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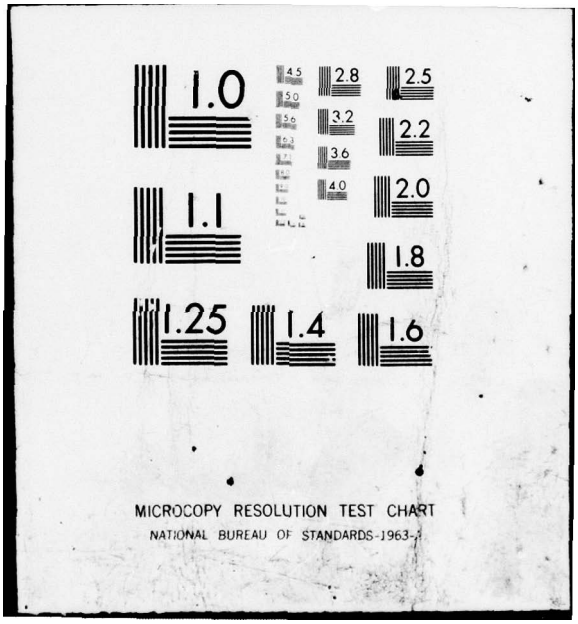
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Outlasting SALT II and Preparing for SALT III

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William E. Hoehn, Jr.

A Project AIR FORCE report
prepared for the
United States Air Force

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This report

Attempts to answer three questions regarding the strategic arms limitation talks: First, given that SALT II in and of itself does not resolve our major strategic problems, does it provide a framework within which planned U.S. unilateral actions would resolve those problems? If not, what kinds of additional limitations should the next round of negotiations--SALT III--aim for? And, finally, what set of plans and what strategy offer some promise of leading to an effective SALT III outcome? Some prospect is offered in at least one construct of SALT III, through lower ceilings and more explicit limitations on missiles, of permitting U.S. unilateral actions to redress the strategic balance. The suggested approach is to pursue an option-generating R&D strategy consistent with the provisions of SALT II. The issue is whether the U.S. political system can do a better job of competing while cooperating with the Soviet Union, rather than merely switching intermittently from one course to the other. (MP)

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PREFACE

This report is one product of a Project AIR FORCE research project entitled *Strategic Policy for Long-Term Competition.* The research focuses on the current adequacy of and potential improvements to U.S. strategic policy and doctrine and force posture choices in light of the changed environment brought about by the Soviet Union's achievement of "rough parity" and its continuing competition with the United States inherent in Soviet notions of "peaceful coexistence" and detente.

The report provides a logical framework within which prospective military capabilities, options, and our strategic nuclear policy can be integrated and coordinated with the next round of arms control initiatives (SALT III).

In the discussions and seminars from which this report has evolved, some have interpreted "Outlasting SALT II" as implying that the impending treaty was without merit or, worse, counterproductive for the United States. That is an incorrect interpretation. Whatever the merits and demerits of the SALT II agreement as finally revealed through the ratification debates, the United States faces a period of some further deterioration in the strategic balance, however assessed or measured, through the mid-1980s—a period that overlaps the expected duration of the SALT II treaty. This prospect is but marginally changed whether Salt II is promptly ratified, rejected, or even amended into oblivion.

Other discussants have assumed that "Preparing for SALT III" implied the necessity of ratification of SALT II and, therefore, implicit support for its provisions whatever they may be. Other than as a semantic distinction—logically, one can only agree to a "SALT III" if "SALT II" exists—that interpretation is also incorrect. Much of what will be developed below as potential incentives and leverages appropriate to achieving the principal announced objective of SALT III would be applicable whatever the fate of SALT II. The report is not intended to persuade the reader either to support or to oppose the terms of SALT II as currently understood, but rather to direct some needed attention to the issue of where we go from here, and how we get there. If in the process the merits and demerits of SALT II are clarified, that is a useful, albeit unintended contribution.

The report should be of interest to national security decisionmakers, military and civilian, in the executive branch as well as the legislative. It is only from their consensus that commitment to a strategy for SALT III will emerge. To build upon the limited consensus that already exists as to the state of the military balance, our prospects and plans for the future, and the national security problems we will face in the next few years, major reliance in this report is placed on the assessments offered by the Secretary of Defense and the Chairman of the Joint Chiefs of Staff. Their annual posture statements[1] can be taken as the consensus of the administration on national security matters and, the recommended programs having by and large been supported by the Congress, reflect some legislative consensus as well. In accepting this as a basis from which to lay out a strategy for the next round of negotiations, we should take note of the significant (and often vocal) minority opinion to the contrary. Many on the left flank regard those posture statements as unbridled propaganda in support of higher military spending regardless of need; many on the right regard them as grossly understating the degree of peril we face so that the military budget can be made to "fit" the budget guidance regardless of need. Granting more weight to either point of view would have required a much lengthier and more detailed report.

[1]Because many of the intended audience are intimately familiar with the contents of those reports, the text contains only a few relevant quotations. Those less familiar with the posture statements will find more detailed supporting discussion and quotations in the appendixes.

SUMMARY

This report attempts to answer a set of related questions. First, given that SALT II in and of itself does not resolve our major strategic problems, does it provide a framework within which planned U.S. unilateral actions would resolve those problems? If not, what kinds of additional limitations should the next round of negotiations—SALT III—aim for? And, finally, what set of plans and what strategy offer some promise of leading to an effective SALT III outcome?

The principal accomplishments of SALT I were to place ceilings on some methods of expansion of strategic offensive nuclear armaments and to restrict certain types of systems (e.g., ABMs) that threatened to be destabilizing in the sense of creating incentives for more strategic offensive weapons. But SALT I failed to address two problem areas that subsequently became important to the strategic debate. The first was the felt need for "equality" in terms of aggregates of forces as a symbol of "essential equivalence" or "parity." The second was the unanticipated extent to which the Soviet Union could exploit ill-defined provisions of SALT I—within the letter of the treaty—to pose a major threat to U.S. land-based ICBMs.

The Vladivostok Accords of 1974 subsequently attempted to resolve the equivalence issue by establishing the principle of equal (but high) ceilings on forces. As the SALT II negotiations proceeded, however, criticism of the equal (but high) ceilings increased, in the light of emerging trends in the strategic balance that seemed to favor the Soviet Union. Commentators in the United States recognized that the ceilings were going to be too high to prevent Minuteman from becoming vulnerable. This meant that the United States would have to develop some unilateral strategic force modernization plans to redress that imbalance.

A major question in the SALT II ratification debate will be the extent to which the treaty helps address the problems not resolved by SALT I. If the SALT II treaty is found not to deal effectively with those problems, then the unresolved issues should be expected to be the central focus of a next round of negotiations—SALT III. But in stating the objectives for SALT III, administration spokesmen have not referred to those problems. The president has posited the fairly ambitious goal of "much more drastic cuts in overall missile levels than SALT II envisions." Given the negative Soviet reaction to the administration's March 1977 proposals for lower ceilings than those agreed on at Vladivostok, this goal will probably be difficult to achieve. How best to pursue this is one important issue; but equally important is whether and how "drastic cuts in missiles" can contribute to solutions to the ICBM vulnerability problem and to the more pervasive problems of adverse trends in the strategic balance.

Adverse trends are apparent in more than just the strategic balance. In the NATO theater, the balance of forces at the conventional level has favored the Warsaw Pact for some time, and NATO's theater nuclear deterrence capabilities have come more and more under question. The adverse trends arise in large part because the Soviet Union and its Warsaw Pact allies have made a sustained (and in real terms, increasing) investment to their military establishment. That effort, measured in dollars, has surpassed U.S. spending since the early 1970s by a substantial margin; the outcome is manifest in the large numbers of new, modern, and increasingly capable conventional and nuclear weapons systems.

The NATO Alliance has made a commitment to greater real defense spending, designed in part to offset those adverse trends. This long-term program should redress some of the more serious of the adverse force balances in NATO, but the improvement will be gradual, over a period of years. NATO's theater nuclear capabilities are under review at present. They are not designed to be wholly self-sustaining, however. Rather, they are an element of the "NATO Triad," comprising conventional forces, theater nuclear forces, and the U.S. strategic arsenal.

This linkage between U.S. strategic forces and theater concerns has been one of the important aspects of U.S. deterrent strategy. The prospective onset of strategic parity with the Soviet Union was enough to cause some of our allies to question the long-term credibility of U.S. guarantees, and this is reinforced by the prospect of Minuteman vulnerability during the early 1980s.

For some time during the early-to-mid 1980s we shall apparently find ourselves in an even less satisfactory situation than today's "approximate parity." The prospects are for continued competition with the Soviet Union whether SALT II is ratified or not.

The Secretary of Defense concludes:

> Unfortunately, longer-term stability is not fully assured, and the future competition in strategic capabilities is likely to become more dynamic than need be the case. As I pointed out last year, the main impulse for that dynamism comes from the Soviet Union in the form of a large ICBM force with an expanding hard-target-kill capability, a much-publicized civil defense effort, and the likelihood of significantly upgraded air defense capabilities.[1]

The main source of the instability and the principal cause for concern about the trends in the strategic balance arise from the growing vulnerability of U.S. ICBMs, the consequences of which are that the strategic force balance will be less than satisfactory by the early 1980s:

> The increasing vulnerability of our ICBMs means that by 1982 the balance calculated to result after a Soviet first strike and a U.S. retaliation would be less favorable than we would wish, though remaining U.S. forces would be enough to wreak enormous damage.[2]

This assessment of unfavorable balances holds for much of the 1980s, although the trends will begin to converge somewhat earlier:

> Thereafter, improvements in our SLBM and bomber forces will, if resolutely pursued, correct this imbalance, and deployment of a new survivable ICBM will reverse it.[3]

But these assessments must be qualified because our estimates of future capabilities are subject to numerous and significant uncertainties:

> We should not lose sight of the fact that until survivable ICBMs are deployed, the relative outcome of these exchanges will be more sensitive to uncertainties associated with the possibility of attrition of SLBM and bomber forces being greater than expected, and to command and control uncertainties.[4]

Given these rather stark assessments, it is natural to inquire what relief SALT II provides from these problems. It clearly offers none in the immediate future, because all of the judgments quoted above are based on the assumption that SALT II is promptly ratified. If SALT II were not ratified, presumably the above assessments would be even less favorable. The Soviet Union has many strategic systems already in production, whereas ours are largely still in development. For example, the M-X missile, part of our program to develop survivable ICBMs, will not be ready for initial operations until 1986, *after* the SALT II treaty is due to expire.

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[1] *Department of Defense Annual Report, Fiscal Year 1980*, Harold Brown, Secretary of Defense, 25 January 1979, pp. 79-80 (hereafter cited as *Fiscal Year 1980 Defense Report . . .*).

[2] Ibid., p. 116.

[3] Ibid.

[4] Ibid.

SALT ceilings are high enough that they are not immediately constraining. The Soviet Union is occupied at present with its own modernization programs. It will probably not have deployed enough new systems to reach the various SALT II ceilings with fully modernized forces before 1982. After that point, if there were no SALT treaty, the Soviets would be in a position to deploy fully modernized forces in excess of the proposed treaty limits. Thus, the major constraining effect of SALT II on Soviet force size applies during the latter half of its duration, roughly 1983-85.

Even so, doesn't the SALT II treaty make it easier for us to plan our unilateral strategic responses, especially for survivable ICBMs? Don't treaty items such as the numerical ceilings and the limits on the number of RVs on Soviet MIRVed missiles make clearer both the dimensions of the possible Soviet threat and the efficacy of our own proposed solutions? Regrettably, the apparent limitations on the Soviet threat may not turn out to be fully realized, as will be discussed below.

To more fully understand the problems this introduces for U.S. defense planners, we need next to review the options that have been suggested as solutions to the ICBM vulnerability problem. Many options have been advocated, analyzed, and debated, including:

- Do nothing to modernize or rebase ICBMs.
- Abandon ICBMs, emphasize bombers and SLBMs more.
- Rebase ICBMs on land.
- Deploy air-mobile ICBMs.
- Defend ICBM sites.
- Launch ICBMs on warning of attack.

As the tenor of the secretary's remarks above suggests, the administration's current choice is to rebase ICBMs in some more survivable basing mode on land. The approach currently preferred draws on the multiple aim point concept, in which a few missiles are covertly located somewhere among a much larger set of hardened shelters. The system, called multiple protective shelters (MPS), has more aim points than the enemy has reliable and accurate RVs, and the missiles can be moved deceptively from one shelter to another. Should the system be attacked, many individual shelters will survive, and (probabilistically) so will a fraction of the missiles. Before we discuss this option further, it will be useful to describe the problems and shortcomings of the other basing candidates.

The first option on the list was simply deemed unacceptable by the administration on various grounds of strategic policy and adverse perceptions, both domestically and by allies. The second was found to be no less costly than continuing to maintain the Triad and less flexible and responsive as well. It was also argued that some would interpret this U.S. move as an unwillingness to compete.

The fourth option, air-mobile ICBMs, was looked upon with favor by many in the administration, but it was finally set aside because it was too expensive, it relied on tactical warning (much as our bombers already do), and it might well be vulnerable to Soviet barrage attack. If U.S. ICBMs were phased out so that Soviet RVs were no longer needed to attack silos and were thus free to be reassigned to attacks spread in the vicinity of U.S. bomber bases, that could pose a severe threat to the U.S. bomber posture (including air-mobile ICBMs). The threat may be substantial within SALT II ceilings and could be made worse if "stockpiled" Soviet ICBMs (discussed below) had to be considered.

The fifth option, ABM defense of ICBMs, is well understood by defense analysts. Close-in ABM defense of hardened missile structures (such as silos or MPS shelters) is technically somewhat easier than city defense. Occasional "leakage" of enemy weapons through the defense does not have such catastrophic effects; and, because the defended sites are much harder than cities, the defense engagement can be conducted at closer range without the

concern that it could seriously damage the defended target. Moreover, in an MPS ICBM basing system (such as is currently under consideration), the defender knows that many of the aim points contain no missile and can concentrate his defenses against only that part of the attack threatening shelters that do contain missiles. This possibility greatly complicates the attacker's problem in designing efficient attack patterns. There is a degree of complementarity between the administration's plan to rebase ICBMs in MPS and the option to defend ICBMs; however, both testing and deployment of such an ABM system on the necessary scale is precluded by the ABM Treaty.

The last option, launch on warning, would (if successful) dramatically increase survivability of the ICBMs so launched. Unfortunately, there are numerous unanswered strategic, technical, and political questions. Launch at *what* targets? With what military effect? Are the targets the same regardless of the scenario, or must we have different targeting strategies? Dare we launch at cities? Can we always guarantee enough warning time and command-control-communications for launch on warning to be successful? Is the threat credible? What is the effect on stability in time of crisis if one (or both) of the parties relies on launch on warning? Although there are many questions and few answers, at least until the mid-1980s when more survivable ICBMs are available, this is the *only* survivability enhancing option for ICBMs the United States has available, because of the dearth of on-the-shelf options and the magnitude of the disparity between the timing of the Soviet threat and U.S. counters.

Although the administration currently favors the MPS approach, as yet it has made no decision as to the particular form of basing from among a number of candidates. Nor is one needed immediately; for the next several years only the M-X missile development is on the critical path for a 1986 IOC.[5] However, in all of the basing methods under consideration the Soviet threat must be carefully specified to determine how many shelters are needed to ensure a desired degree of survivability. The SALT II treaty may leave the potential Soviet threat less fully bounded than we would wish, and it is due to expire just at the start of our deployment of M-X. The SALT treaty limits launchers rather than the missiles themselves, raising at least two concerns. The Soviets might stockpile both older missiles as they are replaced in silos by more modern ones and surplus quantities of the more modern missiles from their ongoing production programs. If these missiles were launchable under austere circumstances, there might well be considerable ambiguity as to the dimensions of the Soviet threat by the mid-1980s. Second, the M-X missile system will enter our inventory only after SALT II is scheduled to expire, so a large stockpile of Soviet missiles could be translated rather rapidly into a larger threat if new ceilings were not established before the treaty expires. The prospect may be for a continuing ambiguity in the size of the Soviet threat even if SALT II is ratified. Because launchers rather than missiles are the items subject to limitation, our planning may have to consider the possibility of large numbers of "surplus" Soviet missiles by the mid-1980s. Although it is possible to hedge against this prospect by planning to deploy larger numbers of shelters, that is neither costless nor free of political controversy. Restoration of confidence at home and abroad about the trends in the strategic balance requires an *agreed* solution to the ICBM vulnerability problem, not a decision that will be subject to continuing controversy within the defense community and the Congress.

