-capable, sea-based, nuclear-armed cruise missiles and aircraft nearby and by longer range U.S. nuclear systems.

The balance in long-range nuclear forces is roughly equal. The United States has the disadvantage of a less robust command, control, and communications (C3) system and lacks a land-based Intercontinental Ballistic Missile (ICBM) system able to survive attack; the Soviets have more vulnerable SSBNs and are inferior in long-range bombers. Each side has the prospect of large nuclear forces surviving an initial nuclear attack by its adversary.

The balance in the military use of space in a war, including a conventional war on the Soviet periphery, favors the Soviets. The combined effect of great U.S. dependence on comparatively few satellites, the vulnerability of many of these to direct attack or electronic interference, and the superior Soviet satellite replacement capacity in a war puts us at a substantial disadvantage.

The Soviets also have an advantage in chemical warfare. They have invested more in both offensive and defensive capabilities and have strong operational capabilities. Soviet use of chemicals against key, selected facilities such as air bases, command centers, and Prepositioning of Material Configured to Unit Sets (POMCUS) sites could have a powerful effect. It is by no means clear that a treaty barring chemicals would solve this imbalance; it might worsen it given the virtual impossibility of verification.

This is the current situation. Looking ahead, much will change, as described in the report of the Future Security Environment Working Group. One evident trend is the growing economic strength of the East Asian countries and, hence, in their military potential. Another is the economic stagnation of the Soviet economy; its poor economic performance hurts the Soviet ability to compete militarily. But short of major geopolitical shifts, such as a decision by Japan to become a great military power, success in China's modernization program and a parallel increase in its military power, the fading or dissolution of the NATO alliance, a

sustained and large shift of Soviet resources and attention to internal concerns, or the breakup of the Soviet empire, this general pattern of vulnerability and strengths seems likely to endure for the next decade or longer.

A. THE SOVIET OUTLOOK

The overall Soviet strategy has been to use its increased military power to negate that of the United States and to employ it as a coercive factor in diplomacy vis-à-vis its neighbors in order to preserve and extend the Soviet empire, but to use Soviet forces directly and on a large scale only where the likelihood of a wider war is small--as in Afghanistan. Despite setbacks and the high costs incurred, the leadership has seen this strategy as a highly successful one.

Although the Soviets value highly the advances they have made, several of the resulting balances--and the general outlook--may now appear problematical to their leadership. Most troublesome is the sorry state of the economy both in relation to the large share of resources taken by the security sector and in relation to future technological challenges. The security sector (including the direct costs of the military, military-related costs imposed on the rest of the economy, and the costs of the overseas empire) absorbs 25 percent or more of Soviet Gross National Product (GNP). This is an extraordinarily high share of a nation's resources to devote to national power aims, a share much higher than that allocated by its neighbors or by the United States. (The United States spends, on a comparable accounting basis, 6.5 percent of GNP.) As for the technological challenge, the Soviet lag in many high technology sectors, especially those related to computers and electronics generally, that are seen by the Soviets as endangering both future military strength and industrial capacity. The primacy accorded power by the Soviet system is in considerable tension with the sickness of its economy and the large share of economic output directed to military power. How this tension will be resolved is unknowable but, at the very least, it is evident that the Soviet Union is not in a strong, long-term competitive position with the West.

The military potential the Soviets have bought with their extraordinary investment of resources is substantial. Very importantly, the large size of the Soviet forces enables them to move in one theater while not substantially weakening their posture in others. Nonetheless, we take it to be a central tenet of Soviet doctrine to try to limit conflict to a single theater; i.e., to avoid a multiple-front war. This is principally because the Soviet situation is less favorable in simultaneous contingencies, those involving more than one region, and because controlling escalation--a major aim--would be helped with a more focused campaign. In a war on more than one front, central, flexible forces could not be concentrated everywhere at the same time, and more adversaries would be engaged. But the Soviets have the capacity to threaten attack in one region to divert or hold in place U.S. forces while actually attacking in another. Of course, a preference for limiting operations to one theater does not

rule out the possibility that they might carry out an attack of wider scope--even a large-scale nuclear strike on the United States.

In any major military operation, one likely Soviet worry is their ability to confine conflict to a particular theater in which they have superiority. In an attack on Europe, the tactic of short, Warsaw Pact final preparations using only ready forces--one that would minimize warning to NATO--requires high coordination by the Pact; it is vulnerable to deviant behavior by the East Europeans, who, if they drag their feet or perform badly, would slow progress and might cause the overall campaign to fail catastrophically. Soviet leaders probably also fear the consequences on the cohesion, of not only the Warsaw Pact, but also the Soviet Union itself in a protracted war. Perhaps the Soviet assessment of their weapons and troops also falls below the ratings we give them (though their doctrine gives clear evidence that they plan to exploit their geostrategic advantages relative to the loose coalition of Western nations they face--advantages which are ignored by recent Western attempts to downplay Soviet conventional strength).³ Moreover, the prospect of an opportunistic move by China against the Soviet Far East during a war with the West may weigh heavily in Moscow.

The Soviet military establishment, which has always possessed very large general purpose forces, holds that conventional warfare is much more likely to occur than nuclear--possibly on a large scale. But although the Soviets attach high importance to avoiding a nuclear war, they have made far more extensive preparations for it than has the West. It is important to recognize that Soviet doctrine has refused to accept mutual destruction as "assured"; it apparently includes the possibility of selected, punctuated use of nuclear weapons during a campaign that is predominantly non-nuclear as well as the possibility of large nuclear strikes. The Soviets' extensive defensive preparations have evidenced a goal of surviving a nuclear war, although they have not seemed optimistic about the prospect.⁴

Whether to continue to pursue their past strategy is a crucial decision facing the Soviet leadership--with major implications for the West. The leadership in Moscow is promoting a new period of detente and is talking about a new policy of "Sufficient Defense." The worsened

³ This topic is discussed more fully in section III.D.

⁴ Contrary to the view widely held in the West that the Soviet Union leadership has long believed that mutual assured destruction would occur in any nuclear war, V.V. Zagladin, Deputy Head of the International Department of the Central Committee, is quoted recently as saying: "While we rejected nuclear war and struggled to prevent it, we nevertheless based our policy on the possibility of winning one." Los Angeles Times, June 26, 1988. The current Soviet position is that such a war is unwinnable, but this declaration is, as yet, unsupported by changes in the Soviet military posture.

condition of the Soviet economy and society now suggests the need for a breathing spell, a period in which foreign military competition is reduced and access to Western technology is improved. But how long might this last? The 1970s' detente broke down because the Soviets persisted in a military buildup and in extending the bounds of the empire. So far, no fundamental changes in Soviet posture and strategy have emerged. Americans, and those who live on the Soviet periphery, must take seriously the possibility that a Soviet attack might occur at some point, especially if political divisions in the West look exploitable and if the alternative course of not acting appears worse to Soviet leaders. (It should be noted that the Soviets moved sequentially and selectively in 1939-40 against Poland--together with Germany--then Finland, and then the Baltic states.)

B. SINGLE THEATER VS. MULTIPLE THEATER CONFLICTS

Because the Persian Gulf area has high value and is most exposed, a move there appears to have the highest probability of any on the Soviet periphery. In any such move, the Soviets would seek to exploit internal and domestic diversions in the regions and to have as plausible a political cover for intervention as could be arranged. Although we think it would be prudent for them to avoid NATO territory, the Soviets might see it differently and include eastern Turkey in the attack, especially if they believed such a move would not spread to central Europe.

A Soviet move limited to the northern Nordic area might be aimed at improving the Soviet strategic position in a period of seriously deteriorating international relations. An attack limited only to the southern flank of NATO appears less promising given the likely reluctance of its Warsaw Pact allies to participate on the one hand and probable strong Turkish resistance on the other--despite the poorly equipped state of Turkish forces.

Any attack on South Korea would almost certainly be by North Korea but it might be supported by the Soviet Union (as in 1950). North Korean forces are large, and an attack could be mounted with little warning. Such an attack might be most likely to occur at a time when U.S. forces were occupied with a crisis in some other region of the world.

The central region has the key European countries--but it also has strong defenses. The Soviets would have to rely heavily on the East Europeans--allies of doubtful reliability--if they were to attack with little reinforcement. The alternative, an attack preceded by a large buildup, would permit (but not guarantee) parallel increases on the NATO side, which would render the outcome of an attack even more uncertain.

Least promising is a conventional attack on Japan, given the modest Soviet amphibious capacity available and the strength of U.S. and Japanese forces in the region.

C. IS THERE A NEW SOVIET "DEFENSIVE" DOCTRINE?

In recent months, Soviet leaders have announced adoption of military concepts that are long familiar in Western debates about strategy. These include the criterion of "reasonable sufficiency" in determining the size of military forces and the adoption of a "defensive" military doctrine. There have also been articles appearing recently in Soviet military journals arguing the need to reassess the balance between offensive and defensive forces in military operations. The Soviet military establishment appears to be changing its forces and training to address the role of defensive operations.

Three main explanations have been advanced for these developments. One is that they strengthen Gorbachev's position for restraining Soviet military spending. Some defense components may now be experiencing cuts (e.g., the operating tempo of naval forces has been reduced), while others are clearly being expanded (e.g., military use of space). Perhaps greater effort on advanced technology weapons will occur, in part, at the expense of the ground forces structure. But there is no good reason, so far, to believe that total military spending is being cut.

A second, and related, aim is promoting detente with the West. A contribution to this aim is to reduce the perception--and perhaps the reality--of the Soviet military threat to the West. The detente position is designed in part to persuade the relevant elites in the West that the Soviet threat is exaggerated and induce them to cut back on defense. Some of these people have been advocating that NATO should adopt a strategy of "defensive defense." (By this they mean having forces only for short-range, tactical defensive operations, e.g., antitank weapons but not long-range, precise, conventional weapons.) This new Soviet line reinforces their beliefs.

A third explanation is that Soviet experts, like those in the West, are wrestling with the doctrinal implications of advanced-technology conventional weapons. It is plausible to conclude that changes in battlefield tactics are needed. For example, forces massed for breakthrough attempts would be dangerously vulnerable to precision strikes. Such a development is not obviously inconsistent with continuing to adhere to the strategic offense, but new tactics are needed. It is worth noting that changes in Soviet battlefield doctrine, which give greater weight to defensive activities, antedate Gorbachev by several years.

In short, the second and third explanations, inducing Western relaxation and responding to technological changes, seem sufficient to account for these shifts. It is too early to judge if the first one, Gorbachev's intention to hold down or cut military spending, will also emerge.

A recent interview with Colonel General Karpov presents a relevant Soviet view.⁵

Interviewer: "Has the Soviet Union abandoned its doctrine of forward defenses on its opponents territory?"

Karpov: "We have declared that we will never be the first to go to war or to use nuclear arms. The exercises in which the Soviet Army is now engaged are devoted first and foremost, to defense. However, a certain offensive element is always present."

⁵ Foreign Broadcast Information Service (FBIS) report from the Oslo Aftenposten of 13 April 1988.

II. U.S. OBJECTIVES AND BROAD STRATEGY

A. PROBLEMS WITH OUR STRATEGY

A central objective of U.S. strategy since the early 1950s has been containing Soviet power around its periphery. We have done this through alliances and through the direct defense of threatened regions plus the threat of engaging in a wider war at the conventional or nuclear level. American forces are stationed in some regions; we plan on sending them to others if the situation warrants.

The United States has emphasized those types of military power in which it has a comparative advantage: intelligence; surveillance and other information-intensive activities; projecting power at a distance through air, missile, and naval operations; and the provision of nuclear forces. We provide only a small share of the ground forces in the theaters in which we have a military presence, and our forces are there for political effect as well as for direct defense because American presence up front is a strong commitment. This strategy has been successful; no conflict has occurred where the U.S. commitment has been unambiguous while attacks have taken place where the commitment did not exist (South Korea and Afghanistan).

On the other hand, since the 1950s, there has been an unfavorable shift in the West's ability to bring power to bear in these regions: Our political access to some critical ones, especially the Persian Gulf region, has declined. The Soviet Union has always been closer than we to these key areas, especially NATO's northern and southern flanks and the Persian Gulf, but over time it has gained access to facilities abroad and transit rights, and it has built the internal infrastructure to move forces rapidly from one region to another. Two other factors have weakened but not negated our basic strategy: One is the creation of a powerful nuclear force by the Soviet Union, which has undermined the credibility of our threat of nuclear escalation. The other is the large Soviet investment in modernizing its conventional forces, which enables it to pose a greater invasion threat to its neighbors than in the past.

On the cost side, the United States has borne a large share of the effort of providing security to these regions. This does not mean that our 6.5 percent of GNP spent on defense is an insufferable burden; it is a smaller proportion than during most of the years since 1945. But it is increasingly difficult politically to sustain the disparity between U.S. and allied defense spending. This is true in Europe, especially the central region, because of the large share of our defense resources committed to its defense. This is, or should be, less of a problem regarding our contribution to Asian security because the costs of our forces dedicated to the defense of that region are much smaller but the impressive growth of Japanese economic power, together with its small share of GNP spent on defense, has created political difficulties--despite its relatively secure situation.

B. THE PROBLEM OF WESTERN COHESION

Although the combined strength of potential adversaries along the Soviet periphery, together with that of the United States, exceeds that of the Warsaw Pact in many respects, their lack of political cohesion makes them much less formidable than the simple summing of forces and economic output across countries suggests. For example, in the past, the Europeans have been reluctant to confront the question of the protection of Persian Gulf oil, although some evolution in European thinking about the Gulf is evident from the contingent of Europe in naval vessels now there. But it is still unclear that any European state would cooperate promptly and effectively with U.S. efforts to defend the Gulf region in the face of a Soviet attack. Under some circumstances, the Soviets might doubt a general European response to a Soviet attack on any subregion of NATO, especially one directed only against the northern and southern flank. Japan is unlikely to play a direct role in any conflict not involving a direct attack on Japan, and there would likely be strict limits on the use of Japanese territory by the United States in a conflict outside of North-east Asia. (There are also powerful political constraints in both Japan and the United States that would limit cooperation with China in a crisis or war.)

From the Soviet Union's perspective, a preferred circumstance for a military move against countries on its periphery, perhaps a condition, would be internal divisions within any opposing coalition and within target countries. It would try to segment and narrow the theater of operations; inhibit response by creating ambiguity over the motives for an attack and masking the preparations for it, thus shortening usable warning to the point where defenders react with too little, too late; perhaps try to pin down opposing forces elsewhere (especially in the center of Europe) by posing a heightened threat of attack in those other places; and attack decisively to end resistance quickly. The Soviet interest in limiting risks to it by focusing on one region would lead them to maximize strain on the NATO principle that an attack on one is an attack on all.

The problem of Western cohesion bears on the credibility of a Western strategy to deter Soviet attack on a single region through the threat of a wider response. The West needs to be able to do two things: one is to be able to mount a strong defense in the region attacked, for this will have the greatest credibility as a deterrent; but it is also important to have visible options for wider responses. We cannot afford to plan to limit our response to a place and to rules of combat selected by the Soviets.

C. THE ROLE OF NUCLEAR WEAPONS

The United States and its allies have not, in general, built capacities to stop a Soviet invasion at the level of conventional warfare (with the arguable exceptions of Korea and Japan, which benefit from narrow invasion channels and a sea barrier, respectively). Instead, we have continued to rely on the threatened use of nuclear weapons to deter attack, although long ago we recognized that growing Soviet nuclear

strength undermined the efficacy of this strategy. The Europeans have never accepted the need for a posture that does not rely on the first use of nuclear weapons; now, with the beginning of major nuclear arms reductions in Europe, they are more painfully conscious of their exposure to conventional attack. But the prospect is not promising that they will redress the conventional balance.

Not only has the United States continued to rely heavily on the threat of nuclear escalation during a period in which Soviet nuclear strength has burgeoned, but Western leaders have continued to assert that any use of nuclear weapons would inevitably lead to widespread and indiscriminate destruction of the United States and our allies, as well as our adversaries. Such a position has contributed to the weakening of public support of nuclear deterrence in the United States and Western Europe. They are the explicit premise of our approach to nuclear arms control, and they are not a valid basis for the support of an alliance over the long term.

It is a less familiar idea that the Soviets might use these weapons first for specific military and political purposes in a conflict across their borders. They have invested huge sums in nuclear offensive and defensive capabilities--much more than the U.S. has--almost all of which is pertinent to wars on the Soviet periphery. Although they apparently have a strong preference for achieving their aims without the use of nuclear weapons--or, better, without getting into any war--their posture and doctrine clearly include an important role for nuclear weapons. Moreover, the removal of medium and shorter range missiles from Europe will not diminish appreciably the Soviet Union's ability to deliver nuclear weapons on Western Europe or elsewhere. It will have over 10,000 nuclear weapons deliverable quickly at ranges of hundreds to thousands of kilometers by missiles or nearby aircraft, cruise missiles, sea-launched ballistic missiles, and ICBMs.

Small numbers of nuclear weapons dropped on key facilities in Western Europe, the Persian Gulf, or elsewhere would have a crippling effect on the defender's ability to resist further non-nuclear attacks; a selective nuclear attack would leave the defenders' societies intact, giving them a strong incentive to avoid a nuclear Armageddon. We would certainly have every reason to respond in a way that averted massive nuclear attack on the United States. So our need to be able to use nuclear weapons selectively is inescapable, if for no other reason than the Soviet capability for selective attack requires it of us as a credible response.

We have, rightly, long taken pains to assure the survival of our long-range nuclear forces in the face of a sudden Soviet nuclear attack. Although a principal component of these forces, our silo-based ICBMs, has become vulnerable, such an attack would not be able to destroy our submarine-based missiles at sea and alert bombers. Also, improvements to our National Command Authority and other high-level controls have reduced the likelihood of a successful attack on these functions. More generally, the decisiveness of initial strikes on the major nuclear forces of either side seems likely to continue to diminish. And each side has a powerful

incentive to avoid attack on centers of populations given the certain capacity of the other to retaliate in kind.

These trends and incentives underscore the changing character of nuclear operations in our contingency plans against Soviet invading forces; they do not support the view that such nuclear operations would be fought only with forces based within a theater of operations while the homelands of the United States and the Soviet Union would be spared. On the contrary, the INF Treaty has crystallized for the West the effects of long-term changes in the character of nuclear forces; forces based externally to theaters of operations will assume increasing importance in providing nuclear support to impede Soviet invasion by attacking key targets in the theater or in the Soviet Union.

D. THE NEED TO INTEGRATE ARMS CONTROL INTO DEFENSE STRATEGY

The INF Treaty has highlighted a conflict between our arms control approach and our overall defense strategy, a conflict that emerges even more strongly in the Strategic Arms Reduction Talks (START) process. The core problem is that it is not practical to verify the presence of nuclear weapons in a wide class of delivery vehicles: cruise missiles, reconnaissance and target drones, and remotely piloted vehicles. Efforts to deal with this fact caused us to agree to prohibit conventionally armed, ground-launched cruise missiles of ranges over 500 km, despite their potential importance to the defense of threatened areas. It also leaves an asymmetric situation; the United States will conform to the agreement (with scrupulous monitoring by the Congress and press), but we will not have confidence about Soviet compliance.

In START, the even more serious problem of preserving a sea-launched conventionally armed cruise missile capability has risen. This capability is critical for the defense of many regions, and the Soviets attach great importance to restricting it. Clearly, an important Soviet aim is to limit our ability to mount an effective conventional defense with advanced, standoff weapons, while it is very much to our interest to have that capability. Again, there is no practical way of verifying compliance.

Excessive preoccupation with verification can also lead us to lose sight of the ostensible objectives of agreements on nuclear forces. Thus, proposals to ban or severely restrict mobile ICBMs, while offering some tactical negotiating advantages and seeming to help verification, ignore both the crucial role of location uncertainty in avoiding future ICBM vulnerability and many other equally important problems in constraining the United States and the Soviet Union equally.

These examples underscore the importance of bringing our arms control approach into conformity with central elements of our defense strategy.

E. A U.S. STRATEGIC APPROACH

Above all, we must see to the security of American society. For 40 years, we have seen the best way to achieve this is by preventing the expansion of Soviet power abroad rather than by spending vast sums only on direct homeland defense. This still promises to be the best overall method (as discussed in the report of the Commission on Integrated Long-Term Strategy, Discriminate Deterrence), but there appear to be prospects for a useful change in the mix of our offensive and defensive forces.

The nature and extent of these changes depends on the evolution of technology, on the strategic choices made by adversaries and allies, and on resources made available by the Congress for defense. Although there are uncertainties about all of these factors, the Working Group believes that with plausible assumptions concerning them, the United States can continue to play a crucial role in convincing Soviet leaders that any military move against a region worth defending would be defeated both locally and in a wider arena of conflict.

The weapons we need for these purposes of deterrence and defense need to be usable; if their use appears suicidal, they will not enjoy popular support, will not be used, and might not deter. Therefore, U.S. leaders have a strong preference for operations, if any are required, at the non-nuclear level. And if nuclear weapons are used, this use needs to be selective in its effects and directed at specific political and military objectives.

Intervention to roll back Soviet forces from the position established after World War II in the empire contiguous to the Soviet Union has not been a U.S. objective, and it is assumed that it will not be in the future. This is--or should be--evident to everyone. But political stresses within the Soviet empire--including within the Soviet Union itself--are great, and these internal stresses might stimulate aggression, as has been argued regarding the Soviet Union's decision to invade Afghanistan. (In Europe, they might be an inhibiting factor, as Soviet dependence on East European forces could well be).

The U.S. strategic interest regarding the geographical scope of any conflict would be much different from the Soviet interest. In general, the United States should reject fighting a war in a place and at a time of the Soviets' choosing; we would want not only to defend locally, but also to bring in more allies and to engage in wider naval and deep conventional air operations.

Change in our overall level of forces deployed abroad, and among regions, need also be considered. Continued tight budgets will face us with a choice, among others, between maintaining our current force structure and overseas deployment versus continued force modernization. Given the rapidity of technological change that is taking place it would be foolish in the extreme for us to scant modernization; thus, reductions in forces and deployments may be in store. But the effectiveness of our forces should continue to increase.

As for changing the allocation of our forces among regions, the largest proportion of our defense resources is dedicated to the defense of the central region of Europe, the area on the periphery of Europe best able to contribute to its own defense. This region will continue to be one of high priority but, as argued in the following paragraphs, the form of our commitment there might be changed. The relative security position of Northeast Asia is also relatively favorable--with an important caveat concerning North Korea--but, as will be discussed later, overarching needs of deterring Soviet moves in general, regional stability, and the relatively low cost of the protection we provide in this region argues for sustaining something like our present posture in the Western Pacific.

Turkey and Norway, each contiguous to Soviet territory, are directly exposed to Soviet power, but they benefit from membership in NATO. A U.S. policy for the defense of our interests should recognize more clearly than it has the high direct exposure of these countries to Soviet power relative to those countries in the NATO central region.

Most vulnerable is the Persian Gulf region. The main causes of the imbalance are: (1) the political instabilities in the region which, put in question the likelihood of a strong and timely defense if the Soviet Union were to move militarily; (2) the lack of interest by our European and Japanese allies in defending the area (seen as "out of area" by NATO); (3) the unwillingness of the Arab governments to have a U.S. military presence on their territory; and (4) the long distances for our forces to travel and uncertain access to bases our forces need to reach the area and operate in it. We need to keep working at increasing our capacity to apply power there and encourage our allies also to do so.

At a broader doctrinal level, the United States has evolved a doctrine and posture that is entirely offensively oriented for nuclear contingencies and, on the whole, defensively oriented for conventional ones. (The current U.S. maritime strategy is one exception to this proposition.) There is a good case for shifting to a more balanced approach for both. For nuclear contingencies, this might entail missile and other defenses of high-level command and control, especially preventing a decapitation attack; shifting the long-term competition from strategic offensive forces only, to a balance of offensive and defensive ones; and seeking Soviet cooperation in reducing offensive forces while deploying defenses to reduce the potential for mass destruction.

For conventional contingencies, a shift might include a NATO doctrine that included plans for a counteroffensive in response to a massive Soviet attack, aimed at deterring a Warsaw Pact attack by encouraging defections by the East Europeans. The belief by the Soviet General Staff that the East Europeans would drag their feet or opt out of a Moscow-ordered war on NATO would be a powerful factor in preventing the ordering of such an attack. But because this concept faces opposition in Europe, especially Germany, it probably cannot be made an overt element of strategy, but the capacity by NATO to carry out a counteroffensive could contribute significantly to deterring any Soviet attack. (Only if the Soviets abandon their

current invasion threat to the West would this issue become moot.) A broad maritime counteroffensive could also be part of a response to a Soviet attack in any one region. Also, our growing potential to make precise non-nuclear attacks deep in Soviet territory against its forces and economic infrastructure perhaps falls into this category.

This report explores four broad, non-exclusive approaches:

- More intensive exploitation of the things we do best, as noted previously, especially in view of the burgeoning technological possibilities in target acquisition, smart weapons, and low-observable vehicles discussed below
- A change in the balance of resources between offense and defense
- A shift in U.S. resources among regions on the Soviet periphery and CONUS
- A shift in our arms negotiation aims to protecting our conventional defense options and towards focusing on a reduction in the Soviet invasion threat to these regions.

Proposals have been advanced for a radical change in our strategy, including: (1) a major withdrawal of forces (typically ground forces) from Europe; (2) declaration of the Persian Gulf region as unimportant to U.S. interest (or, its importance aside, one not feasible to defend); and (3) withdrawal of U.S. forces from Korea (as President Carter sought to do with U.S. ground forces) or Japan. Some of these proposals are motivated by the observation that the Europeans or the Koreans or the Japanese are economically capable of mounting a stronger conventional defense and that they will not make the necessary effort as long as the U.S. is doing it for them. Some hold that too large a proportion of U.S. resources are tied up in Europe whereas the main areas in danger are elsewhere, in the Persian Gulf or Central America. An alternative view is that Europe is the region that matters to us the most and that the Persian Gulf and/or Central America should be of low priority--or that the U.S. economy is no longer capable of supporting our current defense establishment.

There is some merit in some of these arguments: the Europeans or Japanese clearly could support much larger defense spending; there is an incentive for our allies to let the U.S. provide for their defense; conflict in the Persian Gulf does seem more likely than in Europe; and Soviet-backed forces are actually in conflict with American-backed ones in several parts of the Third World. But there is little merit in others: the U.S. interest in the oil of the Persian Gulf is not essentially different from that of our allies, and the proposition that 6.5 percent of GNP is an unsustainable burden for our economy is itself unsustainable. (It is worth noting that U.S. economic performance was strongest in the 1950s and 1960s, when the defense share of our economic output was much higher than in the 1970s and 1980s. Also, the European economies have performed no better than has ours over the past 15 years despite their markedly lower defense shares.)

Eventually our alliance relations with Europe should change. With Japan, it will be increasingly anachronistic to continue to have as asymmetrical a security relationship as we do now with the world's second largest economic power; and the major powers in the center of Europe should be expected to take on a larger share of their defense. However, most proposals for reducing the U.S. role give too little weight to the great Soviet military power throughout these regions. A major U.S. withdrawal risks political destabilization and war. Withdrawal from a formal defense strategy is not required for economic reasons, but changes are needed. These changes might entail reductions in some regions along with increases in others. Of course, reductions will be required if future defense budgets are cut.

The main approach that the Working Group advocates would exploit more intensively our relative strengths, including increasing (or in a tight budget period, sustaining) C3I functions, accurate standoff munitions, low-observable vehicles, and air defenses; perhaps deploying ballistic missile defenses of key functions in the United States and abroad; and doing more to assure access to key enroute and in-theater bases. Our operational aims would center on achieving a strong air defense posture and naval superiority, interdicting the flow of enemy forces to the front, countering enemy offensive air and naval power, and maintaining sea lines of communication to any engaged theater for reinforcement and resupply. Although U.S. ground forces would, in general, be involved, they would not be the predominant part of our planned contribution. Depending on defense budgets, these highest priority categories might be paid for by a combination of force structure cuts, a slower rate of major weapon systems modernization and a reduced ground reinforcement contribution to Central Europe from CONUS.

For those areas in which we do not have forces on the ground, the more vulnerable ones, we need a combined arms approach that would:

- Restrict the rate of movement of enemy forces to the area through land and sea-based air and missile attacks;
- Enable airborne forces and Marines to secure airfields, ports and landing zones quickly;
- Control important ocean areas and sea lines of communication for offensive operations to slow the movement of enemy forces;
- Depend on airlift to bring in leading-edge units and rapid sea lift to bring in heavy supplies;
- Provide early sea-based and land-based tactical air support.

Several factors suggest greater emphasis on air-launched, sea-launched, and ground-launched missiles: continued improvements in sensors that facilitate targeting; improvements in accuracy; improvements in enemy air defenses that makes it increasingly important for (non-stealthy)

aircraft to stay out of defended areas; and the potential for bringing down the costs of these missiles. We should plan on heavy use of smart conventional weapons at the outset of a conflict to gain air superiority and to blunt the enemy advance while reinforcements are moved forward.

The continuing trend towards a diminished role for nuclear weapons, the possibility of a lower rate of Soviet weapons modernization, and perhaps smaller U.S. defense budgets also suggests the utility of reviewing the concept of depending more on reserves and economic mobilization in a crisis. Emphasis on mobilization was abandoned in the mid 1950s when it appeared that any major war would be a nuclear one and would be over before mobilized resources could play a role. Although the dominance of a major nuclear war has receded, the possibility of a World War III similar to World War I or II still seems most unlikely. But, the future contains many possibilities, including the potential for crises and possible setbacks that could trigger a large U.S. military mobilization. There is a case for making investments now in order to shorten the time required to attain a higher level of combat capability.

III. POTENTIAL CONTINGENCIES AND U.S. OPTIONS

Three planning assumptions are widely used in the United States with regard to a Soviet attack on its periphery and the Western response.

First, there is a pervasive tendency to assume that any Soviet attack would be on several fronts, or that even if it were not, the war would somehow rapidly become global and perhaps nuclear. In particular, any Soviet attack is usually assumed to include the central region of NATO. Similarly, Soviet use of nuclear weapons is usually assumed to be massive and indiscriminate in its targeting.

A second assumption is related to the first: a Soviet attack would be preceded by visible preparations of an unambiguous character--perhaps for several weeks before an attack. Most Soviet ground force units are below full strength; therefore, several weeks would be required to call up reserve troops and train them. For example, most naval vessels are normally in port and would be dispersed. (There are some exceptions, however, to this general assumption: for example, a sudden, massive nuclear attack on U.S. long-range nuclear forces and their controls, not preceded by visible preparations or even any evident proximate cause, has long been a major planning concern because of its potentially disastrous consequences for us; the possibility of another sudden attack on South Korea has long been recognized as a serious threat; and an attack with little final Warsaw Pact preparation has received increased attention by NATO in recent years.)

Third, the United States and its allies are assumed to respond soon after Soviet attack preparations are visible to us. That is, at an early stage, we and all our allies are assumed to interpret Soviet activities, correctly, as attack preparations and to respond promptly and as a coherent entity.

In short, the common assumption is a big war or no war; therefore, no war.

These three assumptions are questionable. A major war in the center of Europe, a global war, and, even more, a major nuclear exchange with the United States, would be daunting prospects for Moscow. These contingencies are most unlikely to occur--given a substantial degree of Western military preparation.

A more plausible view--from a Soviet planning perspective--is that Soviet preparations for an attack would take a form that made prompt, unified and adequate Western response as difficult as possible. In such an approach the Soviet Union might:

- Act so as to create and exploit political divisions among its adversaries, masking in ambiguity the origins, objectives, and timing of an attack; in particular, it would try to keep the United States from becoming engaged. It would also try to induce

U.S. allies not directly involved to opt out of a conflict and to deny U.S. access to bases on their territories by offering to spare them the great destruction their involvement would bring.

- Try to segment and isolate the theater of operations, limiting risks and costs, taking on few adversaries at a time.
- Adopt well-known tactics for delaying or confounding response by reducing the usability of the resulting warning indicators to achieve a degree of surprise that might permit them to end a campaign before U.S. forces could be engaged on a large scale. These tactics include mobilizing gradually and partially in a pattern that does not fit standard models; using only ready forces from local and nearby districts; and using various forms of cover and deception (for example, engaging in repeated field maneuvers, ostensibly exercises, from one of which an attack could be launched).
- Use its military dominance in several theaters to threaten attack, pin down opposing forces, and cause U.S. reserves to be sent to the wrong theater--especially to the center of Europe if the actual move were elsewhere, for example in Southwest Asia or Korea.⁶

This view of Soviet doctrine is not to be confused with a belief that the Soviet use of force would be graduated, calibrated, or nuanced to "signal resolve." Rather, their doctrine indicates that, in the theater of operations, they would plan to use enough force to try to win quickly and decisively. Moreover, this view does not exclude Soviet use of nuclear weapons--but such use would be undertaken with consideration of the risks involved. Nor does this view rule out attack against more than one region simultaneously or in sequence; although simultaneous attack, in general, seems best avoided, in some circumstances an overriding strategic advantage might be seen in doing so.

In responding to such a Soviet non-nuclear attack focused on a particular region, the West has open to it three broad strategic possibilities:

- To conduct a non-nuclear defense within the confines of a theater selected by the Soviets;
- To resort to nuclear weapons, requiring the Soviets to accept failure or face an escalation in the level of violence;

⁶ For a discussion of means available to the Soviet Union for averting an appropriate Western response to an attack, especially one outside central Europe, see Albert Wohlstetter *et al.*, Responding to Ambiguous Signals of Soviet Imminent or Future Power Projection, Pan Heuristics, PH82-5-0369-67, May 1982, unpublished. A chapter of this study providing a conceptual framework has been published as Richard Brody, "The Limits of Warning", The Washington Quarterly, Summer 1983.

- To plan to widen the war geographically by trying to bring in more participants and by undertaking operations more favorable to us, especially at sea.

The first course might not be sufficient. It has the disadvantage that such a defense would be conducted on Soviet terms. But where the West can sustain such a defense, it is the most robust deterrent to a Soviet attack. Moreover, it is difficult to imagine a successful strategy that would not have the direct non-nuclear defense of the threatened area as a key component.