Reductions in permitted ceilings for SALT III, coupled with more stringent provisions intended to foreclose the stockpiling of surplus missiles, would surely facilitate the implementation of ICBM rebasing. As a concrete example of the president's general objective for SALT III negotiations, let us pose reductions to the land-based MIRVed ICBM sublimit from 820 to

[5]Land acquisition may also be a problem because of the extent of recent environmental protection legislation. While this report was in final production, the Administration chose a basing scheme called the "racetrack" system. This system would have 200 individual ovals of paved road, each with 23 separate shelters at the ends of spur roads from the main oval, one of which would house the missile and its transporter.

420, with corresponding reductions of 400 to the overall MIRV limit (1320 down to 920) and total ceiling (2250 to 1850). Cuts of this magnitude would require both sides to reduce MIRVed ICBMs, producing genuine arms reduction; and if done early and accompanied by limits on missile production and stockpiling, they could enhance stability and simplify U.S. defense planning. Lower ceilings would force a prospective attacker to place some reliance on stockpiled missiles to generate an adequate threat, and limitations on stockpiling and surplus production, even if only questionably verifiable, would magnify the risks of that course. The treaty should also extend through the 1980s at least.

A review of U.S. and Soviet strategy and doctrinal precepts suggests that an agreement on lower overall ceilings and lower ceilings on land-based MIRVed ICBMs would be congenial to the United States but probably not to the Soviet Union. The prospects for achieving early agreement of SALT III on lower ceilings and other constraints would be enhanced if U.S. negotiators could point to additional leverage on and incentives for Soviet agreement.

Ongoing U.S. military programs are not likely to generate significant incentives for early Soviet agreement on lower ceilings. The U.S. strategic plans—Trident submarines and missiles, ALCMs for our B-52 bombers, and the M-X ICBM in some survivable basing mode—were well known to the Soviets while SALT II was being negotiated, and they will probably not provide much new leverage for the next round of negotiations. Cruise missile technology for our allies could generate some leverage, but the current Soviet modernization of their theater-oriented nuclear forces—the Backfire bomber, SS-20 MIRVed mobile missile, and a number of new theater delivery systems—suggests that some hard bargaining over theater-oriented forces and protocol issues is in prospect.

The dearth of on-the-shelf U.S. options that could be considered for additional deployment was noted earlier, and the cancellation of several programs has closed once-active production lines. This lack of deployable capabilities requires that we look to new R&D activities as sources of leverage and incentive. Although probably not as strong a source of leverage as deployable capability options on the shelf, new R&D starts may still have some advantages. In the absence of a sizable consensus on strategic nuclear policy and its interfaces with our arms control strategy and our NATO defense strategy, we can develop a number of hedges in parallel with our planning and consensus-building. R&D items subsequently found incompatible with the emerging consensus need not be deployed. R&D programs are much less expensive than deployment programs, so an R&D options-generating strategy minimizes the adverse fiscal and budgetary effects of increased military spending.[6] Should new U.S. R&D initiatives induce the Soviets to agree on lower ceilings, U.S. strategic posture expenditures may be reduced below those that SALT II is likely to require. From the negotiating perspective, a major gearing-up of the U.S. technology base is one of the longstanding Soviet concerns. They well remember the size and scope of previous U.S. responses—to the "bomber gap," the "missile gap," and to the challenge to put a man on the moon.

What mix of new capabilities should we pursue as part of a strategic R&D options generating strategy? First and foremost, we need the M-X missile committed to development and adequately funded. Beyond that, despite our current official ambivalence about prompt hard-target-kill capability, we need several alternative accuracy-enhancement efforts beyond the all-inertial capability now planned for M-X. Committing such programs as terminally guided RVs and the inverted GPS radio overlay to development will force the Soviets to examine the consequences of their own ICBM vulnerability problem. These R&D items both hedge against the failure of the all-inertial guidance planned for M-X to meet its demanding requirements and generate hardware that can be incorporated *or not* in the force ultimately deployed.

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[6]To the extent the current Congressional pressures lead to increased defense budgets, investments should be directed to both improved readiness (making good shortfalls of munitions and spares) and weapons systems of sufficient flexibility as to be compatible with a broad range of revised strategies (e.g., re-engined aerial tankers, improved airlift and sealift).

Similarly, the SLBM force needs better accuracy, both for more effective use of the many small-yield SLBM RVs and to explore how much hard-target-kill capability can be built into that force element. Even with a star-tracker, accuracies at extended missile range are insufficiently precise to generate a significant capability to attack hardened targets. The same two accuracy-enhancing add-on options should be pursued for SLBMs.

A third initiative is a vigorous effort to develop the necessary components for a close-in hard-point-defense (ABM) system, which would generate the option to overlay a defensive system on ICBMs rebased in some MPS basing mode. Another is to start on a new manned bomber, which could help fill the shortfall in "non-MIRVed" systems that will result from the retirement of Polaris submarines and the conversion of B-52s to carry ALCMs. Another is to start on a ground-launched cruise missile of more than 600 kilometers range, to insure that protocol limits of considerable interest to the Soviets are called into question. This is not an exhaustive listing; there are other candidates worth pursuing, both for leverage and as hedges.

Implicit in this strategy is a strong U.S. preference for early agreement. Neither side will have fully modernized forces at sublimit ceilings until the early 1980s; agreement on lower ceilings is probably more easily reached before than after currently permitted ceilings are reached. Second, neither the R&D items nor the particular MPS basing approach pose critical deployment decisions for us before the early 1980s; if lower ceilings were reached, the former could be reconsidered and the basing choice would be eased. One implication of this approach is that the SALT III negotiations must emphasize strategic ceilings and missile verification measures. Other important issues—the resolution of many protocol items, "gray-area" and theater systems, etc.—must be the core issues for "SALT IV" conducted in parallel but separately.

What if the strategy does not lead to early agreement on lower ceilings? We will have several years during which new R&D items are becoming available and during which the implications of a variety of alternative strategic policy and force structure issues can be explored and debated. From the Soviet perspective, the U.S. posture could evolve toward an MPS system as currently planned or toward a sea-based posture that might credibly threaten their ICBM force. They could be faced with the prospect of significant expenditures to improve the survivability of their larger ICBM force and perhaps to increase the alert rates on other components of their forces as well. They might even be faced with the prospect of U.S. abrogation of the ABM Treaty to provide a defense overlay on our ICBM in MPS force, with all that decision would imply for a renewed technological competition. Soviet refusal to reach early agreement simply means that the pressures continue to build on them as more U.S. options become available with time.

Suppose the Soviets are intransigent and refuse to accept lower ceilings or even extend the expiration date of the SALT II ceilings (if ratified)? Suppose they choose to build up their own forces? Now the richer menu of R&D options, originally undertaken to provide negotiating leverage, provides a set of on-the-shelf hedges we may need to consider for deployment. The menu is more robust than will be the case under the administration's current plans. Our greater readiness to compete if necessary may inhibit Soviet tendencies to engage in arms-race behavior.

Finally, if we develop new capabilities intended to redress the balance by the late 1980s, but meanwhile must encounter a period of adverse balances, do we risk provoking deliberate Soviet military action? This must be judged unlikely, given what we know of the Soviet view of the sweep of historical forces and their cautious and risk-averse behavior in past crises. Although the balances may be adverse to us, the destructive consequences of major conflict will probably continue to be seen as greatly outweighing any prospective gains. The more serious concern is misinterpretation of some sequence of events that escalates to conflict

momentum before it can be stopped. In a world where one side believes in seizing the initative promptly—perhaps to the point of preemption—and the other is concerned about the vulnerability of forces—perhaps to the point of contemplating launch on warning—hasty decisions may be based on fragmentary or misleading data.

Does the strategy outlined above have a degree of political appeal? That is a difficult question. At least some part of the concern about the proposed SALT II treaty stems from the view that our negotiating strategy has not been an integral part of an overall strategic concept that also incorporates strategic policy and doctrine and force planning decisions. To the extent this approach serves to better integrate these disparate activities, that may generate some support. The strategy addresses the current "missing link" of leverages and incentives for the next round of negotiations. From an executive branch perspective, the strategic R&D programs envisioned are a fairly small budgetary add-on and, if the strategy should lead to lower SALT ceilings, might well have lower investment costs than will be necessary under SALT II. However, both the counterforce emphasis of the proposals and the goal-oriented, results-driven negotiating challenge to the Soviet leadership appear somewhat out of character to current administration thinking.

The Congress, soon to be faced with the ratification decision on SALT II, again would have a mixed perspective. Many conservatives mistrust SALT as a process and are concerned that the United States has not been competing effectively in bilateral negotiations or in our own unilateral strategic plans and programs. Although 34 Senators can deny ratification, there must be at least a majority to bring about positive actions with respect to U.S. unilateral actions aimed at redressing the unfavorable military balances. After all, merely rejecting the SALT II treaty does not solve our strategic problems. The strategy outlined above lays the groundwork for a variety of improved military capabilities, some of which are clearly tied to the success or failure of the next round of arms control negotiations, and the decision-point is linked to U.S. deployment schedules. Conservatives are seeking a prompt decision on an M-X basing system, largely as a token of U.S. commitment to redress its strategic problems. But as outlined above, choice of basing mode *now* is unnecessary to maintain the 1986 IOC, and may be premature, unless the threat can be better defined. Besides that, there is no way to secure an "irrevocable commitment."

For liberals, disappointment is already evident at the size of the permitted ceilings and the minimal reductions in strategic arms that many years of negotiating effort were able to bring about, and suspicion is already rampant that the price of ratification will be a major commitment to new armaments programs. Although many liberals will be distressed at the counterforce emphasis of the suggested strategy, that strategy is intended to bring about lower ceilings, an outcome they certainly support. If the Soviets cooperate, it may not be necessary to deploy many of the R&D items that are useful to provide negotiating leverage. With the B-1 precedent in mind—a decision taken without any Soviet concession—it should be clear that not all R&D items need be or would be committed to production.

In sum, SALT II probably will not by itself or in concert with current U.S. unilateral actions redress our major strategic problems. At least one construct of SALT III, consistent with the president's announced objective, could offer some prospect, through lower ceilings and more explicit limitations on missiles, of permitting U.S. unilateral actions to redress the strategic balance. The major issue is to develop a strategy that offers some prospect of reaching that kind of agreement with the Soviet Union under SALT III. The suggested approach is to pursue an option-generating R&D strategy. The strategy outlined in the report is consistent with the set of constraints imposed by the current realities, does minimal violence to budgetary and planning processes, provides a large measure of flexibility in terms of future posture alternatives, is compatible (at least to the point of deployment decisions) with the provisions of SALT II, need not be inconsistent with most outcomes of the ongoing U.S.

strategic policy and doctrine reassessment, and will probably generate some much needed leverage for SALT III negotiations. The strategy runs some risks and incurs some costs, but the prospective gains of a SALT III agreement seem commensurate with the risks. The issue is whether or not the U.S. political system can do a better job of *competing while cooperating* with the Soviet Union, rather than merely switching intermittently from one course to the other.

CONTENTS

PREFACE iii

SUMMARY v

Section

I. INTRODUCTION 1

II. STRATEGIC BALANCES AND TRENDS 4
- Summary Assessments of the Military Balance 5
- Military Expenditure Trends 7
- The Effect of SALT II on the Trends 9

III. THE MINUTEMAN VULNERABILITY PROBLEM 11
- Do Nothing to Modernize or Rebase ICBMs 11
- Abandon ICBMs, Emphasize Bombers and SLBMs More 11
- Rebase ICBMs on Land 12
- Airmobile ICBMs 14
- Defend ICBMs 15
- Launch ICBMs on Warning of Attack 16
- In Summary 17

IV. POLICY AND DOCTRINAL IMPERATIVES 19
- Soviet Policy and Doctrine 19
- U.S. Policy and Doctrine 21

V. PREPARING FOR SALT III: COMPETING WHILE COOPERATING 25
- The SALT III Objective 25
- Sources of Leverage and Incentives for Negotiations 27
- A Strategy for SALT III Negotiations 28
- Time-Phasing of Negotiations 30
- Some Implications of the Failure of this Approach 31
- Political Acceptability of the Proposed Strategy 33

Appendix

A. CAPABILITY BALANCES AND TRENDS 35

B. INPUT MEASURES: MILITARY EXPENDITURE RATES AND TRENDS .. 45

I. INTRODUCTION

June 1979 has seen the long-awaited SALT II treaty formalized, signed by heads of state, and presented to the United States Senate for "advice and consent." Political pundits suggest that neither ratification nor rejection can be confidently projected. Indeed, some suggest *neither* outcome; the Senate will subject the treaty to sufficient amendment during the ratification debates that it will become unacceptable to the Soviet Union.

The treaty's broad outlines have been common knowledge for well over a year; its proponents claim it calls for no U.S. but significant Soviet reductions of offensive systems in active inventories, no U.S. restrictions of planned force modernization initiatives but significant curtailment of Soviet options. Some polls have suggested overwhelming public support for it.[1] The widespread ambivalence about the ratification prospects of the treaty is therefore symptomatic of larger concerns than the specific provisions of the treaty itself.

These concerns stand in marked contrast to the euphoric views once held about the effects SALT I would have on our national security:

> The historic ABM Treaty and Interim Agreement on Strategic Offensive Arms concluded in Moscow last May are the first steps toward mutually agreed restraint and arms limitation between the nuclear superpowers. Through them the United States and the USSR have enhanced strategic stability, reduced world tensions, precluded a significant upturn in the strategic arms race in the near term, and laid the foundation for the follow-on negotiations which began last November. In terms of United States strategic objectives, SALT I improved our deterrent posture, braked the rapid buildup of Soviet strategic forces, and permitted us to continue those programs that are essential to maintaining the sufficiency of our long-term strategic nuclear deterrent.[2]

Today, in contrast, not even the most fervent supporters of SALT II portray it as a panacea for the strategic competition problems the United States faces. Secretary of Defense Brown, a strong supporter of the treaty, recently provided a more modest assessment of the role of SALT II:

> SALT will not solve all our problems. Even with SALT, we need to—and we will be permitted to—expand our strategic nuclear efforts. But SALT will mean greater stability and predictability in the strategic challenges we face.
>
> I do not see any immediate prospect of ending the military competition between the Soviet Union and the United States. Nonetheless, I believe we can maintain the modest momentum of arms control. SALT II will contribute to the momentum.[3]

The Secretary subsequently offered a set of criteria against which the merits of the SALT II treaty should be judged:

> I believe the key question each of us must answer centers on the agreement itself: will its approval make the United States more secure than lack or rejection of an agreement? But that question can be answered—and SALT can properly be evaluated—

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[1] See NBC-AP polls, which in February 1979 showed 81 percent favoring SALT; but see contrary polling outcomes in *Detroit News*, 16 April 1979, article by John Roche (p. 17); and *Baltimore Sun*, 19 April 1979, article by Henry Trewhitt (p. 2), suggesting the vast majority of Americans do not feel informed enough to state a definitive opinion about the treaty.

[2] *Final Report to Congress of Secretary of Defense Melvin R. Laird*, 8 January 1973, p. 21.

[3] *Fiscal Year 1980 Defense Report . . . , Harold Brown, Secretary of Defense, 25 January 1979, p. 10.*

only in the context of United States strategic weapons policy and objectives; the state of the U.S.-Soviet balance now and as we expect it in the future; and the programs that we have undertaken to implement our strategic policy.[4]

The principal accomplishments of SALT I were to place ceilings on some methods of expansion of strategic offensive nuclear armaments and to restrict certain types of systems (e.g., ABM) that threatened to be "destabilizing" in the sense of creating incentives for still more strategic offensive systems. SALT I failed to address two issues adequately that later became important elements of the strategic debate: (1) the felt need for equal restrictions, limitations, or ceilings as a symbol of "essential equivalence" or "parity," and (2) the degree to which ill-defined provisions of SALT I could be exploited by the Soviet Union—within the letter of the treaty—to pose a major threat to U.S. land-based ICBMs. Subsequently, the Vladivostok Accords of 1974 attempted to resolve the equivalence issue by establishing the principle of equal (but high) ceilings on forces. However, as the SALT II negotiations progressed, many commentators became critical of the equal but high ceilings as a resolution of the "equivalence" issue in light of emerging trends in the strategic balance that seemed to favor the Soviet Union. Although the linkage was seldom explicit, most commentators recognized that the ceilings were going to be too high to prevent Minuteman from becoming vulnerable and that U.S. unilateral initiatives would be needed to redress that problem.

Major questions in the SALT II ratification debate will be the extent to which the treaty addresses these problems. If it is found not to deal effectively with them, then the unresolved issues should be the central concern of a next round of negotiations—SALT III. Yet, in stating his objective for SALT III, President Carter has not yet referred to those problems. Instead, he has posited the fairly ambitious goal of "much more drastic cuts in overall missile levels than SALT II envisions."[5] Given the negative Soviet reaction to the administration's March 1977 proposals for lower ceilings than those agreed on at Vladivostok, this will probably be difficult. How best to achieve this goal is one important set of questions; but equally important is whether and how "drastic cuts in missiles" can also deal with the ICBM vulnerability problem and the more pervasive problem of adverse trends in the strategic balance.

The president's objective can be supported by all thoughtful citizens and on no deeper grounds than that force reduction is what arms control is supposed to be about. Those charged with ensuring the defense of the nation can also support it, the more so as it applies to reductions in the numbers of land-based MIRVed missiles. It is precisely the Soviet Union's preponderance of large, land-based, MIRVed, increasingly accurate missiles that underlies many of the intractable problems of U.S. defense policy and strategic posture.

Given this consideration, then, we must logically inquire whether the Soviet Union shares the same SALT III objective with the same intensity as we do. If so, presumably agreement upon lower numbers could proceed swiftly in the next round of negotiations. But then why are the permitted numbers in the proposed treaty so large?

The overall ceiling of 2250 strategic vehicles will oblige the Soviet Union to reduce their strategic inventory by a couple of hundred older operational systems; but the United States

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[4]Speech by Secretary of Defense Harold Brown before the Council on Foreign Relations and the Foreign Policy Association in New York City, April 5, 1979, as reported in the *New York Times*, April 6, 1979, p. 10.

[5]Question-and-Answer Session at the National Democratic Conference Workshop on Defense Policies and Arms Control, Memphis, Tennessee, December 9, 1978, recorded in *Presidential Documents*, Vol. 14, No. 50, Monday, December 18, 1978, page 2202. The fuller context of the excerpted quotation is as follows: "As you know, early in 1977 we proposed a drastic cut to the Soviets. They rejected it, in retrospect, I think primarily because Brezhnev had a great deal of personal investment in the Vladivostok agreement, and he thought we ought to consummate Vladivostok before we moved on more drastic cuts. And if and when Brezhnev and I meet at a summit conference to wrap up the SALT II agreement, high on the agenda will be a SALT III discussion for much more drastic cuts in overall missile levels than SALT II envisions.... My hope is and my tentative belief is that Brezhnev wants the same thing I do, a drastic cut in SALT III."

does not have nearly that number of operational systems.[6]

This raises the issue of whether emphasizing reductions in the numbers of large, modern, land-based, MIRVed ICBMs (together with reductions in overall ceilings) in our SALT III strategy would directly contribute to the resolution of a number of strategic nuclear policy and force development/deployment issues that appear to be treated independently of our arms control policy. The main consideration of this report is how, when, and by what measures such a strategy might be formulated. A collateral consideration has been to try to develop such a strategy within the general guidelines of current strategic policy directions and force initiatives, insofar as they are clear. Although this rules out efforts to explore fundamentally different approaches (e.g., a minimum assured destruction strategy based on moving strategic forces to sea, or economic inducements such as transfer of important technologies and provision of credits as an incentive for Soviet agreement on lower ceilings), it seems useful to begin with an exploration of what can be accomplished within the fragile framework of the current modest executive and legislative consensus.

The next section will examine aspects of our national security problems, the measures recommended to correct current or prospective deficiencies, and the extent to which the SALT II treaty will contribute to their resolution. Section III examines the effects of (and the deficiencies in) proposed unilateral initiatives that might be pursued in addition to SALT II. Then, Section IV examines some constraints and disincentives imposed by the disparities in strategic policy and doctrine between the United States and Soviet Union that make more difficult the effort to resolve those problems through a continuation of the SALT process. Finally, the concluding section will outline a strategy approach for SALT III that attempts to accommodate to the several constraints and to exploit possible opportunities.

This report does not aspire to contribute to the dialogue over the ratification of SALT II. The provisions of that Treaty are discussed only so far as is necessary to indicate its influence in resolving current and prospective national security problems. Moreover, as will be clear from the concluding section, the construct of "SALT III" exclusively examines provisions affecting strategic intercontinental delivery systems to the exclusion of consideration of other important issues, such as "gray-area" or theater nuclear limitations, and does not purport to lay out a comprehensive negotiating approach (with respect to important matters such as verification of certain provisions).

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[6]The annex to the Treaty establishing a data base of strategic offensive arms lists the inventories of the Soviet Union and United States subject to limitation as of the date the Treaty was signed as 2504 and 2283 respectively; but the U.S. total includes several hundred nonoperational B-52s consigned to the cannibalization yard at Davis-Monthan Air Force Base.

II. STRATEGIC BALANCES AND TRENDS

Ideally, one would wish to have available a few readily understandable and easily calculated "measures" keyed to and drawn from an extensive predictive methodology as indicators of the state of various "balances"—the conventional balance in NATO, the theater nuclear balance, the strategic balance. It would test the adequacy of forces to carry out their assigned missions and, if deficient, indicate the requisite improvements. Of course, as a practical matter this methodology does not exist nor will it. There is an endless list of scenarios against which the adequacy of forces must be tested and a vast number of improvement options to be evaluated, and technical uncertainties can provide vast swings in outcomes. Analysts are therefore driven to invent "measures" supposedly describing important aspects of the "the balance," but these tend to be simplistic rather than simplifying.[1] Indeed, the number of measures seems to have multiplied recently, with the increased intensity of debates about the continuing adequacy of U.S. forces and the stability of the various balances. Although these "measures" are inadequate to portray the state of the several "balances," there is some utility in charting changes in the measures calculated at various times, as indicators of trends. If all of these static indicators have shown changes in the recent past adverse to the United States, and if those adverse changes are projected to continue into the future, we can infer a weakening of our position in those aspects of the balances captured by the various measures, and such has indeed been the case.

The inability to develop appropriate measures means that assessing the state of the balances and their probable trends over time is largely a matter of judgment. The necessity to apply judgment, of course, is not novel; but where judgments differ, controversy arises. The remainder of this section will examine the state of several aspects of these balance measures as they are portrayed in the best available official sources. First is a brief review of the assessments of the Secretary of Defense and the Chairman of the Joint Chiefs of Staff concerning the state of the balances in the NATO theater, at both the conventional and nuclear level, and then the state of strategic balance. These official assessments, taken from the annual posture statements that accompany the administration's military spending requests of the Congress, are the best unclassified source of the administration's current views on the state of and trends in the balances, and the influence on the trends that ongoing and proposed programs will have. Following this, a review of the CIA's comparative data on U.S. and Soviet military expenditures over the past decade offers some insight into why these assessments of the balances are so unfavorable. Because many readers of this report are already familiar with these data sources, only very summary overviews of the balances are presented in this section. Others will find a more complete exposition of and citations for those summary statements in Appendixes A and B.

Why a discussion of spending trends and NATO balances in a report about strategic arms limitations? Because the subjects are linked; one of the objectives of our strategic forces is to support deterrence of conflict (and escalation control, should conflict begin) in NATO. There is also a strong element of perceptions involved, as our European allies tend to consider the strength of our commitment to extend the nuclear umbrella over them to be a function of the state of the strategic balance. Our allies have become increasingly concerned about the

[1]See, e.g., James L. Foster, "Essential Equivalence: What Is It and How Should It Be Measured?" Proceedings of the National Security Affairs Conference, National Defense University, August 1978 (especially Section IV), for a concise treatment of the limitations of many balance measures.

strength of American commitment to NATO as the Soviets have approached a position of strategic parity with the United States.

SUMMARY ASSESSMENTS OF THE MILITARY BALANCE

The following subsection presents some summary judgments by the Secretary of Defense and the Chairman of the Joint Chiefs of Staff on the state of and trends in conventional forces in NATO, theater nuclear forces in NATO, and the strategic nuclear balance. All of these points are elaborated in Appendix B.

On the state of and prospective trends in the balance of conventional forces between the Warsaw Pact and NATO, we have the following commentary by the Secretary of Defense:

> For some years the Soviets have stressed in their military doctrine the advantages of short preparation times, tactical surprise (preceded by cover and deception), mass, concentrated firepower and shock to break through the enemy's defenses, and rapid movement to exploit the breakthroughs. With each passing year, their capability to conduct this modern form of blitzkrieg has come closer to matching their doctrine. Large quantities of self-propelled artillery and tanks, the BMP armored fighting vehicle, river-bridging equipment, organic and mobile air defenses, and their newer aircraft with a deep-strike mission give them much of the capability for rapid offensive action. In addition, their ability to move their forces speedily into position for an attack is now estimated to be greater than we had previously thought.
>
> At a rough estimate, the Alliance has actually bought and paid for most of what is needed to give that defense a high probability of success even against the largest attacks the Pact could launch without extensive . . . mobilization. . . . The difficulty of the Alliance is that it has simply not kept pace with the improvements made in the readiness and combat effectiveness of Soviet forces, particularly in the GSFG. We could not be any more sure of stopping quick attacks than the Soviet marshals could be confident of breaking through NATO's defenses. While I do not consider the balance a comfortable one, neither is it so discouraging as to paralyze our will to improve it.[2]

The chairman of the Joint Chiefs of Staff offers a further elaboration on these points:

> The Soviet Union enjoys numerical superiority in nearly all categories of systems; they have considerably more tanks, artillery, air defense, and tactical aircraft.
>
> Our existing theater and field army defense would probably be inadequate against the newer Soviet aircraft. The unsheltered portion of our aircraft, our airfields and stocks of equipment and supplies, and the nuclear element of NATO's forces could, under current conditions, be excessively vulnerable to attacks by the newer Soviet deep penetration aircraft.
>
> In conclusion, a favorable outcome of a war in Europe is not assured. The defensive margin is thin. The balance is not such, however, that Warsaw Pact forces can be assured of success either. Costs of an attack on Western Europe are likely to be high, and are probably so perceived.[3]

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[2] *FY 1980 Defense Report. . . ;* see Appendix A for exact page citations and further supporting material. GSFG is an acronym for the Group of Soviet Forces in (East) Germany.

[3] *United States Military Posture for Fiscal Year 1980,* an overview by General David C. Jones, USAF, Chairman of the Joint Chiefs of Staff, with Supplement prepared by the Organization of the Joint Chiefs of Staff, undated (hereafter cited as *Fiscal Year 1980 Military Posture. . . .* Page citations for quotations in this section may be found in Appendix A.

These are scarcely surprising views, typical of many previous defense reports. Deterrence rests in large measure on the uncertainties of projected war outcomes even when one side is notably stronger. Besides, there is always the risk of escalation to the theater nuclear level. More of these summary statements (and additional interpretation) by the Secretary of Defense, the Chairman of the Joint Chiefs of Staff, and other senior officials will be found in Appendix A.

The following quotations, the first by the Secretary of Defense and the second by the Chairman of the Joint Chiefs of Staff, briefly summarize the state of the theater nuclear balance, should a European conflict threaten to escalate to that level:

> U.S. and NATO strategy allows for a possible NATO first use of nuclear weapons, if that should prove essential. But the Soviets might preempt us.

> The former clear-cut U.S. lead in theater nuclear capabilities has been overtaken by the Soviets. The implications of this vanished edge could become particularly serious in a NATO context.

This is a less comforting appraisal than for conventional forces and one that will probably shift added deterrent weight to our strategic forces.

Finally, similar summary quotations by the Secretary of Defense on the state of the strategic nuclear balance:

> Unfortunately, longer-term stability is not fully assured, and the future competition in strategic capabilities is likely to become more dynamic than need be the case. As I pointed out last year, the main impulse for that dynamism comes from the Soviet Union in the form of a large ICBM force with an expanding hard-target-kill capability, a much-publicized civil defense effort, and the likelihood of significantly upgraded air defense capabilities.

> The increasing vulnerability of our ICBMs means that by 1982 the balance calculated to result after a Soviet first strike and a U.S. retaliation would be less favorable than we would wish, though remaining U.S. forces would be enough to wreak enormous damage. Thereafter, improvements in our SLBM and bomber forces will, if resolutely pursued, correct this imbalance, and deployment of a new survivable ICBM will reverse it. We should not lose sight of the fact that until survivable ICBMs are deployed, the relative outcome of these exchanges will be more sensitive to uncertainties associated with the possibility of attrition of SLBM and bomber forces being greater than expected, and to command and control uncertainties.

This discussion is a striking departure from the norm for these posture statements, as long-time readers will recognize. The usual scenario is that although the present balance is more or less satisfactory, the trends are adverse; and unless the following programs are carried out in timely fashion, some portion of our force might become vulnerable at some distant future date. Here, instead, we are told that the threat is nearly upon us, the resulting strategic balances will be unsatisfactory in the early 1980s, we will have no counter available at that time, and until survivable ICBMs are deployed, achieving even those tenuous and uncertain outcomes will be sensitive to our forces reacting as planned. On this last point, under current plans, survivable ICBMs would begin to enter the force no earlier than 1986, after the SALT II treaty expires, and their full deployment is unlikely to be completed before the end of the decade.

In his posture statement, General Jones offers an even blunter assessment, covering both our unilateral efforts and the bilateral influence of the SALT II treaty:

> It is now generally accepted by most defense analysts that, regardless of U.S. actions, Soviet strategic capability will increase relative to that of the U.S. throughout the mid-1980s, with or without a SALT agreement.[4]

Moreover, General Jones' assessment that the Soviets will become relatively stronger recognizes that this change starts from what is now at best "rough parity" or "essential equivalence."

How can that be? The threat to Minuteman, expected only a couple of years ago to be a mid-to-late 1980s threat, is now an early 1980s threat; but our proposed response—M-X in a more survivable basing mode—comes into being only over the latter half of the 1980s at best. Indeed, this seems to be a manifestation of a more general problem of continued underestimation of the Soviet rate of technical progress.

And, of course, many of the U.S. options to retain the ability to increase capabilities have been allowed to lapse: The B-1 has been canceled, the Minuteman production line closed, the improved SRAM option dropped, and the SRAM production line closed. Coupled with the repeated delay in starting M-X and the shipbuilding delays to the Trident submarine program, we have few real options to increase production rates of any strategic systems. Thus, partly as a consequence of the spending trends to be discussed below, and partly the result of our unilateral program decisions, the period of the early 1980s finds the U.S. cupboard bare of "on-the-shelf" strategic options.

MILITARY EXPENDITURE TRENDS

> "The estimated dollar cost of Soviet defense activities caught up with U.S. defense outlays and exceeded them by a widening margin until 1977. In 1978 the Soviet total was about $146 billion, nearly 45 percent higher than the U.S. outlay of $102 billion."
>
> "If uniformed personnel costs are excluded from both sides, the estimated dollar cost of Soviet defense activities exceed U.S. outlays in 1978 by about 25 percent."
>
> "Over the 1968-78 period, the level of Soviet activity for strategic forces (exclusive of RDT&E) measured in dollars was two and a half times that of the United States. U.S. activities declined steadily until 1976, when they began growing at a slow rate. As a result, in 1978 the Soviet level was about three times that of the United States."
>
> "For the 1968-78 period, the Soviet total for this *General Purpose Forces* mission was about 35 percent higher than the U.S. total."
>
> "The trends in military investment followed closely those for total defense costs in both countries over the 1968-78 period. The U.S. investment figure fell continuously from 1968 to 1975 and then increased at a slow rate before jumping substantially in 1978. The result of these trends is that the estimated dollar cost of Soviet military investment exceeded comparable U.S. spending by about 80 percent in 1975-77 and by about 65 percent for 1978.