The second approach, escalating to the use of nuclear weapons, relies on the now-familiar risk--presumably small--of a highly destructive conflict to deter the Soviets from prosecuting an attack. It suffers from the fact that the Soviets have built a formidable escalatory potential themselves (chemical, theater nuclear, long-range nuclear). In consequence, an escalatory policy may not necessarily confer even a transitory military advantage on the West and reliance on it risks collapse--especially among members of an alliance--in a crisis. But the possibility of escalation will exist and may have an appreciable deterrent effect.

The third approach, to threaten a geographically wider war, is premised on the commitment that the members of an alliance regard an attack on one as an attack on all. But Southwest Asia is outside of the NATO guidelines area; Japan has no treaty commitment to the defense of Europe and vice versa; and even the response of the other Europeans to a Soviet attack limited to one member might be questioned. For instance, other Europeans would presumably send forces to defend Turkey or Norway but direct attacks by them on Soviet forces from their territories seem doubtful. However, this third, war-widening, approach includes several possibilities that are not critically dependent on participation by allies, including non-nuclear attacks on targets in the Soviet homeland and on Soviet naval forces and shipping. In the event of combat in the Persian Gulf area, for example, the Soviets would probably launch air attacks from facilities in Soviet territory against U.S. naval or other forces opposing them. It is difficult to imagine a successful defense of the area without U.S. operations against those Soviet air facilities. It is important for the Soviets to understand beforehand that this would occur were they to launch such attacks. In such an event, the United States should also exploit its capacity to deny the Soviets the use of the seas globally. Obviously, there would be many conflicting pressures regarding the adoption of a war-widening strategy, but it should be a major component of an overall approach to the defense of areas where the West is strategically inferior.

The potential deterrent value of the third approach supports its inclusion in American doctrine; its problematical character vis-a-vis allies suggests the United States should not be highly dependent on the participation in it of specific allies. Our capacity to adopt this approach therefore depends heavily on being able to operate without local basing, using naval forces or long-range aircraft. The limits on the

number of sorties available from such forces also places a premium on increasing their sortie effectiveness by means of standoff, smart weapons.

These considerations bear on possible contingencies in the five principal regions on the Soviet periphery:

- Persian Gulf region
- Southern flank of Europe
- Northern flank of Europe
- Central region of Europe
- Northeast Asia.

A. THE PERSIAN GULF REGION

The West's interest in the region's oil became evident in the course of the oil supply disruptions of the 1970s. The heavy economic losses inflicted by relatively minor and short-lived disruptions led President Carter to state that "any attempt by an outside force to gain control of the Persian Gulf region will be regarded as an assault on the vital interests of the United States of America." By the mid 1980s, market forces had greatly reduced the exposure of oil-importing countries to supply disruptions from this area. With the sharp decline in the price of oil, these market forces are once again increasing the dependence of the non-communist world on this region's oil and therefore the potential for further costly disruptions. This dependence will almost certainly grow throughout the 1990s and by 2000 might be greater than it was at the peak of our exposure in the mid 1970s. For instance, if the price of oil remains at near \$15 a barrel, by 2000, the share of the non-communist world oil coming from the Persian Gulf could exceed the 45 percent level it attained in 1973 and be more than double the 22 percent share it had fallen to by 1985.

Arguments are advanced against continuing President Carter's commitment to this region. One is that, because the United States imports less oil than do the Europeans and the Japanese, they, not we, should see to its protection. This view is based on a misunderstanding of the operations of the oil market. Although it is certainly true that the Europeans and Japanese also have a strong interest in oil security, in reality there is not a great difference among most Western countries in the damage suffered from oil supply disruptions. Japan and Germany, for instance, are not much more vulnerable than the United States because oil is a highly fungible commodity, which means that all economies are disrupted by a sharp price rise. The United States, too, is a heavy oil importer and the Western economies are closely linked; when some sink, others are dragged down.

A second reason for the importance of the region's oil is the high earnings generated by it. Oil costs only about \$1 a barrel to produce; if it sells at \$20 a barrel, \$19 are left for the owner. Production there today of around 3 billion barrels a year is yielding around \$60 billion. By the mid 1990s, if the price of oil is back to \$30 a barrel, exports are at 5 billion barrels annually, and (as appears likely) the cost of production remains near its current value, these earnings would be (as they were in the late 1970s) around \$150 billion a year.

The ability of the Soviets to disrupt the flow of oil, and to capture a sizable part of this huge cash flow would change the world balance of power. Oil supply disruptions in the 1970s and 1980s showed that Soviet Union intervention is not needed for the West to be seriously injured in this way, even though those disruptions resulted from actions taken by weak powers. Control of this source by the much more powerful and fundamentally hostile Soviet Union would be a more serious matter. It is true that future economic losses would be mitigated by several actions that have been taken. Many governments, including the United States, have increased their oil stockpiles. France and Japan, especially, have highly successful nuclear electric power programs. And even more could be done to reduce exposure to oil shocks and to the loss of Persian Gulf oil. But this oil will remain of high importance.

Another argument made against American involvement is that whatever the importance of the area, it is strategically indefensible. Consistent with such a view, we might increase the tax on oil products, encourage the development of non-Persian Gulf supplies such as the heavy oil of Venezuela (which is an enormous if high cost deposit), encourage our allies to further reduce their oil dependence, and encourage shifts to alternative fuels. These are all familiar measures from the 1970s and early 1980s, measures that market forces encouraged from the mid 1970s to the early 1980s and that those forces have partly undercut since the subsequent decline in oil prices. We might reasonably try to take steps of this kind; but their cost would be high, and their likelihood of success perhaps no better than that of deterring Soviet aggression in the area. And, even if we were to conclude--arguably incorrectly in light of the military options that we and our allies could develop--that the region is indefensible, there is little to be gained by obviously writing it off. There is no point in giving the Soviets a free ride.

It might be argued that because blocking the Soviets in Iran is difficult, and the bulk of the oil resources of the area are to the south of the Gulf, we need not defend the Gulf's northern rim. The difficulty would be in establishing a viable defense line in the Arab nations once they had seen Soviet power advance close to their borders. Moreover, the resources required from Oman to Turkey, even assuming local willingness to establish a defense line, would be very large.

The defense of Persian Gulf oil appears to present a classic public-good problem: because the security of the oil is valuable to all, each has an incentive to let others look after it. Of the Western countries, the

United States has the largest amount of military power to contribute, so we get the task by default, on this view. But if they persist in such a position, our allies will find that the ride is not free. Sole dependence on the United States is neither politically viable nor strategically feasible. Allied participation is essential if this common interest is to be protected. In this regard, it is encouraging to observe European participation in current escort and mine-sweeping activities in the Gulf.

We are at a significant geostrategic disadvantage in this region because of our remoteness and difficulty of access and Soviet closeness and relative ease of access. Although several countries on the Arabian peninsula recognize the need for U.S. military power to neutralize the possibility of Soviet intervention, they want the United States to remain "over-the-horizon" rather than be on their territories. As a result, we are largely restricted to the presence of naval forces to signal our interest and to project power early in a war. Moreover, despite agreements for conditional access to ports and airfields in a crisis, differences in perception of threats and interests, Soviet coercion, and internal political difficulties could deny timely access to these facilities by American forces during an emergency.

The Soviet Union has strengthened its position in the region through political support and provision of military training and armaments to Iraq, Syria, Libya, South and North Yemen, and Ethiopia. Departure of Soviet forces from Afghanistan would reduce the immediacy of the threat to the Gulf but would not eliminate it; Soviet forces would still "overhang" it from the north.

A standard attack case assumes that the Soviet Union would mobilize more than 20 divisions over several weeks before crossing the border of Iran; it might also attack Turkey and simultaneously, or with a lag, launch an attack in the NATO center. On the U.S. side, we are assumed to respond quickly, have access to enroute bases and those in the region, and quickly carry out air operations while ground forces are being moved to the area, although we would face difficult choices between sending dually committed forces from CONUS to this area or to a likely-to-be-threatened Europe.

The assumed outcome is sensitive to the assumptions. If we act early on signals of Soviet preparations, have ready base access, do not suffer serious attrition from Soviet submarines and long-range aircraft, have support from the Iranians, and commit substantial forces, while the Soviets move slowly, eschew bold use of airborne forces or an "end run" through Iraq, and run into serious opposition on the ground in Iran, then a sustainable defense line in southern Iran seems feasible. Different assumptions produce less favorable results.

The Soviets would, among other things, work to (1) exploit and heighten factional divisions within Iran and/or Pakistan, between Iran and its neighbors, between Iran and the United States, and among members of NATO; (2) coerce or induce Turkey to stay out and to deny other nations use of Turkish territory; (3) limit operations to this theater while using

the threat of attack elsewhere as a diversion; and (4) adopt various devices to shorten usable warning to us to below a critical threshold and foster ambiguity about their intentions.

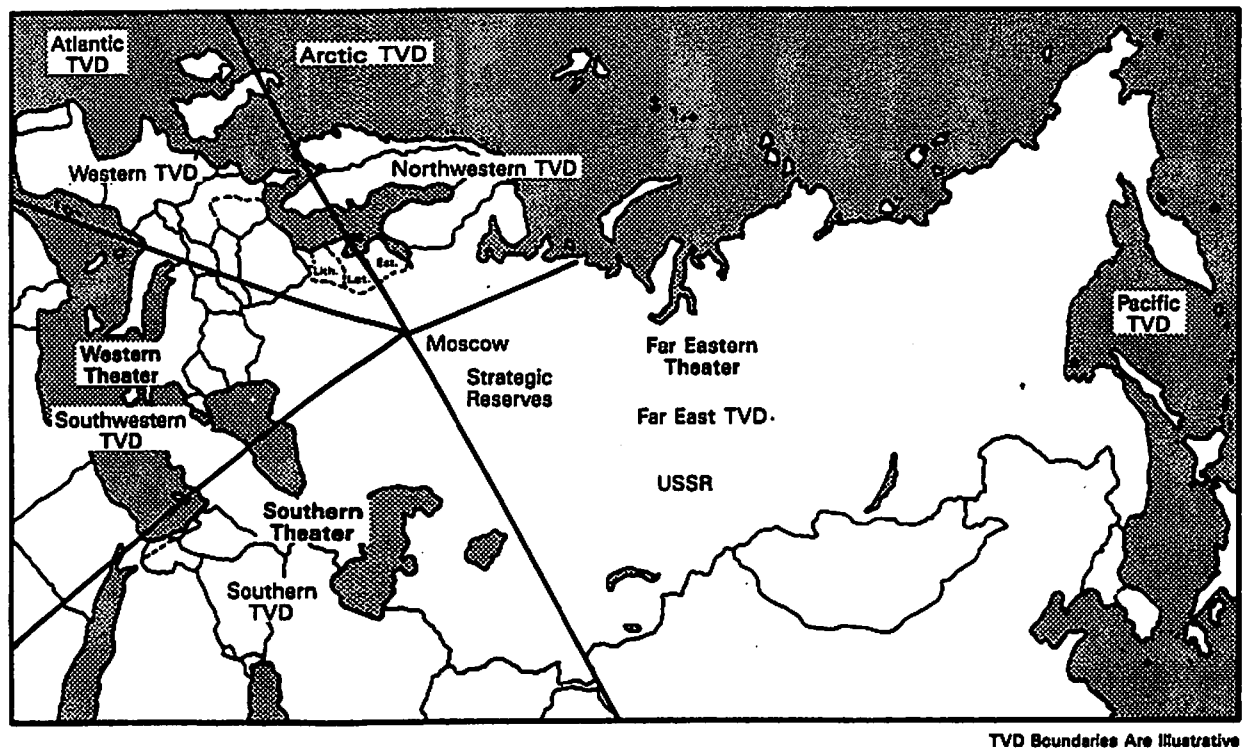
Pursuing this approach, the Soviets might gradually increase readiness of their forces in the southern TVD over time or move in ready forces from other regions. (Figure 2 suggests that the Soviets see an intimate link between eastern Turkey and the Gulf area; the Soviet southern TVD straddles the two Western commands by including the eastern half of Turkey.) They could limit the attack to Iran, while threatening Turkey to deter its involvement. They might send a force across the border before all planned invasion forces were fully combat ready and use tactical air and airborne forces deeply before U.S. tactical air could arrive on the scene; use threats and inducements to persuade U.S. allies to deny U.S. access to bases on the way to the theater and in it; try to keep U.S. sea-based air at a safe distance; and try to divert dually committed U.S. reinforcements to Europe by posing a heightened threat of attack there. By these means, they would try to secure control of the region before the United States could mount a substantial defense.

The internal political situation in Iran would probably be a decisive factor. A Soviet intervention seems more likely if there are deep political divisions within Iran, perhaps with one faction seeking Soviet support; such a division might be a necessary condition for an attack. A divided political scene is also one in which the likelihood of a Western response would be lower. If, on the other hand, the Iranians are united in opposition to the Soviets, the Soviets would not have a cake-walk to the Gulf; the combat experience of the Iranians together with Islamic fanaticism suggests that they might put up a substantial resistance. Iran resisted Soviet troop movements in 1946 and, with U.S. help, its firmness led to Soviet withdrawal from the province of Azerbaijan. And recent Soviet experience in Afghanistan cannot be encouraging to it. Also, the overland routes from the Soviet border to Khuzistan on the Persian Gulf, 650 miles, pass through rugged mountains with few roads, many of them poor. (See Figure 3.) The Soviets would have to bring their own supplies and repair facilities. The logistics tail would have to be protected as an offensive moved forward, leaving fewer troops for combat operations.

The United States faces an even greater logistical problem. Air distance is approximately 6,700 nautical miles (about 15 hours) from the U.S. east coast with overflight and refueling from countries along the way. Especially important are Portugal, Britain, Morocco, Egypt, and Israel. By sea, U.S. ships would have to travel about 8,600 nautical miles via the Suez Canal (20 to 24 days) or about 12,000 miles around the Cape of Good Hope (28 to 33 days) or through the Pacific. (See Figure 4.)

The U.S. ability to respond to an attack could be determined by the size of the force actually allocated to the Central Command (CENTCOM). Given CENTCOM's reliance on the arrival of dually committed forces for any war-fighting capability, any heightened threat of attack in Europe could delay or deny the forces required for timely defense in the Gulf. Moreover, we not only have lost access to bases in the region, our access to

FIGURE 2: SOVIET TVDs



Source: Soviet Military Power, 1987, p. 16.

FIGURE 3: SOVIET LAND ROUTES INTO IRAN

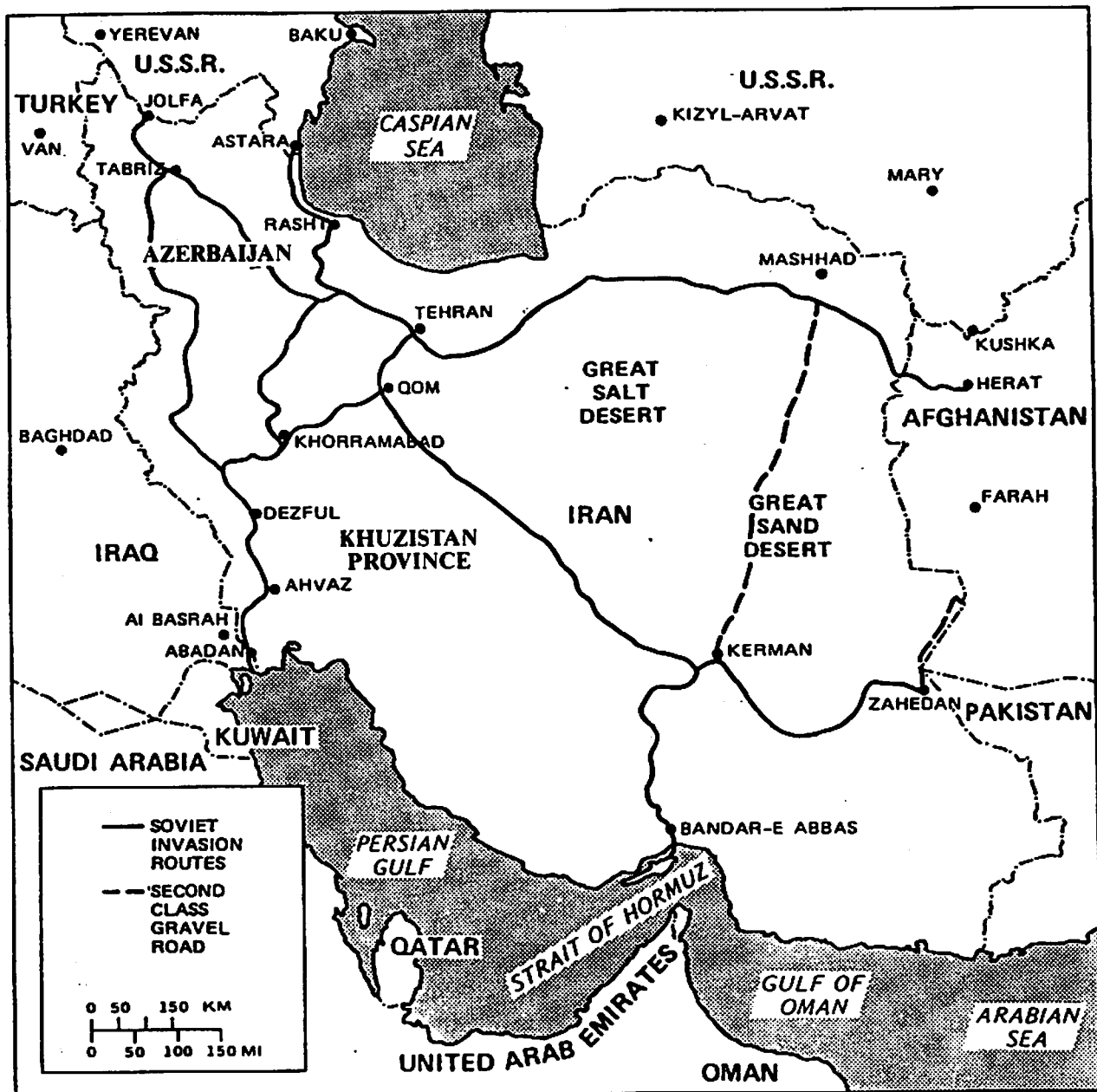
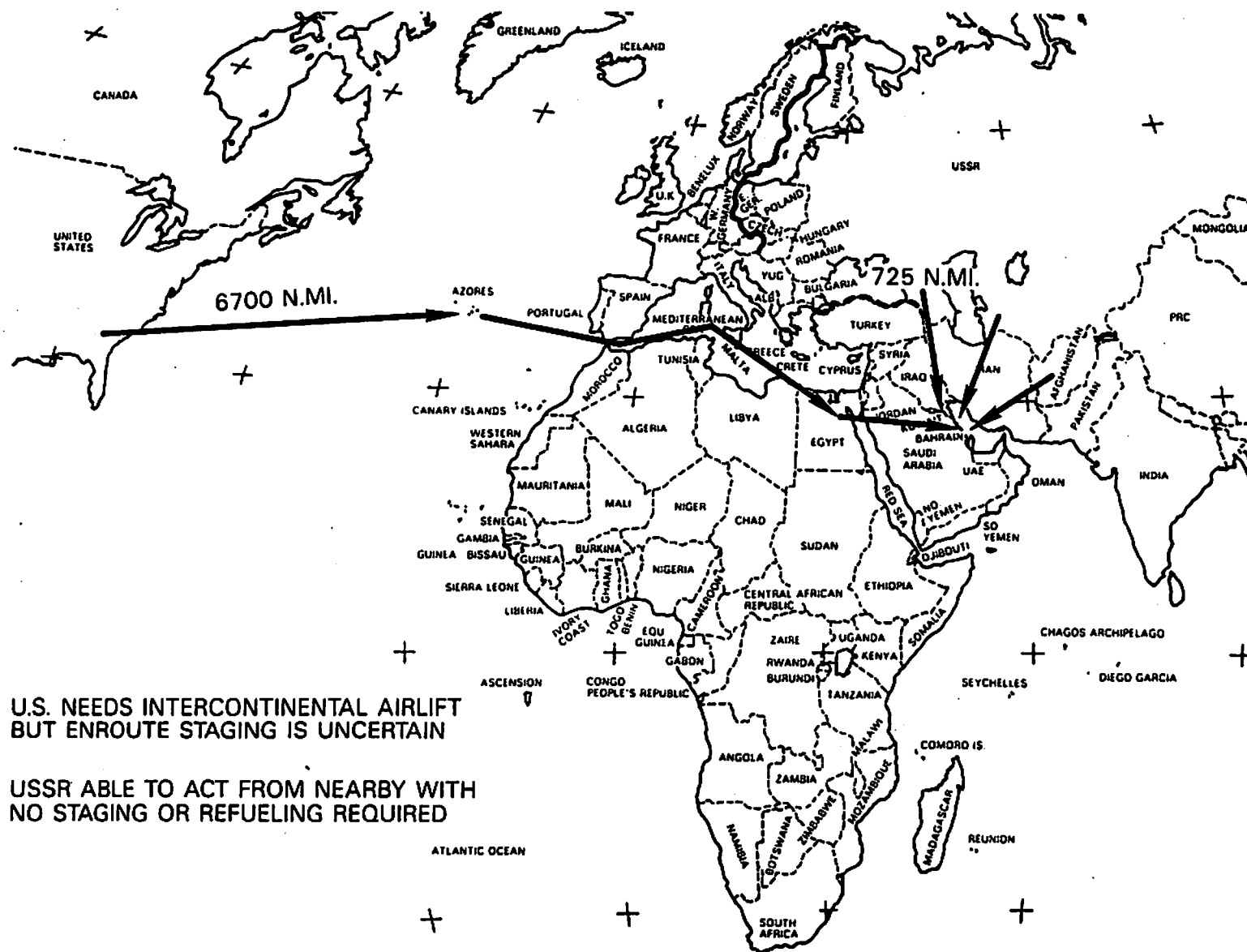


FIGURE 4: U.S. AND SOVIET ROUTES TO THE GULF



key bases on the way there is in question, especially in Spain, the Azores, and the Philippines. Further, there are shortfalls in airlift and sealift. Thirteen Maritime Prepositioning Ships will soon be deployed in the region with enough supplies to support three Marine Brigades (48,000 men) for 30 days. Despite these improvements, the mobility requirements are so large and the movement assets so few that many weeks are needed to move the entire force. To beef up its capability, the United States plans to buy conventional long-range cargo transports, upgrade civil aircraft so they can carry military cargo, and enhance its ready sealift capacity.

The question, therefore, remains open whether these U.S. forces would be too little, too late to frustrate a Soviet move. Despite these obstacles, given the importance of the area, we need to increase our airlift and sealift, do what can be done to promote access to bases on the southern flank and on the Arabian peninsula that bear on power in the Gulf, be alert to possible political changes in Iran and opportunities for increased influence there, and improve our ability to apply airpower and missile power quickly and in quantity to help block a Soviet move south. Close planning and coordination between the European Command (EUCOM) and CENTCOM in this area is critical.

In the first 2 weeks of such a campaign, there might be a need for several thousand aircraft sorties and missile attacks against fixed targets (airbases, bridges) and mobile forces (surface-to-air missiles [SAMs], vehicle concentrations). The launching of around 2,000 accurate weapons against fixed targets (airfields, bridges) in an initial phase could have an effect equivalent to 100 times or more as many unguided bombs (although there might be a useful role for unguided weapons against area targets or in regions without much air defense). Delivering such a weight of weapons would be feasible within the first week of a conflict whereas the much greater weight of weapons required if we used only "dumb" bombs would not be feasible within this short a time period--nor would we be able to deliver such a heavy load.

Aircraft carriers might be sent to the area on the basis of early evidence of Soviet attack preparations and be there on D-Day. For instance, a three-carrier battle force can deliver over 200 ground-attack sorties a day. By the early 1990s such a battle group will have 1,400 to 1,900 vertical launchers, with many of these containing long-range conventionally-armed missiles. (A limitation of aircraft based on carriers operating in the Arabian Sea is that they do not have the range to reach many targets of interest in northern Iran and the adjoining Soviet Union.) U.S. tactical air operating from Saudi bases could do more if the Saudis give us access and if our forces arrive in time. Even more could be done by operating from Turkish bases, but Turkey's exposure to Soviet attack, together with Turkish lack of confidence in support from NATO, currently makes our use of these bases most uncertain. The use of long-range bombers would greatly reduce our dependence on nearby bases, and their munitions delivery capacity is large. For example, a notional 600 weapons a day could be delivered (30 bomber sorties each carrying 20 weapons). But, to reduce attrition (stealth aside) these bombers would have to carry

weapons with great enough standoff distance to keep out of defended areas. Also, we would have to buy larger numbers of such weapons than is now planned for procurement.

Clearly, such a campaign would place great demands on our intelligence, target acquisition, and command and control systems if we were to be able to put these weapons on the right places at the right times.

The location of Turkey, on the flank of a Soviet invasion of Iran, suggests that it could play a significant role in deterring such an invasion or in defending against it. Soviet planners would be concerned that air operations from Turkey could have a devastating impact on any attempted Soviet move to the Gulf. But a necessary condition for Turkish resistance to Soviet efforts to neutralize it in such an event would be active support from the other members of NATO for Turkey as well as stronger defenses of its own. Among other things, this suggests that security assistance to Turkey be justified not only within standard NATO rubrics (with Greek-Turkish hostility and Congressional limitations greatly constraining what we can do) but also in terms of Persian Gulf defense. Even so, it is not reasonable to expect that Turkey would agree to any prior commitment to a role in defending the region, but the deterrent effect on the Soviets of a stronger Turkish--and other European--capacity to act might be substantial.

The Soviets may not currently harbor designs on the Persian Gulf area, and their Afghan experience may discourage future intervention into Moslem countries, but this report addresses the next several decades during which much could change. This region is sufficiently unstable politically that circumstances seem more likely to arise there than elsewhere, which could lead to Soviet power being drawn in--perhaps by invitation from factions within the region. (Afghanistan provides an example of exactly such a process.) A necessary condition for such an intervention would probably be a Soviet judgment that the West could not or would not counter such a Soviet move militarily.

In short, we should keep working to have access to the region's oil, free of Soviet influence, by increasing our ability to project power there and by trying to get increased cooperation from countries in the region. This aim would be helped by a change in the political leadership in Iran or at least its international outlook--possibilities that should not be ruled out--and a desire on its part to have support from the West against the Soviet Union.

B. THE SOUTHERN FLANK OF EUROPE

The usual assumptions about any Soviet attacks on the flanks of Europe are that they would necessarily be part of a wider attack against the NATO countries and that the war would be decided in the center or in a nuclear weapons exchange between the United States and the Soviet Union. The possibility that the Soviet Union might undertake operations only--or initially--against one flank or another, has been given little attention.

Yet, such a move might come to be seen by the Soviet Union, under some circumstances, as greatly improving its strategic position; especially if it had cause to believe that such a move would be unlikely to result in a wider war, it might move as it did in 1939-40.

The southern flank of Europe has serious vulnerabilities: hostility between Greece and Turkey has weakened it; Warsaw Pact forces are only a few miles from the Aegean Sea in Bulgaria; and the forces located in the eastern Turkey terrain that is favorable for the movement of Soviet armored forces have major shortcomings in equipment and sustaining capacity.

There are also Western strengths and Soviet weaknesses: the United States and several European nations have a major naval presence in the Mediterranean; Israel is a powerful force in the eastern Mediterranean; Romania has virtually opted out of the Warsaw Pact; pan-slavic sentiments notwithstanding, Bulgaria would likely resist being drawn into a conflict; and the Turkish army, despite its equipment shortcomings, is large and would vigorously resist.

A probable condition for a Soviet move on this region would be acute political disarray within or among the Western countries. For example, if the huge and nearly successful Soviet-Bulgarian effort to destabilize Turkey through internal terrorism in the 1970s and early 1980s were to revive, that country would be seriously weakened. Also, Greek-Turkish hostility has been a serious problem, one ameliorated by the recent improvement in relations. Another possibility--one that seems unlikely now but cannot be ruled out in the future--is sufficient internal disarray within Yugoslavia to provide a basis for Soviet intervention in that country.

In short, the likeliest circumstance in which the southern flank, specifically Turkey, might be attacked appears to be as part of a thrust towards the Persian Gulf; in that direction the Soviets depend on no allies. A Soviet operation against this region not associated with a Gulf attack, or a general attack against NATO, looks unpromising.

C. THE NORTHERN FLANK OF EUROPE

A Soviet attack in the north, in contrast with one in the south, would involve fewer internal NATO political divisions that could be exploited. A major concern here is that northern Norway could be seized before non-Norwegian forces were directly involved. (This was the German aim in April 1940 for all of Norway, and it largely succeeded.) The Soviets would view the attainment of this objective as increasing the security of their great concentration of military assets on the Kola peninsula and shifting the naval balance in the north markedly in their favor. In the longer term, such a success would serve Soviet interests by greatly undermining confidence in the NATO guarantee.

In response, we plan to defend Norway directly, as do the British, and we could also attack Soviet bases on the Kola peninsula and Soviet naval forces and merchant shipping more widely. However, especially if such a Soviet action were to occur when the West was internally split (especially the United States from the Europeans), the Soviets might see the consequences as being a period of heightened hostility with the West, but nothing worse.

Could the Soviets bring it off? U.S. confidence that the Soviets would never try would be heightened if the prospects for success were clearly poor. A Soviet attack would likely include tactical air attacks and airborne operations against key airfields, a ground thrust through northern Finland (and perhaps Sweden), and an amphibious attack along the northern coast. Timing would be critical. Norwegian forces in the north are few, while the Soviet Union has large forces in the Kola area. The Soviets main lack is in ready ground units and offensive tactical air in the north. That they recognize this is reflected in their past and current efforts to increase their ability to move forces quickly to the region--an effort currently not being matched by Norway and its allies. If more of these Soviet units were to be assigned there on a regular basis, or moved in quickly by air or rail from elsewhere, an attack might be managed with no more than a few days of visible preparations. Final preparations might be covered by an exercise.

The NATO response in this area, which assumes the Soviet northern operation is part of a general attack on Europe, would center on the rapid deployment of the ACE mobile force (a force intended more to display alliance solidarity than to provide much combat strength), U.S. and British marine units, and naval support. The Norwegians have the advantages of well-prepared, but thin, defenses and difficult terrain, but their forces are predominantly in the south. If Norway's request for help were slow in coming or in being answered, the Soviets might get to the northern airbases first and occupy the region.

Norwegian anxiety about alarming the Soviets with their defensive preparations has led them to insist that U.S. prepositioned equipment be put in central Norway, a considerable distance from where it would be needed. And, Norwegian refusal to cooperate with various U.S. peacetime operations--perhaps for fear of offending the Soviets--suggests that they might interpret early Soviet signals of preparation for attack in an optimistic way. (There is a relevant Norwegian precedent here in its failure in 1940 to respond to mounting evidence of German preparations for attack.)

It is difficult to help defend people who put too strict conditions on how they should be helped. Within these limits, it is most important to be able to get air defense reinforcements rapidly to the northern airfields, to strike Soviet amphibious and other naval forces early, and to interdict ground forces moving across the few roads in the north. The U.S. Navy has the advantage in its ability to be moved on early ambiguous signals of Soviet preparations. However, because it would be exposed to Soviet attack, the Navy might be held back out of range at the outset or

suffer heavy attrition; it needs to be complemented early with land-based air both in the theater and with long-range bombers operating from more distant bases. There, as in Southwest Asia, the early use of standoff smart weapons and low-observable vehicles could have a powerful effect in slowing a Soviet advance.

D. THE CENTRAL REGION OF EUROPE

To the Soviets it is even more important than elsewhere that a war in the center of Europe be won quickly. A prolonged war there could develop into a nuclear conflict or lead to erosion of Moscow's control over Eastern Europe and to instability in the Soviet Union itself. At the same time, the Kremlin maintains a large mobilizable force and industrial base in case a lengthy war ensues; and it has large nuclear forces capable of being used at various levels of escalation.

As in the other regions discussed earlier, if the Soviet Union moved in central Europe, it would try to fragment the opposition, induce some countries to stay out, and narrow its aims to those that could be achieved decisively and quickly. Keeping Denmark, the Netherlands, and Belgium out altogether would probably be important aims; it might concentrate attack only on the Federal Republic of Germany and propose a cease-fire after the occupation of only a part of that country.

The Warsaw Pact is in a position to attack NATO's flexible response strategy by attempting to break through its forward defenses before NATO forces are properly mobilized and deployed, to disrupt NATO's air offensive capacity and to destroy a significant part of the nuclear forces in Europe before they could be used. Its forces are designed to support the Soviet blitzkrieg doctrine that is aimed at overwhelming the opposition quickly. The strategy calls for concentrations of armor, mechanized infantry, artillery, tactical ballistic missiles, and aircraft against narrow sectors along the front to blast holes in the NATO forward defenses so that armored forces can drive into rear areas along the lines of least resistance. Such penetrations would be used to envelop NATO's main forces on the forward line and to paralyze reaction by cutting the lines of communication over which reinforcements and supplies must pass. Speed is emphasized in all combat actions.

Improvements in Pact offensive air and missile strength, together with NATO's heavy reliance on air operations, suggest that a strong initial Pact effort would be sent against key facilities in NATO's rear, and especially the small number of NATO main operating air bases. Chemical agents might be used in these attacks. The capability for precise non-nuclear attack by tactical aircraft and ballistic missiles has begun to appear and can be expected to attain significant dimensions within the next decade.

A number of analyses show that the Pact could make a penetration well into West Germany within 10 days or so from the start of an attack. If the Pact attacked with short or ambiguous warning it could catch many NATO units out of position and with few U.S. reinforcements having arrived.