The above are quotations from the latest CIA estimates of U.S. and Soviet spending trends for the 1968-78 decade, measured in constant dollars.[5] The disparities quoted may seem

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[4] Ibid., p. v.

[5] *A Dollar Cost Comparison of Soviet and U.S. Defense Activities, 1968-78,* National Foreign Assessment Center, Central Intelligence Agency, SR79-10004, January 1979. The phrase "Soviet spending" is a shorthand notation for "the cost in dollars for the United States to replicate the observed Soviet developments and deployments"; for further elaboration of this point

surprising, and the reader can turn to Appendix A for further details. A concrete example may help clarify the significance of the percentages cited. The last quotation above discussed the nature of the Soviet lead in the investment account, which measures the *additions* of new weapon systems and facilities to the stock at the end of each previous year. The disparity between U.S. and Soviet spending in this area since 1972—the beginning of SALT I—is about $100 billion. If the United States had decided back then to match Soviet investment rates—a heroic assumption given economic difficulties and the state of annual deficits over this period—that sum could have procured, in addition to everything we did acquire over that period, the following:

- All 241 B-1 bombers (investment cost of about $16 billion in FY 1980 dollars), and
- The full baseline M-X system (investment cost of about $18 billion in FY 1980 dollars for 340 missiles and 5000 vertical shelters), and
- The 13 TRIDENT submarines programmed to date as well as the TRIDENT 1 missiles to go with them (about $17 billion in FY 1980 dollars), and
- Improved land forces by acquiring the programmed objective of 7000 XM-1 tanks and 500-plus Advanced Attack Helicopters, 7000 new Infantry Fighting Vehicles to accompany the tanks, and a fleet of some 300 AMSTs to provide intra-theater mobility (about $15 billion in FY 1980 dollars), and
- About 400 F-14s and 800 F-18s to fully modernize naval air for the carrier forces (about $20 billion in FY 1980 dollars), and
- The modernization of USAF tactical air by adding 400 F-15s, 1250 F-16s, and 400 A-10s (about $16 billion in FY 1980 dollars).[6]

The CIA further projects that these Soviet military spending trends will continue at least through the mid-1980s. Of equal concern, the CIA data show the Soviets to be outspending the United States by a large and widening margin in RDT&E, thus diminishing our technological edge in many areas (see Appendix B).

These expenditure trends are noted not to make a case for higher U.S. military budgets, but rather to provide a partial explanation for why the assessments of the military balance have progressively turned against the United States and its allies in the recent past. We have simply not been investing enough to prevent the Soviet Union from narrowing or eliminating margins in our favor in areas where we formerly led, and from widening gaps in their favor in areas where they already enjoyed a lead.

Belated recognition of these adverse consequences occurred in 1977, with the result that the series of declines in real terms in U.S. defense spending during the early-to-mid 1970s was reversed. Nonetheless, the real increases are small (smaller than the estimated 3 to 5 percent real growth that has typified Soviet defense spending for more than a decade), and the influence of additional spending on military capability will not be immediate. New monies generally must be invested in new R&D programs to develop new systems or capabilities, which can require five to ten years. Thus, the trends in the growth of Soviet and Warsaw Pact capabilities relative to those in the United States and its allies are likely to continue at least through the early 1980s.

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and the relevant expenditure trends, see A. J. Alexander, A. S. Becker, and W. E. Hoehn, Jr., *The Significance of Divergent U.S.-USSR Military Expenditure*, The Rand Corporation, N-1000-AF, February 1979.

[6]Ibid. This list is, of course, only one of many hypothetical constructs possible, and it ignores (among other things) whether production of all the items enumerated could have been compressed into the time available, as well as the fiscal and economic effects of such increased defense spending.

THE EFFECT OF SALT ON THE TRENDS

As noted in the Preface, this is not a study of SALT II's merits and demerits; for present purposes, it suffices only to inquire how the strategic assessments by the Secretary of Defense and others cited above and in Appendix A would be altered by the fate of SALT II. Those assessments all assumed prompt ratification of, entry into force of, and adherence to the SALT II Treaty. Thus, we need only inquire what the consequences would be if that assumption fails. Lack of U.S. strategic options beyond those already in our program plans was noted above; in contrast, the Soviets have a number of strategic systems in production, the output of which could continue or perhaps even be accelerated if SALT II were rejected. Thus, if SALT II's constraints did not take effect, the initiative to do more and do it more rapidly would lie largely with the Soviet Union, so that the strategic balance in the 1980s might be worse than the Secretary of Defense already projects.

The Soviets are not yet at the land-based MIRVed ICBM launcher sublimit of 820, however, and at their current deployment rates would not reach that limit with a fully modernized force until about 1982. This is, of course, one reason to seek early agreement on lower SALT III ceilings, before both sides have built forces up to the permitted ceilings and sub-ceilings. Prospects for substantial reductions may be lessened once deployment of new, modern systems up to permitted levels is achieved.

Without SALT II ceilings, the Soviets could continue to add large-throwweight MIRVed ICBMs to their inventory, thereby adding to their strategic power. They could also pursue whatever degreee of payload fractionation made sense to them (placing more RVs on their large-throwweight missiles to be able to attack a larger number of individual targets).[7]

But it is important to recognize that neither of these would be *necessary* steps to threaten our current ICBM force, because even within SALT II ceilings they will have adequate capabilities:

> Analysis of intelligence data on new versions of the SS-18 and SS-19 missiles indicates that by the early 1980s a substantial threat to our MINUTEMAN will exist.[8]

More Soviet ICBMs in a non-SALT world would simply provide the Soviets with the prospect of a larger residual of withheld ICBMs after Minuteman were destroyed.

Although SALT II will not constrain Soviet deployments sufficiently to prevent our Minuteman force from becoming vulnerable, isn't SALT II vital if we go to missiles in a trench, or carried on large transport (airmobile ICBMs), or moved randomly among a large number of shelters (what used to be called Multiple Aim Point (MAP) and is now called a Multiple Protective Shelter (MPS) approach)? Limitations to the threat are important to all of those rebasing possibilities; the survivability of the ICBMs in any of those basing modes requires more potential locations where our missiles might be located than the enemy has RVs with the requisite yield and accuracy to attack them. The ability to bound the threat is a necessary condition for the success of most U.S. ICBM rebasing schemes, and the SALT II ceilings impose *some* bounds to the threat in terms of permitted numbers of ICBM launchers and of RVs on MIRVed ICBMs. Unfortunately, SALT II does not limit missiles, only launchers. This raises the possibility that additional missiles—stockpiled from current production or older systems replaced by more modern ICBMs—could be available to the Soviets in the 1980s even under SALT II. Two concerns may have to be taken into account in our efforts to estimate the size of the Soviet threat to U.S. schemes even if SALT II is ratified. The first is that

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[7]Recent reports have suggested that the Soviets conducted preliminary tests on the SS-18 that could allow it to carry as many as 14 RVs; see Richard Burt, "Soviet Data on Improved Missiles Shakes U.S. Aides," *New York Times*, 14 March 1979, p. 1; see also *Air Force Magazine*, May 1979, p. 22 for a more technical description.

[8]*Fiscal Year 1980 Defense Report . . . , p. 116.*

"stockpiled" missiles could be made launchable under quite austere circumstances[9] during the period of SALT II; the second is the threat potential toward the expiration of SALT II in 1985, if there were no clear agreement on *new* ceilings. That potential for a greater (post-1985) threat would occur just when our ICBM rebasing choice would be beginning deployment.

In summary, SALT II would impose some limitations on the growth of Soviet strategic forces and capabilities, at least after the early 1980s. The Senate ratification process will no doubt examine whether its terms are finely enough drawn for the United States to confidently rule out the possibility that the Soviets could have more usable missiles than the ceilings on ICBM launchers permit. For present purposes it is enough to note that ratification of SALT II is assumed in the assessments cited above, that the permitted ceilings are sufficiently high that even scrupulously strict Soviet adherence to the Treaty limits leaves the strategic balance in the early 1980s "less favorable than we would wish," and that the situation will not be rectified "until survivable ICBMs are deployed."[10] ICBM vulnerability is not our only strategic problem, but it is our most urgent problem, whether SALT II is ratified or not.

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[9]See the interesting article and pictures of the austere launch of a Minuteman missile from a canister in *Aviation Week and Space Technology*, June 25, 1979, p. 24.

[10]See p. 13 for the Secretary's complete remarks; full deployment of survivable ICBMs is a necessary, but may not be a *sufficient*, condition for the balances to become more favorable.

III. THE MINUTEMAN VULNERABILITY PROBLEM

Many detailed studies and analyses have been conducted at successively higher governmental levels, without thus far establishing a definitive solution to the problem of redressing Minuteman vulnerability. The principal classes of options can be briefly enumerated:

- Do nothing to modernize or rebase ICBMs.
- Abandon ICBMs, emphasize bombers and SLBMs more.
- Rebase ICBMs on land.
- Deploy airmobile ICBMs.
- Defend ICBM basing.
- Launch ICBMs on warning of attack.

DO NOTHING TO MODERNIZE OR REBASE ICBMs

The "do nothing" option lacks political credibility; too many defense intellectuals, analysts, officials, legislators, and allies have noted the adverse directions of the various balances for such a strategy to be acceptable:

> There are, nonetheless, several reasons why it would be unacceptable not to take measures to correct our impending vulnerabilities. Although the total number of warheads in the U.S. force will be increasing with the deployment of TRIDENT and ALCM, the destruction of the ICBM force could result in a net loss of second-strike target coverage with our forces on day-to-day alert, decrease our ability to attack time-urgent targets, and reduce the flexibility with which we could manage our surviving forces. The threat of such a loss would also undermine our confidence in the strategic TRIAD and quite possibly encourage the Soviets to strive for a similar success against our other second-strike capabilities.[1]

ABANDON ICBMS, EMPHASIZE BOMBERS AND SLBMS MORE

Abandoning ICBMs and adding to the strategic capabilities of our bomber forces and SLBMs have also been suggested. By abandoning ICBMs, it is claimed, we deprive the Soviets of fixed targets against which to aim their robust and accurate ICBM force. Although superficially attractive, that strategy option has a number of problems:

> Given the past importance of our ICBM force and the traditional emphasis of the Soviets (and of many military observers throughout the world) on ICBMs, it can be argued that a decision not to modernize the ICBM force would be perceived by the Soviets, and perhaps by others, as demonstrating U.S. willingness to accept inferiority, or at least as evidence that we were not competitive in a major (indeed, what the Soviets have chosen as *the* major) area of strategic power.[2]

The secretary further notes that recent studies have shown ICBM modernization and

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[1] *Fiscal Year 1980 Defense Report* . . . , p. 80.
[2] Ibid., p. 118.

retention of the Triad to be no more expensive than a DYAD of bombers/ALCMs and SLBMs "of comparable levels of capability."[3] How "comparable" is itself a question because:

> ICBMs have at present a number of advantages over SLBMs and bombers. It would probably be possible to incorporate some of these capabilities into the SLBM force, but I have considerable doubt that SLBM command, communications, and control (C^3), responsiveness and accuracy can ever be made as reliable as a CONUS-based ICBM force, especially while maintaining the requirement for enduring survival of the SLBMs.[4]

If that part of the Soviet ICBM throwweight now required for attacks against U.S. silos were released by the U.S. abandonment of Minuteman, it would become available to attack the U.S. strategic forces that replace Minuteman. This excess Soviet throwweight can compound already difficult U.S. strategic C^3 problems, can be used in a barrage mode follow-on to Soviet SLBM attacks on U.S. bomber bases to further degrade our bomber survivability, or could be used to barrage limited ocean areas if some modest capability were developed to locate U.S. submarines with an accuracy of a few tens of miles. No self-contained SLBM guidance technique will be able to provide the requisite accuracy with which SLBM RVs can productively attack Soviet hard targets, so under a move to sea option we would not preserve even our current (quite limited) counterforce capability:

> I do not wish to pretend, however, that current capabilities would give us high confidence of destroying a large percentage of Soviet missile silos and other very hard targets . . . with ballistic missiles.[5]

The secretary concludes:

> When factors such as force diversity, dilution of the Soviet threat and overall confidence are considered, I am persuaded that our best policy choice is to maintain the Triad by modernizing our ICBM forces.[6]

Accelerating delivery of Trident submarines is impossible, owing to shipyard problems, and it is far from clear that ALCM levels, including modifications to the aircraft that carry them and the creation of the necessary support infrastructure, can be increased much above planned levels during the early 1980s. Thus it is not certain that acquiring *additional* strategic delivery systems to offset a phaseout of ICBMs in the early 1980s is even feasible.[7]

REBASE ICBMS ON LAND

The option to rebase ICBMs on land is currently the Air Force's preferred approach, using an MPS basing scheme. Studies conducted by the Air Force and by an ad hoc Defense Science Board Task Force concluded that the preferred approach on both technical risk and cost grounds was a system of austere vertical shelters in appearance much like silos but without the auxiliary prelaunch and launch equipment, which would be carried in a canister along with the missiles. A small number of missiles in canisters would be randomly deployed among

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[3]Ibid., p. 119.
[4]Ibid., p. 118.
[5]Ibid., p. 79.
[6]Ibid., p. 119.
[7]The only new system possibility lies in the B-1, although so much momentum has been lost since the cancellation that it is unclear how long it would take to resurrect it. Given both its high costs and its earlier rejection by the president, this is probably not a valid option.

a much larger number of austere shelters (and randomly moved) so that a Soviet attack planner would have to try to target all the austere shelters. In fact, the plan would be to build substantially more shelters than the expected number of RVs the Soviets could allocate, because survivability would be based largely on exhaustion of weapons rather than shelter hardness. As the secretary notes, a number of important questions require careful consideration:

> These include: ability to bound the threat in terms of numbers of accurate Soviet RVs available to attack MPS, adequate verification if the Soviets deployed a similar system . . . ; credibility and effectiveness of concealment; environmental aspects; and costs, including effect on costs of any potential Soviet responses.[8]

Several of these items need some further discussion. Survivability depends on providing more shelters than the number of accurate and reliable enemy RVs available to attack the MPS system. Provisional deployment plans have envisioned acquiring twice as many shelters as enemy RVs, giving a nominal ICBM force survival of one-half. That is, at worst, roughly half the shelters would be attacked; and because the missiles are randomly distributed among the shelters, roughly one-half of the missiles should survive.

The principal "responsive threat" to such a basing system has been viewed as the "payload-fractionation" threat—that as their ICBM accuracy continued to improve, the Soviets would continually add larger numbers of smaller-yield RVs atop each of their large-throwweight ICBMs.[9] By some theoretical U.S. calculations, the SS-18 ICBM might be configured to carry more than 30 RVs, each of a few tens of kilotons yield. In the face of such "responsive threats" to an MPS system, the U.S. passive counter would be to build more shelters—roughly two U.S. shelters for each added Soviet RV if the goal is to maintain a design survivability of one-half.[10] Against such severe fractionation threats, the United States theoretically could need several tens of thousands of shelters to maintain the initial survivability of one-half of the missiles. The reader need have no illusion about the effect on system life-cycle costs of the acquisition of shelters (no matter how austere) in lots of 10,000.

The hypothesis that it would be Soviet style to put large numbers of very-small-yield RVs atop their missiles seems misguided. Soviet style emphasizes *high confidence* in destroying assigned targets, hence the general Soviet reliance on larger yields—often substantially larger—than U.S. design practice. The Soviets do not like to be outgunned on any weapon system, including their largest-calibre, longest-range nuclear "artillery tubes" (which also partially explains their interest in cold-launch and reuse of silos). Indeed, the ease with which our SALT negotiators were able to introduce and gain agreement on the idea of "fractionation limits" is the mark of the extent to which the "fractionation threat" is the invention of a U.S. defense intellectual mentality[11] rather than a Soviet proclivity.

Has the fractionation threat to a U.S. MPS rebasing system been put to rest by the new treaty? Yes and no; the agreed limits of SALT II expire in 1985, before the first MPS unit

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[8] *Fiscal Year 1980 Defense Report . . .*, p. 119. As noted earlier, the administration recently selected a basing system of horizontal shelters at the ends of spur roads leading from a loop road, or "racetrack."