There is a familiar set of NATO weaknesses that account for these assessments: the difficulty of dealing with the huge Soviet tank force (much of it now equipped with reactive armor); the shortage of munitions and supplies on the part of the Europeans (and of smart munitions by everyone); improvements in Soviet tactical air; the vulnerability of NATO airfields to attack, especially with chemicals; the Soviet ability to mass force power along narrow fronts; the problem of coordinating the operations of many national forces, some of which might opt out of the defense altogether; and the thin defense in the Northern Army Group (NORTHAG), especially if the Dutch and Belgians are late--indeed NATO's mobilization in general might be too late. There is a long and sad history of attack indications receiving inadequate response.⁷ Despite lip service to flexible response by the Europeans, nuclear escalation has long been a crutch on which they have leaned.

A conventional attack with only short final preparation is arguably the most threatening case for NATO, but it poses serious risks also for the Soviets. In particular, it would have to rely heavily on the East Europeans, allies who would be reluctant to participate in such an enterprise and who might perform poorly--especially if NATO provided them direct incentives to opt out or drag their feet. On the other hand, if the Soviets waited until they had mobilized and brought forces forward from the Western Military District, they would be less dependent on the East Europeans, and, for a few weeks, could build up a more favorable force advantage; but, they would sacrifice the advantages of surprise. But, even if NATO has more time to get ready, most analyses show that the Soviets would still do well.

Another risk for the Soviets would be failure to achieve enough surprise to catch NATO forces unready and out of position. A third is its ability to maintain combat momentum using untested operational concepts that require initiatives by lower--and largely inexperienced--tactical echelons. A fourth is the possibility of escalation. In sum, although NATO is justifiably concerned about its weaknesses, the Soviet General Staff probably views the prospects with substantial uncertainty.

In any event, three strategic tasks need to be fulfilled by NATO: (1) to deny the Soviet Union a quick conventional victory and to confront the Soviets with the prospect of a prolonged and unpromising war of attrition; (2) to make it clear to the East Europeans and the Soviets that it is to the interest of the former to opt out of any Moscow-ordered war; and (3) to deter a Soviet (selective) nuclear attack and be able to respond selectively if such an attack occurs.

⁷ These points and others are well stated by Eliot Cohen in testimony before the Senate Armed Services Subcommittee on Conventional Forces and Alliance Defense, 20 October 1987.

Separate issues are what allocation of responsibilities among allies in performing these tasks will make the best use of alliance resources and distribute cost burdens appropriately. Several future patterns are possible. This report structures them as follows:

1. The U.S. might continue the main thrust of its present policies and posture.
2. We might change the composition of our contribution to the defense of the central region within the total resources we now spend on the defense of Europe, with the aim of improving the effectiveness of our contribution and in the expectation of a balancing adjustment in European forces.
3. The U.S. unilaterally, or jointly with allies, might alter the mix of forces both for the defense of the central region and of other areas.
4. Previous inadequacies, together with the INF Treaty, makes a restructuring of our nuclear planning and posture necessary in any case.
5. Whatever course we choose among these four possibilities, our aims might also be pursued, jointly with other members of NATO, through conventional arms negotiation with the Soviets.

In the following discussion, the changes that might be associated with the previously listed alternatives are discussed, not to advocate one or another, but to stimulate and focus discussion and assessment of them--or others that will probably result from the needed review of our long-term military commitments to NATO.

1. Continue the Present Strategy

This policy would be based on the premise that the Soviet threat in Europe will remain formidable, that an increased European effort would be politically unlikely if the United States reduced its support, that weak European political cohesiveness will leave it vulnerable to Soviet stratagems, that the threat of nuclear escalation will continue to be an important deterrent to a Soviet attack, and that the U.S. defense resources now committed to NATO are more valuable in central Europe than in other regions.

Given realistic prospects for defense budgets, ground and air forces deployed in Western Europe would be continued at about the same level as today. NATO force modernization would occur gradually and perhaps continue to lag that of the Soviets; gradual improvements to NATO's anti-armor, air defenses, ground-attack, C3I and other relevant capabilities would be made; the ability to carry out Follow-On Forces Attack (FOFA) operations would proceed slowly; and theater-based nuclear forces would continue to erode in capability and credibility.

The U.S. force structure might be maintained at about current levels, active-reserve split, and deployments, including Army divisions, Air Force tactical fighter wings, Navy carrier battle groups, and Marine Expeditionary Forces (although if real budgets shrink it would arguably be more rational to shrink the force structure in order to sustain force effectiveness by selective modernization and especially by introducing advanced munitions for existing major platforms). There would be gradual improvement in forces with increases in airlift, but fast sealift capacity would remain the same. Because of budgetary constraints and the persistence of current priorities, only small numbers of advanced technology munitions would be bought. Notional purchases by the United States might include 1,000 of both Army Tactical Missile Systems (ATACMs) and forward-based, tactical, air-delivered missiles and several thousand dual-capable, sea-launched cruise missiles and short-range, standoff missiles for B-52 delivery. Anti-tactical ballistic missile defenses would not be bought at all or would be stationed at only a few main operating bases. C3I improvements would evolve slowly. Thirty days sustainability would not be reached, especially by the Europeans.

Given likely U.S. defense budgets, this option implies only a very slow modernization of U.S. forces. Whether it would be more or less than the Soviet modernization rate--which is also under resource pressure--is an open question. If the real defense budget shrinks over time and our current European posture is maintained, our ability to deal with (arguably more likely) contingencies elsewhere could decline rapidly. The case for ordering our priorities in this way is weak.

2. Change the Mix in the U.S. Contribution to the Defense of Central Europe

The United States might change its mix of measures within the total level of resources now projected for central Europe's defense. Specifically, we might spend more on advanced weapons and cut back on our reinforcement capacity in CONUS or reduce our manpower strength in Europe.⁸ This course implies our specializing more in countering the Warsaw Pact air threat, increasing our standoff, ground-attack capability, and improving C3I. High priority would be given to pursuing the goals of the FOFA concept. We would improve active air and missile defenses in addition to doing what can be done to improve the passive defense of airfields and other facilities vital to conventional defense (aerial ports, POMCUS, ammunition storage). The pace and extent of efforts to field an

⁸ Leon Sloss has requested the insertion of the following:

I would not be opposed to some re-structuring or re-allocation of roles within existing force levels after full consultation with the allies. However, unilateral reductions in U.S. force levels in Europe will weaken deterrence, create unnecessary strains in the alliance and undercut Western positions in the forthcoming negotiations on conventional arms in Europe.
(Continued on page 45).

antitheater, ballistic missile defense would depend, among other matters, on the evolution of the ballistic missile threat, now partially constrained by the INF Treaty. We would work toward achieving a favorable air situation over the close-in battle and in NATO's rear areas.

The basic concept in this option would be to exploit more systematically the U.S. comparative advantage in providing advanced technology weapons rather than ground forces. Taking account of the deterrent value of having U.S. forces in Europe, if resources must be cut, the cuts should probably be in planned reinforcements from CONUS rather than in U.S. forces now in Europe.

3. Increase the Fraction of U.S. Resources Allocated to Regions Other than Western Europe

This alternative, a variant of the changed mix alternative just discussed, is based on the premises that the central European countries can do more for their own defense and that both they and the United States need to pay more attention to the flanks and other areas. This course entails the United States undertaking the positive actions described in the section on the Persian Gulf. More of our forces would be planned for

(Continued from page 44)

If the U.S. finds it must adjust force structure, either as a result of budget pressures or in order to allocate additional resources to theaters other than Europe, cuts should be made in the forces that are earmarked for early reinforcement of Europe rather than those already deployed there. Our allies are in a better position to replace these 'post M-day' forces with ready reserves than they are to replace deployed forces with active duty forces. U.S. savings would be larger and prompter if cuts were made in CONUS based forces (e.g. we could close some bases) and the political fallout in NATO would be less. The chances for achieving a real shift in burden sharing would be greater.

If the U.S. does decide to cut back or alter the missions of CONUS-based forces earmarked for NATO, serious consideration should be given to transferring some of the pre-positioned (POMCUS) stocks earmarked for these forces to European allies' mobilizable reserve units that could genuinely substitute for the de-committed U.S. units. If such a plan would be pursued, a number of issues would have to be explored further, including the supportability of overseas forces if the rotation base in CONUS is reduced and the problems of integrating U.S. POMCUS equipment into European units. The objective would be to shift a specific defense responsibility to the Europeans with no loss--indeed possible enhancement--of NATO's over military capability.

European contingencies outside of the central region, both in the northern and southern flanks. This option also implies explicit U.S. and European support for Turkey in Persian Gulf contingencies and greater support for Turkish forces in peacetime. For instance, some U.S. POMCUS equipment in central Europe might be moved to Turkey.

This alternative implies a marginal shift in U.S. support away from the defense of central Europe. If U.S. forces in Europe were to be reduced, the Europeans could require, in the absence of terrain enhancements and improvements to physical barriers, up to nine additional divisions (probably reserve formations) and nine tactical fighter wings to compensate for a reduced U.S. commitment of, say, three U.S. divisions in Europe and five more in CONUS and associated air units. A full complement of airlift (66 million ton-miles per day) and 32 fast roll-on, roll-off ships would provide more capacity to move U.S. ground and air forces. We should also reexamine the potential of large, fast surface effect ships for such a mission (as well as others). Possibly 3,000 or so ATACMs and other standoff missiles could be positioned in the United States for deployment to any theater where needed. Similarly, U.S. C3I improvements would be concentrated on those needed for non-European contingencies and 60 days of wartime sustainability would be bought for the out-of-area theaters.

We might also plan more explicitly to move forces among regions and to design these forces accordingly. Naval forces have the mobility to move on ambiguous warning and can concentrate force at various locations on the Soviet periphery; so can ground-based, tactical air (if it can find bases on which to operate). We might also equip more ground forces with lighter, more transportable equipment. The retention in the force of B-52Gs equipped with advanced munitions and dedicated to theater commanders could also add greatly to our ability to apply firepower rapidly in any theater.

The benefits of this alternative derive from its strategic flexibility, not money saved by moving forces from the NATO central region to CONUS. That would add to cost. The main risk is a failure of the Europeans to respond with additions to their own forces.

4. Restructure Nuclear Planning

While NATO faces the need to redress deficiencies in its nuclear posture in any case, the INF Treaty compels changes in U.S. plans for theater defense. NATO's reliance on nuclear escalation has long ago been overtaken by increases in Soviet nuclear strength. But, unless the Germans decide to live in a denuclearized zone (a preference that would make problematical the question of leaving U.S. forces there directly exposed to Soviet nuclear attack), some choices need to be made about NATO's theater nuclear posture. In any case, the Soviet capacity to deliver a highly effective, selective, and discriminate nuclear attack against Europe with little collateral damage will continue to grow.

These developments suggest adopting the goal of having a nuclear force in Europe and outside of it able to survive the initial phases of non-nuclear combat or Soviet nuclear attack, able to conduct selective attacks on Soviet forces in eastern Europe and the Soviet Union designed to block Warsaw Pact invasion, and capable of doing so with low collateral damage. (This goal is discussed further in section VIII.)

5. Negotiate Conventional Arms Limitations in Europe

The INF Treaty has heightened concern about the imbalance of conventional forces; an obvious alternative is to seek a reduction in this threat through negotiation. To the Soviets, both foreign policy and domestic factors seem to be important motivations. The foreign policy factor concerns reducing the U.S. presence and role in Europe's defense and NATO's air and missile strengths; the domestic factor concerns reducing military spending, or at least avoiding higher spending. For NATO, the key aims would be a reduced invasion threat and also lower (or at least not higher) defense spending. In any case, it can be taken as given that the Soviets would not withdraw below a level where their ability to dominate eastern Europe would be in question.

One of the main problems with the earlier Mutual and Balanced Force Reduction talks was the focus on manpower as the major unit of account. The difficulty is that troops withdrawn from Europe can be moved back quickly; but withdrawn Soviet armored vehicles can be moved back almost as quickly as troops from the Soviet Union, while American ones cannot be moved as quickly across the Atlantic. It would be more in our interest to focus negotiation on reductions in units (troops, tanks, armored fighting vehicles, artillery) and bases throughout an area stretching from the Ural mountains to the Atlantic Ocean.

In one proposal, the United States and the U.S.S.R. would reduce an equal percentage of forces currently deployed on the territories of their respective allies in central Europe. A 50 percent reduction of forward-based forces, for example, would result in the removal of 2-plus U.S. Army divisions from West Germany and 13-plus Soviet divisions from East Germany, Poland, and Czechoslovakia. A key aspect of this scheme is the removal of the ground forces to locations that would require equal time to return them to forward positions. A defect of this concept is that Soviet forces removed from central Europe would almost necessarily be moved closer to other threatened regions, most obviously the Persian Gulf. The security of that region could be worsened by an agreement focused narrowly on central Europe. Moreover, history shows that democracies are prone to interpret signals of preparation for attack on them optimistically; a return of Soviet forces to central Europe might not result in parallel Western action. Given this defect, the U.S. position should be that removed units be demobilized and weapons destroyed.

It follows that a fundamental transformation of the conventional balance in Europe would require asymmetric Soviet reductions centering on the demolition of military airfields in eastern Europe, cuts in Soviet forces in eastern Europe, their elimination and those of others back home

from the order of battle, and the destruction of weapons (and not only obsolete ones). For a net improvement in NATO's security to result, such cuts could not be accompanied by significant ones in NATO's tactical air or standoff, conventional smart weapons--both prominent Soviet goals for reduction through negotiations. However, if as now seems unlikely, the Soviets were to accept such changes, the security position of Europe would be much improved. (Vigilance to prevent the possible worsening of the position of other regions as a by-product of improvement in Europe would be needed.)

E. NORTHEAST ASIA

There are several possible major contingencies in the Northeast Asia region. One is a North Korean attack on the South in a repeat of the attack in 1950. The large size and high readiness of the North Korean forces makes this a palpable threat. South Korea (ROK) has an economy several times as large as that of the North and potential military power to match. Over time, the growing strength of ROK forces should be increasingly able to stop an attack by the North alone. However, if the Soviet Union (or China) were to join with North Korea (DPRK), U.S. support, especially air support, would be essential. And the U.S. presence in Korea, as in Japan, provides a strong deterrent against possible use of nuclear weapons. In brief, a continued U.S. military presence in Korea should increasingly rest on the objectives of helping to deter Soviet (or Chinese) support for an attack on South Korea, maintaining regional stability, and contributing to discouraging a Soviet move elsewhere.

Another contingency is a Soviet attack on Japan. Limitations on Soviet amphibious capacity and gradual improvements in Japanese forces--together with U.S. support for Japan--make this an unpromising prospect for the Soviets. If an attack on Japan were to occur, the United States and Japan would seek to accomplish several tasks. Closing off the three straits that control the entrance and egress of the Soviet fleet to its main Pacific operating base (near Vladivostok) would be the first priority; interdicting the sea lines of communication between Petropavlosk and Vladivostok would follow. Then, carrier battle force operations at some point would destroy the Soviet naval base at Cam Ranh Bay. The elimination of Soviet submarine forces would proceed. Offensive moves would include attrition of offensive Soviet naval aviation, and perhaps damage to key targets along the Trans-Siberia Railroad and other critical lines of communications, thus interdicting the major supply source of the Soviet military effort in the Maritime Provinces. With reinforcement of the war effort by sea, amphibious units might embark on a counter-offensive along the Kuril Islands chains.

Japan's forces are improving in quality, and Japan has undertaken wider responsibilities for the defense of its surrounding sea areas. But, Japan can and should do more in defense of its own territory and surrounding air and sea space. Although it is providing valuable economic aid to strategically important countries such as the Philippines (where the future of crucial American bases is uncertain), Pakistan, and Turkey,

this strategic aid should be increased. Japan also can provide non-combat military support to threatened areas; its recent provision of multi-purpose dual-capable navigational aids that, among other things, help in Persian Gulf minesweeping, is an example of such aid. None of this entails a large increase in the share of Japanese resources spent on defense nor, under foreseeable conditions, does it seem necessary for Japan to make such an increase.

This analysis does not support a case for a major cut in our force presence in Northeast Asia, despite the relatively more secure situation of Japan and Korea by comparison with other regions on the Soviet periphery. These forces contribute to the stability of a region that is increasingly important to the American economy--and, over time, to world power. Our military presence in Northeast Asia also contributes to our dealing with other threats elsewhere in the western Pacific. Moreover, that presence also contributes to discouraging Soviet moves in other regions through their potential to open up another front.

These reasons are reinforced by the relatively low cost of our presence in Northeast Asia. Most of our expenditures are for flexible naval and air forces, the size of which is determined by global criteria. Of course, this flexibility implies that some of these forces, and others of our forces, might move to the scene of a crisis elsewhere in the world. If so, forces of the countries in the region would have to be mobilized as a substitute until U.S. forces returned. In any case, the growing economic strength--and military potential--of Japan and Korea implies that they need to take on a relatively greater responsibility for their own defense than in the past.

In time, the asymmetric U.S.-Japanese security relationship, one in which the United States guarantees the security of Japan but not vice versa, should eventually become a more symmetric one. But that political proposition, the political significance of which should not be underestimated, should not be confused with the level of Japanese defense spending or roles and missions in the western Pacific; there is no urgent need for change in these matters.

With regard to China and possible Sino-Soviet contingencies, the existence of China as a large and hostile entity on the border of the Soviet Union has great strategic significance. If the Soviet Union were to become seriously weakened in a conflict with the West, China might see an opportunity to move against Soviet territory; at any rate, this is likely to be a grave concern for the Soviets. If a Sino-Soviet conflict were to occur, presumably through a Soviet initiative, it would be to the U.S. interest not to see China defeated. We have not addressed the means that might be appropriate for helping China in such a case, but they might include providing intelligence, keeping a sea line of communication open to it, and supplying weapons. If China and the Soviet Union were to become reconciled and Soviet forces shifted to other areas on the Soviet periphery, these areas would be in greater danger.

Despite various shortcomings (few U.S. bases, a scarcity of long-range aircraft, too few effective munitions), the overall U.S. strategic situation in this region is not unfavorable. Keeping it this way should be a continued U.S. aim. As discussed previously, the incremental cost of our Asian posture is not very high, much less than that in Europe; this fact reinforces the case for our continued presence. Moreover, the U.S. force presence in this region contributes to discouraging Soviet aggression in other regions. Although the numbers of smart, standoff weapons needed here are far smaller than in Europe, a long reach for these weapons is even more important.

IV. THE IMPORTANCE OF PRECISION WEAPONS AND OTHER KEY FUTURE TRENDS

The key parameters shaping the future are developments in Soviet strategy; and in alliance relations, developments within major countries, modernization of forces, and advances in the technologies of precision.

A. FUTURE SOVIET STRATEGY

Perhaps the most important, uncertain factor is the future state and strategy of the Soviet Union. If the current reform efforts of Gorbachev fail, Soviet competitive strength will gradually wane. The country has slipped behind Japan to the position of having the world's third largest economy, and the Future Security Environment Working Group estimates that it will probably drop to the fourth largest economy by 2010, after China. Moreover, spending around 25 percent of GNP on the military and the empire leaves the Soviet Union little scope for expanding the share of output going to the military; more likely, this share will have to be cut. In contrast, its neighbors, with defense spending shares of 1 to 5 percent of more rapidly growing GNPs, have much more elasticity in their capacity to increase military spending. The history of unfruitful Soviet reform efforts, together with bureaucratic opposition to the current one, suggests that an economically stagnant and militarily lagging future might be the Soviet condition over the next 2 decades.

Gorbachev is seeking a *peredishka*, a breathing space, during which internal reforms will take effect, leading to a stronger country. For this, he needs reduced military competition from the West along with greater access to its technology and perhaps its consumer goods and capital. To promote these aims, the Soviet foreign line has become verbally less threatening. "We will deny you an enemy" is the way it is put by Georgi Arbatov, head of the Institute for the U.S.A. and Canada. Success in *perestroika*, implying at least no further falling behind the West and perhaps some catching up (with say around 3 to 4 percent a year of real--not Soviet statistical--growth), would enable the Soviet Union to compete more strongly over the longer term. Even so, the 1990s are likely to be difficult, both with respect to the economic reform process and to the ability to sustain such a high level of defense and empire spending. Although there is no sign of a shift of resources from the security sector, this might come to be seen as necessary for *perestroika* to succeed. If so, such a perceived need to shift would intensify the already strong Soviet interest in inducing the West to cut back on its arms.

If this round of reform efforts fails, there would likely be another push for fundamental reform later on; there also might be a major upheaval at some point, an eventuality that Gorbachev evidently fears. On the other hand, there is also a fear among some in the leadership that the reform moves themselves could become destabilizing. Probably the best judgment one can make on this matter is that internal political unrest, and possibly a violent upheaval, could occur within the Soviet system (including eastern Europe), whether or not *perestroika* succeeds.

The connection between these uncertain prospects within the empire and Western security interests is far from clear. One theory is that failure at home is likely to lead to adventure abroad; this leads some Western leaders to favor helping Gorbachev, for example, through subsidized loans. But lashing out is not characteristic Bolshevik behavior; the opposite reaction, retreat, is more plausible. There have also been fears that a political upheaval in eastern Europe might involve some Western nations and lead to a Soviet-NATO war, but the Western countries have repeatedly and convincingly demonstrated a determination to stay away from troubles within the Eastern camp. There are also, as mentioned above, grounds for concern that the success of *perestroika* will result in a stronger and more troublesome Soviet Union later.

A critical issue of Western security is Soviet willingness to scale back its invasion threats to its neighbors--as distinct from cosmetic moves that would not really reduce this threat. Western governments, both in their arms control policies and in their economic transactions with Moscow, should give prominence to getting the Soviet Union to reduce this threat. Although various notions exist on how best to accomplish this, the most plausible one is that through Western actions that make things easier for the Soviet leaders (e.g., through subsidized transfers of capital) enable them to continue to indulge their preference for spending a huge proportion of their resources on the military and empire. If Western leaders decide to make things easier for them, these Western leaders should insist on tangible and not easily reversed reductions in Soviet military power.

In the final analysis, as long as the Soviet Union retains both its great military power and its peculiar political character, it will remain a danger to its neighbors and others. This seems likely to be true for at least the next several decades.

B. FUTURE ALLIANCE RELATIONS

Our long-term strategy for the allocation of our defense resources must also take account of changes in the threat of conflict over time. Since the end of World War II, our strategy of deterrence has required us to remain prepared to fight at a time and place not of our choosing. While the possible timing of crises that might lead to war will remain unknown, the level of tension between the U.S. and the Soviet Union affects our expectations and behavior. The Gorbachev policies have not significantly changed the relevant military balances, but current trends in U.S.-Soviet relations are diminishing expectations of conflict (or shifting them farther into the future) and so are likely to add to pressures to reduce Western defense budgets.

Unreciprocated reductions will inevitably increase the risks associated with unexpected crises. However, if the Soviet Union lessens the threat to its neighbors by reducing its military forces, this will reduce the short-term risks to the West. Even then, we would still need to prepare to respond, if, after a breathing space to repair their

economy, the Soviet leaders resumed a threatening posture. This means giving priority to those measures that would enable us to increase our strength in the mid 1990s and beyond. In assessing the lead times for changing various elements of our posture, we should remember that allied confidence in the U.S. commitment to mutual defense would be arguably the most difficult element to reconstruct if our response to the current environment were perceived as strategic withdrawal.

Our current ability to fight if necessary depends on the size and quality of our forces, the effectiveness of our C3I systems, the level of training, the level of supply stocks, our force disposition, and the facility of their access to areas of combat. With a stable or declining budget (whether justified by Soviet reductions or not), our future combat potential for plausible conflict contingencies will depend on improving the unit effectiveness of our general purpose forces and the facility of access to the combat theater. Our analysis indicates that the earliest path to such improvements is through enhancing the effectiveness of existing major weapons platforms (aircraft, ships, tanks) by introducing smart weapons based on advanced technology. To complement such weapons, we must also continue to improve our C3I and especially to take steps to ensure its viability in plausible conflicts. We conclude that support for programs in these two areas should receive the highest priority in resource allocation over the 5-year defense-planning period. To maintain our options to respond to a change in the environment in the 1990s, we must also support the advanced R&D programs that contribute to our technology base, the seed corn for such options. They make up a small part of our total spending, and therefore can and should be protected even in the event of general budget stringency.

With a stable or declining defense budget, these priorities imply sacrifices in terms of active force size, procurement of major weapons platforms, and force readiness and sustainability. The extent of active force size reductions should depend on assessment of the improvements in unit effectiveness achievable through the introduction of smart weapons and improved C3I. If needed, such reductions should be made in a manner that preserves our ability to respond to plausible, fast-breaking, but relatively confined contingencies and to expand our active forces rapidly. This means preserving a well-trained and experienced personnel cadre (in a combination of active and reserve forces) and a warm production base for equipment and supplies. Procurement of major weapons platforms would have to forego for a time incremental improvements and be restricted to new equipment that offers major improvements over existing platforms or, as in the cases of stealth, introduces important new capabilities unavailable in the current force. Meeting supply level objectives for large-scale conflict contingencies like a general engagement between NATO and Warsaw Pact forces would have to be deferred.

Force structure cuts would also require at least proportionate cuts in our forward-deployed forces to avoid major personnel and training problems. Such cuts would make it even more important to carry out only

the most important functions with forces stationed abroad. And, of course, any cuts in forward-deployed forces should be preceded by thorough consultation with allies.

C. SOME POSSIBLE IMPLICATIONS OF SMALLER DEFENSE BUDGETS

For several years, real defense spending has declined. If this trend continues, or even if future defense spending stabilizes, some painful choices will have to be faced.

Among these is the choice between near-term versus future strength. Institutional tendencies within the Defense Department favor preserving current capabilities and force structure. The Department's recent response to budget stringency has been to disproportionately cut R&D and procurement. This implicitly amounts to believing that we need more military power in the next few years than we will in the more distant future. The opposite may be more nearly true. If the Soviet Union is in retreat and seeking a breathing space in the international competition with the West (and the evidence on this is weak so far), perhaps we should be giving relatively more priority to our future strength, to the mid-1990s and beyond.

If, instead, we meet current stringency by reducing force structure, this will affect our overseas deployments. Maintaining existing numbers of units in overseas deployments out of a reduced force structure may not be feasible, or may entail increased personnel and training problems. If these deployments are to be maintained, therefore, it is likely to be at the expense of either force quality or future modernization. An alternative course, depending on budget outcomes, may be modest reductions in numbers of overseas-deployed forces compensated by improvements in their quality.

A key element in achieving the needed improvements in unit effectiveness of our forces, as argued in this report and in Discriminate Deterrence, is devoting greater attention to advanced technology munitions, working to lower their costs and allocate a larger proportion of the budget to them than the approximately 4 percent share of the defense budget they now receive.

D. SOME IMPLICATIONS OF STANDOFF PRECISION ATTACKS

The most dynamic technologies of our era are those of information: sensing, communication, and computation. The computational power of the fastest integrated-circuit microprocessors has been doubling about every 18 to 24 months, and this rate of change promises to continue for at least another decade. This implies a 30-100 fold increase in computer performance in the next 10 years--with more to follow. Similar progress has been taking place in the density of data storage. The transmission of information has also been experiencing great leaps ahead, especially in optical fibers.

Source: <http://www.albertwohlstetter.com>

The implications for certain aspects of weapon performance are striking. (1) It will soon be possible to deliver ordnance to any fixed point on the globe with a circular error probable (CEP) of 1 to 3 meters. (2) Advances in the ability to locate and attack moving or movable objects is a more challenging task, but here, too, progress is being made. With improved sensors, under favorable circumstances vehicles of various kinds can be observed in enemy territory and--assuming a tightly coupled reconnaissance and command and control system--weapons rapidly sent against them. (3) Standoff weapons, launched from aircraft or the ground or sea, will assume an increasing role relative to other forms of delivering munitions. (4) Ground-based missiles, dispersed and mobile, will be able to take over some functions heretofore carried out by aircraft, thereby reducing aircraft attrition and dependence on increasingly vulnerable airfields. (5) Non-stealthy Surface ships are becoming easier to track and will also be subject to attack by standoff weapons. (6) Remotely piloted vehicles will be increasingly intelligent, able to loiter and then take action based on signals received by on-board sensors or commands from a distance. (7) Technology can also be used to suppress information, i.e., to make objects difficult to detect and thereby reduce their vulnerability. (8) Advances are also being made in technologies of applying energy to targets (for example, in distributed-area weapons and hard-structure munitions); there are also advanced technologies under development, including high-energy lasers and electro-magnetic guns.

1. Some Criteria and Applications

In order to assess the consequences of these developments, some criteria or measures of merit are necessary. These include (1) the direct, first-order effects on the destruction of various classes of targets; (2) indirect effects such as delays and confusion; (3) the direct and indirect effects after allowing for countermeasures and other adaptive responses by enemies (including the virtual attrition resulting from inducing a diversion of enemy resources to active or passive defenses against these weapons).

There are, as always, overarching cost-effectiveness questions. Smart weapons are usually much more expensive per unit than dumb ones; therefore, they need to be more than proportionately effective. But effectiveness, as we all know, is usually a complex parameter. It includes indirect effects, often subtle, as well as measures of direct target destruction.

Consider near-zero CEP weapons. If we know where to aim, we will be able to hit what we aim at (defenses aside). This will be true of attacks on air defense missile sites and radars, airfields, bridges, supply dumps, concentrations of parked vehicles, and fixed command posts. These will be vulnerable, not just to large raids as in the past, but to small-scale ones. This has several consequences: (1) there will be a large increase in efficiency in the use of resources for such missions with fewer bombs scattered around the landscape; (2) the use of standoff weapons and remotely piloted vehicles (RPVs) will reduce aircraft and pilot losses;

and (3) there will be less collateral damage--always an important consideration and especially so in situations with a high political content.

It is also true that the technologies of information apply to the defense as well as the offense. Signal strength in the radar range equation (unlike that for optical sensors) diminishes as the fourth power of range; this hurts broad area defenses relying on radar sensors, but quick-reacting point defenses located at the target can recoup as range closes. The high accuracy of delivery applies to defensive weapons against incoming aircraft or missiles. Life will not be easy for non-stealthy penetrating aircraft or even for ballistic missile reentry vehicles closing on targets valuable enough to warrant being actively defended.

Although advances in technology open options (at a cost), in general, one does not get something for nothing. Exploiting the full potential of smart offensive weapons requires complementary expenditures on intelligence and command and control systems; there are always reliability problems, and it would be surprising if, for example, being low-observable did not hurt in terms of reduced performance or higher cost.

The ability to make highly accurate attacks on locatable targets at any range has major implications for attacks on fixed facilities. These include airfields (runways, maintenance facilities, and parked aircraft), bridges, rail lines (mining can be especially effective here), SAM sites, intelligence facilities, electric generating plants, and refineries.

No less important are improvements in target acquisition that are making it increasingly feasible to acquire targets near the Forward Line of Troops (FLOT), at ranges of 100 km or more. This permits ground-to-ground and air-to-ground missile attacks with distributed area munitions, which are effective, at least against light vehicles, troops and, perhaps in the future with terminally homing submunitions, against tanks. As time goes on, it will probably be possible for missiles to operate effectively against moving targets at more distant ranges.

Low-observable vehicles could further contribute to the ability to disrupt or stop a Soviet invasion, for example by reducing virtual attrition to the offense (the substantial effort devoted to assuring penetration through enemy air defenses to targets). The weight of effort devoted to jamming and defense suppression attacks is normally so great that the potential gain in effectiveness, with low-observable vehicles needing less of this support, is enormous, perhaps a factor of five in sorties that could be delivered against primary targets. Low-observable vehicles might also permit inflicting high attrition against Soviet airborne antisubmarine warfare (ASW) and air control aircraft, and facilitate search for not precisely known forces. Moreover, this technology inflicts virtual attrition on an adversary by requiring him to take defensive measures. If enemy aircraft can show up in one's rear area, more or less unannounced, many types of corrective actions will need to be taken.

It is true that low-observability can be countered with a dense enough array of sensors and defense weapons, but this is costly. There is an analogy with quiet submarines. For example, quiet U.S. submarines, which pose a threat to Soviet ballistic missile submarines, have caused the Soviet navy to plan to concentrate many of its ships and submarines in northern bastion areas, locations in which they will not be causing us much harm. Stealthy aircraft might induce similar responses on the part of adversaries. Low-observable vehicles might also make possible wholly new tasks; many of which might have never been considered in the past. A factor limiting their impact, however, is the slow rate at which low-observable aircraft will be introduced into our forces.

2. The Effects of Standoff Precision Attacks on Advancing Ground Forces

Especially if the routes of advance are known and monitored because they are restricted by terrain and a scarcity of roads, concentrations of vehicles will be subject to accurate fires delivered by ground-launched or sea-launched, cruise or ballistic missiles or by air-launched, standoff weapons. Attacks on bridges, railways, and other fixed facilities can further constrict movement, forcing the adversary to slow his movement or bunch up, increasing the concentration and vulnerability of his forces. The defender will be able to put down mines or directly attack groups of vehicles. Doing this effectively means having countermeasure-resistant, smart munitions and a rapidly responsive command and control system.

There will be counters, including enemy attacks on one's surveillance sensors or control systems, his use of active defenses and decoys, the use of natural cover, and wider spacing of vehicles. For example, with wider spacing, the lethal effect of opposing fires can be diluted. But this implies a drawn-out schedule of arrival of tanks and other units at the front. Thus, the indirect effect of more effective long-range artillery, for that is what standoff weapons amount to in this application, is a more favorable force ratio for direct-fire weapons and maneuver forces. If the defending side can deliver these fires from dispersed positions against the attacking side, whose forces must be on the move, more visible and sometimes in road-march formation, there will be an asymmetry favoring the defender. This will be enhanced if the defender's missiles can reach far laterally across the front or deep into enemy territory.

Indirect fire weapons would be even more effective if technology made possible individual submunitions homing on and destroying armored vehicles. Even if this turns out not to be practical, the ability to lay mines accurately in his rear areas and to attack only exposed troops and softer vehicles should have a major impact against a combined arms attack.

Perhaps the greatest obstacle in realizing the potential of these weapons on the battlefield is the difficulty of creating a compatible tactical command and control (C2) system. This may be more of an organizational than a technical problem. If these weapons are directed by a business-as-usual C2 system, many important targets will be attacked too late or not at all. Because these weapons will inevitably be few in number, there will be a temptation to direct them from a high command

level--one inevitably far from the scene of battle; there may be too many layers of review and decision.

3. Impact on Airfield Operations

Airfield operations would become much more difficult if it were possible repeatedly to lay down accurate runway cutting weapons, munitions penetrating aircraft shelters, and many bomblets and mines to slow all activity. Operations would be further disrupted if RPVs were able to orbit in their vicinity and home on radar, infrared, or acoustic signals, and--as might happen in some conflicts--if airfields are attacked with chemical agents. Even if it is too costly for the attacker to keep an airfield hors de combat continuously, it might still be feasible to keep it out of operation during periods deemed critical by the adversary.

The need to protect airfields and their functions is not a new one. Aircraft have long been parked in revetments and more recently in dispersed shelters; for some time air commanders have had to be concerned about runway cutters. These adaptive responses show that measures are often found to deal with new threats. But such protective means are likely to become much more costly; in any case, they will become increasingly needed. Better active defenses will be needed, more hardened facilities, more advanced--perhaps including remotely "piloted"--runway repair equipment, complex decoys, perhaps ultimately greater dispersal of facilities, and a shift to Vertical and/or Short Takeoff and Landing (VSTOL) aircraft or ground-launched missiles.

4. Implications for Surface Naval Forces

Some of these trends favor naval forces and some hurt them. A favorable one follows from the increased proportion of increasingly effective air effort that can be sent against primary targets with low-observable aircraft and smart munitions. This is especially important for ships because of space limitations; if the weapons on board are smart or stealthy, one can pack much more effective firepower into aircraft carriers. Also, offensive firepower can be more widely distributed throughout a fleet in the form of missiles. This is being done with the dual-capable Tomahawk missile.

On the other hand, the background of the sea surface (unlike the sea depths) is a difficult one in which to hide. Naval forces already devote a large fraction of resources to air defense, subtracting from those available for primary missions. This is another example of virtual attrition. This makes the cost per sortie of weapons delivered from carrier battle groups (cost including aircraft, ships, electronics, etc.) against primary targets quite high. There are defensive possibilities, both active and passive; the latter includes decoys, reducing electro-magnetic emissions, and techniques for making ships low-observable. (But for large ships, aircraft carriers in particular, the hiding options are less promising.) On the other hand, submersible, and perhaps semi-submersible, vessels carrying missiles--perhaps missiles in large numbers--are likely to become increasingly attractive. Again, this will come at a cost.

5. Non-nuclear Strategic Bombing

The ability to hit accurately anywhere also revives the possibility of doing what used to be called strategic bombing, attacking mainly industrial targets with the aim of reducing the enemy's ability to support military operations. In World War II, much effort was expended for results that were judged afterwards not to have been impressive in relation to that effort. It was then very difficult to hit what was being aimed at. Accuracy improved as time went on, and attack on some types of industrial targets were found to be effective, e.g., refineries. Nevertheless, on the whole, the most productive uses of air power were found to be those closely coupled to tactical operations. This observation also applies to deep interdiction of lines of communication.

Several factors bear on the potential ability of near-zero CEP weapons to fundamentally change this conclusion. (1) There are some important classes of military and industrial facilities that have critical elements that are of small dimensions. (Critical here means that their repair or replacement time is long.) Examples include the turbines of electric generating facilities, the cracking towers of refineries, and centralized telephone switching centers. (2) Attack on them could be carried out with little civilian damage (as long as nuclear reactors are avoided), unlike the attacks in World War II. (The cost of smart weapons--even if reduced substantially in the future--is likely to be too high for them to be used in indiscriminate bombing of civilians; even were this to happen, the quantities of such munitions available would be tiny in comparison with those dropped in World War II.) (3) The time before a successful attack influenced combat operations would vary greatly with the type of target; for instance, it would be short for communications nodes, medium for refineries, and long for industrial facilities. (4) Many critical elements can be protected by passive means, by putting them underground or blast sheltering; also some key components can be made redundant. (5) In any case, experience in more than one war has shown that people can be amazingly ingenious in devising substitutes when facilities previously deemed essential were destroyed.

In short, it is too early to assess the likelihood that the use of CEP weapons for strategic bombing will become a significant mode of operation, but it surely needs investigation.

6. The Importance of Being Hidden

A major implication for protection against attack by smart weapons is the importance of being unseen. Concealment, mobility, and frequent (but undetected) movement will become even more important than in the past. Conversely, the ability to detect and track enemy forces will convey a considerable advantage not only--or mainly--in destroying them but also in increasing the enemy's costs to protect them, in keeping enemy forces from massing, and in disrupting the timing of their moves.

It will also be useful to combine blast shelter protection with location uncertainty. Even though weapons will be deliverable with near-perfect accuracy, the radius of effectiveness of individual high explosives is relatively small, and it can be limited further with blast protection. Therefore, if one can create uncertainty as to the exact location of key functions (such as aircraft, controls, and maintenance) through the use of visual covers and can limit the lethal radii of weapons effects, the enemy will have to expend a lot of expensive munitions to do much damage.

7. Numbers of Conventional Standoff Weapons

Although the relative value of investments in various mixes of delivery means and munitions applied to difficult missions is not yet adequately understood, it seems likely that, allowing for countermeasures and the fog of war, tens of thousands of smart weapons would be needed (including those of short range) for a large contingency in Europe, with fewer needed for other areas. This order of magnitude contrasts starkly, on one hand, with the roughly thousands of smart munitions now planned for procurement and, on the other, with the millions of dumb bombs that would otherwise be required. Clearly, for the needed numbers to be affordable, unit costs must come down--a topic discussed below.

Practically any contingency on the Soviet periphery would require early U.S. air and naval operations, both shallow and deep, against Soviet airfields, lines of communication, air defenses, C3I, and naval forces. The leading edge (i.e., the first 1 to 2 weeks) of this response would be aimed at attriting Soviet forces and delaying enemy movement until U.S. and other Western reinforcements could arrive.

The exact type, number, character, hardness, and military importance of the targets for initial operations varies with the contingency. Table 1 gives a listing of targets by class and required weapon accuracy for three important classes of targets (fixed targets in central Europe, fixed targets in Southwest Asia, and mobile forces in a war between NATO and the Warsaw Pact). The class of fixed targets shown are appropriate for attack by intermediate- and long-range weapons. C3I limitations are unlikely to make feasible very long-range attack on mobile forces located well in the enemy's rear, such as troop formations (unless they have been immobilized by attacks on fixed facilities like bridges). For this class of targets, short- and intermediate-range weapons will be appropriate. The numbers of these mostly shorter range weapons needed could be in the tens of thousands.

8. Advantages Offered by Standoff Weapons

The primary use of precision standoff weapons would be to delay the movement of Soviet forces, to destroy some of them by destroying key bridges and attacking exposed vehicles and troops in road march, and to disrupt air operations by attacking sensors and airfields. In Europe, the large size of the attacking forces, the large number of Warsaw Pact airfields, and the high density of road and rail lines impose demands for

Table 1: TARGETING REQUIREMENTS FOR CONVENTIONAL STANDOFF WEAPONS

| TARGET CLASS | Target Characterization | Number of Targets Within Missile Range | | Number of Targets Attacked | | Total Number of Weapons Deployed ¹ | |
|--|-------------------------|--|---------|----------------------------|---------|---|-----------------|
| | | 600 km | 1400 km | 600 km | 1400 km | 600 km | 1400 km |
| A. EUROPEAN THEATER | | | | | | | |
| Major Airfields | Runways | 150 | 300 | 20 | 30 | 540 | 810 |
| Railroad Bridges | Point | 250 | 400 | 80 | 130 | 2,400 (1200) ² | 3,900 (1950) |
| Key Highway Bridges | Point | 300 | 450 | 90 | 130 | 1,350 (540) | 1,950 (780) |
| Tactical Command Bunkers | Point | 300 | ? | 300 | 300 | 1,500 | 1,500 |
| POL Pumping Station | Area/Multiple Point | 20 | 70 | 10 | 30 | 100 | 300 |
| TOTAL (Fixed) | | 1,020 | 1,220 | 500 | 620 | 5,890 | 8,460 |
| B. SOUTHWEST ASIA - EXAMPLE: IRAN | | | | | | | |
| Airfield Runways | | -- | 6 | -- | 6 | -- | 162 |
| Highway Bridges | | -- | 80 | -- | 80 | -- | 1,200 |
| TOTAL | | | 86 | | 86 | | 1,362 |

Table 1: TARGETING REQUIREMENTS FOR CONVENTIONAL STANDOFF WEAPONS
(Continued)

| TARGET CLASS | Target | Within Missile | | Number of | | Total Number of | |
|--|------------------|----------------|---------|------------------|---------|-------------------------------|--------------------|
| | Characterization | Range | | Targets Attacked | | Weapons Deployed ¹ | |
| Fixed Targets | | 600 km | 1400 km | 600 km | 1400 km | 600 km | 1400 km |
| <hr/> | | | | | | | |
| G. MOBILE TARGETS | | 1,700 | 1,700 | 1,700 | 1,700 | 22,000 | 22,000 |
| Maneuver Units (Artillery and Maneuver Battalions - short-range weapons) | | | | | | | |
| Mobile Missiles | | 700 | 800 | 700 | 800 | 3,800 (1,520) | 4,200 (1,660) |
| TOTAL (MOBILE) | | 2,400 | 3,720 | 2,400 | 2,500 | 25,800 | 28,200 |
| TOTAL (FIXED AND MOBILE) | | 3,420 | 3,720 | 2,900 | 3,120 | 31,690 (27,400) | 34,660 (29,000) |

¹ Assumes a 1000 lb unitary warhead with a 3-meter CEP or, if appropriate, an equivalent load of submunitions; system reliability = 80%; system survivability = 80%; system availability = 95%; confidence of destruction = 80%.

² The lower number of weapons (shown in parenthesis) is required if a 1-meter CEP weapon could be employed.

large numbers of weapons (with most of these having required ranges of under 100 km). The ability to do effective interdiction in the rear, for instance against the rail lines running through Poland, could seriously disrupt the flow of Soviet reinforcements.

Much attention has been addressed to being able to stop Warsaw Pact follow-on forces; those in the second and later echelons of attack. NATO attacks against these forces could occur as they reach final assembly areas, 30 to 150 kilometers from the forward line; these attacks would help reduce Pact forces engaged in the close-in battle. Use of scatterable mines between the assembly areas and the front, for example, could delay the rate of follow-on forces engaging NATO's outnumbered defenders. Similarly, attacks against bridges and other bottlenecks could back up enemy forces and make them targets for attack. Disruption of command, control, and communications also could impose time-consuming delays. Targets could include lines of communication over which flow the some 1,800 trucks needed for resupply of each tank division and the 2,200 needed to move a motorized rifle division communicate. Where concentrated and targetable, presumably near the FLOT, these trucks might be especially appropriate for attacks by such ground-launched weapons as ATACMs. Early use of long-range, conventional standoff weapons (delivered by B-52, FB-111, or Tornado long-range aircraft as well as by ground-launched and sea-launched missiles [with the range of ground-launched missiles now restricted to less than 500 km by the INF Treaty] against fixed targets and against ground forces backed up behind destroyed bridges and disrupted transportation modes might produce crucial delays in Warsaw Pact troop movements, especially in a short Warsaw Pact mobilization scenario (i.e., about 7 days).

Given the potential weight of the East's air attack, early counter-attack against airfields might also be essential to defeating Warsaw Pact air power. In the center of Europe, sustained attack on the 30 to 40 main operating bases in eastern Europe would severely disrupt the Pact's air offensive. Long-range bombers could provide additional airfield attack assets in the early 1990s. An air-launched, non-nuclear missile with a range of 280 kilometers, for example, could cover 70 percent of potential Warsaw Pact targets in the central region, including all of East Germany, most of Czechoslovakia, and a small slice of Poland. If such missiles had a 460 kilometer range, they could cover all of Czechoslovakia and most of Poland. For sea-launched cruise missiles, longer ranges (e.g., 1400 km or more) are needed in order to give ships flexibility in operation. Successful standoff attacks against Pact airfields early in a conflict could release many of NATO's tactical fighters for direct support of the ground battle. Standoff bomber attack could also deliver most mines against rail lines running through Poland and contribute to disrupting reinforcement and resupply. In general, the crucial time for the use of precision-guided, standoff missiles would be early in the conflict, before fighter-bombers could penetrate as yet undegraded air defenses with lower cost, short-range weapons. Such use of smart weapons would allow U.S. and allied ground forces time to mobilize and to move into defensive positions. Also, in the early days of a war, there would be more requirements for sorties than available fighters could produce. Using bombers

already in the inventory to deliver smart weapons would allow fighters to be used initially in more appropriate roles such as air defense.

In Southwest Asia, the sparsity of bases and lines of communication implies a much smaller demand for weapons on targets. (See Figure 5). However, the distances are quite long. Sea-launched cruise missiles and aircraft and long-range bombers operating initially out of CONUS bases, and perhaps subsequently out of Egyptian and other closer bases, could deliver standoff weapons to slow Soviet air and ground forces until other forces could be forward deployed.

Table 1 shows a notional sample of the classes and numbers of targets and weapons that might be appropriate to these tasks. It shows that over 10,000 weapons of various ranges might be needed to cover fixed targets in central Europe (see Figures 6 and 7 for typical areas covered), with a subset of this total being especially important. The principal assumptions underlying Table 1 are shown in Table 2. Because runways and bridges can be repaired and would need repeated attack, this total might well have to be substantially increased for realistic campaign planning. Also, assuming that the technology of attacking mobile forces is developed, perhaps another 20,000 to 30,000 weapons--many of shorter range, lower accuracy, and lower cost--could be usefully applied. In Southwest Asia, fewer than 2,000 accurate weapons might be required against fixed targets within the first week or two. Many more, of varying ranges and accuracy, would be needed against mobile targets. As already noted, the key point is that the relevant number of weapons that would be useful to have for a major European contingency is measured in the tens of thousands, not the few thousands we are now planning to have; but also not the millions of weapons that would be needed if they were dumb. These numbers are those that the United States and its allies should have available--not the United States alone. The ability of long-range vehicles to deliver these weapons at various points along the FLOT or deeply, in any theater, argues that a significant portion of our standoff weapons be allocated to such long-range forces.

Standoff ranges are determined by the need to keep the launching platforms (i.e., aircraft, mobile ground launchers) outside of the range of enemy defenses or easy enemy offensive attack range. Missiles, therefore, might have ranges from 30 km to 1,400 km, depending on the target and launcher location, with most of them at the short end of this range spectrum. Important fixed targets are likely to exist from near the FLOT to deep inside the Soviet Union. Table 1 shows fewer than 2,000 fixed targets in Europe within 1,400 km of plausible launch points, with about 11,000 weapons used in total against this array of targets. Of these targets, around 1,200 are especially important airfields and transportation choke points. Key targets in Southwest Asia are far fewer.

FIGURE 5: THE CENTER VERSUS THE FLANKS: DENSITY OF DEFENSE INFRASTRUCTURE

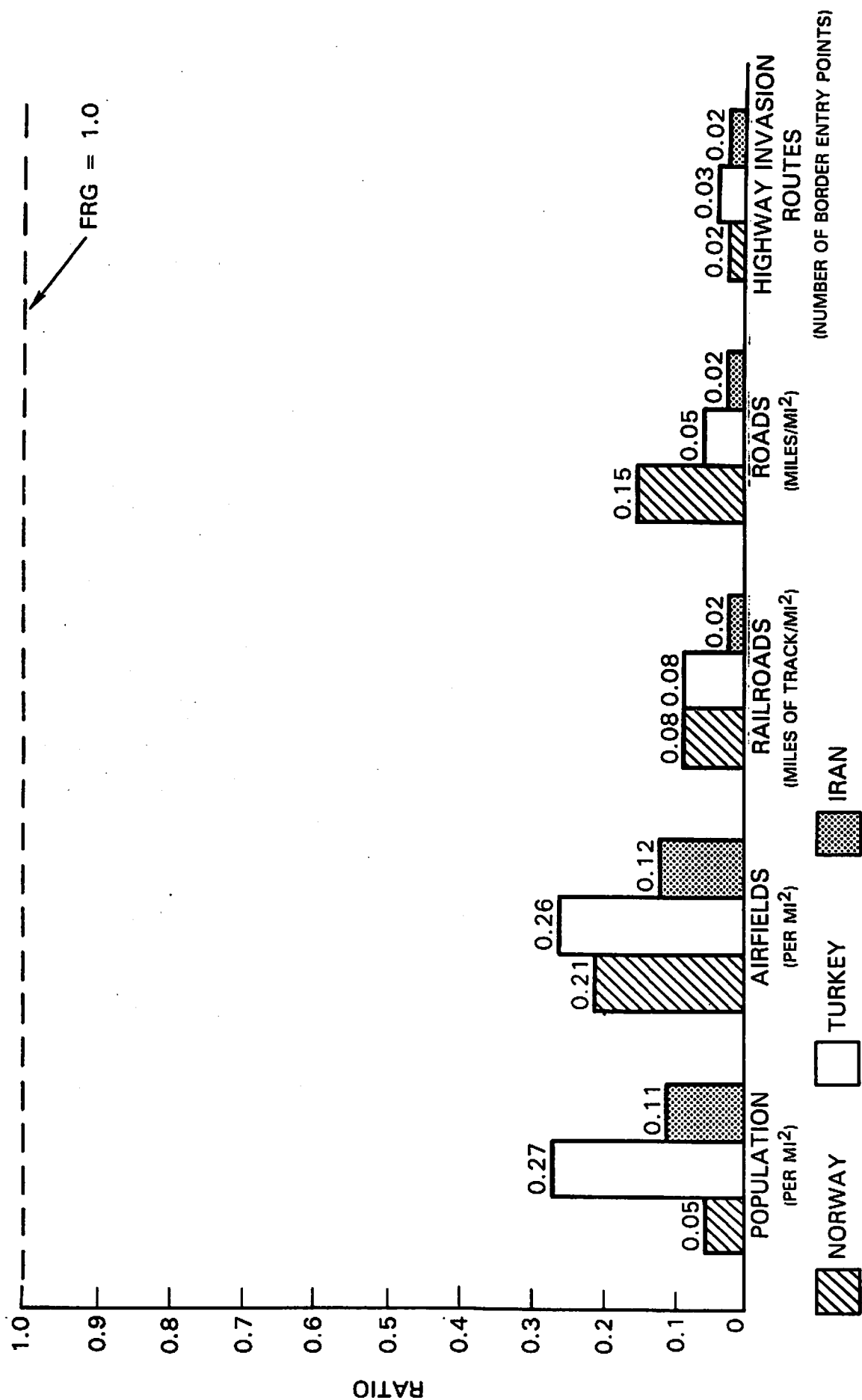


FIGURE 6: EUROPEAN TARGET COVERAGE OF A STANDOFF MISSILE WITH 600 KM RANGE (notional northern and southern launch points)

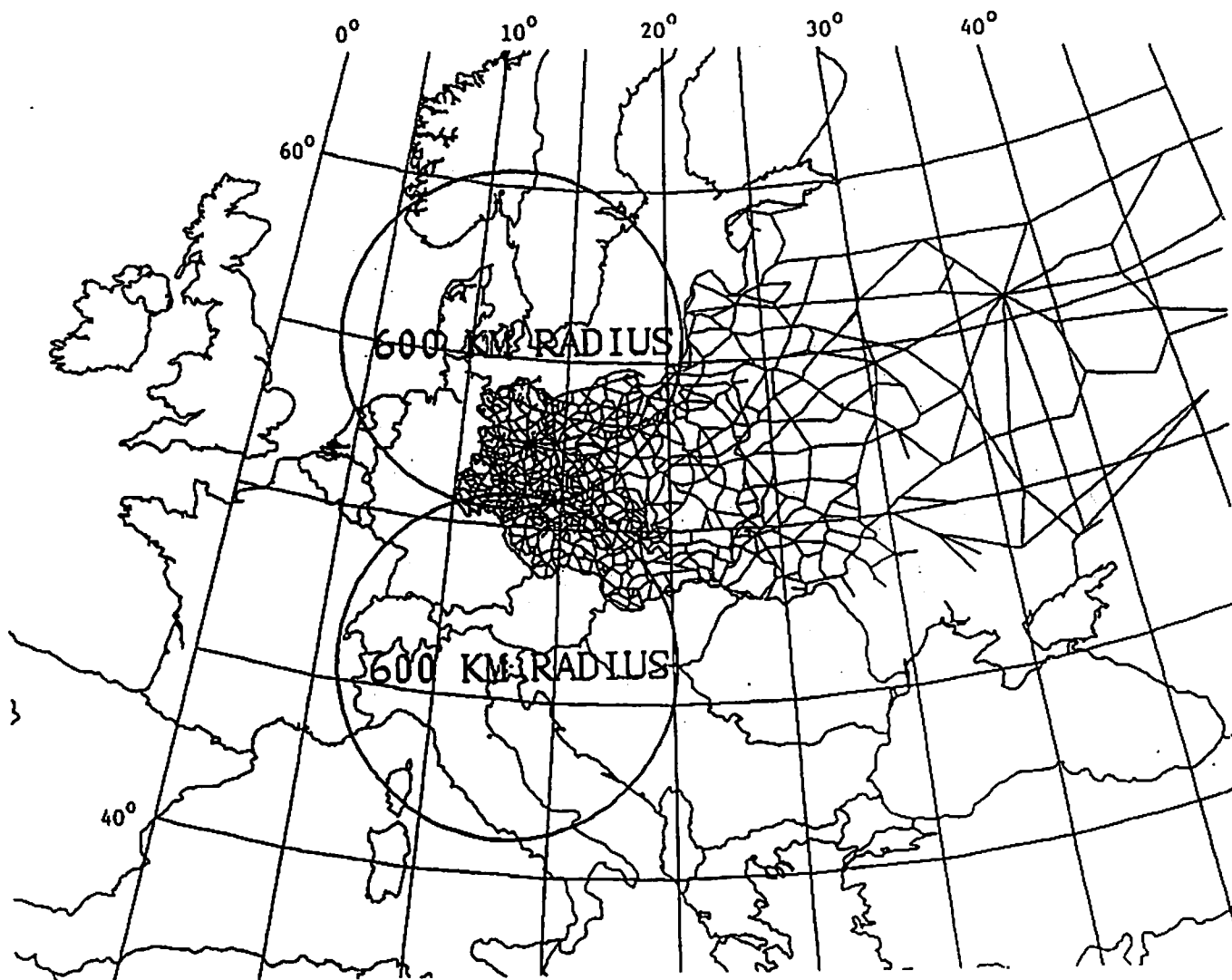


FIGURE 7: EUROPEAN TARGET COVERAGE OF A STANDOFF MISSILE WITH 1400 KM RANGE (notional northern and southern launch points)

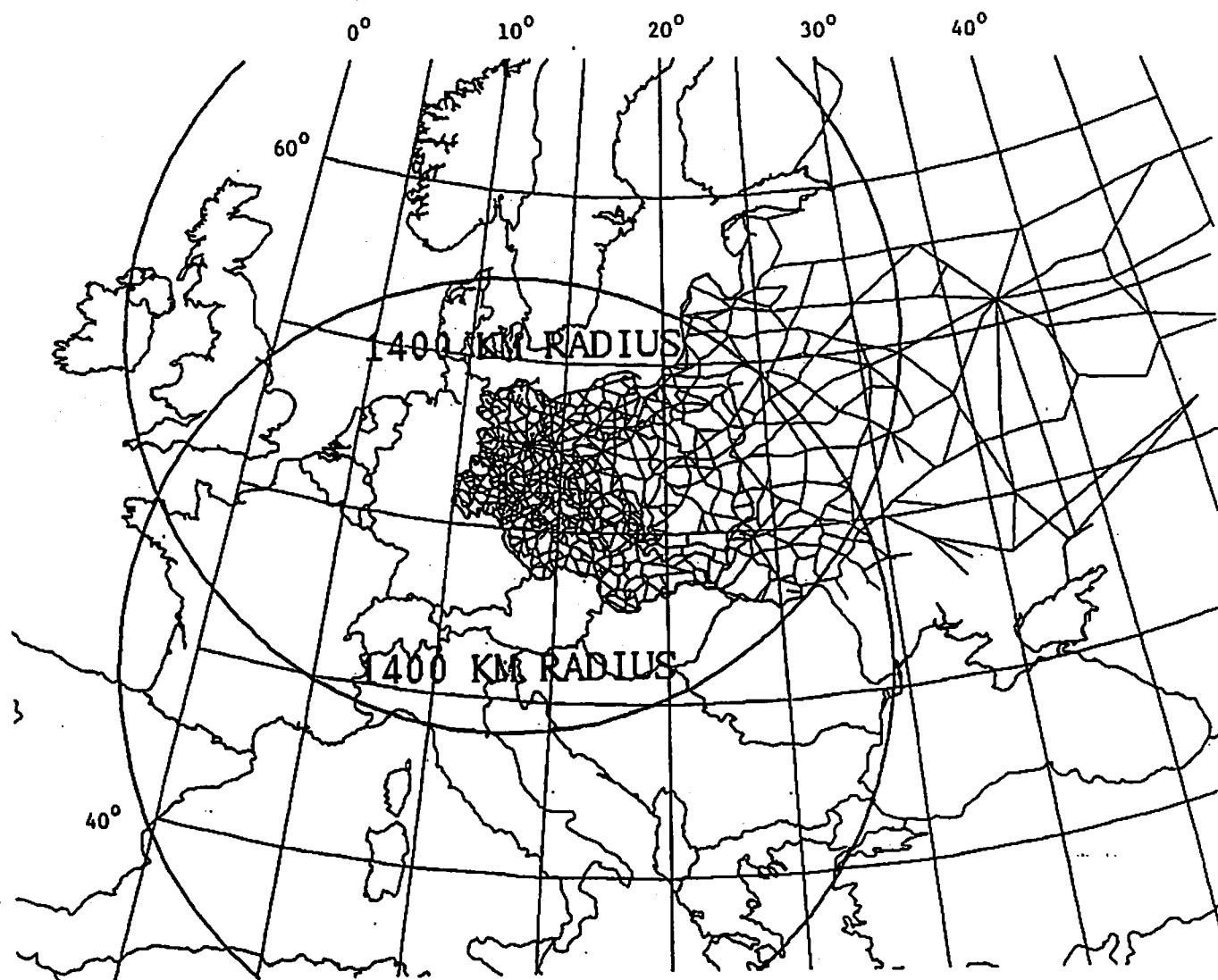


Table 2: ASSUMPTIONS ABOUT TARGETING AND WEAPON ALLOCATION

| <u>Target Type</u> | <u>Number of Weapons/Target</u> ¹ | <u>Number of Attacks/Target</u> |
|-----------------------------------|--|---------------------------------|
| Airfield Runways | 9 | 3 |
| Railroad Bridges | 10(5)/aimpoint | 3 |
| Highway Bridges | 5(2)/aimpoint | 3 |
| POL Pumping Stations | 10(3)/aimpoint | 1 |
| Nuclear Storage Sites | 5(2) bunker | 1 |
| Ammo Storage Sites | 5?/aimpoint | 1 |
| Maneuver and Artillery Battalions | 3?/battalion | 3 |
| Mobile Missiles | 5(2)/launcher | 2 |

¹ Assumes a 3-meter CEP; the lower number would be required if a 1-meter CEP weapon were available. "?" indicates a pure guess due to inadequate information.

For missiles with ranges beyond 150 km but less than intercontinental ranges (6000-8000 km), cruise missile technology appears to offer lower cost options than ballistic missile technology. The advent of small, relatively low-cost, high-performance gas turbines, high energy-density fuels, and low-cost, all-weather, day-night, accurate guidance makes this the preferred technical choice. However, cruise missiles do not provide the fastest means of delivery (i.e., time on target after launch varies from 6 minutes to 4 hours). For the longer ranges, delivery time may dictate the use of ballistic missiles for some targets. It has been argued in the past that ballistic missiles are more survivable in penetrating to target, but with the advent of SAMs with an anti-tactical ballistic missile (ATBM) capability, this will no longer necessarily be true. In addition, the use of low-observable technology in cruise missile designs will greatly increase their survivability. For missiles with ranges of less than 150 km, the lower cost of rocket motors offsets the penalty of oxidizer weight and high drag.

The Global Positioning System (GPS), as well as hybrid systems combining low-cost inertial navigation systems (INS) and digital scene correlation guidance systems, offer range-independent accuracies for cruise missiles of less than 15-meter spherical error probable (SEP) in all weather conditions, 24 hours a day. Terminal sensors will be needed to reduce terminal errors to a 1 to 3 meter CEP accuracy.

In the near term, it is costly to get below the 30-meter accuracy achievable from the GPS plus a low-cost inertial system. For many targets (e.g., runways, SAM sites, and backed-up ground units), that accuracy may be good enough. For others (such as bridge piers or refinery cracking towers), accuracy down to 1 to 3 meters is needed. To make this affordable, we need to bring the cost of near-zero CEP weapons down and to buy a mix of weapons with accuracies matched to target characteristics.

Current technology for autonomous, lock-on-after-launch missiles favors longer range weapons (i.e., greater than 300 km) against fixed, high-value targets. Shorter range weapons with man-in-the-loop guidance systems to attack within line of sight are potentially useful against mobile targets, but the addition of communications can significantly increase weapon cost. Moreover, the need to remain within line of sight of the target until the weapon arrives increases the risk to both the delivery platform and its crew and provides an enemy with additional options for defending against the weapons.

Moving targets present a difficult challenge for today's technology in an autonomous search-and-destroy mode. Despite expected progress over the next 5 to 10 years, weapons with this capability will probably not be available in large quantities inside of 15 to 20 years.

Contemporary designs show that cruise missiles capable of delivering 400 kg unitary warheads or submunitions can be developed that achieve better than 3-meter CEP accuracies against targets 600 km to 1,400 km from the launch platforms. The Standoff Launch Attack Missile (SLAM), a

modified air-launched Harpoon with a Maverick Imaging Infrared (I²R) seeker and a Walleye data link, is being procured by the Navy to provide a man-in-the-loop, 150 km standoff weapon with approximately 3-meter CEP capability. Autonomous cruise missiles (i.e., with no man in the loop) with conventional warheads, such as Tomahawk, have a demonstrated 1,400 km range capability; however, their accuracy is not as good. To develop autonomous cruise missiles with the range of Tomahawk and accuracies of less than 3-meter CEP, the use of the Global Positioning System may be required in conjunction with automatic target recognizers. Correlation and classification algorithms of high fidelity need to be demonstrated and effectively integrated with imaging sensors. Active sensors are probably required to achieve CEPs on the order of 1 meter. The addition of these systems would probably increase unit weapon cost by as much as \$100,000 on current estimates. (Continued rapid progress in electronics suggests that the added cost might prove to be much less than this.)

Standoff weapons sized to deliver a 400 kg warhead to a distance of 600 km will weigh approximately 1,000 kg. These weapons would be suitable for launch by both tactical and strategic aircraft, as well as by ground launchers (INF Treaty restrictions apart). The additional cost to provide a long standoff capability (e.g., 1,400 km) is largely expressed as an increase in fuel and fuel tank weight. That results in a 1,500 kg weapon that is more suitable for heavy bombers such as a B-52 or for ground-based launchers than for tactical aircraft.

9. Cost and Manufacturing Considerations

Unless the system cost per target killed is not less than the aircraft cost per target killed (including aircraft losses), there are few advantages to using standoff weapons. Three factors contribute the most to smart weapon cost: electronics weight, electronics complexity, and learning-curve economies-of-scale or manufacturing techniques. Although electronics complexity continues to go up, specific electronics system weight is coming down. These are offsetting trends and the eventual outcome is unclear. The lower cost from improved integrated circuits may not be realized unless large production quantities are achieved because of the design and production costs associated with custom chip manufacture. In the past, we have generally opted to increase capability rather than decrease cost. Now we should sacrifice performance gains more often to keep costs low.

There is evidence that learning curves of up to 75 percent have been achieved in previous standoff weapon production programs. If such economies-of-scale can be achieved, the unit costs for this class of weapon may be reduced by another factor of two provided that we acquire more than 5,000 units at steady production rates. One of the reasons that standoff weapons have costs of \$1 million or more is that their production runs have usually been truncated at well under 5,000 units. The usual justification has been that there is a new and better technological option.

Source: <http://www.albertwohlstetter.com>

In addition, flexible, automated manufacturing techniques can be used to reduce unit costs. This implies a commitment on the part of the manufacturer to invest in expensive manufacturing equipment. This is only in the manufacturer's interest if the Government commits to large enough production runs to make the equipment amortization a small part of the average unit cost. Thus, a long-term Government commitment is necessary not only to acquire enough of these weapons to be militarily useful, but also to achieve average unit costs in the several hundred thousand dollar range. Now may be the time to make such long-term commitments. A goal of producing, say, 10,000 weapons (e.g., of several types at an average cost of \$500,000-\$600,000 each) implies a procurement investment of \$5-\$6 billion. This is not unreasonable by comparison with the much larger amounts we are spending on platforms; it is comparable to the Advanced Medium Range Air-to-Air Missile (AMRAAM) air-to-missile investment.

An explicit, long-term research and development commitment is required in the areas of:

- Unitary and submunition warheads (including air-deliverable smart mines and penetrating warheads);
- Low-cost sensor systems;
- Automatic target recognition algorithms;
- Low-cost, modular weapon design and manufacturing techniques.

The standoff range requirements and capabilities of these weapons means that we should avoid arms control constraints that equate long-range capability to strategic/nuclear roles. Future arms control treaties need to make adequate provision for long-range, air- and ground-launched conventional standoff weapons.

Of course, the Soviets will also acquire weapons employing these technologies, but they are likely to do so with a considerable lag. (This lag is a matter of great concern to the Soviet leadership.) Moreover, if, as appears to be the case, the net effect of such weapons will be to bolster the defending side, the case for avoiding limitations on such weapons is further strengthened.