[9] A variant basing system consisting of covered trenches has also been evaluated. It is less sensitive to fractionation threats; however, current Soviet yields are also nearly optimal for attacks against it. In addition, if the opponent can do no more than determine which *half-length* of trench contains the missile, the survivability of the system tends toward zero. This has generally been believed to require a large, contiguous basing area within which civilian access would have to be excluded.

[10] In actuality, one need add somewhat less than two shelters for each new RV, because at these large numbers of shelters and RVs, "leakage" due to unreliable boosters and RVs is an important aspect of survivability. Also see the discussion of active defenses below.

[11] A mentality that has continually led us down the path of small-yield RVs on the basis of point value accuracy estimates that ignored a wide range of uncertainties, thereby making us overconfident about our future capabilities, and left us with inadequate capabilities when we inevitably failed to achieve in operation the accuracy promised by the development community.

would be operational. Thus, one must first assume a carry-forward of those (or equivalent) limitations to SALT III and beyond, and further assume that the treaty language does not contain loopholes that might admit further fractionation, to the level of 14 or so suggested by Soviet tests.

There is also the issue of "stockpiled" Soviet missiles raised above. To understand this, one must recall that both SALT I and SALT II draw a distinction between *launchers* (counted and limited by treaty) and *missiles* (the actual ICBMs or SLBMs fired from the *launchers* and not numerically restricted).[12] The origins of this distinction, of course, lie in the ease of counting silos (or SLBM tubes) and the difficulty of counting missiles.

A recent study concluded that the Soviets might already have about 1000 more delivery systems (missiles) available than the aggregate limits on launchers would permit.[13] The article reporting this speculated that such "surplus" missiles might be usable from fairly austere "hardpads" not associated with any of the existing launchers (silos). A similar concern was expressed in *Air Force Magazine,* which noted:

> Up to 1500 older weapons could be involved in the transition to the new Soviet fourth-generation ICBMs. Once these older but still quite capable systems are taken out of their silos, they are no longer under SALT II's purview. Yet Congressional experts point out that these weapons could be launched from simple, quickly-erected gantries of a type similar to those used by USAF's Atlas missiles.[14]

Both the retention of older systems in the inventory when replaced by newer ones and the production of large "surpluses" of weapons systems are quite in keeping with what we know of the Soviet style of defense planning and procurement.

The problem these reports pose—the potential inherent in the lack of SALT controls on missile inventories or production rates—is to cast some doubt on our ability to confidently project the threat against which to design an MPS system.[15] We could be faced by the mid-1980s with a quite ambiguous threat posed by the prospect of a highly uncertain number of surplus missiles perhaps capable of suddenly becoming an element of the threat. The number of shelters we would need to add to hedge against a surplus missile threat could be large. However, it would not be nearly as large as the several tens of thousands that the limiting cases of fractionation could have required. Given the necessity of continuing Congressional approvals of the size of an MPS deployment, the ambiguity in forecasting the Soviet threat suggests that our ICBM rebasing plans might continue to be a subject of controversy during the 1980s.

AIRMOBILE ICBMs

The next candidate option is airmobile M-X. Although initially favored by many in the administration, the principal problems with it include its reliance on tactical warning for survivability, much as the bombers already do; its complication of the already serious bomber survival problem by competing for scarce bases and facilities; its fragility in the face of limited attacks on its support base; its command and control problems, perhaps more severe than for the bombers; its compounding of the demands on tankers should we want to go to airborne

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[12]The SALT II treaty imposes some restrictions on the numbers of missiles permitted in the vicinity of existing ICBM launchers, some of which are designed for cold-launch and thus might be reloaded.

[13]See Henry S. Bradsher, "New Study Raises Soviet Missile Total," *Washington Star,* 12 April 1979, p. 1.

[14]*Air Force Magazine,* May 1979, p. 22; see also the photo and text in *Aviation Week and Space Technology,* June 25, 1979, p. 24, showing the launch of a Minuteman missile from a canister set up on a plain concrete pad.

[15]The problem does not confront MPS systems alone, of course; it encompasses *all* threat-sensitive candidates.

alert; its substantial accuracy degradation for missiles launched in flight; and, certainly not least, its costs. Those are, of course, drawbacks against the nominal kinds of attack; in addition, heavy aircraft, being fairly soft, slow, and vulnerable in and around their home bases, invite off-design scenarios of unconventional attack that neither ICBMs nor SLBMs are as sensitive to. The short answer is that airmobile ICBMs are probably too vulnerable and too costly to be competitive. The best proof is that even the Air Force—which likes to fly airplanes, which lost the bomber it wanted so badly, and which therefore could be presumed to have a bias in favor of an airmobile system—readily concedes that the airmobile ICBM is more costly and less effective than MPS.

Quite apart from this, Lt. Gen. Glenn Kent, retired director of both the Weapons System Evaluation Group (WSEG) and Air Force Studies and Analysis, observed in testimony before the House Armed Services Committee that the substitution of airmobile for silo-based ICBMs means that the Soviets would be free to reallocate their throwweight in a barrage attack against a broad area of the North-Central United States containing the airmobile ICBM *and* many of the B-52 bases. (Bases nearer the coast simply do not survive a determined SLBM attack.) General Kent notes that the Soviet ICBM throwweight under SALT constraints could cover more than half of some 600,000 sq mi of North Central United States territory with overpressure of more than one psi—probably adequate to prevent any B-52 or AMST-derivatives with ICBMs caught in the barrage from carrying out their mission.[16] For random patterning of the North-Central area, as much as one-half of all bombers that survive the initial SLBM attack could be destroyed by the barrage. If "stockpiled" Soviet missiles could be used, survivability of bombers and airmobile ICBM aircraft could be further reduced.

DEFEND ICBMs

Another option for solving the ICBM vulnerability problem is to defend the aim-points with some form of antiballistic missile defense. Defending a large set of hard targets for which the consequences of occasional "leakage" are not catastrophic is technically less difficult than trying to defend soft cities.[17] In particular, if the defender chooses to defend only a subset of the sites, allowing others to be attacked with no response by the defense, he can create some leverage. If the system in question contained a large number of valueless aim-points—as with MPS—the leverage generated can be multiplied again, because the defender need not engage RVs aimed at empty shelters. Moreover, the defended aim points are hardened, so the attacker RVs can be engaged at close range with less concern that the defensive engagement will itself destroy the target. In sum, there is potential for a combination of a close-in hard-point defense system together with preferential defense of an MPS system to *greatly* complicate the targeting plans of an attacker and improve survivability prospects for ICBMs. Of course, the provisions of the ABM treaty rule out aspects of testing and limit the deployment of this concept.

Although these leverage opportunities have long been known to analysts, until recently the R&D emphasis of the Army's Ballistic Missile Defense program has been on area defense (of cities), so that the technology for a terminal hard-point defense option is not yet at hand. But with intensive direction and guidance over the next two years, the technology could be brought to a state where it could reasonably be assessed on cost and performance grounds.

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[16]Private communication; to be published as House Armed Services Committee report. AMST is the acronym for the Advanced Medium Short-takeoff Transport, prototypes of which have been built; it has been proposed as the carrier aircraft for some airmobile ICBM concepts.

[17]Hard-point defense (HPD) as opposed to area ballistic missile defense. "Leakage" means that the HPD system is not perfect; it sometimes misses incoming RVs, so the target may still be lost.

Finally, there is the political question: If we thought it would work, would the *political costs* of abrogating the ABM treaty be worth the gains? For given the geographically dispersed nature of Minuteman or MPS fields and the current ABM treaty provision limiting us to one site and 100 interceptors, we could not mount a realistic hard-point defense of Minuteman or MPS within the ABM treaty provisions. The first casualty of a decision to rely on active defenses would have to be continued U.S. adherence to the "perpetual" ABM treaty.

LAUNCH ICBMs ON WARNING OF ATTACK

The final, frequently mentioned option to redress the vulnerability of Minuteman is to adopt a policy of launch on warning (LOW). That is, once our various tactical warning sensors detected that the Soviets had launched a large attack against the continental United States, we would launch our missiles before they were destroyed in their silos. This strategy begs three questions. First, *at what?* Are there targets appropriate to a launch on warning tactic under a variety of different attack scenarios? A launch decision may be required well before sensors could discriminate the magnitude and inferential objectives of the Soviet attack. Once launched, does the U.S. LOW attack achieve meaningful damage levels against targets appropriate to our targeting objectives? Or does LOW merely achieve "survivability" at the expense of some military purpose?

Only if there are affirmative answers to these targeting questions need we consider the second question: In the brief interval between the onset of tactical warning and the last point at which a decision to launch can still be made in time to get the force away, is it technically and operationally feasible that we could obtain warning, alert the national command authorities (NCA) wherever they may be, determine to the extent possible the size and form of the Soviet attack, decide on an appropriate launch on warning response, communicate the appropriate orders through the chain of command, and have the orders validated and carried out before the Soviet weapons start to go off?

Only if the answer to these technical questions were also affirmative would we have to confront the third issue: Is a launch on warning policy politically acceptable?

The first two questions have a significant analytic content; the third is largely political. With regard to target selection and effectiveness, a launch on warning option must exclude urban-industrial targets, because to do otherwise is to risk precipitating all-out attacks even if the initial Soviet attack was limited to strictly military targets. Second, the absence of significant Minuteman hard-target-kill capabilities severely limits the effectiveness of launch on warning options targeted against Soviet hardened aim-points (largely strategic targets). In the search for targeting options we may need to examine more specific scenario-related attack options, such as theater-oriented attacks against second echelon and logistics and support structure or attacks against the air-defense infrastructure as a means to improve bomber penetration probabilities. However, the nature of the targets to be selected and the effectiveness of such attacks remains to be demonstrated.

As a contribution toward our overall targeting objectives, the effectiveness of a launch on warning tactic depends on whether the U.S. posture is on generated alert or in a day-to-day state. If the latter, the shortage of alert weapons in other than the ICBM force makes the potential contribution of a launch on warning tactic much more significant than when forces are generated. Unfortunately, when we look at both technical capabilities and political realities, an attack on U.S. forces while they are unalerted (not generated) seems *least* likely to permit launch on warning. The time available for a presidential decision to launch is only a few minutes at best. (There might be a narrow window after receipt of some form of strategic warning, so the NCA would already be alerted, but before efforts to generate forces were well along.)

In the more general case, if an "attack from the blue" occurred, launch on warning would not always be feasible. Technical improvements have been proposed to our warning systems and to our ability to discriminate the weight and specific nature of an attack, but even there it is difficult to be confident that the requisite decision time can be preserved in the face of determined enemy attempts to minimize it.

The political, strategic policy, and stability/instability arguments for and against a launch on warning tactic are well known and need no recounting here. Whatever one's views on either a declaratory or an actual policy on launch on warning, it is worth noting that it is the *only* option available to improve the survivability of the Minuteman ICBM force until the mid-1980s, the earliest date any of the rebasing candidates now under consideration can begin deployment.

IN SUMMARY

The unilateral options to deal with the ICBM vulnerability problem all have some faults or drawbacks; the effectiveness of all of the prime ICBM rebasing candidates is sensitive to our ability to bound the magnitude of the Soviet threat. SALT II, if ratified, would impose some constraints on the magnitude of the threat; but it is not clear that, once the possibility of stockpiled missiles is admitted, SALT II provides a confident basis on which to project potential threats to candidate ICBM rebasing systems. That is, taking the MPS approach as an example, SALT II should rule out some of the extreme threats that would have required tens of thousands of shelters to counter. But it still leaves substantial ambiguity as to the magnitude of the threat. For any perceived threat, the Department of Defense can design an appropriately large MPS shelter system that will provide a desired level of ICBM survivability. But the ambiguities arising from both surplus missiles and the possibility of less well-defined follow-on ceilings after 1985 could lead to a wide range of U.S. ICBM shelter "requirements." In this country, the DoD and the administration can indeed propose a larger MPS program (more shelters hedging against the possibility of a larger threat), but the larger increment of shelters will not be bought and installed unless the Congress so votes. Hedging against a possibly larger threat requires more money, more land, and inevitably more public discussion and argument about the "appropriate" threat against which the MPS system is to be built. Because that would be a matter of judgment, the "survivable ICBM rebasing" scheme on which restoration of the strategic balance hinges will probably be a matter of continuing political controversy throughout the 1980s, just as the M-X and its "survivable basing mode" have been a subject of debate for the last several years. The debate over the adequacy of the "baseline" MPS system[18] would continue, to the bewilderment of both the general public and our allies. That is scarcely a desirable approach to building confidence in the adequacy of our plans to redress the strategic imbalance of the first half of the 1980s.

Reductions in permitted ceilings coupled with more stringent provisions intended to foreclose stockpiled missile threats would surely facilitate the selection and implementation of a preferred ICBM rebasing mode. At a minimum, the lower the agreed ceilings and the more stringent the restrictions on fractionation, the more an attacker would have to rely on stockpiling missiles to generate an adequate threat. Moreover, even if the ability to verify precisely either production or stockpiling limits were questionable, the more a potential attacker must rely on stockpiled missiles to generate an adequate threat, the greater the risks of discovery. The Soviets have not yet deployed enough of their larger MIRVed ICBMs into

[18]Remember that this argument applies to *all* the threat-sensitive candidates, not just the MPS basing system.

silos to have reached the subceiling of 820, nor are they likely to do so before the early 1980s. It is unlikely that production of new, modern ICBM systems has been so extensive that there are already large stocks of them lying around. These factors, of course, support an effort for early agreement on lower "SALT III" ceilings and for some form of controls on production and inventory. By the middle 1980s, the situation with regard to possible production levels of Soviet ICBMs might be significantly different.

If we were successful in gaining agreement on lower launcher ceilings and some controls on ICBMs, we would be able to foresee ICBM rebasing solutions that, as the Secretary of Defense suggests, would make us more comfortable about the strategic balance by the late 1980s. This nonetheless leaves a less than satisfactory state of the strategic balance during much of the 1980s; coupled with the also less than satisfactory (but, one hopes, improving) balances in NATO, it raises inevitable questions about the risks we face during that period. Concern for the possible consequences of the adverse balances has led some analysts to conclude that the risks of crisis leading to major conflict are so large that we should immediately embark on a number of crash programs to provide interim capabilities in the early 1980s of limited (in some cases, dubious) effectiveness—regardless of costs and budgetary consequences—while continuing (or accelerating) our effort on our planned longer-term strategic enhancements.

To address those concerns, we briefly examine some aspects of Soviet strategic policy and doctrine bearing on their approach to deterrence, crisis management, and conflict behavior. We need also to review elements of our current strategic policy, the better to understand whether various initiatives we might develop to support a "SALT III" arms control strategy would be consistent with that policy.

IV. POLICY AND DOCTRINAL IMPERATIVES

This section briefly reviews Soviet and U.S. strategic policy and doctrine for the light it can shed on such questions as:

- Can we expect Soviet self-interest to incline them toward acceptance of drastic cuts?
- How are they likely to view the effect of the trends in the balances?
- Do U.S. policy and doctrine adequately account for the policies and proclivities of our major competitor?
- Does U.S. policy provide clear guidelines for the acceptability of some force posture initiatives that we might want to exploit? Or must we be concerned that R&D actions may turn out to be inconsistent with the current emphasis of our evolving policy?

SOVIET POLICY AND DOCTRINE

Soviet doctrine and images of conflict are fairly straightforward and logically consistent with both political imperatives and force structure developments, and these views have been quite stable over a long period of time. That is not to say that the Soviet constructs and their implications for the strategic balance have been well understood in this country; far from it. Only a few years ago, after SALT I and the ABM treaty, it was fashionable among American defense intellectuals to attribute to the Soviets a convergence of their doctrine and policy on the U.S. philosophy of Assured Destruction. This "convergence" was assumed to arise from Soviet agreement not to (further) deploy an ABM system around urban industrial areas, supposedly indicating their acceptance of the mutual "hostage" relationship of urban population, and from the presumption that SALT I would meaningfully limit further strategic competition.