Several cautionary observations are also in order. Although impressive increases in weapons performance have been realized, promises have characteristically run ahead of performance. The causes are several: the tendency to maximize performance - at high cost when a less ambitious advance would often be very good; the resulting technical difficulty of the goals sought; the failure to treat smart weapons from a broad systems or architectural perspective; and the failure to recognize the critical dependence of these weapons on parallel improvements in C³I, improvements that pose organizational problems of comparable severity to the technical ones. These problems must be addressed systematically and effectively in future acquisitions of these weapons if the great military potential they offer is to be affordably obtained.

V. COMMAND, CONTROL, COMMUNICATIONS, AND INTELLIGENCE TO SUPPORT STRATEGY

Our C3I systems will increasingly need to provide targeting for conventional weapons being sent well behind the FLOT. The growing importance of C3I functions implies that these systems will become increasingly attractive as targets. Most of our national systems, especially those in space, are vulnerable; support of wartime operations, including conventional operations, needs to be a major and explicit criterion for overall space systems design. This implies, among other things, having ASATs capable of destroying Soviet satellites--both as a deterrent to Soviet attack on our satellites and for use during conflict when appropriate--and having satellites that can be put rapidly into orbit in wartime to substitute for our destroyed ones. Some satellites useful for combat support do not have to be as large and costly as those used for peacetime purposes; because they can be both smaller and more numerous they would have an advantage in lower system vulnerability. Our present dependence on only two main launch facilities would create unacceptable vulnerability during combat; we need to be able to launch combat satellites from mobile launchers.⁹

Progress has been made in reducing the vulnerability of our C3I systems needed for response to a massive nuclear strike. Future efforts to improve C3I should focus more on surviving and functioning in an environment of selective, but possibly extended nuclear operations by both sides.

A. WARNING

Warning is usually ambiguous, not only because the signals may be incomplete or equivocal, but also in the sense that the enemy intent to attack may not be fixed, whatever his state of mobilization. Ambiguity requires that our defensive responses to warning be as repeatable as the enemy moves that might prompt them. This puts a heavy burden on an accurate interpretation so that our counter can be sufficient to deter without being so excessive as to be unsustainable.

Not only must we respond, but, more difficult, our decision to respond must be timely. Response to warning involves the interactions within and among the intelligence, military, and political leaderships. However, warning analyses often focus on a sudden large-scale mobilization. While this may be particularly relevant for short-warning contingencies in central Europe, it poses the least ambiguity and the least need for our leadership to trade off readiness against false-alarm costs. Much more stressful for our decision process would be a slow, uneven mobilization by an adversary that posed major uncertainties in both time and direction of his intentions.

⁹ The paper on Space Policy prepared for the Commission on Integrated Long-Term Strategy provides details on these points.

Generally, the core Soviet attack preparation problem is retraining lower readiness divisions, and that process is a critical warning indicator. Even in the center of Europe, Soviet reinforcement capability would be affected more by retraining than by the physical movement of men and equipment.

An alternate strategy that entails smaller Soviet forces might be preferred by Moscow if it also meant a less timely Western response. This consideration might be especially important in Southwest Asia and northern flank contingencies. The United States has few or no forces normally deployed in these areas and faces major political problems deploying any in the absence of a clear threat to U.S. interests. Moreover, in both Iran and Norway, rough terrain may work against the defender if an initial Soviet strike using airborne and heliborne troops occupies critical forward points along the lines of communications. Such a quick Soviet strike with a smaller initial force might be more productive than building up a full offensive capability in a way that guarantees that the defenses (including U.S. reinforcements) would also be ready.

B. C3 INFRASTRUCTURE

We need to pay more attention to the problem of enduring C3I. On the NATO flanks and in the Pacific, between land bases and the Navy, C3 is fairly robust; for the Navy, C3 without local infrastructure and operating under highly variable conditions is the routine situation. (However, even in these cases, intelligence is considerably more fragile.) CENTCOM has the worst problem, in large part because of the modest resources available to it. CENTCOM needs deployable communications for ground-based forces because it covers a large land area with very little usable local infrastructure. Attempts to overcome these difficulties have so far been inadequate.

CENTCOM planning also needs to cover the contingency of a conflict that overlaps its area and the neighboring sections of EUCOM/NATO that are critical to it (particularly Turkey and the eastern Mediterranean). Coordinated planning by EUCOM and CENTCOM should not await allied agreements--the threat of simultaneous Soviet attack on both areas is illustrated, as already noted, by their assignment of responsibility for operations against eastern Turkey to their Southern TVD, which also covers operations in the Persian Gulf region. As a focus for the needed coordination between CENTCOM and EUCOM, it might be useful to give the Commander-in-Chief of the U.S. Navy, European Command (CINCUSNAVEUR) (who would exercise control of all allied Mediterranean area forces in his NATO wartime capacity as CINCSOUTH) standing command of all American forces in the region as a joint commander subordinate to the Commander-in-Chief of Europe (CINCEUR).

C. LONGER RANGE SUPPORT OF THEATER OPERATIONS

The advent of improved sensors able to look well beyond the FL0T, together with accurate standoff missiles, ground, sea and air-launched, is placing increasingly heavy demands on battlefield control. A responsive and fast-acting control system will be needed to complement the sensors and weapons; creating it poses as many organizational problems as it does technical ones.

Over the next 20 years, long-range systems such as conventionally armed bombers, with the mission of supporting theater operations, will require the development of new approaches for operational control. In terms of their targets and delivery ranges, these systems may be very much like strategic nuclear forces, which have traditionally been targeted outside of normal theater channels. Given their dedication to theater support missions, they will need to be responsive to rapidly changing circumstances of theater combat, as already recognized by the Strategic Air Command (SAC).

As deep conventional strikes grow in strategic importance, so will the issue of using long-range, dual-capable weapons against the Soviet Union. In the case of central Europe, we tend to think of eastern Europe as a buffer zone within which most conventional strikes would presumably occur. However, in combat on the flanks or in the Pacific, it is impossible to avoid the issue. There, the West would face ground, air, and naval forces directly supported from facilities in Soviet territory. To confer sanctuary status on such facilities would be to grant the Soviets an intolerable advantage. To prosecute deep conventional attacks against key facilities on Soviet territory would run the risk that the Soviets might misinterpret such attacks as an escalation to nuclear attacks on their home territory. Conventional attacks using dual-purpose systems against Soviet territory would be second only to the actual use of nuclear weapons in straining the stability of the strategic balance. Great selectivity and control of such strategic conventional strikes would be at a premium. However, both sides will have options to greatly increase the stability of the balance over the next 20 years (see section VIII) and the Soviets have already devoted considerable resources to ensuring that their situation would not be intolerably threatened by the kind of strikes required to support theater operations. In any case, we need to signal to them in peacetime, by our posture and our doctrine, our intent to respond with such operations should they attack.

Theoretically, a few precision conventional strikes could rival the effectiveness of a mass bombing raid or a nuclear weapon against some types of targets. Such strikes would require very exact information on where to aim the strike, and such information will not always be present. Moreover, rather than totally destroying a target, such a strike would generally interrupt a specific function for a time; through hardening, redundancy, and substitution, there are ways to offset the impact of such attacks. Fine-grained understanding of the vulnerable points of large, complex targets, their functional interactions, and prospects for defense

and recovery--both to know where to aim and to help understand the effectiveness of such strikes--are needed.

The deeper the strikes, the more taxing the requirements for target location and identification from organic reconnaissance assets or theater access to national intelligence. Against many targets, either relocatable or time-urgent fixed targets, intelligence must be near-real time (particularly for bomb-damage assessment). While for many targets near-real time may allow hours or more of delay before striking them, in almost every case, it means reconnaissance must continue in wartime. Survivable deep reconnaissance is an area where we have been particularly lacking.

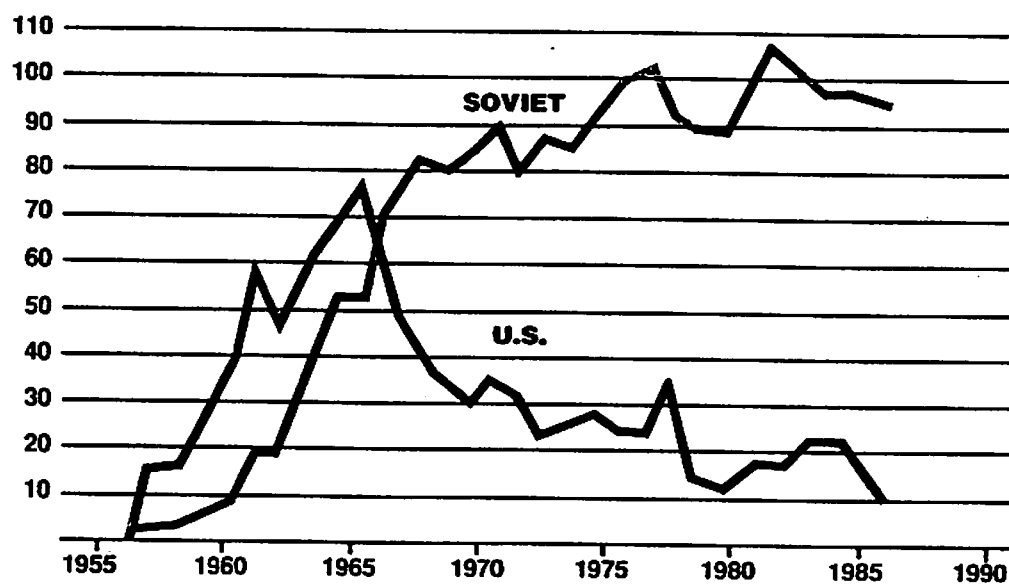
D. SPACE WARFARE IN THEATER WARFARE

Despite the recent creation of the Space Command (SPACECOM), the United States remains far behind the Soviets in serious preparations for the military uses of space in wartime. The difference between the two countries' capabilities to handle military demands in space is illustrated by the Soviets' rapid launches of satellites in the 1973 Arab-Israeli War and the Falkland campaign, compared to the disaster for the U.S. space program as a result of one launch failure in the Challenger Shuttle. (See Figure 8 which compares U.S. and Soviet space launches.)

Space offers such large advantages in peacetime for functions like communication, navigation, and surveillance that we have allowed ourselves to become over-dependent on satellites to support them. The wartime role of space systems has usually been viewed in the space community as either a variation on past crisis situations (Vietnam or the Libyan strikes), imposing peak demands but no direct threat to space systems themselves, or the "too tough" problem of operations in a general nuclear war involving major U.S. Single-Integrated Operational Plan (SIOP) and Soviet Red Single-Integrated Operational Plan (Red SIOP) attack options. In the latter situation, the vulnerabilities of satellites, after they play their role in the execution of SIOP, would be the least of our worries amidst the general destruction. The perceived limitations of space systems are reflected in Service views that satellites cannot be counted on in a general non-nuclear war.

The growing importance of space for theater operations will make it increasingly likely that the Soviets will attack our satellites in contingencies short of a nuclear or widespread conventional war. Our lack of more than a minimal antisatellite (ASAT) capability, and the Congressional prohibition of efforts toward a better capability, heighten that temptation. Meanwhile, many SDI-related technologies could lead to effective ASAT capabilities. This prospect, however, risks being obscured by both an SDI community for which ASAT has been at best a secondary objective and a space community eager to avoid a focus on satellite vulnerabilities. ASAT capabilities are far too important to remain an orphan.

FIGURE 8: U.S. vs SOVIET SPACE LAUNCHES



Source: Discriminate Deterrence, The Commission on Integrated Long-Term Strategy, Washington, D.C.: GPO, January 1988.

We have to continue supporting peacetime capabilities as a design goal for many space systems. However, our space systems must also be designed to include wartime capabilities as well. One promising approach is the DARPA LIGHTSAT program to develop small, inexpensive satellites with more modest capabilities than our peacetime satellites, but capable of supporting essential wartime functions. Such satellites could be rapidly launched from mobile launchers, ground-based or sea-based, with

minimal ground support. (The proper design of ground support functions is as important as that of the satellites themselves). Stealth aircraft or RPVs, in some instances in long-endurance platforms, could also serve in wartime many of the missions that in peacetime are assigned to satellites.

E. C3I AS A TARGET FOR NON-NUCLEAR STRIKES

Space will not be the only place for attacks on high-level C3I during a conventional conflict. Targets could include not only satellites, but also their ground support, key intelligence centers, major radars, and critical communications nodes. U.S. and allied C3I networks include many soft, high-value targets with little redundancy; these systems are prime candidates for future Soviet conventional or special operations strikes in Europe, in Northeast Asia, or even in CONUS.

Many elements of C3I systems that would be lucrative targets in conventional combat will have functions associated with nuclear strike systems. Therefore, strikes on nuclear-associated C3I might occur apart from a massive nuclear strike. During a conventional war, we might expect the Soviets to attack NATO C3I systems that support theater nuclear forces in order to limit NATO escalation options. Similar motives may also apply to Soviet attacks at the national level. Moreover, many C3I systems on each side are dual-capable or even triple-capable. For example, large phased-array radars are usable for ABM battle management, ballistic missile early warning, and space surveillance in support of ASAT. We cannot--and we should ensure that the Soviets cannot--count on one function endowing others with sanctuary status. Thus, destroying Soviet reconnaissance satellites (in peacetime, "National Technical Means" explicitly protected by the Strategic Arms Limitations Talks [SALT] Treaty), may be critical for us in maintaining the survivability of many of our forces in an extended combat. Nevertheless, with prudent actions by us, there should be little or no risk of our being decapitated by conventional attack. In fact, recent efforts in both the United States and the Soviet Union have substantially reduced the consequences of even nuclear attacks on C3I.

F. C3 ENDURANCE AND NUCLEAR CONFLICT

Nuclear forces must be able to survive attack if they are to deter rather than incite one. The same is equally true of C3 systems.

A continuing effort over the last decade to reduce C3 vulnerability has had considerable success in reducing our need to launch our nuclear forces on warning of a Soviet attack due to C3 vulnerability. The less successful effort to avert "launch-it-or-lose-it" pressures by reducing the vulnerability of our ICBMs has obscured this more important accomplishment.

Quite appropriately, there is a continuing effort to deal with the problem of C3 vulnerability in the face of a mass nuclear strike: the current system is not perfect and the threat grows. However, with reduction over time in the vulnerability of nuclear forces on both sides, discriminating attacks on selected targets will become a much more important type of task in both U.S. and Soviet use of nuclear forces. (See section VIII.) A primary purpose for selective nuclear strikes, paralleling that of precision, long-range conventional strikes, is likely to be the support of theater operations. C3I improvements, especially for enduring intelligence, should be increasingly oriented towards serving such objectives in an extended conflict involving limited use of nuclear weapons.

G. CONCLUSIONS ON C3I IN LONG-TERM STRATEGY

Our warning and response system can contribute to deterring a possible Soviet attack by making it feasible for us to show our readiness for defense should they attack. Timely decision-making will often be the hardest part. A Soviet strategy involving a slow and uneven mobilization, maximizing the ambiguity of the warning picture, may be most effective at helping them to gain surprise.

Exploiting our growing capability for deep, precision, conventional strikes will require greater support from high-level intelligence to choose and to locate targets, and to identify their vulnerabilities. The importance of providing support to theater commands from our national sensors will grow, as will the need to create responsive battlefield controls matched to improved sensors and standoff missiles, and the need to coordinate organic, deep-strike assets with those controlled by other theater commanders and by the national level.

The more out-of-theater C3I becomes involved in theater operations, the more attractive it will become as a target. The United States has neglected to deal with the vulnerability of C3I in extended conflict, both on the ground and in space; recent improvements are only a modest beginning. A major, if not the major, criterion for evaluating our future systems should be their ability to support extended theater conflicts. LIGHTSATS, designed to be rapidly reconstitutible from mobile launchers and to operate with minimal ground control, along with stealthy aircraft and RPVs, offer promise here.

Finally, having achieved reductions in our top-level command vulnerability in the face of a sudden massive nuclear strike, we should now focus our efforts on improving nuclear C3I endurance in an extended, constrained conflict where mass nuclear strikes are successfully deterred and information requirements to support selective strikes are paramount.

VI. THE ROLE OF CHEMICAL WEAPONS

U.S. chemical weapons exist to deter chemical warfare. In contrast to our nuclear weapons doctrine with the options of using them either first or in retaliation, U.S. policy prohibits first-use of chemical weapons and restricts retaliation to proportionate attacks for the sole purpose of discouraging further use.

This deterrence doctrine requires a chemical warfare capability good enough to deny the Soviets a significant advantage should they use chemical weapons. Two complementary capabilities are needed: a relatively modest offensive capability coupled with a defensive posture roughly comparable to that of the Soviets. These should be enough to deter large-scale Soviet first use since two-sided use of chemicals tends to favor the defender. The encumbrances of chemical protective gear and other problems of operating in a contaminated environment will affect both sides. However, these effects are likely to be greater on the offensive side (Warsaw Pact), which will rely on complex movements of forces to gain territory, than on the side (NATO) with the goal of holding the line.

The importance of NATO's chemical posture will increase over time if the alliance improves its relative conventional strength. If the Soviets become less confident in a purely conventional victory, they might be more inclined to chance the use of chemical munitions to gain an advantage. In particular, they might perceive that selective use, directed against especially important and vulnerable targets, could help them achieve rapid penetration and a quick victory.

Although production of chemical weapons continues to be contentious, the Congress has appropriated funds for new munitions, including the 155 mm binary artillery projectile and the Bigeye binary chemical bomb. The plan is to replace the current stockpile of chemical weapons with one much smaller but more militarily effective. The Bigeye is especially important; it will confront the Soviets with a NATO capability to deliver persistent chemical agents beyond artillery range. Thus, NATO will be able to do to the Pact, what the Pact can now do to NATO: subject its follow-on forces and other critical military units in its strategic rear to the hazards of chemical contamination.

Some U.S. chemical weapons are now stored in the Federal Republic of Germany. Present plans, driven by Congressional actions and an agreement between Chancellor Kohl and President Reagan, are to withdraw and destroy these weapons and store the binary weapons in the U.S. The resultant lack of peacetime positioning of U.S. chemical weapons in NATO Europe will be less than an optimum situation. However, U.S. storage will support an adequate deterrent posture, if we develop and practice contingency deployment plans. Bolt-out-of-blue attacks are among the least plausible of the threats to NATO. Such deployment plans are needed in any event to respond to chemical warfare attacks on U.S. forces outside of NATO's central region. The recent French decisions to produce chemical weapons will also contribute to deterring Pact use.

Even a comprehensive worldwide ban on chemical weapons, which the U.S. proposed in 1984, will not relieve us of the need to deal with the threat of chemical warfare. The Soviets have in principle, at least in public statements, agreed to challenge and other on site inspections, key verification provisions of the U.S. proposal. However, the incentives to cheat will be great; one-sided chemical use can confer great advantages. Furthermore, detection of cheating will be difficult even with the unprecedented on site verification measures.

We need to understand better the military significance of the uses of various amounts and types of chemical weapons. A defensive posture stronger than today's may be required to help deter cheating. In any case, with or without a treaty, we need stronger research (which is not prohibited), analysis, and intelligence efforts to avoid technological surprise.

VII. ACTIVE VS. RESERVE FORCES AND DEFENSE MOBILIZATION

Since the 1950s, U.S. defense policy has assumed that any conflict would be essentially fought with forces in being. This is in contrast with the earlier concept, both before and immediately after World War II, that we would plan to build up our military power as the international political environment deteriorated or during an actual war.

The shift away from mobilization planning occurred because it seemed irrelevant to a nuclear war--a war seen as being settled quickly, perhaps within hours--or to a large-scale conventional war, which was also anticipated to be short, perhaps a matter of weeks.

Although the factors that caused us virtually to abandon mobilization preparation and to concentrate on ready and nearly ready forces remain relevant, we might consider a shift at the margin from active to reserve status for some of our forces or increase our emphasis on achieving shorter lead-times to expand weapons production.

The emphasis of the Commission on Integrated Long-Term Strategy on paying more attention to more confined contingencies supports such a shift. Such contingencies would amount to strategic warning that things might get much worse later; moreover, we might find, as in the Korean and Vietnam wars, that we needed to expand rapidly some types of defense production.

Three key conditions might motivate such a shift: (1) unwillingness by the Congress to support our current active force, perhaps in the belief that the likelihood of war with the Soviet Union over, say, the next 5 years is low, even with reduced U.S. ready forces; (2) exploiting the West's technological advantages, which would permit substitution of advanced technology weapons for some active duty and forward-based U.S. forces and make some reductions in our active force structure tolerable; or (3) a shift in our contribution to Europe's defense in accordance with the comparative advantage of the United States versus the Europeans. On this last point, foremost among the allies' advantages is location; they are already in a theater of potential conflict, can quickly bring up reserves, and can use civilian infrastructure. Our comparative advantage lies in strategic mobility and the potential to bring on line a large increment of additional forces and weapons.

VIII. ISSUES OF NUCLEAR STRATEGY

In seeking a coherent strategy, adapted to changes in technology and the security environment, the Working Group's treatment of nuclear strategy has emphasized several kinds of interactions: between nuclear and non-nuclear forces, between offense and defense, and finally between theater-based forces and the intercontinental or sea-based forces. These interactions are discussed after an overview of impending nuclear issues.

A. OVERVIEW OF IMPENDING ISSUES OF NUCLEAR STRATEGY

On one hand, over the next 20 years, technologies for precision guidance, selective destruction, sensors, information processing, and robust wartime communications offer each side opportunities to reduce its reliance on the massive use of nuclear weapons; on the other hand, failure, particularly failure of the West, to adapt to the changing situation could open dangerous instabilities and weaken the coherence of the Western coalition. Assuming both sides exploit their opportunities, the net effects on deterrence of aggression, and the likelihood that nuclear weapons will be used, depend not only on the nuclear balance but also on the overall strategic situation and military balance, issues discussed elsewhere in this report and in those of other working groups of the Commission on Integrated Long-Term Strategy. In the event of war, both sides would continue to prefer to fight at the outset with non-nuclear weapons so long as a favorable outcome appeared possible. However, incentives to use nuclear weapons might arise if either side perceived opportunities to avoid impending defeat or to influence the course of a war decisively in its favor by limited and selective use of nuclear weapons against key military targets, not excluding those in the homelands of the United States and the U.S.S.R. If either side initiated the use of nuclear weapons, it would have overwhelming incentives to do so in a manner that would continue to deter a massive nuclear response by its opponent.

Nuclear weapons, if used at all, would probably be used in a war that both sides expected to be a mainly non-nuclear one. But U.S. and Soviet leaders will undoubtedly continue to see the use of nuclear weapons as posing a high risk of great destruction. Consequently, decisions about their use would continue to be made only at the highest national level, and the weapons themselves will remain under rigorous, high-level control. Nevertheless, any non-nuclear war between nuclear powers would be fought in the shadow of nuclear war; it would have to be conducted so as to avoid presenting an adversary with opportunities for the decisive use of small numbers of nuclear weapons. Because of political and geostrategic asymmetries, the Western coalition's posture in peacetime, crisis, or the transition to war is more likely to offer the Soviet Union such opportunities than vice versa. If not remedied by combinations of measures to protect the targets of such attacks and to prepare suitable offensive responses, this situation would seriously undermine stability.

The resulting problems are broader than those depicted in the overly narrow, distorted, and misleading preemptive instability paradigm that has dominated Western discussion of nuclear war, but include these problems. This narrow paradigm emphasizes the incentives for each side to conduct prompt, massive counterforce attacks against the strategic nuclear forces of its opponent in order to limit the damage to its own cities. This emphasis follows from the unwarranted assumption that any use of nuclear weapons for a significant military purpose¹⁰ would involve massive and indiscriminate attacks, essentially indistinguishable in terms of civilian damage from deliberate attacks on cities. The preemptive instability paradigm is summarized and its consequences assessed in the discussion of intercontinental and sea-based offensive nuclear forces and defenses against them later in this section.

The Soviet Union has been reducing the vulnerability and increasing the flexibility of its nuclear forces and command and control system. This report's conclusion on the diminishing relative importance of prompt, massive nuclear attacks therefore depends on Western success in continuing to improve the wartime viability and effectiveness of our forces and C3I under either nuclear or non-nuclear attack.

Active defenses at various stages of a deployment program could play a variety of roles in diminishing future incentives for massive, prompt nuclear attacks against our nuclear forces, thus helping to increase stability in a crisis. Defenses of modest cost and effectiveness could protect against small, short-warning precursor attacks on critical C3 targets, helping to deter the larger follow-on attacks of which they would be key parts. They could also defeat or deter limited, selective nuclear strikes against small sets of military targets that might be essential in supporting operations in an overseas theater. More capable, against higher cost defenses could defeat follow-on counterforce attacks, helping to resolve our difficult ICBM basing problems. And, still more capable systems could also reduce the collateral civilian damage from widespread attacks on military targets. The net effect of introducing defenses would depend on the effectiveness of countermeasures against them. Western leadership in technology makes this an area of potential advantage for the West.

Stealth technologies are likely to play a decisive role for both sides in the outcome with respect to the future importance of small, selective attacks. One possibility may be to increase the emphasis on air-breathing or aerodynamic systems relative to ballistic missiles.

¹⁰ The limited and symbolic use advocated by some strategists to signal NATO's resolve as the final recourse in persuading the Soviets to halt an overwhelming Soviet non-nuclear attack would not be intended or likely to redress the military situation. It might, however, serve as a catalyst to overcome reluctance by Soviet political leaders to initiating the selective use of nuclear weapons as a coup de grâce to NATO's military resistance.

If the net result of increasing defenses is a downgrading of the perceived utility of nuclear weapons, particularly in large numbers, it may facilitate agreements for mutual nuclear force reductions. Such developments, by further diminishing the West's ability to compensate for non-nuclear deficiencies through nuclear threats, could add to the need to change the declaratory policy, the force postures, and employment policies of the Western Alliance.

B. THE ROLE OF THEATER NUCLEAR WEAPONS IN NATO STRATEGY

Analysis of the use of nuclear weapons to affect military operations has been focused on the European theater and is likely to remain so. The following discussion preserves this focus. (The Working Group expects that many of the improvements suggested for Europe will also be useful in other theaters.)

Changes in political conditions, the nuclear balance, and technology are increasing NATO's need for an integrated strategy linking theater-based and external nuclear forces (the latter treated in section VIII.D). The massive growth in Soviet nuclear forces means that the U.S. commitment to defend Europe with nuclear weapons might not retain even residual credibility if it rests primarily on the threat of uncontrolled escalation. Nevertheless, a military benefit from NATO's ability to use nuclear weapons is to hold at risk critical military targets in the Soviet Union and other Warsaw Pact countries that cannot be attacked effectively by non-nuclear weapons. This will continue to be important. NATO's nuclear weapons also compel Soviet forces to adopt a dispersed and less effective posture in a non-nuclear offensive, facilitating a non-nuclear defense by NATO. (Soviet military thought, like ours, recognizes that in the future, some of these functions may be increasingly assumed by non-nuclear weapons.)

For the foreseeable future, however, nuclear systems should be configured so that, if they are needed, they will be available and effective in carrying out NATO military doctrine by helping to stop an invasion by Soviet general purpose forces, and to shift the burden of further nuclear escalation to the Soviets. This implies an ability to make selective use of nuclear weapons for important military objectives. Prudence also requires that NATO's nuclear forces for this function be well protected. Even more demanding for the future is likely to be the need to respond to selective Soviet use of limited numbers of nuclear weapons in a war they intend to fight mainly at the non-nuclear level.

Soviet strategic doctrine subordinates military means to political ends. In war, they seek to achieve their ends with minimum risk of losing political control and with low expected damage to the U.S.S.R. This doctrine leads to a preference for non-nuclear weapons, where, in any case, they hold a significant relative advantage. They also plan for a quick and decisive victory because extended wars are costly, their economic resources are inferior to those of the West, they worry about the stability of their rear, and loss of control over the level of violence

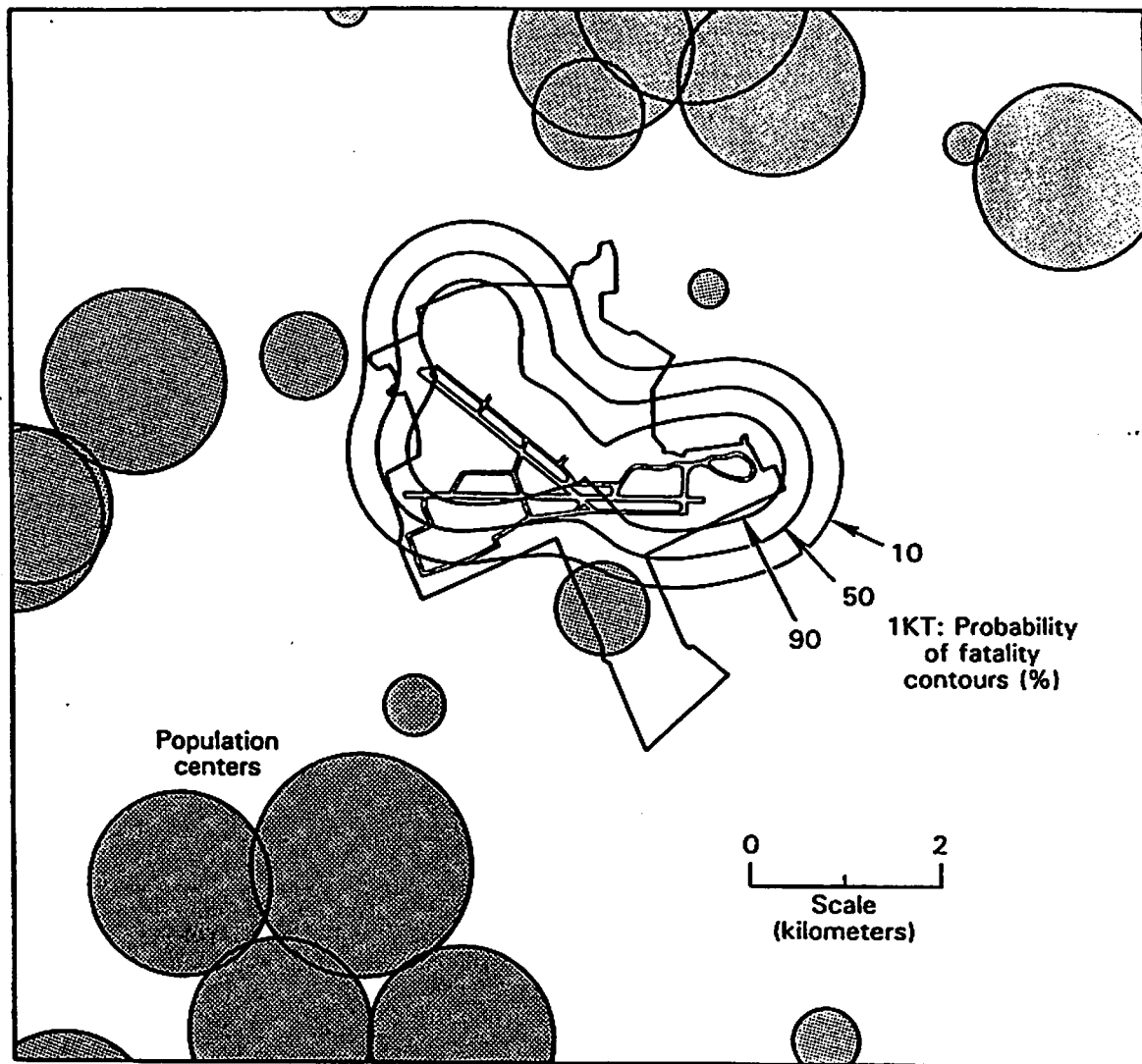
could occur--a particularly serious matter in war against a nuclear opponent.

While prepared to preempt a NATO first use, the Soviets have strong incentives to avoid massive first use of nuclear weapons themselves: a Soviet attack that devastated Europe would greatly diminish the prize of victory, increase the difficulty of subsequent military operations, and, most important, would greatly increase expected damage to the U.S.S.R. But, if NATO's non-nuclear defenses proved unexpectedly resistant to a purely non-nuclear attack, the Soviets might resort to selective nuclear attacks to terminate a robust non-nuclear NATO defense, to frighten some members of NATO to the point of dropping out of the war or to destroy the means for escalation by NATO theater nuclear forces. The Soviet Union is developing the capacity to do this while leaving Europe's civilian population and economic infrastructure almost entirely intact. This is illustrated by Figure 9 which shows the collateral effects of a relatively low-yield nuclear attack on Camp New Amsterdam (Soesterburg), a U.S. F-15 base in the Netherlands.

The geostrategic asymmetry between East and West presents the Soviets with substantially greater opportunities for such attacks. NATO's defensive character and its ponderous multilateral political decision process is almost certain to leave the strategic initiative with Moscow; NATO's inherent tendency to respond slowly and in a fragmented way would be exacerbated by Soviet cultivation of ambiguities and divisive movements in a crisis. In addition, the geographic separation of the U.S. from Europe leaves the alliance dependent on a relatively small number of airfields, depots, and ports for the massive reinforcement on which NATO strategy depends. Because NATO depends more heavily than the Soviet Union on tactical airpower operating from relatively small numbers of complex operating bases, early destruction or closure of these facilities would effectively terminate NATO resistance. In contrast, the Soviet force posture gives more emphasis to mobile missiles, artillery, and armored forces, all mobile and relatively dispersed. This relative NATO concentration of assets creates an incentive for the Soviets to use small numbers of nuclear weapons early in a war for decisive effect.

Shifting NATO posture to meet both the traditional and the newly impending tasks will be difficult. The removal of INF missiles and the obsolescence of Lance missiles are among the factors making it necessary to revamp NATO's nuclear posture, but the changes will have to take account of the serious European concerns, especially the view held widely on the political left--and more generally in Germany--that all nuclear weapons in Europe (or at least all American ones) should be removed. A primary European concern is the prospect of prolonged, intense nuclear fighting confined to Europe, resulting in immense societal damage; a more specifically German concern is that most of the damage would be on the German soil (East and West). West Germans are also concerned that a larger fraction of the land-based nuclear systems remaining after the INF Treaty will be based in Germany.

FIGURE 9: SELECTIVE NUCLEAR ATTACK ON CAMP NEW AMSTERDAM USING FIVE 1 KT WEAPONS (collateral effects)



Some reassurance to Europeans--especially to the Germans--on both scores might be offered by French and British nuclear forces. However, if French and British plans focus on attacking Soviet cities in response to Soviet attacks on Britain or France, their usefulness in discouraging a Soviet conventional or nuclear attack on Germany is doubtful. The modest French investments in tactical nuclear weapons are potentially relevant to this case, and French nuclear weapons policy is edging towards explicitly incorporating the defense of German territory.

Modernization of the French and British deep-strike nuclear forces will increase their effectiveness and enhance the possibility of their discriminate use in attacks on military targets, including those in the U.S.S.R. A possibility that merits further investigation is additional American help in improving the effectiveness of these forces. U.S. assistance to the French or British would, of course, be subject to the the non-circumvention article of the INF Treaty, though this should not be a substantial constraint. Such a policy could not, however, shift the main burden of nuclear deterrence to the Europeans or justify removing all nuclear weapons from Germany without also weakening the case for keeping American general purpose forces in Europe. In any case, the British and French ability to assume the burden of nuclear deterrence in Europe appears limited for the foreseeable future, especially as regards attacks on the outside of NATO's central region.

A first step in the process of improving NATO's nuclear posture is clarifying the military tasks to be performed and the required weapon system characteristics. This means understanding how nuclear weapons could be used, keeping control over escalation and collateral damage, to block Soviet invading forces. We need to distinguish tasks that have to be performed by weapons based within the theater from those that can be performed by externally based forces, taking account of the credibility of response. Neither the INF Treaty nor even the most extreme proposals for denuclearizing Germany would prevent either the Soviet Union or NATO from being able to bring large external nuclear forces to bear in a European conflict. To reassure the Germans, we will also need the widest possible breadth of allied participation in basing of the nuclear forces remaining in the theater.

To deter Soviet attack and to reassure allies, we must convince the Soviets and the Europeans that NATO's combined nuclear and non-nuclear theater and external forces will defeat or at least stop Soviet aggression and hold at risk the foundations of Soviet power. A strong NATO conventional posture, complemented with selective nuclear options, can face the Soviets with too high a risk in the event they launch such an aggression and so reduce the likelihood of the event or provide powerful incentives for them to stop a conflict early. Such a posture provides a capacity to act effectively against targets of early military and political significance while limiting collateral damage to civilians. It thereby provides a basis for convincing the Soviet leaders and our allies that we can act so as to serve our interests, as well as those of our friends, if attack comes.

Relevant criteria for such a posture are discussed in the following paragraphs. Weapons should be effective against key military targets, while avoiding damage to friendly and neutral countries and civilian populations in general, including those of potentially friendly or neutral countries in eastern Europe. (This last point has been woefully neglected in our private and public diplomacy with governments and peoples in the East. It should be made evident to them that NATO would make every effort to spare those in the East that stayed out of a Moscow-ordered war with NATO.) Our nuclear forces should be effectively usable against critical targets in the USSR with sufficient discrimination to maintain Soviet incentives for avoiding escalation. These requirements put special demands upon our nuclear weapons, delivery systems, target acquisition systems, and basing modes. Both theater-based and, increasingly, externally-based forces will have to survive and remain operable not only against attack by nuclear weapons, but also from the outset of conflict, against possible attacks by accurate, high-explosive, and chemical weapons.

Command and control must also remain viable under such attacks. To reinforce prospects for an end to such a war before massive destruction occurs, the C3 system needs better capabilities for selective release and enduring political control, as well as for selective targeting during combat. A system with all these characteristics is feasible, but only part of it is in place today. Of greatest urgency is a viable wartime reconnaissance and targeting capacity, one that can function despite subjection to repeated attack.

These changes would contribute to NATO's ability to respond both credibly and effectively to Soviet non-nuclear attacks or selective nuclear attacks with limited numbers of weapons. A difficult strategic issue is the choice between (1) improving our non-nuclear capability to defend in the theater against non-nuclear attack and (2) preparing to fight a combined nuclear and non-nuclear war after a militarily significant use of nuclear weapons, taking account of both budget and European political constraints. NATO's capacity to fight a combined nuclear and non-nuclear war is inferior to that of the Soviets. A predominantly non-nuclear Soviet attack combined with relatively few nuclear weapons used against the small numbers of NATO airfields and other critical military targets such as headquarters, C3 nodes, and critical logistics facilities, such as POMCUS sites could virtually eliminate both the air power that NATO counts on to compensate for the massive Soviet ground force advantages and the augmentation of NATO's ground forces by units from the United States. As indicated above, such Soviet attacks could effectively neutralize these targets while keeping the collateral damage low enough to give the NATO allies strong incentives to avoid further escalation.

In contrast, the more dispersed Soviet posture and the probable Soviet advantage of the initiative appears to make it less difficult for them to fight some kinds of combined nuclear and non-nuclear wars. Specifically, their posture would give them a relative advantage over NATO in a mainly non-nuclear war punctuated with the selective use of nuclear weapons. (There is a threshold number of NATO weapons delivered against

Soviet forces in the Soviet Union and eastern Europe that would greatly diminish its invasion capacity. Further analysis is required to estimate that number, but the Working Group believes that it is considerably higher than the number required to disrupt NATO's capability for effective non-nuclear operations.) If NATO cannot fight such a combined non-nuclear and selective nuclear war, it must rely more heavily on threats to escalate to larger scale use of external nuclear weapons, which is no longer a prudent strategy. A deficiency of this sort strains the credibility of NATO's threatened response and increases the expected level of damage on both sides of the Atlantic if it has to carry out the threats. In any case, advanced conventional weapons are increasing the extent to which NATO must avoid dependence on a very few critical nodes without taking pains to protect them against the full range of nuclear and non-nuclear threats.

Much more difficult and costly would be an effort to improve the general military posture to sustain military operations after widespread use of large numbers of nuclear weapons. Large-scale use of nuclear weapons would greatly increase the probable damage not only in Europe, but, because of the difficulties of controlling such a conflict, in the Soviet Union and the United States as well. Both sides would have a large stake in avoiding such an escalation. Moreover, given likely future defense budgets, preparation to sustain combat operations in the theater under such circumstances would excessively impair NATO's ability to fight a strictly non-nuclear conflict. A major task for strategy in this area is to identify how far to compromise between NATO's need to be able to block an invasion employing only non-nuclear forces, and its need to deal with one that also includes the use of nuclear weapons, taking account of both budgets and political realities. (The discussion of ATBM in the next section will address some of these issues.)

C. PROTECTION OF CRITICAL THEATER TARGETS

1. The Missile Threat After the INF Treaty

Critical NATO military targets in the European theater of operations face threats from Soviet extended-range attack systems, including various air-breathing vehicles and ballistic missiles of widely varying ranges. Their payloads, including those on at least some of the ballistic missiles, include nuclear weapons, conventional high-explosive warheads, advanced conventional submunitions, and chemical munitions. Attack profiles vary in speed and altitude. Their diversity can be expected to increase over time.

The INF Treaty eliminates important elements of the ballistic missile threat, notably the SS-20, SS-4, and SS-5 intermediate-range ballistic missiles (IRBMs) and the SS-12 and SS-23 shorter range ballistic missiles (SRBMs), but falls far short of eliminating the threat totally. Ballistic missiles with less than 500 km range (currently the Soviet Scuds, SS-21s, and Frogs and the U.S. Lance) are unrestricted by the Treaty. Even at their nominal ranges, launched from east of the inter-German border, these permitted Soviet short range missiles can reach all of West Germany and

Denmark, essentially all of the Low Countries and the northeast of France. If Soviet troops advanced, these mobile missiles, advancing with them, could extend their reach farther into France. And, the Soviets could use them to attack targets beyond their nominal ranges by substituting lighter nuclear warheads.¹¹

The INF Treaty also permits cruise vehicles of any range for reconnaissance purposes; warheads could be added when needed. Also unconstrained are missiles and munitions delivered by manned aircraft. In addition, large numbers of sea-based and intercontinental missile systems are excluded from the INF Treaty. Whether or not these systems are subsequently restricted by a START agreement, they will certainly not be eliminated. In the future, these systems, employing advanced guidance techniques, could permit the Soviets to attack military targets in theaters of operations with non-nuclear or nuclear weapons having characteristics similar to those eliminated by the INF Treaty.

Continued NATO vulnerability to such missile attacks would provide incentives for continued Soviet efforts to find loopholes to avoid the restrictions in the INF Treaty. Upon examination, the supposed verification advantage of eliminating rather than merely limiting the development, production, and deployment of the covered classes of missiles is far from adequate. For example, the existence of legal sea-based missiles that can have essentially identical characteristics to those banned by the INF Treaty vitiates the Treaty's supposed advantage in verifying the ban on testing new variants of the banned missiles; the possibility of testing and deploying a sea-based version of a banned missile provides a basis for a rapid Soviet breakout. Moreover, for the U.S. to attempt to plug the loopholes by banning sea-based and air-launched standoff systems (apart from the patent infeasibility of verifying bans on small, multi-purpose cruise vehicles) would not be in the national interest, given their importance for our posture, especially in contingencies outside of Europe. Instead, NATO's vulnerabilities to these weapons should be addressed through a combination of active and passive defenses.

The potential for increasing accuracy in both ballistic and cruise missiles is bringing a new dimension to the Soviet threat to critical theater targets. The Soviet Union will have ballistic missiles accurate enough, when carrying advanced non-nuclear warheads, to threaten (especially in coordination with other Soviet weapons) such critical theater targets as aircraft main operating bases, C3I nodes, SAMs, theater nuclear assets, and POMCUS sites. Such weapons will be able to reach NATO targets with too little warning to permit an effective NATO response. Carrying chemical warheads, they could pin down and disrupt NATO forces and operations (including air defenses), making them vulnerable to heavier

¹¹ Moreover, the range of ballistic missiles is determined for INF compliance purposes by maximum tested range rather than maximum possible range. Missiles tested, for example, to 480 km in lofted or depressed trajectories could be used with high confidence at longer ranges or minimum energy trajectories.

follow-on attacks by manned aircraft. This would especially jeopardize the forward-deployed theater air forces, air defenses, and nuclear assets that NATO relies upon to counter the Soviet superiority in ground forces. Destruction or slowing of access to POMCUS equipment would worsen an already serious ground force imbalance.

As a result, the NATO airbase system and the theater air capabilities it supports are becoming increasingly vulnerable to coordinated attacks by Soviet aircraft and ballistic missiles, exploiting the speed of the latter (to minimize the tactical warning available to NATO) and the absence of NATO defenses against them. Such attacks could use either nuclear or conventionally armed ballistic missiles. By using improved conventional munitions to crater runways and knocking out the radars and other critical elements of SAMs, the Soviets could seek to disrupt NATO's air defenses and offensive air operations. This could leave many airfields and other critical facilities vulnerable to heavier follow-on strikes by Soviet offensive aircraft. Putting NATO's fighter planes on a higher stage of alert would do little to alleviate this problem.

All NATO airbases in Europe are within 9 minutes flight time for Soviet ballistic missiles. Sixty percent of them (those on the Continent) could be reached in 4 to 8 minutes, a threat not much changed by the INF Treaty. To attack the 10 principal air defense airfields in the central region and all 130 SAM sites, the Soviets would need roughly 380 highly accurate, conventionally armed missiles (120 for the runways and 2 on each of the 130 SAM sites). However, even 200 to 250 missiles would allow the Soviets to assign 12 missiles to each airbase, effectively putting them out of action for hours, and also to clear penetration corridors through the SAMs by putting 2 missiles on each of 40 to 65 SAM sites.

Hence, even under the INF Treaty, without additional agreements restricting the numbers of non-nuclear as well as nuclear shorter range missiles and sea-launched ballistic missiles, by the mid 1990s the Soviets could have enough suitable ballistic missiles to pose a serious threat even with non-nuclear warheads. Moreover, if they wished to maintain a large force of sea-launched ballistic missiles (SLBMs) within the forbidden range limits, the Soviets might choose to deploy some of them on surface vessels, to avoid the high costs of SLBMs and to exempt them from possible future START restrictions on nuclear SLBMs.¹²

The Soviet ability to build large numbers of modern, accurate ballistic missiles capable of being used discriminately against theater targets is a development of major strategic significance, and a destabilizing one for several reasons.

¹² These comments deal only with ballistic missiles. The protection offered NATO by the INF Treaty against cruise missile attack has even larger loopholes and verification difficulties. The range of a particular type of cruise missile is variable over wide limits depending on its configuration for a specific mission. And, as noted earlier, the INF Treaty does not restrict vehicles, regardless of range, if they are designated for reconnaissance.

Prior to the INF Treaty, the growing force of SS-23s and SS-12(Mod)s promised to give the Soviets a substantially improved ability to conduct a surprise attack against NATO and, in particular, against NATO air power. As noted earlier, NATO cannot prudently rely on the INF Treaty to eliminate this threat for the future. Since NATO relies on its tactical air to offset the Warsaw Pact advantage in ground forces (especially tanks and artillery), a Soviet ability to improve the balance of air power in its favor would fundamentally threaten the viability of NATO's overall defense. NATO also relies much more heavily on fighter planes for air defense than the Soviet Union, which depends more on superiority in tanks, artillery, and surface-to-air missiles. (The Soviets recognize this, judging from their suggestion that, in future negotiations over conventional arms reduction, NATO's air be cut in return for reduction in Warsaw Pact armor.) Moreover, the geographic separation between the United States and Europe makes NATO critically dependent on a relatively small number of airfields, depots, and ports to support the massive U.S. redeployment and resupply that is key to NATO's preparation for combat. It is vital, therefore that NATO's posture include protection for its functions now dependent on relatively small numbers of critical facilities.

2. Protective Measures Against Ballistic Missile Attack

Among the potential measures for protection against short-warning theater ballistic missile attacks in the near term are hardening, proliferation of critical facilities (or elements of them, like runways), improved rapid facility repair capability, more use of shelters, and the ability to sustain dispersed air operations after receipt of strategic warning. These measures are likely to be cost-effective insofar as they go in countering the threat. Nevertheless, their ability to deal alone with growth in the size and sophistication of the theater ballistic missile threat, even as constrained by the INF Treaty, appears questionable, given the constraints on using additional land for military purposes in western Europe. In the longer term, one possibility is to acquire systems such as short takeoff and landing (STOL) aircraft operated in a mode that reduces dependence in crises or wartime on small numbers of large and vulnerable facilities, especially in view of the threat of selective nuclear attack.

If the problems of targeting movable Soviet missiles can be solved, planning on a counter strike against the Pact's theater ballistic missiles also appears potentially useful in responding to the threat of reload missiles after an initial Soviet theater ballistic missile salvo. However, as already noted, realism about the unlikelihood of a NATO preemptive strike, as well as considerations of stability, rule out reliance on offensive measures to deal with the Warsaw Pact theater ballistic missile threat.

Realistic constraints on passive defense measures suggest that at least a moderate level of active defenses against theater ballistic missiles might be cost-effective--indeed necessary. Unless the Soviet ballistic missile threat is restricted well beyond the terms of the INF

Treaty, an ATBM defense could be a necessary element in the mix of protective measures to keep pace with growth in the size and quality of the non-nuclear theater ballistic missile threat over time. The Working Group's analysis also suggests that ATBM and the other protective measures are strongly complementary against a growing threat.

An ATBM that protects against non-nuclear attack will also provide protection against attack with small numbers of nuclear weapons. But it could not protect small numbers of critical facilities against a large Soviet nuclear attack or a combined nuclear and non-nuclear attack by large numbers of ballistic missiles. To do so at likely levels of NATO resource availability would cost more than it would be worth in terms of the sacrifices in other elements of the NATO posture.

The earliest ATBM capability will result from upgrading of air defense SAMs such as Patriot. While the Patriot upgrade program is a useful first step, worth its cost, more robust defenses will be required to meet the requirements for an ATBM defense. The initial capabilities provided by a Patriot upgrade would have limited capability against the current theater ballistic missile threat and would be inadequate to meet growth in the threat.

A robust defense against the full range of even the non-nuclear theater ballistic missile threats will require adding components and systems based on SDI technologies. Advanced endoatmospheric interceptors and airborne optical sensor systems could meet the need, but the configurations for ATBM applications are likely to be different from those for CONUS defenses. SDI technology programs developing airborne optical sensors and ground-based interceptors, including the Extended-Range Interceptor (ERINT) and High-altitude Endoatmospheric Interceptor (HEDI) systems as well as the Exoatmospheric Reentry Vehicle Interceptor System (ERIS), could strengthen an initial ATBM system and give it capability against a broader spectrum of threats.

Both Patriot and ERIS use relatively small rockets that are relatively cheap (on the order of \$1-2 million per interceptor), but they have limited usefulness as ATBMs. An airborne optical sensor system could greatly increase the effectiveness of the programmed Patriot upgrade against short-range ballistic missiles; in conjunction with an ERIS-type interceptor, such sensors promise to provide the earliest means of defending against attacks at ranges characteristic of the SS-12 mod and the SS-20 (as well as SLBMs and ICBMs used against European targets). However, the ERIS interceptor as currently designed can only be used outside the atmosphere; while it is useful against longer range ballistic missiles, it can be underflown in some theater ballistic missile attacks.

Ultimately, therefore, a more robust ATBM will require a more capable endoatmospheric interceptor, and the ERINT or HEDI program technologies are a likely source for it. The HEDI probably will have a good technical capability to intercept Soviet theater ballistic missiles, but is expensive, perhaps more costly than the theater ballistic missile non-nuclear warheads it might intercept. An endoatmospheric interceptor specifically

designed for the European theater might be considerably cheaper than the version of the HEDI being designed for CONUS defense.

The differences between the ballistic missile threats to the European theater and to CONUS make it appear likely that the optimal configurations of components and systems would differ in the two applications. Whether or when the two programs should diverge will depend on the extent of the differences and the costs and benefits of commonalty. For the near future, however, both purposes appear to be best served by effective pursuit of the relevant SDI technology programs to permit the development of deployment options as quickly as possible. Continuation of current efforts to involve the Europeans in these development efforts is desirable in fostering their participation in the deployment program.

The size and cost of the ATBM system needed to defend critical NATO targets should be determined by the size of the non-nuclear ballistic missile threat and the value of what is being protected. We estimate that to save about 50 percent of our air defense assets, NATO would need roughly 2 to 5 times as many interceptors as the number of reentry vehicles the Soviets have available for the attack. Consequently, countering the Soviet theater ballistic missiles will clearly be a difficult and expensive task. The issue is not one of affordability but of how best to use NATO's resources at any budget level. Protective measures, some combination of active and passive means, will be necessary to preserve NATO's theater posture, and its air power in particular. There is little point in spending the billions NATO invests in these forces and failing to protect them to carry out their wartime missions. If necessary, we should reallocate funds now going to theater air to acquire the means of preserving their combat viability.

D. INTERCONTINENTAL AND SEA-BASED NUCLEAR OFFENSIVE FORCES

The standard view has been that initial nuclear attacks against the United States or the U.S.S.R would be large, with the highest priority being destruction of the adversary's nuclear forces (counterforce attacks), in order to limit the damage those forces could do in retaliation. This has given rise to a paradigm of nuclear war that stresses preemptive instability and the inevitability of catastrophic destruction. Both sides have made substantial efforts to reduce the vulnerability of their forces and C3I systems. The pressures for preemption and immediate massive response can be reduced further if both sides continue to exploit their opportunities to reduce their vulnerabilities. In contrast to the standard view, the Working Group believes that the primary objective for either side in using nuclear weapons against targets in the territory of the other superpower would be to affect wars initiated by Soviet aggression against their neighbors. In planning the use of nuclear weapons, however, deterring an indiscriminately destructive retaliation will remain a dominant consideration for both sides. A major task for nuclear strategy over the next 20 years will be to develop a posture and plans that provide the United States with a nuclear response to Soviet aggression that avoids crisis instability, complements Western non-nuclear

capabilities and deters Soviet escalation of the level of destruction in the event that nuclear weapons are used.

1. Concerns about Preemption and Stability

As Soviet nuclear forces have grown, American nuclear strategy has been increasingly preoccupied with the prospect of a massive nuclear exchange involving indiscriminate destruction on both sides. Many discussions of strategy ignore the relation of these forces to combat in overseas theaters of military operations, restricting their focus instead to instabilities assumed to grow out of supposedly symmetrical fears of surprise intercontinental nuclear attack. These fears are assumed to operate on both sides, interacting to strengthen incentives for each to conduct preemptive, disarming strikes against the other in a crisis.

This view has created an excessively narrow and misleading paradigm of nuclear war that dominates academic and media discussions: in a crisis, each side would weigh its ability to disarm the other if it struck first, seeking to limit the damage that the other side could inflict in retaliation against the cities and urban population of the attacker. Crisis instability would arise cumulatively and independently of the origin of a confrontation as each side, believing the other viewed the situation in a symmetrical fashion, would feel increasing pressures to preempt as a crisis intensified.

The growth of ballistic missile forces on both sides has heightened this concern by intensifying the so-called "compression of time" in making crisis decisions. On this view, defenses against nuclear attack would, at most, be capable of protecting against retaliation by a force damaged in a first strike and, therefore, would add to the first-strike capabilities, contributing to the incentives of the other side to preempt and thereby increasing the instability that would arise in a superpower crisis.

This paradigm also incorporates a theory of a nuclear arms race. Increases in the offensive and defensive damage-limiting capabilities on one side supposedly drive the other to try to maintain its retaliatory capabilities by further increasing its own strategic offensive forces. This, in turn, exacerbates the anxieties of the adversary, creating an ongoing action-reaction process. The process is supposedly driven by either quantitative or qualitative changes, but the theory currently emphasizes the dangers of qualitative changes resulting from technological advances. The arms race itself is assumed to be a major cause of crisis, heightening the probability of nuclear war.

Related to this paradigm is a standard belief, clearly in conflict with the facts (especially as they pertain to the United States), that the arms race has resulted over time in an exponential increase in the destructive potential and financial burden of the U.S. and Soviet nuclear stockpiles. In reality, the numbers, of weapons in the U.S. nuclear arsenal, their average yield, and their destructive potential has declined for more than 2 decades. (See Figures 10 through 12.) While the number of weapons in the nuclear arsenal of the Soviet Union has been rising,

FIGURE 10: TRENDS IN TOTAL NUMBER OF U.S. AND U.S.S.R NUCLEAR WEAPONS

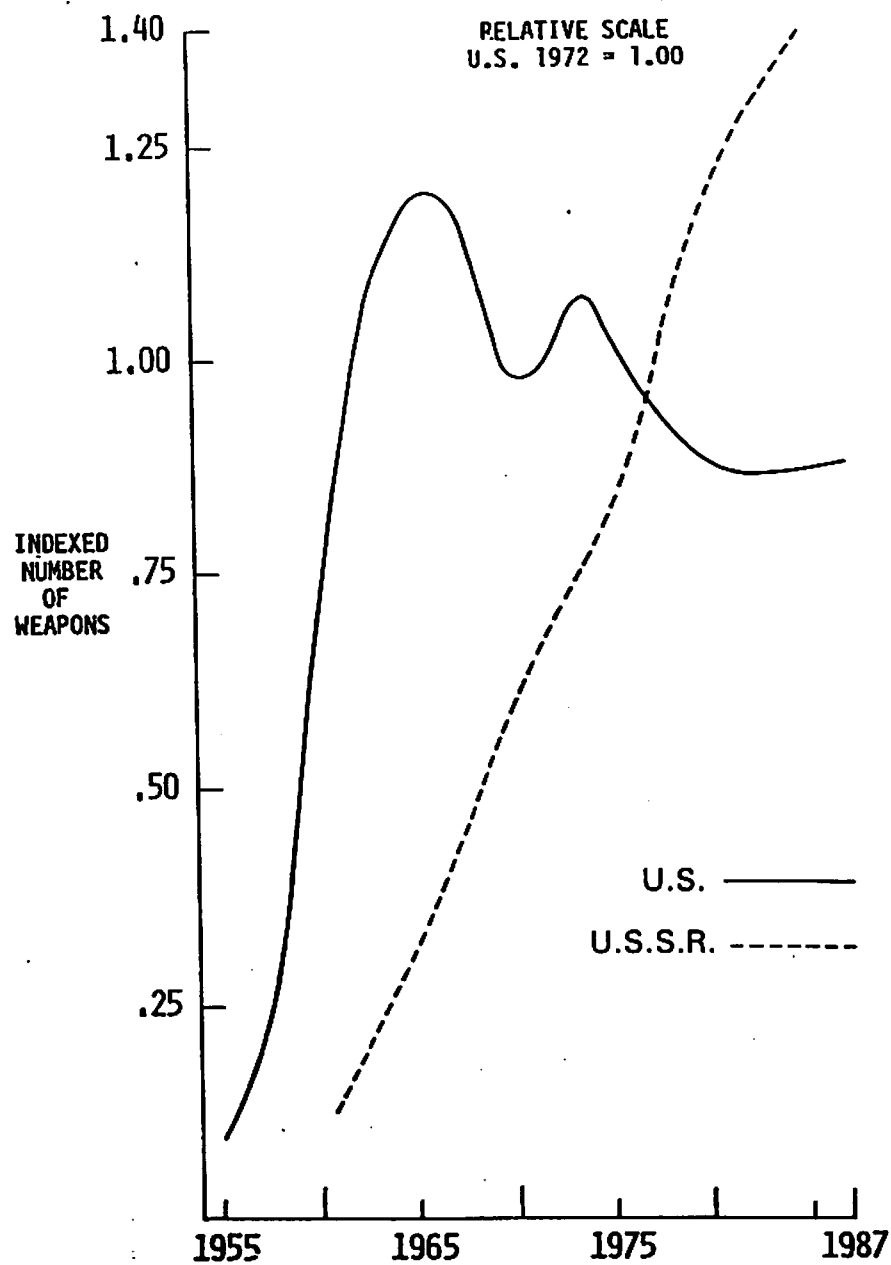


FIGURE 11: TRENDS IN TOTAL YIELD OF U.S. AND U.S.S.R. NUCLEAR WEAPONS

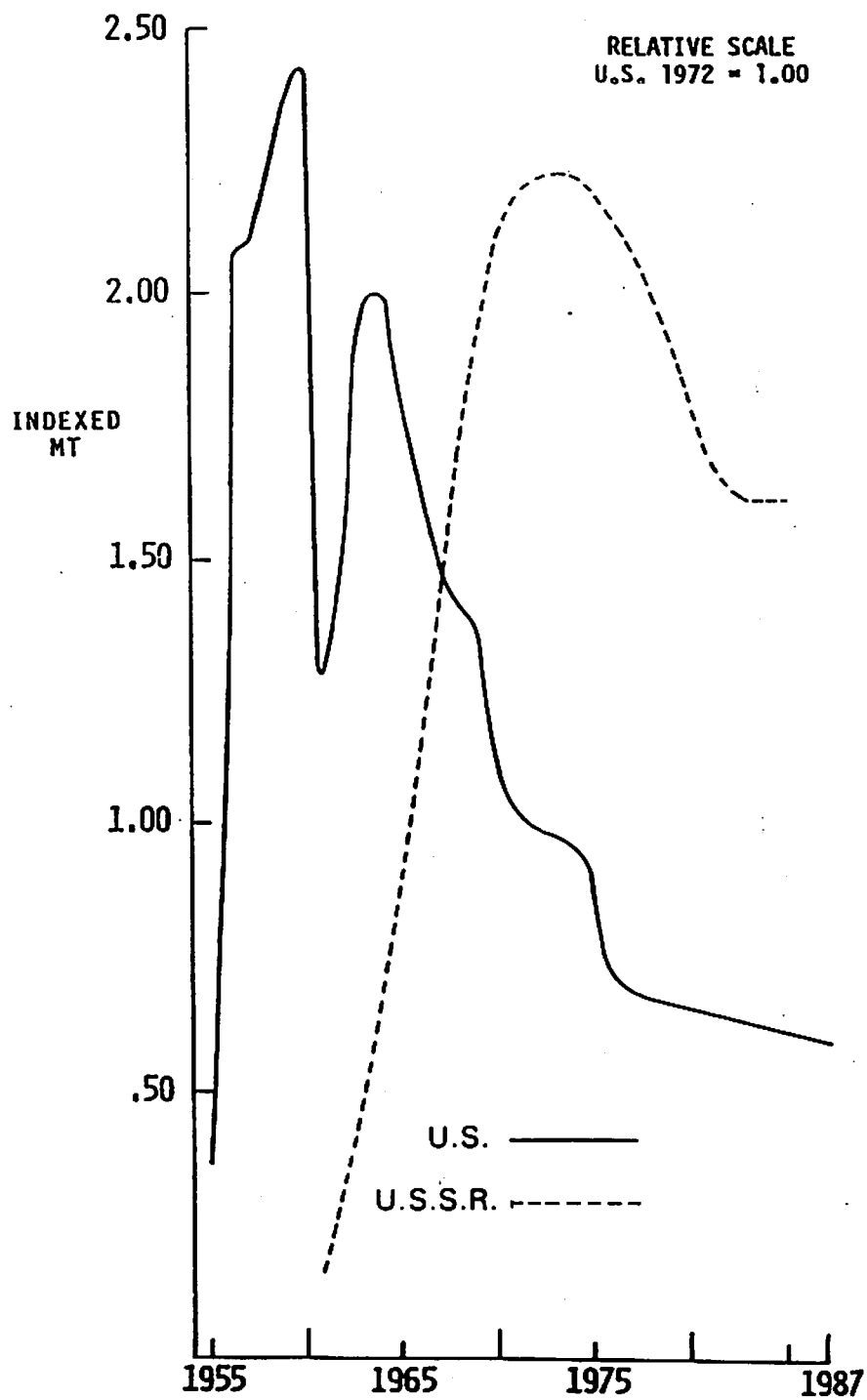
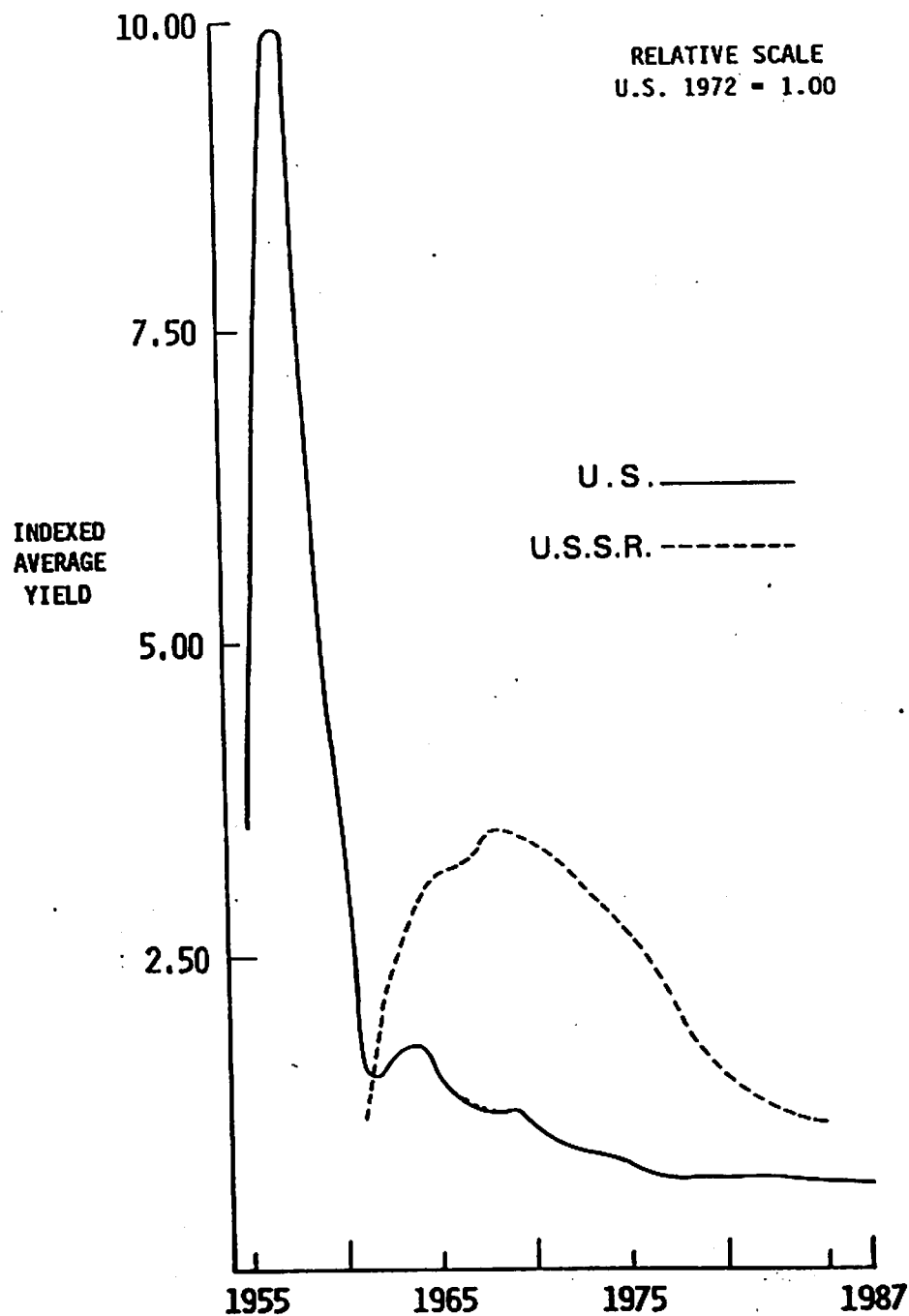


FIGURE 12: TRENDS IN AVERAGE YIELD OF U.S. AND U.S.S.R. NUCLEAR WEAPONS



their average and total yields have also been dropping for more than a decade. The cost of the nuclear forces on both sides has remained a modest fraction of total military spending and, in the case of the United States, has declined relative to GNP from the level of the early 1960s.¹³

As perceived by the public, the paradigms of nuclear war, crisis instability, and the arms race that have governed official thinking about these problems are equivalent to those presented previously, differing, if at all, only in semantics. Since the mid 1970s, official DoD public statements have asserted that U.S. strategic offensive forces have not been targeted on cities and Soviet civilian population as such, but rather, with variations over time, on military forces, command and control, and war-supporting industry. The targets of such large and widespread attacks, however, are in many cases collocated with cities; consequently, DoD statements have not dispelled the public impression that civilian destruction would be very heavy and probably indistinguishable from the results of deliberate attacks on civilians.