The convergence theory has been largely demolished by the subsequent rediscovery of the extensive (and expensive) nature of Soviet civil defense preparations and their massive air defense establishment, together with the clear threat to the stability of the strategic balance that began to unfold with the deployment of the fourth-generation ICBM systems (particularly the SS-19 replacement of the SS-11) and the continued aggressive R&D programs oriented toward ballistic missile defenses. Indeed, in some respects the pendulum of U.S. interpretations has overcorrected, to the point that some now argue that the Soviets do not embrace the idea of deterrence at all, but rather pursue an aggressive, damage-limiting, war fighting doctrine. Neither view captures the essence of Soviet policy and doctrine.

Like us, the Soviets believe in deterrence, but with a difference. The American construct is based largely on a threat of punishment (inflict costs on an aggressor that would be incommensurate with his prospective gains); but the Soviet policy is based on what can be characterized as deterrence through denial. That is, rather than simply relying on the threat to impose disproportionate costs on an aggressor (lay waste his cities), the Soviet deterrent construct calls for the military capability to defeat any specific aggressive military acts (thereby directly denying gains).[1] Is that not simply a war-fighting doctrine by another name? Even the Secretary of Defense seems to characterize it in those terms:

[1]Of course, the Soviet construct may in fact lead to levels of societal destruction just the same as if cities were the intended targets.

> The Soviets are concerned about the failure of deterrence *and* they reject the concept of minimum deterrence and assured destruction only, just as we should and do. That much is understandable. More troublesome is the degree of emphasis in Soviet military doctrine on a war-winning nuclear capability, and the extent to which current Soviet programs are related to the doctrine (which sounds like World War II refought with nuclear weapons).[2]

Of course the emphasis is on a variant of war-winning; the Soviet version of deterrence through denial is accomplished by acquiring military capabilities adequate to defeat opponents' forces. This approach also calls for the ability to inflict further military defeats on an aggressor should he—losing at a lower conflict level—resort to escalation in an effort to salvage something from the conflict.

An important aspect of Soviet-style deterrence through denial is the absence of what might be called a "sufficiency" criterion for force size. In view of the fundamental uncertainties of war, in which forces superior in numbers or capabilities have been defeated by lesser forces, more force capability in being is better.[3] Therefore, although some U.S. defense intellectuals see the existing Soviet force structure as excessively large relative to their requirements for "deterrence," this is not necessarily true under the Soviet construct.

But what about their emphasis on offensive principles: mass, shock, surprise, rapid offensive movement, and the like? The student of Clausewitz will not want for an answer: The best form of defense is the rapid transition to a sustained offensive operation as soon as the momentum of the attacking force has been dissipated by the defenders. Of course, better still if the defender, clearly perceiving the inevitability of an attack, can counterattack before the attacker can carry out his plans—hence, the Soviet emphasis on dissimulation, deception, surprise, and preemption to seize and hold the initiative.

Seizing the initiative is an important element of Soviet doctrine and military planning. Its main importance from our perspective is that it implies a fairly unlimited and unconstrained application of forces available to achieve political and military objectives. This suggests that the kinds of limited nuclear operations and demonstration attacks intended to signal resolve and control escalation that have been extensively explored by U.S. defense analysts find little favor with Soviet planners. Once the conflict decision is taken, Soviet doctrine calls for attacks in force, massively and repeatedly, to attempt to so overwhelm the opposing forces and leadership as to disrupt effective opposition. To play at signaling in the midst of conflict is to risk loss of initiative and momentum.

But surely the Soviets do not seriously believe that Western forces would attack them? Their logical response is that the stronger their military capabilities, the less likely they are to be attacked, which reinforces their "more is better" orientation. Their doctrinal response has its origins in fundamental Marxist/Leninist dogma, the tenets of which hold that the socialist movement is historically ordained to supplant the capitalist system; but in the final throes of the decline of capitalism, the imperialist will lash out in a desperate attempt to destroy the socialist forces. For many years, such a conflict was interpreted to be inevitable. More recently, whether through mellowing or through increasing confidence in both the "correlation of forces" and the deterrent value of their military establishment, this apocalyptic conflict is now seen as only a possibility that cannot be dismissed.

A nuclear war could arise only out of grave crisis in which issues important to both sides are at stake. Indeed, the Soviets today maintain much lower alert rates for their bomber and SLBM forces than the United States. Nuclear war is not something to be lightly entered,

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[2] *Fiscal Year 1980 Defense Report . . .*, p. 80.

[3] This is not inconsistent with a willingness to agree to mutual limitations on certain classes of arms, as the SALT I and II and ABM treaties suggest. However, the Soviets have continued to build forces while negotiating, both in the strategic arena and, more recently, in theater nuclear and conventional capabilities, even while the MBFR talks have been in progress.

because it may risk much of the gains of the socialist movement. Thus, Soviet philosophy toward conflict is: First, be strong enough to deter it; but if it should occur, seize the initiative and try to defeat the enemy quickly and completely.

Win a nuclear war? Is the prevalent opinion of U.S. defense intellectuals wrong that "the survivors will envy the dead"? There are no definitive answers to these questions; we can but offer a pragmatic explanation of Soviet thinking. Yes, the Soviets understand the terrible destructive potential of nuclear weapons,[4] they understand fully the devastation that nuclear war could bring, but they do not bow to fatalism. Instead, the resources of the State must be invested in mitigating the consequences of nuclear warfare should it occur—hence the emphasis on limiting damage, whether offensively (large yield, accurate RVs on ICBMs to target opponents' hardened, fixed forces) or defensively (civil defense, air defenses).

An implication of this perspective has to do with how the Soviets view stability. In the United States, concerns for mutual stability in time of crisis have led to great controversy over proposed capability enhancements, such as improved accuracy in our missiles. The Soviets seem much more disposed to see stability issues in unilateral terms. "Minuteman vulnerability" is *our* problem. That it happens to be our problem of *their* making in pursuit of their "damage limiting" objective simply reflects the continuing competitive nature of detente.

U.S. POLICY AND DOCTRINE

The growing recognition that the Soviet Union was not satisfied with matching U.S. forces and that they were not in fact converging on a U.S. construct of mutual assured destruction has led the United States to undertake a series of reviews of strategic policy. At the same time, the descriptors of our criteria for the adequacy of forces have moved from a recognized but unstated margin of superiority to sufficiency to essential equivalence, while we have also explored such side issues as limited nuclear options (which the Soviets reject) and flexible options.

As has become customary, the incoming Carter administration launched a review of all this, the outlines of which begin to emerge in this year's posture statement, rejecting the notion that assured destruction alone is enough:

> We now recognize that the strategic nuclear forces can deter only a relatively narrow range of contingencies, much smaller in range than was foreseen only 20 or 30 years ago. We also acknowledge that a strategy and a force structure designed only for assured destruction is not sufficient for our purpose.[5]

Surprisingly, the criterion of essential equivalence is also downplayed:

> One way of escaping the dilemma would be to design our forces on the basis of essential equivalence, assuming we know what is meant by the term. But to plan our forces, and measure their adequacy, simply on the basis of essential equivalence would give no assurance that the forces would perform their essential deterrent functions. We may be able to obtain deterrence, and can achieve assured destruction or more, without equivalence; it is by no means certain that equivalence alone will give us deterrence.[6]

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[4] In the Soviet view, the first "scientific and technical revolution" in warfare.
[5] *Fiscal Year 1980 Defense Report* . . . , p. 76.
[6] Ibid., p. 77.

If neither assured destruction nor essential equivalence is sufficent in itself as the logical foundation of our strategic policy and force structure, what is the replacement to be? The answer is a *countervailing strategy:*

> As a reasonable minimum (but this may also be the best we can do), we can make sure that, whatever the nature of the attacks we foresee, we have the capability to respond in such a way that the enemy could have no expectation of achieving any rational objective, no illusion of making any gain without offsetting losses. This countervailing strategy has a number of implications. We must have forces in sufficient numbers so that they can: (1) survive a well-executed surprise attack; (2) react with the timing needed, as to both promptness and endurance, to assure the deliberation and control deemed necessary by the National Command Authorities (NCA); (3) penetrate any enemy defenses; and (4) destroy their designated targets.[7]

Is this then the beginning of a U.S. analog to the Soviet concept of deterrence through denial? The answer is unclear; the phrase "no illusion of making any gain without offsetting losses" is more nearly the U.S. deterrence through threat of punishment that underlies the assured destruction concept, but both the name chosen—"countervailing"—and the notions of "promptness and endurance" and "deliberation and control" seem more closely keyed to a war-fighting approach.

The Secretary of Defense goes on to list other important attributes: redundancy and diversity, survivable C^3, high accuracy and reduced nuclear yields, and "even some measure of civil defense evacuation can be desirable, if only to reduce the effects produced by attacks on targets other than population centers."[8] He then describes an extensive list of potential targets that may have to be either attacked or selectively avoided: cities, general purpose forces in specific theaters, command-control, war reserve stocks, lines of communication, war-related industries, and some measure of capability against hardened targets.[9] Although this list is lengthy, not all of these need be targeted by the strategic forces, and the addition of cruise missiles and Trident increases the number of weapons available. He adds:

> I also recognize that the strategy behind such a list is essentially defensive in nature, designed primarily to prevent an enemy from achieving any meaningful objective. Nonetheless, the times and the uncertainties surrounding nuclear deterrence warrant such an approach.[10]

Again, although the enumeration of targets seems appropriate to some denial strategy, the objective of the strategy suggests "imposing costs" as with assured destruction, and the last sentence seems reminiscent of the kind of intra-war bargaining and coercion implicit in the limited nuclear options proposals of some years ago. Moreover, the threat of political reinforcement of allies is factored in, as well as continuing concern for flexible options:

> With careful design (this countervailing strategy) ensures that we cover targets of concern to our friends as well as ourselves; and it permits us to respond credibly to threats or actions by a nuclear opponent. No matter what the nature of the attack,

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[7]Ibid., p. 77.

[8]Ibid.; on the last point, analysis suggests that evacuation in general produces higher collateral fatalities, because protection against fallout in evacuation areas is generally less robust than in cities. The Secretary's statement may be correct for selected metropolitan areas (such as St. Louis, generally downwind from the Minuteman field at Whiteman Air Force Base), but there, population is likely to have to evacuate to a considerable distance.

[9]Ibid.

[10]Ibid., p. 78.

> we would have the option to reply in a controlled and deliberate way, and to proportion our response to the nature and scale of the provocation.[11]

The most ambiguous discussion centers on hard-target-kill capabilities:

> The degree to which hard targets need to be completely covered as part of the list is a more difficult issue. Attacks on these targets would not disarm an enemy in a first strike (because of his survivable non-ICBM forces), but on a second strike could suppress his withheld missiles and recycling bombers.[12]

However, *prompt hard-target-kill capabilities affect stability; in consequence:*

> One resolution, in light of the conflicting pressures, would lie, first, in being able to cover hard targets with at least one reliable warhead with substantial capability to destroy the target, and, second, in having the retargeting capability necessary to permit reallocation of these warheads either to a smaller number of crucial hard targets, or to other targets on the list. Even with slow-reacting capabilities such as cruise missiles, this would ensure that an enemy's silos are not a kind of sanctuary from which he can shoot with impunity.[13]

The implications of this are, frankly, obscure. Does it mean we will not try to develop hard-target-kill in the M-X missile? Will we rely instead on slow counterforce, or cruise missiles and bomber-delivered weapons? The delivery probability of alert bomber weapons must be reduced to account for some that are destroyed before launch, fail in flight, and encounter area defenses during penetration and terminal defenses. Does "one reliable warhead" in the quotation cited above really call for enough "slow-reacting" weapons on alert to (reliably) cover more than 1500 hard targets? Where will all those alert weapons come from?

Our strategy is still in a state of flux, with elements of assured destruction, war-fighting, and stability and arms control in an uneasy competition for emphasis. A major problem with further clarification of our policy and its more detailed prescription for force structure, force sizing, and the development of new capabilities remains:

> We have to admit that we have not developed a plausible picture of the conflict we are trying to deter.[14]

In summary, we see that Soviet doctrine, force developments, and behavior within an arms limitation context are mutually consistent. Within the context of SALT I the Soviets have been able to pursue a deterrent approach that goes beyond the U.S. construct of deterrence. Their approach emphasizes the acquisition of superior military capabilities so that deterrence flows from the recognition that they expect to prevail if conflict ensues. It also allows them to negotiate arms control agreements from a position of strength. This poses obvious dilemmas for U.S. policy and strategy. If both sides seek "superior military capabilities" without restraint, the outcome is the classical arms race behavior. Yet granting Soviet "superiority" has obvious negative consequences for us. Thus, for a number of years, the United States has pursued both arms limitation agreements and limited force posture improvements in an effort to frustrate Soviet efforts to achieve superior capabilities without requiring us to engage in major arms buildups.

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[11]Ibid.

[12]Ibid., p. 77; "suppress" may be a recognition of our limited hard-target-kill capability.

[13]Ibid., p. 78; many analysts are skeptical of the effectiveness of cruise missiles in attacking silos. The defense of very hard point targets against slow-moving, drone-like aircraft is much easier than defense of a soft, fragile area target such as a city; the consequences of occasional "leakage" through the defenses are also less catastrophic. Moreover, "retargeting" of cruise missiles on bombers is a nontrivial undertaking.

[14]Ibid., p. 76.

Although that approach has not been fully successful, as the Minuteman vulnerability problem makes plain, for much of the 1970s it has enabled a continuation of arms control negotiations and has allowed us to avoid major strategic force investments. The questions raised are can we more successfully pursue the competitive elments of this strategy; are the SALT ceilings too high to permit our "frustration" approach to succeed; and will our negotiators have enough leverage to incline the Soviets to accept lower ceilings in the next round of negotiations? In the meantime, our own incomplete rethinking of strategic policy suggests that any arms control approach to SALT III must be flexible enough that, when our revised strategic policy is ultimately enunciated, our SALT III approach does not contain inconsistent elements.

V. PREPARING FOR SALT III: COMPETING WHILE COOPERATING

The present state of a number of balances is not markedly favorable to the United States and its allies—a situation of "clinging parity," as Senator Sam Nunn characterized it.[1] The trends in these balances are all adverse to us over the next several years at least, so that the balances will become even worse before they are projected to begin to improve. This will occur even though all of the Secretary of Defense's recommended programs are fully carried out. There seem to be no attractive short-term options to improve the strategic trends. A necessary but not sufficient condition for long-term improvement in the balances (and our security) is a solution to the Minuteman vulnerability problem, which becomes acute in the early 1980s; but obstacles to achieving that still remain. Moreover, even if there *were* a consensus and we began tomorrow, it would be the mid-1980s before the solutions could begin to take effect and nearly the end of the decade before they became fully effective. The SALT II treaty will not have a decisive influence upon these trends. It will provide some modest bounds to the competition, but Soviet latitude to continue to threaten elements of the U.S. deterrent posture may not be severely compromised. The SALT II provisions are due to expire before ICBM rebasing begins, so rebasing decisions must rest on assumptions about post-SALT II agreements.

We lack consensus on how best to solve the Minuteman vulnerability problem; we also lack a clear, concise, logical strategic policy and doctrine, setting forth guidance on issues of force capability, targeting, and doctrine. We have no integration of arms control planning with strategic planning. Thus we have an uncertain basis for assessing SALT III alternatives and strategies to move toward lower ceilings.

Given the lack of development options to try to solve these problems, the ambiguities, uncertainties, and lack of consensus on directions to pursue, and, worse yet, the forthcoming impassioned debate upon the merits of SALT II, can we expect to do anything constructive about SALT III, and can we prepare for its arrival?

THE SALT III OBJECTIVE

The SALT III objective is as yet not fully defined. Suppose we take it as a reduction of 400 units to *all* ceiling numbers. Then SALT III ceilings would be 420 land-based MIRVed ICBMs (rather than 820); 800 MIRVed total for ICBMs and SLBMs; 920 total for MIRVed missiles plus aircraft carrying long-range cruise missiles, and 1850 total strategic vehicles.[2] The term "launchers" is not used, indicating the agreement should be extended to account for both missile production and some form of inventory controls or destruction procedures for surplus missiles. Both sides need test and training missiles, but those must be subject to some accountability measures. That represents a major complication, given the imprecision of unilateral verification measures and the Soviet penchant for secrecy. Nonetheless, substantial progress has been made in the course of the SALT II negotiations in getting the Soviets to be more forthcoming with data bases of their own. The issue of limiting ICBMs—not just launchers—is of such compelling importance to both the future of arms control and the

[1] Speech by Senator Nunn to National Chamber of Commerce, Washington, D.C., 30 April 1979.