A primary concern in U.S. strategic force planning and targeting has been to cover time-urgent, military targets, many of them hard targets, dominated in numbers by Soviet silo-based missiles. As improving accuracy has increased the Soviet capability to destroy our silos with their ICBMs, we have put the Soviets on notice that they cannot count on catching our

¹³ Allocating defense costs between nuclear and non-nuclear forces presents conceptual as well as data difficulties. Many theater nuclear systems have been (and some strategic offensive forces are likely to be increasingly) dual purpose; some supporting functions in the areas of research, development, testing, and evaluation (RDT&E), C3, and intelligence are multipurpose; and the cost of the nuclear weapons themselves are covered in the Department of Energy budget. Published data indicate that U.S. spending on strategic forces in fiscal year 1985 amounted to 7 percent of total DoD spending. Adding C3 and RDT&E attributed to those forces, but, excluding theater nuclear systems, intelligence and nuclear weapons, the proportion was about 14 percent, down from about 25 percent in fiscal year 1962 for comparable costs. (Intervening years had been lower than 1985.) The cost of the nuclear weapons in 1985 amounted to between 2 percent and 3 percent of total DoD costs, and it is doubtful that dedicated theater nuclear systems would add more than another 2 percent. Comparable published data for the Soviet Union are even more difficult to interpret. While Soviet spending on strategic forces appears to be a significantly higher fraction of Soviet defense spending than for the U.S. (probably due at least in part to the lower nominal cost of Soviet military manpower), they, too, are a relatively modest part of the total. Excluding C3 and RDT&E as well as intelligence, theater nuclear systems, and nuclear weapons, they accounted for about 12 percent of total Soviet military spending in fiscal year 1985. Even including the additional elements, they would probably still be less than 25 percent.

forces on base, and have hinted that we are prepared to launch both our recallable bombers and our non-recallable missiles "under Soviet attack"--that is, before the Soviet weapons impact on our airfields and missile silos. The Soviets, in turn, have given us similar public notice, feeding public anxieties about crisis instability.

Fundamental in the foregoing paradigm is the assumption that a Soviet nuclear attack on the United States would almost certainly be massive, resulting in widespread destruction to civilians as well as military targets. Such an attack would leave us little reason for restraint in our response; consequently, our counterstrike would be correspondingly massive and essentially indiscriminate as well, giving highest priority to destroying unexpended Soviet nuclear forces and retaliating against Soviet leadership. Former high-ranking U.S. officials have emphasized the extreme improbability that any use of nuclear weapons could remain limited or avoid catastrophic damage to both sides. The highest officials in the current Administration have reinforced this picture, asserting that "a nuclear war cannot be won and must never be fought."

These views have never been a satisfactory basis for nuclear strategy for the democratic coalition led by the United States, faced with the threat of aggression by the Soviet dictatorship. They ignore the incentives of Soviet leaders in war as well as crisis to avoid a level of damage to the U.S.S.R. that might threaten their control, and they amplify Soviet opportunities to erode the credibility of the U.S. nuclear guarantee. It must eventually strain credibility to suppose that the United States, remote from the threat of Soviet invasion itself, would exercise the threat of mutual U.S. and Soviet nuclear destruction to respond to a Soviet invasion of our allies. The standard view exacerbates such doubts by needlessly taking catastrophic destruction to be the inevitable consequence of any significant military use of nuclear weapons, rather than treating it as a risk subject to control by the policies of the adversaries. Yet Western strategy continues to rely on nuclear weapons. Moreover, it relies on them not only as a response to possible Soviet use; but also as a first use by NATO to compensate for its inferiority in non-nuclear capabilities. A strategy that simultaneously asserts the standard paradigm of nuclear war and continues to rely on threats that NATO will initiate the use of nuclear weapons can be sustained only so long as its incoherence can be ignored.

Such a strategy is especially inappropriate to the threats and opportunities in the future options open to both sides. The paradigm of nuclear instability has convinced an important segment of the public in the West that negotiated nuclear arms reductions are necessary to avoid an unlimited arms race, ever greater risks of catastrophic destruction, and ultimately unrestrained and catastrophic use of the nuclear stockpiles. The belief appears to grow inexorably despite the inability of proponents of negotiations to show how any agreements so far concluded or seriously considered would significantly lessen the risk of nuclear war or its violence if it occurred. Any negotiations appear better than no negotiations, despite the public's distrust of Soviet leaders. Enthusiasm in the West about Gorbachev may weaken this distrust.

Source: <http://www.albertwohlstetter.com>

To regain public confidence, Western strategy must show that prudent unilateral policies can avoid the feared instabilities while keeping open the possibility of benefit from suitable agreements. This means that we must demonstrate a nuclear strategy and posture that neither invites nor depends on massive preemptive attack and an ability to use nuclear weapons effectively, if necessary for military purposes, while preserving Soviet incentives for restraint. We must also show that our strategy does not require massive increase in the numbers of nuclear weapons or the financial burden that would impose. Recent developments--the INF Treaty in particular--also make it clear that such a strategy must integrate our strategic nuclear posture with our strategy for dealing with the threat of a Soviet attack directed against NATO Europe.

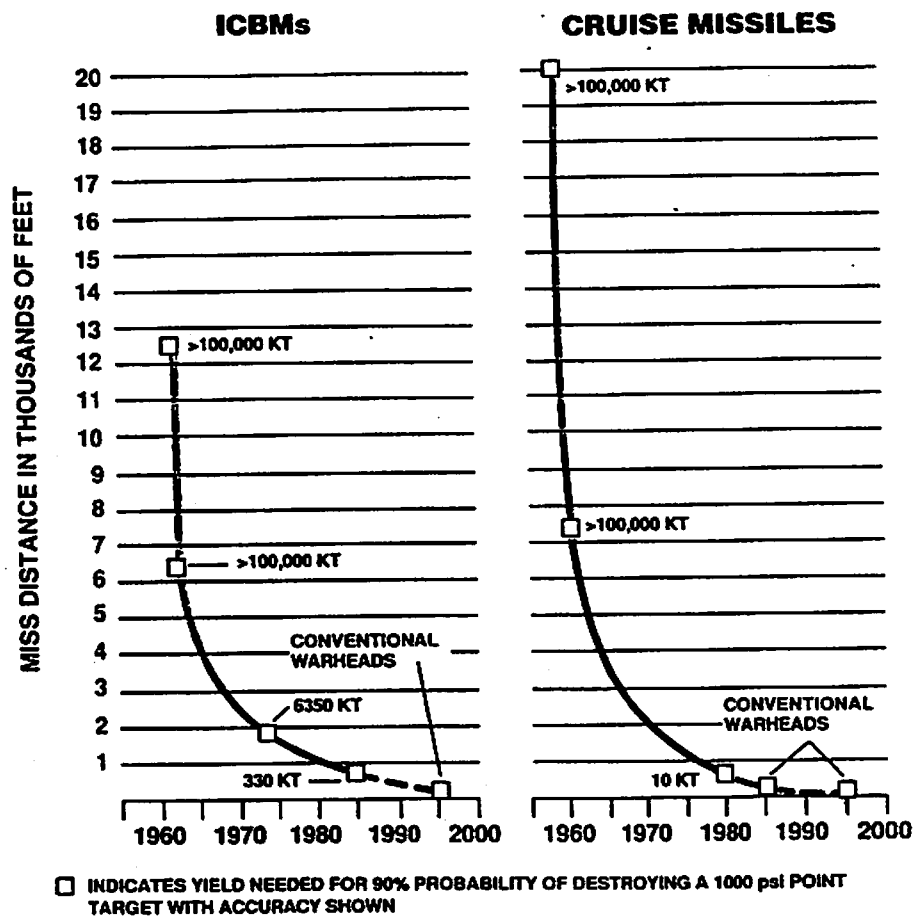
2. Trends in Force Postures

Recent changes in force postures on both sides present a mixed picture with respect to the preemptive instability paradigm. On the one hand, the improving accuracy of extended-range weapons is putting increasingly at risk any fixed, undefended target of known location. (Deeply buried structures present special problems for attack, but the statement may hold true for them as well if location uncertainty can be eliminated.) Technologies now becoming available could make long-range ballistic missiles accurate enough to afford a high probability of destruction against even very hard, near-surface targets with a single, reliably delivered nuclear weapon in the kiloton range instead of the hundreds of kilotons required by missiles currently in U.S. and Soviet forces (see Figure 13). Within the next 10 to 20 years, ballistic missile accuracy may even improve to the point where appropriately designed non-nuclear warheads will be able to attack many hard targets effectively; cruise missiles have already attained this accuracy. This means that fewer weapons and smaller total yield are needed to attack military targets, and collateral damage to civil society can be held to very low levels.

On the other hand, fixed, silo-based missiles have made up between one-quarter and one-third of the U.S. strategic ballistic missile warheads since the mid 1970s, after the advent of the Poseidon SLBMs with Multiple Independently Targetable Reentry Vehicles (MIRVs) (see Figure 14). Only those SSBNs in port, of course, could be attacked in the kind of immediate counterforce strike envisioned in the preemptive instability paradigm. The picture is essentially reversed for the Soviet Union. In 1986, silo-based missiles composed over 60 percent of its roughly 10,000 strategic warheads. Nevertheless, even for the Soviet strategic forces, almost 3,000 of the warheads were on SLBM launchers (and their modern ICBMs are in harder silos than our own).

FIGURE 13: GAINS IN ACCURACY BOLSTER THE CASE FOR DISCRIMINATION

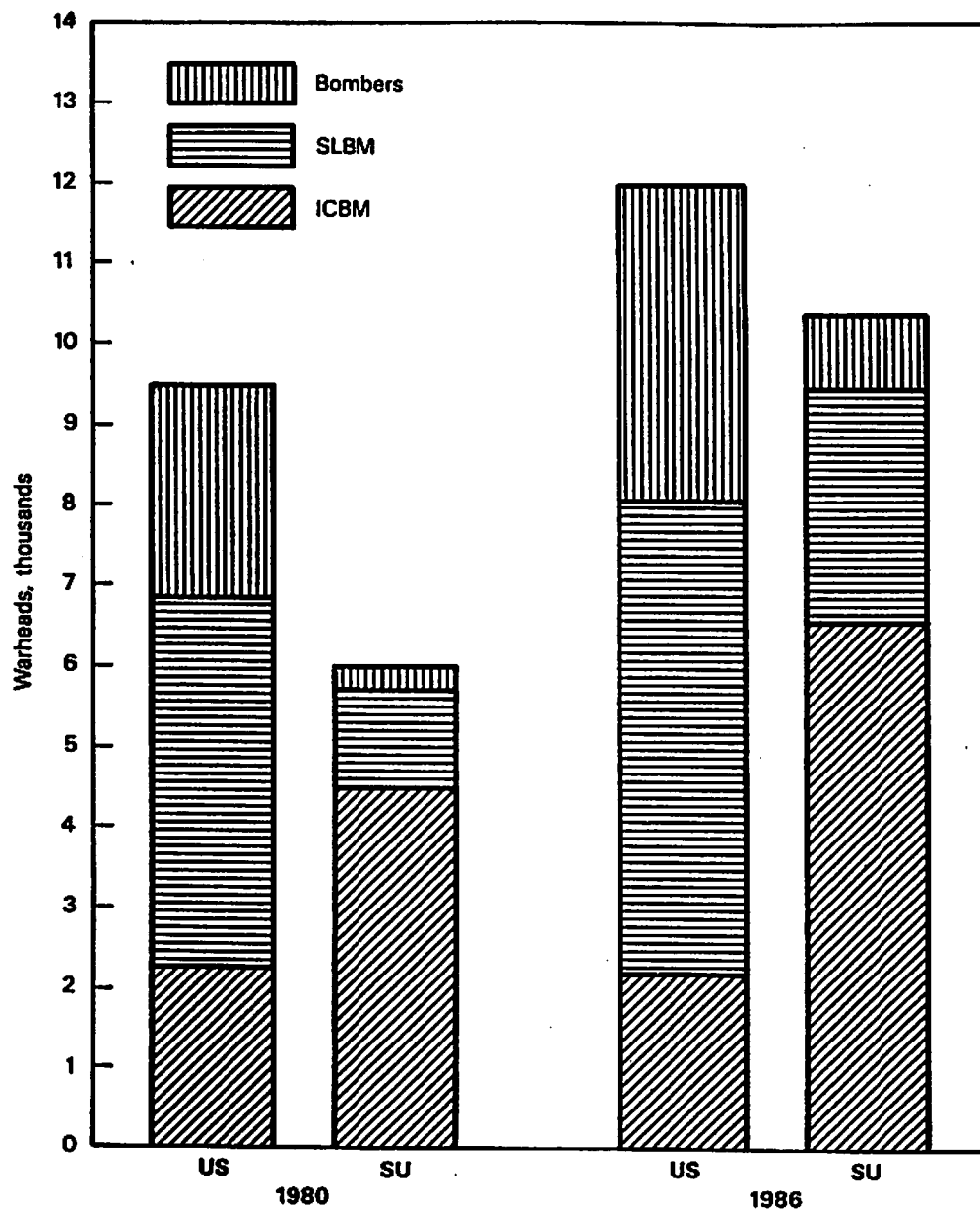
Technology has improved missile accuracy dramatically. As accuracy improves, the nuclear yield needed to destroy hardened military targets also drops dramatically, to the point where conventional warheads could do the job with some of today's cruise missiles and—in the next decade—with some ICBMs. This means that fewer weapons are needed to attack military targets, and collateral damage to civil society can be held to very low levels or totally avoided.



Source: Discriminate Deterrence, The Commission on Integrated Long-Term Strategy, Washington, D.C.: GPO, January 1988.

FIGURE 14: U.S. AND SOVIET INTERCONTINENTAL ARSENALS

[Number of Warheads by Delivery System]



Sources: DoD, *Annual Report*, FY 1981, FY 1987; *Soviet Military Power*, 1987. NB: Backfires are not included.

When at sea, SSBNs cannot be attacked in the opening strike of a nuclear exchange and, given reasonable prudence, they should remain relatively secure against such strikes into the foreseeable future¹⁴. In addition, the United States and the Soviet Union each have hundreds of long-range bombers, each of which can carry large numbers of bombs, cruise missiles, or short-range standoff missiles. While the number of nuclear weapons carried by each bomber can vary widely with its specific mission, representative loadings for the strategic bomber forces include over 4,000 nuclear weapons for the U.S. bomber force and almost 1,000 weapons for the Soviet heavy bomber force (not including Backfires).

In a crisis, the numbers of bombers on alert and submarines at sea would increase, strengthening stability against preemptive attack. This is especially important for the Soviets, who normally keep these forces at much lower levels of day-to-day alert than does the United States. Mobile ICBMs, which the Soviets are procuring in increasing numbers, also could disperse in such a crisis. The numbers of bombers that might be expected to be caught at home bases in initial attacks would also depend on the tactical warning available to each side. Assuming launches were detected by early warning sensors and interpreted as an attack, the roughly 30-minute ballistic missile flight times from ICBM launch areas or from distant SLBM launch areas would give alert bombers time to evade attack. A more serious matter for U.S. bombers, however, is the possibility of short-range, short time-of-flight attacks by SLBMs launched from Soviet submarines in waters off our coasts. To reduce this risk, SAC plans to move units from coastal to interior bases as they go to increased alert states.

3. Future Options for Intercontinental and Sea-Based Forces

Both the United States and the Soviet Union are reducing still further the relative and absolute levels of forces at risk to an initial strategic attack. The United States is acquiring Tomahawk Land Attack Missile/Nuclear (TLAM/N), sea-launched cruise missiles (SLCMs) and dispersing them among a large number of submarines and surface vessels, to rule out a high level of early destruction of these weapons in a war. To be sure, as a replacement for the Minuteman missiles, the United States has deployed the Peacekeeper (M-X) in silos, but we are currently considering a deployment of a garrison-based, train-mobile version of the M-X

¹⁴ Retention of the Triad (bombers, SLBMs, and ICBMs) offers a hedge against the unforeseen future. Given the cost of error here, only a degree of certainty beyond the level available in issues of strategy would warrant abandoning a hedged strategy--providing retention of the Triad did not itself increase risks. See Section VIII, D.4 on launch under attack.

and are developing the hard, mobile, small ICBM (SICBM).¹⁵ Both SICBM and M-X in the proposed deployments have serious problems. The SICBM has very high cost per reentry vehicle in the inventory; the M-X basing modes, especially the silos, have vulnerability problems. Even in proposed super-hard silos, M-X would become vulnerable to likely improvements in Soviet hard target kill capability (increasing accuracy and earth-penetrating warheads). Although the rail-mobile M-X basing mode is better than the silo posture, its dependence on strategic warning would constitute a continuing incentive to rely on a doctrine of "launching under attack". (See Section 4 of this chapter.) Moreover, in their proposed concepts of operation, both the rail-mobile M-X and the SICBM would be vulnerable to short-warning attacks (e.g., by short-time-of-flight SLBMs).

Currently, the controversy between supporters of the SICBM and the Peacekeeper (M-X) missile has polarized opinion about this element of the strategic force modernization. The high cost of the SICBM and the vulnerability of the fixed silo and rail-mobile M-X basing modes make each unacceptable to the supporters of the other. A prolonged stalemate could create pressure to abandon the land-based missile element of the strategic nuclear Triad (bombers, SLBMs, and ICBMs), an imprudent decision for the long term. The well-known arguments for retaining the Triad are not summarized here, but they center on the advantages of diversity.

It is true, however, that two arguments for retaining ICBMs are being outmoded by improvements in SLBMs. Compared with ICBMs, SLBM inaccuracy have made them less capable against hard targets, and limitations in the C3 for SSBNs have made them less responsive in attacking time-urgent targets. Both are likely to improve enough to make SLBMs a close equivalent to ICBMs in these respects.

As noted, there is no reason to expect SSBNs to become catastrophically vulnerable at the outset of a conflict. However, unanticipated technological or intelligence breakthroughs could increase SLBM vulnerability. In any event, their dependence on concealment for survival and the concentration of hundreds of warheads in one ship increases the danger in any compromise of their locations. Soviet technological or intelligence breakthroughs (the Walkers' case illustrating the latter) could leave us with unsuspectedly vulnerable SSBNs and unaware of the need to correct the situation.

As for bombers, they can be launched "fail-safe," to avoid a use-them-or-lose-them dilemma like that faced by vulnerable ICBMs. However, if we allowed ourselves to become much more dependent on them, and wished to retain a capability beyond the first day of the war, it would be necessary to have a high confidence of recovering and operating them after their small numbers of peacetime operating bases had been attacked.

¹⁵ The SICBM is also hardened to increase the force requirements for a barrage attack, though not sufficiently to survive an attack against current systems aimed with knowledge of the target's location.

Further, a fundamental limitation of the bombers as a substitute for long-range ballistic missiles is their inability in many circumstances to meet the short response times for attacking time-urgent targets.¹⁶

The need to resolve ICBM basing issues could be greatly intensified if a stalemate over an ICBM replacement were coupled with a START agreement, and especially if deep cuts (say to the level of 50 or 60 percent) were spread "equitably" over the legs of the Triad. Such an outcome might force us to reduce the number of Trident SSBNs to a level at which their vulnerability could become a serious question. And, without a Minuteman replacement, retention of Minuteman III would further concentrate the ICBM force in a reduced number of vulnerable silos. Even if we ignore the intractable verification problems widely recognized as inherent in a START agreement embodying deep cuts, such an outcome might warrant serious concern over crisis stability.

To avoid this, it might be desirable to develop a new SLBM system with fewer reentry vehicles per boat. (Apart from avoiding over-concentration of our SLBM warheads, such a system might be more compatible with the future targeting requirements on our sea-based nuclear forces [see section VIII.D.5]). Another promising possibility now under consideration is an ICBM basing concept, called Carry-Hard, which is designed to protect ICBMs by a combination of hardening and location uncertainty. In this concept, the missile would be housed in a self-contained, movable capsule hardened against attack and containing the expensive ground equipment. The very hard, encapsulated missile could then be stored in silos that could be cheap and therefore highly redundant, without requiring large land area. By concealing the actual location of the encapsulated missiles, the system forces an attacker to attack all of the silos, multiplying his force requirements. Basing concepts that incorporate location uncertainty (like Carry-Hard or mobile missiles) also lend themselves to synergistic combinations with modest levels of area defenses (see Section VIII.E).

Future Soviet forces are likely to show reductions in the relative importance of silo-based ballistic missiles in their intercontinental attack force warhead mix as a result of the introduction of two mobile ICBMs, the road-mobile SS-25 with a single warhead, and the rail-mobile SS-24 with MIRVs. As these are deployed, DoD projects that silo-based

¹⁶ An additional argument for preserving the Triad, the so-called synergy between bombers and silo-based ICBMs, assumes U.S. reliance on a launch-under-attack strategy. On this argument, a Soviet ICBM attack on U.S. missile silos would give us enough warning to launch the bombers on a fail-safe basis, while a Soviet short-warning SLBM attack on bomber bases would allow us to launch ICBMs after the first weapons impacted. If we reject a launch-under-attack strategy, however, the synergy disappears in the face of a simultaneous Soviet ICBM and short-warning SLBM launch. For discussion of the launch-under-attack strategy, see Section VIII.D.4.

ICBMs will decline relatively from the 1987 level to about 50 percent of total warheads by the mid 1990s.¹⁷

The Soviets are also improving the quality of their SLBM and land-mobile forces. The range of the missiles carried on their Delta and Typhoon submarines is now long enough to reach U.S. targets from waters near the Soviet Union (the so-called bastion areas), where Soviet land-based naval and air forces can protect them against our ASW forces. It also increases their time on station and presumably facilitates command and control of these forces. At the same time, their submarines are becoming quieter, which may increase their future operating flexibility and may see them stationing some SSBNs off our coasts (perhaps on steady state patrols), where they would pose a serious threat of short-warning attacks. And, Soviet mobile missiles, SLBMs as well as the rail-mobile version of their SS-24 ICBM, are expected to improve in accuracy, giving them hard target capabilities.

4. Rideout, Launch Under Attack, and the Compression of Time

If military postures continue to develop along present trends, an initial disarming strike by either side would leave the other with thousands of surviving weapons in various basing modes, weapons of similar operational effectiveness to those of the silo-based ICBM weapons. Yet, in the case of the ICBMs, the tendency in U.S. thinking has been to focus currently controlled by the Soviet attack planner.

Unwillingness to accept the loss of vulnerable ICBMs leads to suggestions that we could respond to indications of an attack in progress by executing a major SIOP attack option before Soviet warheads impact on our missile sites. Some have suggested launching on the basis of radar and infrared warning, that is to say, "launching on warning". Others, unwilling to take such a step on the basis of electronic signals alone, propose "launching under attack", making the decision only after the first nuclear detonation. Either decision would be made without full knowledge of the targets of the Soviet attack, or of the attack's outcome. Acceptance of a strategy that allows our vulnerability to govern so momentous a decision depends in part on the assumption that any Soviet attack against the U.S. would be massive, widespread, and indiscriminate. On this assumption, once the reality of an attack is established, assessing its nature is of secondary importance in determining our response.

In assessing launch under attack, it is necessary to distinguish between motives related to the vulnerability of forces (use them or lose them) and those related to the time-urgency of the targets we need to attack. If we abandon the assumption that the Soviet attack is predictable, our interest in making an appropriate response increases the need to assess the attack and its outcome before responding. There may be important target classes that we would wish to attack quickly if the

¹⁷ See Soviet Military Power, 1988, p. 46.

Soviets have launched an attack; these are unlikely to include the empty silos that held the ICBMs that would probably constitute the first wave of a large Soviet attack. Nor should we wish to attack Soviet political leadership before assessing the character of a Soviet attack.

At best, the outcome of a launch under attack would be highly dependent on unpredictable circumstances. However, it could also lead to an expenditure of hundreds or thousands of U.S. nuclear warheads to destroy a minor fraction of the Soviet forces without improving the nuclear balance significantly. If executed indiscriminately, however, it could result in great collateral damage to the Soviet Union and at least as destructive a retaliatory response from them. Exacerbating the problem is the integrated nature of our SIOP. Interdependent targeting among elements of the Triad within the SIOP creates powerful pressures to preserve the integrity of the plan and execute a strike not only by the vulnerable ICBMs, but by the SLBMs and bombers as well.

At worst, a launch under attack might precipitate a massive nuclear exchange intended by neither the Soviet Union nor the United States. Events repeatedly illustrate the possibility of error in decisions that have to be made under extreme pressure of time. Such possibilities may well increase over time as dissemination of ballistic missiles increases the number of countries possessing them. If both superpowers foster the impression, true or not, that they rely on launch-under-attack policies, the possibility of accidents or mistakes will create a highly unstable and dangerous atmosphere in a crisis. Such an impression also creates political problems for the West. The public view of nuclear strategy has been dominated by the image of a President having to decide, in a very few minutes, to launch a massive nuclear strike that, in the end, would leave the United States and the Soviet Union (and on some views, the entire globe) devastated. It has led many to conclude that the alternative to arms agreements is nuclear catastrophe sooner or later, making it harder to sustain public support for a coherent nuclear strategy to guide either our unilateral defense efforts or our arms negotiations.

A launch-under-attack strategy is founded on the view that nuclear war would be dominated by counterforce exchanges, where timing can be decisive. But as noted earlier, both the U.S. and the Soviet Union have been moving away from such a situation. The alternative, an ability to ride out an attack, if that should be strategically desirable, would be much more stable. Such an ability depends not only on survival of weapons, but equally on survival of a C3I system capable of selecting targets and directing the forces to attack them.

The strategic connectivity program is making major improvements in the viability under attack of communications links for strategic forces. Important efforts are also in process to protect the National Command Authorities (NCA) and other command centers. However, despite some useful beginnings, we are unaware of comparable programs to improve systematically the wartime viability of national intelligence systems, even against attacks at much lower levels than large-scale nuclear war. Lack of such a capability to locate and identify new targets would be a grave liability

in any extended conflict, particularly in light of apparent Soviet efforts to provide themselves with such a capability. However, as we complete deployment of the satellite-based Nuclear Detection System, the primary U.S. means for locating nuclear detonations worldwide, our ability to assess the nature of an attack or the damage from nuclear strikes on both sides should improve greatly--if we can protect the system against future ASAT threats. Data on the post attack situation from this system would be critically important in directing our surviving forces in pursuit of national strategic objectives during an extended conflict that involves the use of nuclear weapons.

Another problem is that of Soviet short-warning precursor attacks or isolated selective attacks employing the new generation of Soviet cruise missiles. Launched from submarines, and possibly bombers, these cruise missiles may pose a particular danger to our National Command Authorities and attack warning systems (the latter might be attacked even with conventional warheads), but also possibly against our coastal bomber bases. U.S. plans for surveillance against such attack, while useful, seem far from providing high confidence of useful warning.

The Soviet Union has made major efforts to provide itself with the ability to hold substantial nuclear forces in reserve through and after a large nuclear attack and to keep continuing political control over their operations. In addition to increasing the proportion of mobile forces in their inventory to preserve a nuclear reserve, the Soviets have devoted massive resources over many years to protecting their key political and military C3I facilities, particularly through a long-sustained program to construct deep underground shelters for their national leadership.¹⁸ Unlike our own more limited overhead reconnaissance capabilities, their much greater space launch capability permits them to launch war reserve satellites in a crisis and keep them in orbit for use as needed. In addition, their air defenses and Moscow ABM system also contribute to the protection of their C3I.

In sum, continued improvements are needed in protecting both our ICBMs and our C3I system to give us a posture that will not be subject to dangerous pressures to rely on launch under attack. Experience suggests that, so long as the survival of U.S. ICBMs can be controlled by the Soviet Union, we will find ourselves unable to abandon reliance on launch under attack as a substitute for protection. If, despite our best efforts, we cannot devise a suitable ICBM basing system, the dangers of continuing to rely on launch under attack over the long run indicate that we should abandon this element of the Triad, undesirable as that may be.

¹⁸ Soviet Military Power, 1988, pp. 59-62.

5. Targeting Objectives for Our Nuclear Forces

If we conclude that massive initial damage-limiting nuclear strikes cannot accomplish useful national objectives worth the expenditure of forces and risks of escalation of violence, we open a related problem that has received less public attention. We must then identify credible and sufficient U.S. nuclear responses to plausible Soviet attacks requiring a nuclear response. To be credible, a response must serve our national interests if we have to exercise it. A sufficient response is one that could deny the objectives of an aggression or put at risk Soviet interests more valuable to Soviet leadership than its expected gain from aggression. Attention has been diverted from the search for such responses by the widespread conviction that any use of nuclear weapons would inevitably lead to an indiscriminate nuclear exchange involving the full surviving stockpiles of both sides.

Such a Soviet attack would be inconsistent with the indoctrination of Soviet leaders and with their personal interests, which assign highest priority to the preservation and expansion of Soviet power. That power rests on the survival of the Soviet armed forces, internal security apparatus, and the Party apparatus itself. In a war, our ability to attack the Soviet armed forces could serve both to block an aggression and to erode a major support for continued Soviet control. In particular, serious damage to the Soviet armed forces would put at risk Soviet control over the satellite countries of eastern Europe or even the Soviet Union itself. Our capability to accomplish this would provide both a credible and a sufficient deterrent to plausible Soviet attacks.

In the past, the lower targeting priority of Soviet forces other than nuclear ones is suggested by the label, "other military targets." As Soviet protective measures and forces have grown, denying our ability to limit damage by counterforce attacks, the rationale for our targeting has become increasingly unclear. One approach was to emphasize the concept of deterring by threatening war-supporting industry, but the destruction of war-supporting industry could not affect the decisive early battles in Europe or other theaters and would only increase the already strong Soviet incentives to achieve a quick victory and replace their damaged industrial infrastructure at the expense of their victims. And, the collocation of war-supporting industry with urban population would make such an attack, in effect, indistinguishable from an indiscriminate attack on Soviet society. Another approach has been to hold Soviet leadership at risk. Here too, the motivation has been unclear: is the goal to reduce Soviet military effectiveness by decapitation or to retaliate for aggression by punishing Soviet leaders? It is also inconsistent with our interest in terminating a war by having viable counterparts with whom to communicate and negotiate. In any case, here too, Soviet protective measures have called into question our ability to accomplish this task.

In the future, it appears that we should give higher priority to targeting the Soviet general purpose forces and to planning for extended attacks on targetable elements of their nuclear forces and on their C3I

system. The time urgency and other characteristics of attacks on Soviet general purpose forces would depend heavily on the circumstances of the outbreak of fighting. In the highly unlikely event that the Soviets made a nuclear attack against the U.S. out of the blue, and U.S. forces were in a day-to-day condition of alert, Soviet forces would also be largely undispersed (otherwise, we presumably would have received strategic warning and increased our state of alert). In this case, Soviet general purpose forces would be highly targetable at the outset, but presumably not for long. In more likely circumstances where nuclear attacks followed a period of fighting in one or more theaters of operations, Soviet forces would be in, or moving to, wartime deployments. While less easily targeted than in the out-of-the-blue case, there would be important opportunities to use nuclear forces to block the Soviet advance, degrade their combat capabilities, and destroy significant elements of their general purpose forces, equipment, supplies, and fixed facilities. Such targeting would place a premium on adaptive targeting methods now under development.

Time-urgent targeting, therefore, has to be reassessed. The importance of U.S. warheads arriving on target within, say, the first hour after launch of a Soviet attack will diminish. As noted earlier, the proportion of Soviet nuclear forces in fixed facilities is declining, many Soviet silos are likely to be empty by the time even a "prompt" U.S. strike lands, and remaining missiles in silos (presumably either malfunctions or reserves) are not likely to be launched soon thereafter, say within the following hour. That being the case, time urgency would not require the launch of survivable forces under attack.

The reassessment will have implications for the design of our nuclear forces. If, as appears likely, targeting general purpose forces will not require the massive salvos associated with time-urgent attacks on strategic offensive forces, the desirability of missiles with large numbers of MIRVs and platforms, like Trident, carrying large numbers of reentry vehicles, is likely to diminish. If time-urgency comes to be measured in hours rather than minutes, the relative desirability of cruise missiles, with their adaptability to stealth, may increase relative to ballistic missiles.

On the other hand, if we could target elements of Soviet mobile nuclear forces at the outset, we would have strong incentives to attack these fleeting targets immediately. The same is true of fixed military command and control facilities that may have capabilities greater than mobile alternates. But realistically, given Soviet efforts to improve their control capability and survivability, our counter-C3I efforts should be oriented towards degrading their capabilities to take advantage of a C3 force multiplier rather than towards decapitation. Targeting mobile elements of Soviet nuclear forces after the initial attack would require not only enduring U.S. forces, but surviving and enduring reconnaissance and flexible C3 systems. Like attacks against general purpose forces, such targeting will be heavily dependent on adaptive planning procedures for our nuclear forces.

E. AN ASSESSMENT OF CONUS DEFENSE

Prior to President Reagan's March 23, 1983, speech introducing his Strategic Defense Initiative, the U.S. nuclear-oriented strategy was completely offensive. In no other area have we made the choice between offense and defense in so extreme a fashion. The issue instantly became highly contentious, with many people on both sides insisting on seeing the choice as one between a purely offensive and a purely defensive strategy. The case for a mix of offense and defense is still widely ignored, with the possible exception of a hard-site defense of our missile silos.