[2] This formulation, unlike the administration's March 1977 proposal, would require both the Soviets and us to reduce the numbers of land-based MIRVed ICBMs from current levels.

evolution of our strategic posture that we need to establish Soviet willingness to address the issue. Finally, the expiration date of a new agreement should be extended at least to 1990, to permit orderly planning and deployment of more survivable ICBMs.

The specifics of a "SALT III" agreement along the above lines would clearly be to our liking. The reductions in ceilings—especially in the land-based MIRVed ICBM launcher subceiling—would provide a more constrained ICBM threat on both sides and would reduce the contribution of and dependence on ICBMs in both sides' TRIADs. The reduction would substantially reduce the Soviet MIRVed ICBM payload even if the agreement did not address the asymmetry of Modern Large Ballistic Missiles (the SS-18s) in the current SALT II treaty. It would not eliminate the threat to Minuteman, because that threat requires no more than two RVs per silo (200 SS-18s with 10 RVs or about 350 SS-19s with 6 RVs). Under the proposed SALT III limits, carrying out such an attack would leave the Soviets with a modest withheld MIRVed ICBM force, together with their single-RV ICBMs, and their bomber and SLBM forces.[3] From the U.S. perspective, however, the planned M-X and MPS program might then suffice to resolve the Minuteman vulnerability problem in the face of a more carefully constrained Soviet threat than SALT II will provide. If Minuteman III were phased out in favor of M-X in MPS, their silos could be reconverted to be capable of handling Minuteman II.[4] This would allow a modest two-for-one "shell game" with that force also (450 Minuteman IIs in 1000 silos). The additional 1000 Minuteman II silos would constitute a substantial target base against which Soviet RVs would also have to be allocated. The Soviets would also have some "shell-game" possibilities with their existing silos, thereby deriving a measure of security against U.S. ICBM attack. Both sides would, of course, retain ample second-strike forces to maintain deterrence of all-out attacks.

Would the Soviets like such a package? Predicting Soviet behavior is always risky, but many indicators suggest they would not. Two are: the difficulty of getting below the Vladivostok numbers, and their refusal to consider the March 1977 package, which proposed lower ceilings than in the SALT II treaty. The Soviets are disinclined to share mutual stability concerns at the expense of their unilateral interests, and the essence of this proposal is to buttress stability at some sacrifice to unilateral advantage. Reductions to land-based MIRVed ICBM ceilings would reduce the damage-limiting potential of the Soviet posture.

The Soviets have a commitment to land-based ICBMs evident in both their size and numbers and in the multiple systems developments that have occurred. They are reported to have a number of still newer ICBMs under development. Because we know that ICBM forces have the highest alert rates at the lowest cost per RV of all TRIAD forces, the Soviets should have the same appreciation. They tend to maintain much lower alert rates on their bombers and submarines than we do, so the reductions in permitted numbers of ICBMs might oblige them to spend more of their resources on operating costs to increase the alert rates of other forces. The ICBM forces represent an area of indisputable Soviet lead—in size, numbers, throwweight, yield, and perhaps even in accuracy. In sum, the Soviet Union would probably not prefer this "SALT III" construct to the terms of SALT II, particularly in light of their expectation of what U.S. program plans will accomplish over the lifetime of that treaty.

If that is the case, then to reach agreement on lower ceilings requires that both sides must prefer the future world with our hypothetical SALT III agreement in force to their estimate of the future world with SALT II levels continued beyond 1985. We need to consider what might persuade the Soviet Union to appreciate that. To persuade the Soviets requires some combination of new U.S. leverage and incentives, to provide potential threats and concessions for our negotiators.

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[3]Or as much of these forces as were not expended in attacking U.S. bomber bases, submarine ports, command and control nodes, and other time-urgent targets.

[4]The new land-based MIRVed ICBM subceiling of 420 would require reductions in current Minuteman III levels even without an M-X program.

SOURCES OF LEVERAGE AND INCENTIVES FOR NEGOTIATIONS

Leverage and incentives can, in principle, be generated from many sources, nonmilitary as well as military. It is conceivable that some package of economic incentives (most-favored-nation status, transfer of high-technology components) could be used in a bargaining context over SALT III ceilings, but inclusion of such issues would constitute a much broader approach to arms control negotiations than has been the case, and all of the items in any broader menu will probably have significant long-term national security implications of their own. Although we should not fully discount the possibility of nonmilitary leverage and incentive items, the pattern of past SALT negotiations requires that we look principally to military forces in being, under development, and under consideration for sources of leverage leading to negotiated agreement on lower ceilings.

What elements of leverage and incentive do U.S. military plans hold, and to what extent may they already have been discounted by the Soviet Union at SALT II? At the strategic level, we will have the M-X missile program, the ALCM for bombers, and the Trident program. Trident will largely play the role of deterring unrestrained attacks against cities and economic targets, so the primary systems that might influence Soviet perceptions of the value of their land-based ICBM forces are the ALCM and the M-X as counterforce weapons. The SALT II treaty has imposed limits on the ALCM, in terms of counting its carrier aircraft under the already constrained MIRV ceiling and in terms of the numbers of ALCMs permitted on the new carrier aircraft. Thus, in the SALT II treaty, the Soviets have been able to impose some significant bounds to the prospective U.S. ALCM threat.[5] In addition, there is reason to question the effectiveness of ALCM in attacking hard targets. The ALCMs would not arrive over their intended targets for many hours, leaving a substantial time-window for Soviet launch on warning decisionmaking, and even threats, bargaining, and negotiation with the U.S. NCA. The Soviets may also have improved defense capabilities under development.

What then of M-X? Much has been made of its potential counterforce capabilities, should all of its design parameters be achieved in the operational force, and should it be deployed in adequate numbers in a confidently survivable basing mode. Whatever one believes at this point about the ultimate resolution of these uncertainties, the M-X will not begin to be deployed before the expiration of the current SALT II treaty. It will take several years thereafter before enough of the missiles (and basing mode) have been deployed to improve U.S. ICBM survivability markedly. Because the M-X has been proposed for several years now, Soviet planning has probably already taken its inclusion in our future posture into account at SALT II. If so, M-X generates little new leverage to help our negotiations reach lower SALT III ceilings.

There are potential areas of leverage and incentive associated with nonstrategic systems —in particular, Soviet concern is clear about the introduction of cruise missile technology into the hands of our NATO allies. However, in terms of coming to grips with the whole theater-related, "gray-area" systems problem, many complex issues will have to be addressed. On the Soviet side, such systems as Backfire, the mobile SS-20, the newer mobile battlefield missiles such as the SS-21 and -22, and the existing silo-based MRBM and IRBM systems suggest that whatever leverage the allies can generate from cruise missile technology may be needed to negotiate over levels of counterpart Soviet theater nuclear capabilities. It would be unwise to assume that there would be much "excess" leverage from land or sea launched cruise missile developments available to influence the selection of ceilings for strategic systems.

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[5]Particularly in regard to the possibility, once discussed by U.S. planners, of converting wide-body jet aircraft to become capacious ALCM carriers—perhaps upwards of 80 or more ALCM per large wide-body aircraft.

If these assessments are reasonably accurate, U.S. negotiators will probably be short of leverage and incentives for the next round of strategic negotiations. We must then look for *additional* sources of leverage and incentive beyond those that will be generated by our current program plans.

A STRATEGY FOR SALT III NEGOTIATIONS

We have seen that there are no good on-the-shelf options for new or enhanced strategic capabilities in the early 1980s. Although some efforts to identify possible "quick fixes" are under way, most seem to be stopgap measures of dubious effectiveness at considerable cost, which, if implemented, may well mortgage the future prospects of truly improved capabilities. In these circumstances, we need to explore how much an extensive set of R&D activities might substitute for the absence of good on-the-shelf options. Those R&D activities must be chosen that will help to develop leverage in the next round of negotiations yet not be incompatible with the evolution of our strategic policy and objectives and with current treaty obligations.

The necessity of relying on R&D rather than production of forces may have some advantages. In the absence of consensus on strategic policy and its implications for force posture, the ability to deter deployment decisions for several years (and to develop a wider set of options from which to choose) is an advantage of sorts. Second, R&D programs cost much less than production and deployment programs. In view of the adverse balances in NATO and the limitations on our ability to project forces to distant areas, there are many other claimants for additional defense dollars. More R&D will certainly increase the defense budget, but to a markedly lesser degree than would major strategic procurement actions. Perhaps most important from the negotiating perspective, a major gearing-up by the United States to exploit its technology base is one of the major longstanding concerns of the Soviet Union. They well remember the speed and scope of American reactions to the earlier bomber gap and missile gap alarums. That those gaps, in hindsight, turned out to be illusory—the product of earlier failings of intelligence—was cold comfort to the Soviet Union, which saw in both cases quantum jumps in U.S. capabilities over a short period of time, requiring a decade or more of persistent Soviet effort to begin to offset. The Soviet appreciation of the latent potential of our technology base may exceed our own (they certainly recall the outcome of the race to the moon). The appropriateness of a major R&D effort is not diminished just because this time the intelligence failings have been in the opposite direction, so that the threat is real, and here sooner than expected. Finally, if a U.S. option-generating R&D strategy leads to Soviet acceptance of lower SALT ceilings, the required downstream spending on U.S. capabilities might be lower than will be required under SALT II.

What mix of new capabilities should we consider for an enhanced R&D package? There are numerous candidates. First and foremost, we need the M-X missile committed to development; and, despite our current official ambivalence about prompt hard-target-kill, we need that under development also, primarily because it will force the Soviets to examine the consequences of their own "Minuteman vulnerability" problem that may well be more complex than ours has been. We already know that rebasing ICBMs is expensive and in many cases compromises the virtues inherent in silo-based ICBMs. To the Soviets, the cost of ICBM rebasing along the lines of any of the options the United States has thus far considered would be significant. Moreover, Soviet funds devoted to rebasing ICBMs are not available to be spent on gross additions to forces.

Won't we get this hard-target-kill capability *automatically* from the M-X program? Possibly, but possibly not; significant yield and target hardness asymmetries between the United

States and the Soviet Union require a substantially better U.S. accuracy to achieve the same single-shot damage probability that Soviet RVs will enjoy. Accuracy improvements in all-inertial guidance systems are neither inexpensive nor automatic, and our past record in meeting design goals is mixed at best. This suggests that we should have other accuracy improvement programs in train in addition to the improved all-inertial guidance system under development for M-X. Both terminally guided RVs and radio-assisted guidance techniques (the so-called Inverted GPS system) should be well-funded as backups to all-inertial techniques. This should demonstrate sufficent seriousness of purpose to be a credible development in Soviet eyes. It will also hedge against failure to achieve the requisite accuracy through the all-inertial approach, should we later decide we *must* have hard-target-kill capabilities.

Is this just another argument for acquiring splendid counterforce capabilities? Not really, in the sense that these backup approaches to improved accuracy need not be added to the force unless and until our strategic policy clearly establishes the need for very accurate, prompt counterforce capabilities. Its principal value in development lies in reinforcing our intention to create pressures for the Soviets to be more accommodating on the question of ICBM ceilings, at a point well before the U.S. deployment of those capabilities begins. Should our evolving policy or our negotiations so require, those capabilities can be omitted from deployed systems, and the Soviets can verify that omission.

Mutual counterforce capabilities are judged to be somewhat destabilizing, especially if a major crisis should arise. However, allowing the Soviets to continue to threaten a major element of our deterrent with no (or inadequate) U.S. counters is *also* destabilizing, both in crisis and in terms of its continuing political costs. If the U.S. initiatives induce the Soviets both to agree to lower ceilings and to undertake some survivability enhancing measures of their own, the resulting strategic balance should be more stable than in the situation we will soon face—when the only survivability measure for our ICBMs would be reliance on launch on warning. A sad fact of arms control negotiations is that to move *to* a point of greater stability, one may have to endure a finite period of somewhat greater instability.

As to basing for an MPS system, only land acquisition may be critical. Land acquisition programs can be begun, however, to determine the difficulty and timeliness of the new procedures.[6] Only the missile requires a prompt start today; we have several years before construction of shelters must begin in earnest to meet the planned IOC for a rebased force. Obviously, much design and engineering work needs to be done on alternative shelters (and perhaps even trenches).

Accuracy improvements in the submarine force well beyond the levels that the Trident I (C-4) missile will achieve can readily be justified on grounds of both economy of forces and minimum collateral damage. The menu of targets discussed in the Secretary's posture statement and the emphasis on withholdability, flexibility, and selectivity all require much better capabilities for precise application of the numerous low-yield SLBM RVs. Here, all-inertial approaches even with star-tracking techniques will not be sufficient. The choices again are between terminal guidance (which now incurs a larger penalty because SLBM RVs are smaller than ICBM RVs) and radio assistance (which requires beacons on land or a survivable satellite system). This would maintain the option to move more of our missile forces to sea, should subsequent events make that seem advisable. It might even permit some significant hard-target-kill capability in SLBMs, with the concomitant option to reduce reliance on ICBMs.

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[6]The effect of much new environmental legislation on the length of time required is unclear; if land acquisition problems turn out to be intractable, some emergency enabling legislation by the Congress might be required once the deployment decision is taken.

The third initiative to pursue is a reorientation and acceleration of our ballistic missile defense programs toward a proof of principle system for close-in defense of hardened aimpoints. This gives us the option to explore an ABM overlay on an MPS system to compound an opponent's targeting problem.

Another important program would be a start on a replacement for the B-52 aircraft. This is useful both for leverage and as a hedge against degraded performance of what is at best an obsolescing aircraft. A new aircraft may be useful in filling a prospective shortfall in "non-MIRVed" U.S. strategic systems, once ALCMs are added to B-52s and the ten oldest Polaris submarines are retired.

As another leverage item, we should commit to development a ground-launched cruise missile with a range clearly in excess of 600 km, to ensure that the current Protocol restraints of interest to the Soviet Union are called into question in subsequent negotiations. We may also want a submarine-launched cruise missile to exploit the availability of nuclear attack submarines.

In the near term we also will need to explore a variety of other, less dramatic options and fixes. We should be hard at work on the next-generation ALCM, in view of projected Soviet air defense capabilities and our tendency to underestimate the rate of Soviet technical progress. Both greater range and some countermeasures and reprogramming capabilities would be desirable features. We need a major effort on improved C^3 capabilities for ICBMs, bombers, and submarines, some of which can be fairly cheap, interim fixes. We need options to improve the prelaunch survivability of the bomber force as well as measures for its more enduring survivability. We also need innovative R&D on less expensive platforms for SLBMs. There are no doubt other R&D activities worthy of greater emphasis also.

TIME-PHASING OF NEGOTIATIONS

Implicit in this R&D options strategy is a strong preference for an early agreement. Several considerations underlie this urgency about timing. First, neither side has yet reached the 820 limit, and although the Soviets are deploying modern MIRVed ICBMs to replace many of the older SS-9 and SS-11 systems, it will be several years before they have a fully modernized force at the MIRVed ICBM subceiling. An assumption is that it is easier to agree on lower ceilings before the limits are reached than after. Second, lower ceilings would simplify our choice of basing mode and increase our confidence in determining the required deployment of shelters. For the next several years, only the M-X missile development is on the critical path for a 1986 IOC; selection and start of deployment of the basing mode is not. Third, because the strategy approach outlined above is necessarily based on new R&D initiatives, several years will elapse before any of those R&D items are at the point where a deployment decision could be taken. Should the Soviets agree to lower ceilings, the items could be abandoned before they have completed development. Because most are either add-on capabilities or new systems, the Soviets could verify that they were forgone. As we move through the early 1980s, however, decisions facing national security decisionmakers in all of these areas will begin to loom larger; hence, the desire for early agreement.

The U.S. objective in SALT III must be to achieve agreement on lower limits by a "date certain," preferably in the early 1980s. Failing that, we will proceed to implement whatever subset of the options developed makes sense in the light of the failure of the negotiators to reach agreement on lower ceilings for SALT III. An important element of the suggested strategy is to try to smoke out Soviet intentions and to test their sincerity on the issue of reductions, rather than simply limitations, to strategic armaments. Of equal importance is extending the treaty's duration to at least 1990 to bound the Soviet threat during the period of M-X deployment.