Several questions are of key concern:

- Should we conduct R&D on active defenses only to hedge against possible Soviet deployments, to explore technologies without a foreseeable deployment objective, or to support an evolutionary program aimed at deploying initial increments of useful defenses as they become feasible while continuing to develop more advanced systems of greater capability?
- What criteria should govern deployment decisions? In particular, against what sorts of Soviet attacks should we evaluate CONUS defenses? What should be their missions? What balance will we require between ballistic missile defense (BMD) and air defense? And between offense and active defense?
- What would be the effect of introducing defenses at various possible levels of effectiveness and cost for deterrence, for limiting damage in the event of nuclear war, for the military use of space by the U.S. and the Soviet Union, for stability in crises, and for the long-term military competition?
- How should our policy on active defense be related to existing and possible future arms agreements?

1. The U.S. Abandonment of Strategic Defense

The SDI signaled a departure from 15 years of relying on a purely offensive strategy to deal with the threat of nuclear attack on strategic targets--understood by the public to be based on the doctrine of mutual assured destruction (MAD). Since the late 1960s, the United States has not sought to defend U.S. territory against Soviet nuclear attacks. Between 1967 and 1972, U.S. national security policy assumed that technological difficulties and cost prevented an effective damage-limiting defense against a widespread attack by undamaged Soviet forces. Efforts to build a thin ballistic missile defense designed to intercept accidental launches and "nth" country attacks (China especially) failed to win political support. Instead, the prevailing view held that a U.S. ABM system would induce the Soviets to proliferate their offensive weapons through an action-reaction cycle designed to maintain their assured

destruction capability against a U.S. attack. In combination with U.S. offensive forces designed for counterforce attacks, feasible levels of defense would, it was argued, contribute to Soviet fears of a U.S. first strike, intensifying the preemptive instability paradigm. In this way, efforts to avoid the "condition" of MAD,¹⁹ whether by counterforce or active defense, would supposedly lead to an arms race, instability, and a heightened danger of nuclear war.

After 1972, the ABM Treaty prohibited a defense of U.S. territory against ballistic missiles. Even earlier, during the 1960s, we had begun dismantling the CONUS air defenses we had acquired during the 1950s. While we continued making qualitative improvements in our offensive weapons (especially in their accuracy), these efforts were often opposed as destabilizing, hampering our efforts to maintain counterforce capabilities against the increasing number of Soviet hard missile silos. We also gave up on civil defense against nuclear attack. We concluded that the deployment permitted by the ABM Treaty was not worth the cost. Further, in the interest of avoiding any suspicion of violating either the spirit or the letter of the ABM Treaty, we constrained both the permitted research and development activities on air and ballistic missile defense, and de facto avoided deployments of dual-mode theater air defenses that might also protect against shorter range ballistic missiles.

2. Soviet Rejection of Mutual Assured Destruction

The justification for this unprecedented formal U.S. surrender of the sovereign prerogative of self-defense rested on the assumptions that the Soviets were also accepting MAD and that, as expressed in the ABM Treaty Preamble and reinforced in a U.S. unilateral statement, agreed reductions in strategic offensive forces would soon follow the ABM Treaty.

Actual Soviet behavior has been in sharp contrast with these assumptions. Far from accepting MAD, the Soviet Union devotes large resources to modernizing and maintaining air defenses, exercises fully its ABM Treaty rights to deploy and modernize a ballistic missile defense system in the Moscow area, and has developed the dual-mode SA-12 SAM, which has a defense capability at least against short-range ballistic missiles (the full extent of the SA-12 system's capabilities are a matter of uncertainty within the U.S. Intelligence Community). In addition to these permitted activities, the Soviets have exploited areas of ambiguity in the ABM Treaty and, in several instances, have pushed beyond the limits of ambiguity, notably in deploying a prohibited BMD-capable radar and in BMD development testing under the guise of air defense activities. The Soviet strategic defense program is clearly very large, and it appears that some Soviet technologies may lead those of the U.S., particularly in some forms of directed energy weapons (DEWs). In addition to its efforts on active

¹⁹ The position's advocates insist that MAD is a condition, not a policy, a distinction that would endow MAD with the inevitability of physical law and avoid the necessity of recognizing that reliance on threats to destroy civilians is a matter of policy choice.

Source: <http://www.albertwohlstetter.com>

defenses, the Soviet Union, as already discussed, has continued its massive programs to provide its political and military leadership passive protection, including both deep shelters and mobility.

The cumulative result of Soviet efforts in defense against nuclear attack has been described as a Soviet "creep out" from the restrictions of the ABM Treaty. By maintaining a hot production base for components of the permitted Moscow BMD and the dual-mode SAM systems, while violating some of the ABM Treaty's restrictions and exploiting ambiguities in others, notably with regard to long-lead testing and deployment of radars, the Soviets have widened their BMD options. One of their options is to deploy a widespread defense system under the guise of strategic air defense or field army defense, which could be given BMD capabilities covertly by netting the interceptors with appropriate radars. Another is to increase greatly its capacity for overt deployment of an ABM system in a rapid breakout from the ABM Treaty restrictions.

If we were to agree, as recently proposed by the Soviets, to tighten the ABM Treaty's restrictions on R&D on advanced BMD systems, they could further exploit the asymmetry between their and our ability to verify and enforce inherently ambiguous boundaries on R&D testing. Recent experience with charges by the U.S. Government that the Soviet Union had violated various arms agreements shows that Western attempts to enforce Treaty compliance can easily become a controversial domestic political matter. U.S. desire to protect "the arms control process," ambiguity concerning Soviet "intent," and debates over the "military significance" of alleged violations each help make it hard for the United States to hold the Soviet Union to strict compliance with their treaty obligations. Furthermore, it is difficult to convince the public of Soviet violations. The Soviet activities in question are inherently ambiguous, and some U.S. information on Soviet R&D activities and much of the supporting data have to be withheld to protect the security of U.S. intelligence sources and methods.

Finally, the great expansion and qualitative improvements in Soviet long-range offensive forces have dramatically invalidated a central U.S. precondition for the ABM Treaty, namely that it be followed by agreed reductions of offensive forces. Instead of agreeing on reductions in strategic offensive forces, the Soviet Union massively built up its offensive nuclear forces in the 1970s while the United States did not. The result has been to reduce the vulnerability of Soviet nuclear forces; to greatly expand their attack capability, including their ability to conduct selective nuclear attacks on key military targets; and, directly contrary to a major U.S. purpose in the SALT process, to give them the capability to destroy a very large fraction of our Minuteman missiles as well as future silo-based missiles like the M-X.

3. The Current Status of the Strategic Defense Initiative

President Reagan's 1983 speech and subsequent statements by him and other authoritative Administration spokesmen led both critics and some supporters of the SDI to conclude that the SDI goal was to replace nuclear offensive forces completely by defenses. Consistent with such a policy,

the SDI program was described as one of "research only" until such time as progress in technology would make it possible to develop a BMD system of the exceedingly high effectiveness needed to achieve this goal. While a research only program existed before the President's speech, it has proved increasingly difficult to sustain funding at levels proposed for SDI to support research without any foreseeable deployment or merely to permit us better to understand Soviet activities in the area of advanced defenses. More recently, the SDI R&D program has reflected a recognition that, whatever its ultimate goal, to attain it, the program would inevitably have to deploy defenses over an extended period and in an evolutionary way. A central objective in guiding such a program is to make it pay as it goes by directing it so as to provide current benefits while keeping open the long-term options it seeks to develop. Such a strategy offers the greatest promise that the program will contribute to our security goals early enough and with high enough confidence to warrant its cost. An evolutionary strategy is also a defense against charges that the SDI goals are unrealistic and that it should be a bargaining chip in arms negotiations with the Soviet Union. An evolutionary approach is particularly relevant to the SDI because it is a long-term effort embracing a range of technologies, some relatively mature, others requiring great technological advances with distant benefits that are less certain until the necessary advances have been achieved. As it proceeds, the SDI needs simultaneously to yield deployments that have benefits at least commensurate with their costs and to support a continuing R&D program that will improve the deployed system's capabilities against future countermeasures and that will, if possible, increase the scope of its mission.

The SDI R&D program is currently engaged in designing a systems architecture for a phased BMD deployment, developing the necessary technologies, incorporating them as potential elements of defense systems, and testing and validating the components and systems concepts it has developed. The Joint Chiefs of Staff have developed an operational requirement for the initial phase of a deployment, and the Defense Acquisition Board is reviewing the readiness to proceed with deployment in terms of the demonstrated technological feasibility of the system.

The proposed initial deployment consists of two layers, with the greatest number of potential Re-entry Vehicle (RV) kills provided by the space-based layer. In this layer, boost phase intercept satellites would employ non-nuclear kinetic kill, Space-Based Interceptor (SBI) rockets carried on satellites in low earth orbit. The deployment would also include a Boost Surveillance and Tracking System (BSTS) in a higher orbit.

A second layer would employ ground-launched, non-nuclear ERIS rockets, each of which would be able to conduct late mid-course intercept against re-entry vehicles (RVs) aimed at any target within a large area of the United States (the system's "footprint"). To direct the ERIS interceptors to a point at which their optical homing sensors could lock on to the RVs, a Ground-Based Sensor System (GBSS) would launch a probe on warning with sensors capable of acquiring the "cold body" RVs.

In addition, the proposed initial SDI deployment would include a Battle Management, Command, Control, and Communications (BM/C3) system and an Advanced Launch System (ALS), the latter a multipurpose program to develop families of space launchers employing advanced technology to reduce the cost of putting the needed systems into orbit. The initial space deployment would be launched by Titan IV boosters, but the first-phase deployment would be completed by boosters developed in the ALS program.

The SDI Office has also outlined subsequent deployment phases that would make the defenses more effective or keep pace with Soviet countermeasures in several respects. From the two-tier defense described previously (SBI and ERIS), the defense would be increased, in a second phase, to four tiers, reducing the preeminence of the boost phase intercept layer. The four-tier deployment would include early mid-course (SBI) intercept of postboost vehicles and RVs, and terminal intercepts by a HEDI missile with a non-nuclear warhead, supported by ground-based radars and an Airborne Optical Sensor (AOS) system. Depending on the course of the technology programs and the evolution of the threat, some directed energy weapons might enter the system in the second phase to deal with such Soviet countermeasures as fast-burn boosters.

Subsequent to the first phase, a Space-based Surveillance and Tracking System (SSTS) would supplement or replace the GBSS to support post-boost and mid-course intercepts by the SBI or late mid-course intercepts by ERIS. In addition, SSTS and, more important, systems for interactive discrimination would improve discrimination capability against Soviet exoatmospheric decoys. The HEDI missile would permit thickening the defense of particularly critical targets or areas, but would require the long-range acquisition and tracking capability of the AOS.

Matters of dispute and uncertainty include: (1) the ability of the SDI Office to meet its technological goals and schedules and to achieve the estimated levels of effectiveness of the proposed system; (2) the nature, timing and effectiveness of Soviet countermeasures; (3) the vulnerability of the system, especially the space-based elements, to defense suppression attacks; and, (4) of course, the costs. On several of the issues, convergence will depend on the progress of R&D and testing.

4. Criteria for Evaluating CONUS Defense

In 1985, Paul Nitze propounded a twofold criterion for defense deployment during what he called the transition to the President's goal for the SDI program. The two elements of his criterion are "cost-effectiveness at the margin" and "survivability" against defense suppression attacks. They have been a recurrent theme in the discussion of the SDI, generally adduced by opponents of BMD. Such arguments generally assume that the mission of the defenses is to protect against large and implausible Soviet attacks designed primarily to destroy cities and civilian population. Adherents of MAD who hold this view conclude that the necessary level of effectiveness is technically unfeasible.

Some SDI supporters who reject MAD, but accept its underlying premise that nuclear weapons can be used only massively and indiscriminately, face, at best, the unattractive prospect of anticipating no useful outcome of the program until we can achieve defenses of extremely high effectiveness. This view suggests slowing the pace of all R&D on defenses to the rate of progress on the most difficult technical problems that have to be solved in a multilayer defense of cities against massive attacks. It permits us to contemplate no deployment until we are able to design and are prepared to pay for a system consisting of highly effective versions of all defense layers. Such a view invites failure and, at best, would result in very long delays and very high costs before useful systems could be deployed.

On the other hand, an evolutionary approach to deployment of defenses makes sense only if defenses of moderate levels of effectiveness can contribute adequately to our national security. Consequently, a clear identification of the missions for defenses at various levels of effectiveness and cost and an assessment of the long-term strategic implications of including them in our posture are as important in the criteria for deploying defenses as resolution of the technological and operational uncertainties. A useful evaluation of CONUS defenses must therefore begin with an explicit treatment of the missions they are to perform.

5. BMD Mission Levels

An evolutionary BMD program can be considered in terms of the following successive mission levels:

1. Protect against or deny the objectives of small attacks.
2. Deny the objectives of large attacks against numerous or uncertainly located military targets, notably our strategic offensive forces.
3. Protect against civilian damage, distinguishing between:
 - Collateral damage from attacks on military targets;
 - Damage from attacks intended to devastate a large part of the U.S. population and urban areas per se.

Movement through the successive missions listed above implies defense system requirements that increase in cost, size, complexity, technical demands, and time to achieve them. The proposed first phase of an evolutionary SDI deployment appears to be designed and sized for missions in category 2. This means that it must be sufficiently large and effective enough to deal with attacks consisting of thousands of reentry vehicles.

However, some elements of the proposed SDI first-phase deployment could play an important role in protecting against several kinds of small attacks or in reducing their likelihood of success sufficiently to deter them. This would also strengthen significantly deterrence of large

attacks of which these small attacks would be critical parts. Such elements of the first-phase deployment could be in place well before completion of the deployment, and at substantially lower cost than the full deployment.

Several kinds of small attacks are likely to pose important threats to the United States in the next 10 to 20 years. These include Soviet short-warning attacks on time-urgent U.S. military targets as a precursor to a larger countermilitary attack, a Soviet attack against a small number of targets to interdict U.S. military operations in an overseas theater, an attack by a Third World country, and an unauthorized or accidental launch.

6. Defense Against Precursor Attacks

Most dangerous would be a short-warning Soviet precursor or leading-edge attack from SSBNs stationed to provide short time of flight and launched simultaneously with the intercontinental portions of the attack. SLCMs could also pose such a threat unless we provided for adequate detection and warning or a defense against them as well. If such an attack achieved a sufficient degree of tactical surprise, it might offer Soviet planners a prospect of decapitating our C3I system, an extremely destabilizing possibility. This possibility is especially disturbing if the U.S. indicates it is relying on a launch-under-attack doctrine, the inadequacies of which were discussed earlier. If Soviet planners came to believe that a short-warning precursor attack could avert or disrupt a U.S. response to a disarming attack, it might prove to be crucial in their decision about launching such an attack.

Precursor attacks could also threaten other elements of our posture that depend on warning for survival. An attack using short time-of-flight SLBMs could reduce substantially the numbers of alert bombers that could escape in a fail-safe launch. Moreover, if the Soviets began to maintain off each of our coasts one or two of their SSBNs carrying missiles with MIRVs permanently on station, we would be denied a crucial element of strategic warning for a decision to move SAC alert bombers from coastal bases under present procedures. The alternative to defense under such circumstances would be permanent relocation of SAC bombers, an expensive, politically difficult, and tactically constraining shift.

A modest level of defenses could protect the critical targets of short-warning attacks and compel the Soviets to increase the forces assigned to such missions. This would raise the required attack size to a level that would make it costly to maintain on steady state patrol and would make the mission easier for us to detect.

The effectiveness of defenses against precursor attacks would be greatly enhanced if individual defense installations could protect targets in a large area (had a large "footprint") and if the targets were mobile. In such a situation, the attacker, not knowing the precise location of the target, would have to attack all possible locations; the defender, on the other hand, employing "adaptive preferential defense tactics", would need

only to intercept those missiles aimed at occupied locations and could bring to bear as large a fraction of his interceptor inventory as he chose. This advantage would be especially telling if the targets were time-urgent, preventing the Soviets from spreading their attack over time. In such a situation, the defenses would have great leverage relative to the offense. It appears that both the ERIS missile and an early version of the HEDI missile might have large enough footprints to provide this kind of defense for the national capital region. (Because of the low trajectories associated with short time-of-flight missiles, a space-based Kinetic Kill Vehicle (KKV) defense is unlikely to play an important role in this mission.) However, if ASW measures could provide data for localizing submarines, boost-phase interceptors launched from long-endurance patrol aircraft might also be effective.

SLCMs pose additional difficulties because even if they are detected, they might be confused with the background of innocent air traffic and fail to be identified as part of an attack. Moreover, future signature suppression might increase the difficulty of detecting them reliably. Nevertheless, their slower speed would require either that they be launched close to our shores, subjecting them to greater risk from U.S. ASW forces or that they be launched before the intercontinental attack, risking an increase in our warning if they were detected and identified. To realize the benefits of early, small BMD deployments against short-warning attacks, we would probably also need to be able to detect and identify SLCM attacks large enough to accomplish the decapitation mission. Absent at least moderately reliable warning of such attacks, we would also have to provide some terminal defense against cruise missiles at the most critical targets. But, defenses against cruise missiles are not likely to have leverage as high as defenses against ballistic missiles because the defense footprint would be smaller and the cruise missile flight paths less predictable than those of ballistic missiles.

Finally, in the 1970s, when the United States was considering deploying an NCA defense as permitted under the ABM Treaty, support for the program was weakened by the allegation that the defenses would protect the Government while leaving the people undefended. Unlike that situation, a limited initial SDI deployment to protect the national capital region (one that could be started under the ABM Treaty²⁰) could be combined with a defense that protected against small attacks over much or all of the rest of the country. Moreover, unlike the earlier defenses, those now under consideration are non-nuclear.

7. Defenses Against Other Types of Small Attacks

Moderate levels of defense can also protect against several other types of small attacks. The case for defense against unauthorized or accidental launches of ballistic missiles against the United States is

²⁰ The ABM Treaty permits the United States to change our elected deployment site from Grand Forks to the national capital region during any 5-year review period. The most recent period for such election expired in October 1988.

Source: <http://www.albertwohlstetter.com>

particularly compelling because deterrence is irrelevant to preventing such attacks. Since the numbers involved are likely to be small, a thin area defense is likely to give a high measure of protection, particularly if its components have the large footprint associated with ERIS.

While the proliferation of nuclear weapons has been far slower than many predictions, several countries, including some in the Third World, are acquiring nuclear weapons and ballistic missiles. It would be imprudent to suppose that proliferation can be stopped completely, and deterrence is a less satisfactory basis for dealing with such prospective threats than in the case of the Soviet Union. Apart from questions about the reliability of control by Third World leaders over nuclear weapons and the possibility that they might behave irrationally, a state of mutual nuclear deterrence between the United States and Third World countries would be incompatible with the broad role currently played by this country in supporting international stability. Limitations on the resources and technological sophistication available to such countries give reasons for optimism about the U.S. ability, even in the early phases of a defense deployment, to achieve a high level of protection against the ballistic missile forces of Third World countries.

Finally, Soviet attacks on small numbers of critical targets in CONUS are likely to assume increasing importance in the future. As U.S. forces and Command, Control, Communications, and Intelligence (C3I) become more robust against massive initial disarming attacks, small, selective attacks will assume increasing importance in the incentives of each side to initiate nuclear attacks during a crisis or non-nuclear conflict. If key military targets were protected in the theater, the Soviets might seek to preclude effective non-nuclear resistance by selective attacks on targets in CONUS that support theater operations. In the absence of defenses, the Soviets could, for example, achieve high confidence of destroying U.S. capabilities for force projection to overseas theaters by using only tens of nuclear weapons to destroy facilities critical to overseas deployment. Such attacks might achieve decisive results while limiting collateral damage to levels that would preserve strong U.S. incentives to refrain from a massive nuclear response.

Against such attacks, a thin area defense in CONUS could pose a forbidding obstacle to a selective attack using only a small part of the Soviet offensive force. A modest defense sized to deal with small attacks could increase the required attack size to a level that posed far greater risks of escalation. And a larger defense, with even a moderately favorable cost-effectiveness leverage against a full-scale attack, could impose so high an entry price for an attack intended to destroy small numbers of targets with high confidence that the attacker would have to use forces almost as large as those required to attack the full target system.

8. Defenses Against Large Attacks on Military Targets

In conjunction with a START agreement, the possible deadlock over the U.S. ICBM modernization program discussed earlier could leave us with diminished SLBM and bomber forces and an aging and vulnerable ICBM force.

A thin area defense might help break such a deadlock. While many past offensive basing studies have addressed the question of hard-point terminal defense for alternative ICBM basing schemes, none has addressed "how a national decision to deploy a CONUS defense should affect our ICBM posture choices."

A CONUS defense might, for example, help meet a major objection posed by critics of the mobile SICBM. Objections to the SICBM have focused on its high cost per warhead. This high cost might be reduced by modifying the system to carry, say, three MIRVs and reducing the number of launchers by two-thirds. But reducing the force in this way would intensify concern about our ability to keep the locations of a large fraction of the force covert at all times. A ballistic missile defense over the deployment area could achieve an extraordinary degree of leverage against a Soviet attack by preferentially intercepting only those RVs targeted against a location actually occupied by an SICBM launcher, in a manner similar to that discussed above in connection with a defense of mobile elements of our C3 system. (The ASAT capability derived from an SDI deployment could also deny Soviet wartime reconnaissance against mobile systems like the SICBM.) An area defense would also provide the same kind of synergy with a missile deployment scheme like the Carry-Hard concept, discussed earlier. In this way, defense could raise the price of destroying U.S. ICBMs to unattractive, if not forbidding, levels, making an important contribution to stability.

9. Protection of Population

Assessments of defenses to protect population have often assumed a Soviet attack would have as its highest priority the destruction of cities and urban population. As already discussed, the Soviets, like the U.S., have powerful incentives to concentrate on military targets and to avoid unnecessary collateral damage. Nevertheless, in a large nuclear attack on widespread military targets, heavy collateral damage to civilians could result unless the Soviets took pains to avoid it. To limit such damage, defenses would have to be substantially more effective than for the other missions discussed earlier. They would also realize substantially less favorable leverage against the attack. Nevertheless, this objective is still far less demanding than protecting population against implausible Soviet attacks that have as their primary objective deliberately destroying civilians.

The great vulnerability of our cities and civilian population to small numbers of nuclear weapons means that protecting against attacks deliberately aimed at cities would require a defense to destroy virtually all of the thousands of weapons in the attack. Consequently, defense assessments conclude that CONUS defenses contribute nothing useful until they are virtually leakproof. Worse, these assessments assert that partly effective defenses could protect cities and people only if they were coupled to a destabilizing first strike against Soviet offensive forces. Defenses, they conclude, would therefore be destabilizing since they would increase both our own and Soviet incentives to preempt in a crisis. This concern has, for example, recently been advanced by Marshal Akhromeev in

discussing linkage between agreements to reduce strategic nuclear arms and restraints on deployment of BMD. This conclusion, based as it is on a highly implausible assumption about Soviet attack objectives, should be reassessed in the light of the more general treatment of missions for BMD discussed previously.

10. Cost-Effectiveness At the Margin

While cost and effectiveness are always relevant, the ratio between the marginal costs of Soviet offensive forces and U.S. defenses is not relevant to the decision about deploying a defense against small attacks. The likelihood of many types of plausible Soviet attacks and their size has little or nothing to do with the cost of an additional Soviet warhead. In precursor attacks, the attack size is governed by the need to preserve tactical surprise. In the case of accidental or unauthorized launch, the attack size is limited by random factors or by the nature of the relevant command and control system, including the number of weapons under the control of an insubordinate official. In Third World threats, the attack size limit is set by economic and technological asymmetries between the attacking country and the United States. Finally, in the case of a selective Soviet attack on a small number of military targets, attack size may be limited by concerns over escalation or the need to maintain reserve forces. The irrelevance of cost-effectiveness at the margin to judging the usefulness of defenses is not limited to small attacks either; the purpose of protecting against a precursor attack is to deter the large Soviet attack of which it would be a part and its expected outcome which depends on the success of the precursor attack.

In defending against large attacks on numerous military targets, especially if some of the targets are mobile, the advantage is likely to lie with the defense as discussed earlier. Protecting population against collateral damage from attacks against military targets is likely to give an intermediate cost-effectiveness ratio. Moreover, in helping to protect nuclear offensive forces, defenses of moderate effectiveness contradict the argument that they increase first-strike incentives. Rather, incentives to preempt arise, not from the presence of defenses, but from the existence of vulnerable offensive forces.

Finally, the argument about cost-effectiveness at the margin is often used in conjunction with assertions that, without a favorable cost-effectiveness ratio, defenses will not only fail to provide protection, but will also induce an offensive arms race. But the cost-effectiveness ratio is a poor predictor of Soviet response to U.S. defenses, which would take into account a much broader range of alternatives than proliferation of nuclear offensive forces. These would include intensifying their own efforts on defenses; making qualitative changes in their offensive forces, including substitution of aerodynamic vehicles for ballistic missiles; and making more general adjustments in their strategic priorities between nuclear and general purpose forces.

11. Survivability and Space Control

The second element of Paul Nitze's criterion for SDI, survivability, deserves to play a critical role in evaluating CONUS defenses. The possibility that the offense could easily attack and destroy ballistic missile defenses (concentrating on their large, fixed, costly and, therefore, few radars) was a critical issue in the ABM debate of the 1960s. The analogous issues concerning SDI are different. The proposed initial deployment would contain only mobile sensors. And, the ground-based radars introduced in subsequent phases for endoatmospheric defenses would be smaller, possibly mobile, less expensive, and therefore more numerous relative to interceptors. As a result, they would be much less attractive targets for defense suppression than the radars of the 1960s Sentinel/Safeguard system.

Instead, current questions concern the vulnerability of space-based components of the defense--sensors and SBI satellites. The potential threats to these space-based components include ASATs, both direct-ascent and co-orbiting, and ground-based lasers to attack satellites orbiting over the U.S.S.R. The SDI Office is devoting substantial effort to analyzing possible defense suppression tactics and to designing against them. Against rocket-launched ASATs, the elements of a defense include proliferation, nuclear hardening, maneuver, deception, and self-defense, including mutual support by elements of a defense constellation of satellites against some types of ASATs. Against ground-based lasers, protective measures include hardening, concealment, and deception. Proliferation is likely to be a crucial element in the viability of the low-orbit or medium-orbit SSTS sensors, currently planned to be substantially fewer in number than SBI carrier vehicles. Dealing with this problem without greatly increasing systems cost is vital for the success of the SBI concept.

While the threats to space-based assets will increase with time, so will the countermeasures for their protection. Mutual and self-defense capabilities of SDI space-based assets will increase when the SBI can attack both ASAT boosters and cold bodies like their warheads or space mines. Both defense suppression weapons and the space-based SDI assets can be expected to resort to decoys as well as to the countermeasures mentioned earlier.

The competition between U.S. defenses and Soviet efforts at defense suppression will almost surely prove to be open-ended, like that between bombers and air defense. Currently, there is no basis for supposing either that the space-based components of SDI would be easily negated or that they would be immune from attack. The most we could expect to determine before deployment is whether our defense systems could compete on relatively favorable terms over time with Soviet defense suppression efforts. Here, our technical strengths in sophisticated electronics and information processing should weigh heavily. But, failure to improve our relative weakness in high-volume, low-cost capabilities for space launches would be a substantial disadvantage.

The SBI system also has potential for space control. A system that can attack ballistic missile boosters can do even better against the larger and longer burning space launch rockets used to orbit satellites. And, a system that (at least in the growth version of SBI) can defend itself against ASAT weapons and attack postboost vehicles and RVs would also be a potent ASAT weapon against an adversary's low or medium earth orbit satellites, as well as a defense of our own. Indeed, derivatives of the SBI might play a role in enforcing such plans as the agreements proposed by Albert Wohlstetter and Brian Chow on "self-defense zones" to protect satellites against ASATs or space mines.²¹

The importance of this range of capabilities is currently high and likely to grow with the importance of wartime use of space for C3I and reconnaissance. The discussion of the future of long-range nuclear attack weapons and non-nuclear, smart standoff weapons in other sections of this report emphasize the importance of this trend for non-nuclear as well as nuclear combat.

The prospect of U.S. acquisition of such space control capability would undoubtedly be viewed as a serious threat by the Soviets and is probably a significant element in their strenuous opposition to SDI. Their response to U.S. progress toward an SBI system is a matter for conjecture. They would probably continue trying to stop or slow the program by political means, especially through proposals for arms agreements. As in the past, a minimal Soviet objective would be to buy themselves time to develop comparable capabilities.

If they failed to stop the SDI program, the Soviets might threaten to overturn the existing modus vivendi in space and assert sovereign rights to interfere with satellites infringing their boundaries in space. They probably would also seek cooperation from other countries in bringing pressure to bear on the United States, arguing that we were threatening everyone's freedom of access to space. Whether they would actually interfere with the deployment of an SBI system by attacking the satellites in orbit would depend on their assessment of their capabilities and the risks of retaliation by the United States.

A direct attack on U.S. ground, naval, or air forces in response to deployment of SBI and in the absence of other motives, and especially an attack on U.S. territory, is highly implausible. Past experience in overcoming even more threatening technological leads by the United States is likely to incline Soviet leaders to conclude that committing an act of war would hardly be its best course. In any case, knowledge of the circumstances as we approached deployment would make possible a far better judgment than any we can make now about Soviet reactions and our own alternatives for response.

²¹ Albert Wohlstetter and Brian Chow, "Arms Control That Could Work," Wall Street Journal, July 17, 1985, and Self-Defense Zones in Space, Pan Heuristics, report to the Office of the Under Secretary of Defense (Policy), July 1986.

12. Prospects for Achieving "Defense Dominance" and Implications for U.S. Strategy and Arms Negotiations

President Reagan's ultimate SDI goal of basing our security on protecting our own people rather than threatening nuclear retaliation against the Soviet Union has been called "assured survival." Assured survival is often taken to mean an ability of the United States to defend against the kind of implausible Soviet attacks on cities already discussed, while ignoring the role of defenses against more plausible attacks that might arise in the course of U.S. involvement in a war on the Soviet periphery. Also, it is often unclear whether assured survival covers aerodynamic as well as ballistic missile weapons. Given the diversity of the threats and the extremely high level of defense effectiveness required to achieve assured survival, its attainment is highly unlikely without the cooperation of the Soviet Union.

Because assured survival is dependent on Soviet cooperation, it cannot serve as the only current goal of the SDI. The announced Soviet intent is to stop the SDI program and prevent or at least defer substantial attempts by the United States to deploy advanced defenses exploiting our technological advantages. However, if the United States perseveres in deploying defenses that contribute to strategic stability and to a U.S. capability to contain and compete with Soviet military power, the Soviets may find it preferable to seek agreements based on mutual interests rather than pursuit of unilateral advantage.

Under such circumstances, and particularly if Soviet leaders were (uncharacteristically) willing to give up the political advantages they derive from Western anxiety over nuclear destruction, they might be willing to couple nuclear offensive force reductions with defense deployments that would substantially reduce the risk of widespread nuclear destruction and would sharply reduce U.S. and Soviet incentives for any use of nuclear weapons.

Not even such a far-reaching change would be equivalent to an abolition of nuclear weapons. Selective military use, relying on countermeasures to penetrate defenses in attacking high priority targets, would remain an important element of the military balance. Nevertheless, such a change in the nuclear balance would intensify the need to reduce the asymmetry between the Soviet Union and the West in conventional forces. Moreover, allied reactions to SDI have already indicated that comparable levels of protection for allied territory against nuclear attack might be needed to avoid intensifying tensions within the Western coalition.

Finally, a reduction by tacit or formal agreement of nuclear weapons stockpiles to levels that would effectively curtail their destructive potential would go far beyond realistic U.S. capabilities for verifying and enforcing such agreements. More than 35 years ago, Robert Oppenheimer expressed the need for defenses to ensure against cheating under an agreement that sought to reduce the level of nuclear offensive forces far enough to reach the objective of what we would now call assured survival.

A more effective defense could even be of great relevance, should the time come for serious discussion of the regulation of armaments. There will have been by then a vast accumulation of materials for atomic weapons, and a troublesome margin of uncertainty with regard to its accounting--very troublesome indeed if we still live with vestiges of the suspicion, the hostility and the secretiveness of the world of today. This will call for a very broad and robust regulation of armaments, in which existing forces and weapons are of a wholly different order than those required for the destruction of one great nation by another, in which steps of evasion will be either far too vast to conceal or far too small to have, in view of the then existing measures of defense, a decisive strategic effect. Defense and regulation may thus be necessary complements. And here, too, all that we do effectively to contribute to our own immunity will be helpful in giving us some measure of an increased freedom of action.²²

²² J. Robert Oppenheimer, "Atomic Weapons and American Policy", The Open Mind, Simon and Schuster: New York, N. Y., 1963 (originally published in 1955), p. 76. (From a lecture to the Council on Foreign Relations, presented February 17, 1953).

MEMBERS OF THE WORKING GROUP

Co-Directors: Fred Hoffman
Henry Rowen

| | |
|-------------------------|--------------------------------|
| Marcy Agmon | Pan Heuristics |
| Richard Brody | Pan Heuristics |
| Gregory Canavan | Los Alamos National Laboratory |
| Robert Chandler | Pan Heuristics |
| Donald Cotter | Center for Strategic Concepts |
| James Digby | Pan Heuristics |
| George Donohue | The RAND Corporation |
| Thomas Evans | APL, Johns Hopkins University |
| Theodore S. Gold | Hicks & Associates |
| Dennis Gormley | Pacific Sierra Research Corp. |
| Craig Hartsell | Consultant |
| Roland Herbst | R&D Associates |
| Admiral Staser Holcomb | USN (Ret.) |
| Albert Latter | R&D Associates |
| General Edward C. Meyer | USA (Ret.) |
| Leon Sloss | Leon Sloss Associates |
| General John Vogt | USAF (Ret.) |
| James Wade | Systems Planning Corp. |
| Richard Wagner | Kaman Sciences Corp. |
| Michael Yarymovych | The Strategic Defense Center |

1049-8-28-01-0020*

11-2

CC