One implication of the desire for early agreement is that SALT III negotiations must be narrowly focused on the issue of strategic force level ceilings and missile verification measures. Most of the Protocol issues as well as suggestions for multilateral negotiations on "gray-area" systems are sufficiently complex that their inclusion in this set of "SALT III" negotiations would severely limit the rate of progress; they are the core issues for a "SALT IV" conducted in parallel but separately.

As noted in the Preface, the term "SALT III" is used simply to denote the next round of strategic negotiations with the Soviet Union. A quick ratification of the SALT II treaty is not deemed to be a necessary condition for SALT III negotiations to begin or for the United States to carry out the SALT III strategy described above. One could envision the strategy approach as applicable in the wake of prompt SALT II ratification, or as a set of renegotiating instructions embodying the "advice and counsel" of the Senate (holding the SALT II treaty in abeyance), or as a set of conditions governing subsequent U.S. negotiators, who must address the outstanding issues contained in the Protocol before its expiration, once SALT II is ratified. Other variants are also possible. Of course, the success of "SALT III" negotiations is not independent of the fate of SALT II. If the treaty is rejected outright, SALT III negotiations may well be more difficult to get started and sustain than if it is ratified. But we can begin the necessary R&D even before the SALT II ratification outcome is clear. These are largely matters of tactics, revolving around complex political judgments, and as the purpose of this paper is to suggest a strategy approach, it suffices to point out some of the tactical issues.

SOME IMPLICATIONS OF THE FAILURE OF THIS APPROACH

Given the uncertainty about Soviet willingness to agree to "drastic reductions" in strategic forces, the implications of a failure to reach early agreement on lower ceilings is a crucial question in evaluating the proposed strategy. That failure may occur in at least three ways. First, the Soviets might negotiate with us and adhere to the SALT II provisions (whether or not it is formally ratified) but be unwilling to agree on lower ceilings within the time limits we have established; that is, we may fail to discover their intentions. Second, they might view the U.S. R&D initiatives as a signal of our intent to compete in some sort of arms race and react with an effort of their own that might not be compatible with SALT II. Their production base gives them a leg up on deployment of strategic systems. Third, we must at least briefly consider whether our attempting to become more competitive in the future might entice the Soviets to preemptive moves while we are weaker.

Should agreement simply prove impossible, U.S. decisionmakers will ultimately arrive at a point in the early-to-mid 1980s when the R&D options begin to become available for deployment. Then a decision must be taken to commit the item to deployment or to put it on the shelf. Soviet foot-dragging on terms of an agreement obviously makes those unilateral U.S. deployment decisions more complex than if a new SALT III agreement had been reached. However, over that intervening period of several years we should be able to clarify our own strategic thinking and to explore the consequences and timing of several distinctly different future force structures that combinations of the R&D initiatives could lead to. Those strategy considerations can be debated and discussed with key legislative decisionmakers in an effort to forge a consensus on the strategies the United States should pursue in parallel with continued negotiations. If agreement were later reached on some new ceilings, our on-the-shelf hedges can be considered for deployment or not as circumstances then dictate, and the leverage they generate for U.S. negotiations is quite cheaply obtained. Although Soviet refusal to reach early agreement complicates our planning, it also means that the pressure continues to build and more U.S. options become available over time.

Next, suppose the strategy is counterproductive; suppose the Soviets are intransigent. They could insist on maintaining the SALT II ceilings and embrace the idea of launch on warning for their own ICBM force,[7] as a counter to our prospective hard-target-kill capability. They could renounce further interest in the outcome of the SALT II ratification process and detente and proceed along their own unilateral course. Worse yet, they could abandon restraint and begin an aggressive strategic arms buildup deploying new generation ICBMs (and more of them).

For negotiations to be successful, both sides must be prepared to accept limitations; either side can frustrate agreement by its own unilateral actions. The Soviets may choose to engage in a unilateral arms buildup whether or not they have previously agreed to limitations. But with a richer menu of R&D options in hand, we are better placed to compete than would be the case under the administration's current program plans, if that should be the directon of the strategic competition thrust upon us by Soviet actions.

At one extreme, we might have M-X with a hard-point defense (ABM) overlay to enforce the survivability of an ICBM component. At the other extreme, we could have a deliberate drawdown of reliance on land-based ICBMs in favor of augmented sea-based forces that might credibly threaten fixed Soviet hard targets. Here, the main value of the R&D initiatives, originally designed to build leverage for U.S. negotiators, would be as hedges against adverse Soviet behavior.

From the Soviet perspective, failure to agree on lower ceilings might have a number of costs—the need to spend many rubles on improving the survivability of their more numerous ICBM force and perhaps on higher alert rates for their non-ICBM strategic forces; the likelihood of a significant perceived increase in the damage levels they would sustain if conflict occurred, owing to the more precise delivery accuracy of our weapons; and possible U.S. abrogation of the ABM treaty, with all the consequences for a technology race that decision would imply. Most defense analysts ascribe the Soviet acceptance of ABM limits to their perception that they would probably finish second both in providing credible ABM defenses and in developing credible means to defeat ABM defenses. In sum, to the Soviets, the costs of delaying acceptance of somewhat lower SALT III ceilings may begin to seem large relative to the gains they might foresee from rigidly pursuing their unilateral objectives. The U.S. commitment inherent in a more robust R&D program could have a deterrent effect on Soviet inclinations for unrestrained arms competition. The entire package of R&D initiatives is consistent with the provisions of existing treaties and the SALT II treaty and thus constitutes no excuse for Soviet abrogation. Yet, inherent is the *threat* of our abrogation.

We need finally to address the issue of the instabilities that this R&D option-generating strategy might introduce. We must ask about the consequences of the adverse strategic balance during the early 1980s, while the conventional and theater nuclear balances in NATO continue to be unfavorable to the West. What kinds of risks do we run, and need we fear a Soviet-initiated major conflict timed to take advantage of that period of inferiority?

At one time, our perception of Soviet aims was of the legendary "gnome in the Kremlin basement" who performed his nuclear exchange calculations each morning, just waiting for the day he could show enough destruction of U.S. forces to limit the U.S. retaliatory damage to an "acceptable" level—at which point he would attack. In many respects, our analytic calculations of outcomes of nuclear conflict scenarios initiated by a surprise Soviet attack against unalerted U.S. forces are an artifact of that perspective. But we know better; the Soviet leadership has distinctly political aims and a very pragmatic, risk-averse approach to

[7]They may well already embrace this idea, which is quite consistent with the concept of preemption and of seizing the initiative. The Soviet leadership has from time to time made public that they *might* do so.

major conflict. A modest degree of U.S. inferiority, even at all three levels, is unlikely to tempt the Soviets to initiate major nuclear conflict. The risks and uncertainties of conflict outcomes will ensure that the prospective costs look enormous against the potential gains.

If deliberate surprise attack based on a gain vs. loss calculus seems highly unlikely, are there other contingencies that might lead to major conflict? Some observers have suggested restiveness and potential loss of control over Eastern European affairs might lead to a conflict decision. Others suggest a Soviet leadership so concerned by the future consequences of improved U.S.-Chinese relations that they might be tempted to take preemptive action before CPR military modernization can raise the costs. Still others foresee a Soviet leadership so beset by internal economic problems that the only solution is an expansion of hegemony even if that should lead directly to major conflict with the West. None of these prospects seems a credible enough threat in the early 1980s to warrant the efforts that some analysts have proposed, to develop interim strategic capabilities of limited (or dubious) effectiveness at substantial cost. The costs of major conflict are likely to loom larger to the Soviet leadership, particularly as they seem to view the correlation of forces as moving in their favor already. The U.S. problem is to compete more effectively while continuing arms control negotiations.

The problems of a degree of inferiority at the "major balance" levels will probably be more keenly felt in terms of events in the third world and upon the political will and cohesion of our allies. Opportunities for Soviet mischief will continue to arise, and they may perceive the risks to be lessened by their military preponderance. Of course, Soviet influence has already been seen—in increasing intensity—from Angola to Afghanistan over the past few years, so that is scarcely new. But events in the Middle East or trouble-spots elsewhere may generate new and more serious Soviet-inspired challenges. Nonetheless, both sides have strong incentives not to resort to nuclear conflict.

Of perhaps greater concern is the possibility in time of crisis of blundering and overreaction to some sequence of events that, misinterpreted all around, escalates out of control before it can be stopped. In a world where one side believes in seizing the initiative promptly—perhaps to the point of preemption—and the other is concerned about potential vulnerabilities of its forces—perhaps to the point of contemplating launch on warning—a conjunction of forces may lead to hasty decisions based on fragmentary information.

POLITICAL ACCEPTABILITY OF THE PROPOSED STRATEGY

Does a strategic R&D options-generating strategy have a degree of political appeal? Again, this is difficult to answer. At least some part of the concern about the proposed SALT II treaty stems from the view that our negotiating strategy has not been an integral part of an overall planning concept that also incorporates strategic policy and doctrine and force planning decisions. To the extent this approach better integrates these disparate activities, that may generate some support. The strategy addresses the current "missing link" of leverages and incentives for the next round of negotiations. From an executive branch perspective, the R&D programs envisioned are a fairly small budgetary add-on and, if the strategy should succeed in lowering SALT ceilings, might well lead to lower overall strategic investment costs than will be necessary under SALT II. However, both the counterforce thrust of the proposals and the rather firmer, goal-oriented, results-driven negotiating challenge to the Soviet leadership appear somewhat out of character to the administration's thinking.

The legislature, soon to be faced with the ratification decision on SALT II, again would have a mixed perspective. Many conservatives mistrust SALT as a process and are concerned that the United States has not been competing effectively either in bilateral negotiations or in our own unilateral strategic plans and programs. Although 34 Senators can deny ratifica-

tion, to bring about positive actions with respect to unilateral U.S. strategic programs aimed at redressing the unfavorable military balances requires at least a majority. After all, merely rejecting the SALT II treaty does nothing to solve our strategic problems. The strategy outlined above lays the groundwork for a variety of improved military capabilities, some of which are clearly tied to the success or failure of the next round of arms control negotiations, and the decision-point is linked to U.S. deployment schedules. Conservatives are seeking a prompt decision on the M-X basing system, largely as a token of U.S. commitment to redress its strategic problems. But choice of basing mode *now* is unnecessary to maintain the 1986 IOC, and it may be premature unless the threat can be better defined. Besides that, there is no way to secure an "irrevocable commitment" to major new strategic weapon systems development programs. Increased defense spending can better be used in areas related to readiness and power projection, while we develop a broader menu of strategic options.

For liberals, disappointment is already evident at the size of the permitted ceilings and the minimal reductions in strategic arms that many years of negotiating effort were able to bring about, and there is already suspicion that the price of ratification will be a major commitment to new armaments programs. Although many liberals will be distressed at the counterforce emphasis of the suggested strategy, that strategy is intended to bring about lower ceilings, an outcome they certainly support. If the Soviets cooperate, it may not require deployment of many of the strategic R&D items that are useful to provide negotiating leverage. Recall that the B-1 decision was taken without any Soviet concession; not all R&D items need be or would be committed to production.

In sum, SALT II probably will not by itself or in concert with current U.S. unilateral actions redress our major strategic problems. At least one construct of SALT III, consistent with the president's announced objective, could offer some prospect, through lower ceilings and more explicit limitations on missiles, of permitting U.S. unilateral actions to redress the strategic balance. The major issue is to develop a strategy that offers some prospect of reaching that kind of agreement with the Soviet Union under SALT III. The suggested approach is to pursue an option-generating R&D strategy. The strategy outlined in the report is consistent with the set of constraints imposed by the current realities, does minimal violence to budgetary and planning processes, provides a large measure of flexibility in terms of future posture alternatives, is compatible (at least to the point of deployment decisions) with the provisions of SALT II, need not be inconsistent with most outcomes of the ongoing U.S. strategic policy and doctrine reassessment, and will probably generate some much needed leverage for SALT III negotiations. The strategy runs some risks and incurs some costs, but the prospective gains of a SALT III agreement seem commensurate with the risks. The issue is whether or not the U.S. political system can do a better job of *competing while cooperating* with the Soviet Union, rather than merely switching intermittently from one course to the other.

Appendix A
CAPABILITY BALANCES AND TRENDS

Has the Soviet defense spending margin led to relative growth of capabilities? The answer is "yes," in the judgment of the Secretary of Defense:

> I must stress that the gap between U.S. and Soviet defense expenditures cannot continue to expand without a dangerous tilt in the relevant balances of power and a weakening of the overall U.S. deterrent. The United States is certainly more ingenious and efficient than the Soviet Union. It is not so much more ingenious and efficient that it can, without increased budgets, make up for increasing disparities between the two defense efforts.[1]

and the Chairman of the Joint Chiefs of Staff:

> However we assess the balance today, there can be little doubt that it has shifted adversely, that the margin of U.S. military capability relative to that of the Soviet Union is narrower today than it has ever been, and that these trends are continuing.[2]

In sum, whatever the relevant efficiencies with which both sides have converted their inputs to outputs, the result has been that the adverse trends "have edged us another year closer to a potentially unstable and acutely dangerous imbalance in U.S.-USSR military capability."[3] Of course, the emphasis in these statements is on the implications of the trends and not on today's precise balance. Both the Secretary of Defense and the Chairman of the Joint Chiefs of Staff see the situation today as adequate:

> I see no grounds for believing that today—and I emphasize today—we have fallen into an unacceptable military posture.[4]

> I would not swap our present military capability with that of the Soviet Union, nor would I want to trade the broader problems each country faces.[5]

Nor would one really expect the top civilian and military decisionmakers to suggest otherwise. General Jones, new to his chairmanship this year and perhaps less constrained by the weight of past pronouncements, devotes somewhat more attention in his introduction to the implications and consequences of the trends. After acknowledging that an element of gamesmanship is widely believed to have entered the posture statements and hearings of previous years—"current capability adequate, but trends bad and future gloomy"—he observes:

> Regrettably, the record shows that we have tended to *underestimate* Soviet forces and programs far more often than we have overestimated them and, while we have been preoccupied with other issues and hoping for reciprocity for U.S. weapons restraint, that "ominous" future *has* been getting steadily nearer. Its outlines are now beginning

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[1] *Fiscal Year 1980 Defense Report* . . . , p. 17.
[2] *Fiscal Year 1980 Military Posture*, p. v.
[3] Ibid., p. iii.
[4] *Fiscal Year 1980 Defense Report* . . . , p. 17.
[5] *Fiscal Year 1980 Military Posture* . . . , p. vii.

> to come into sharp focus and, as the senior U.S. military officer, I must express my serious concerns with the picture I see.[6]

He later adds:

> I believe the days ahead may well be some of the most difficult we have ever faced. With each passing month I grow increasingly apprehensive about the severity of the challenges ahead and about the direction, pace, and strength of our responses in some critical areas.[7]

Nor are these views confined to senior defense officials and the military; in a recent speech, Senator Sam Nunn, a member of the Armed Services Committee and widely regarded as one of the more knowledgeable legislators on defense and national security issues, characterized the state of the balances as follows:

> It is readily apparent, however, that present trends are adverse. If they are permitted to continue, our remaining advantages will disappear and the security of the United States and its allies will be jeopardized in the 1980s. In the space of little more than 15 years, the United States has moved from a position of overall military superiority to a position that can perhaps best be characterized as "clinging parity."[8]

Below we turn to a somewhat more focused appraisal of balances and trends; first the conventional and nuclear NATO balance and then the strategic nuclear balance.

THE NATO/WARSAW PACT BALANCE

NATO's defense policy is one of deterrence of attack through the reliance on a "NATO Triad," comprising conventional defense capabilities, theater nuclear capabilities (both U.S. and Allied), and U.S. strategic nuclear forces. The stated defense strategy has been one of conventional defense initially, with resort to theater nuclear capabilities "at a time and in a manner of our (NATO's) choosing" should NATO's conventional defenses prove inadequate, and with the inherent risks of escalation to the strategic nuclear level as the "ultimate deterrent." In the early years of NATO, while the United States enjoyed superiority in both theater/tactical and strategic nuclear capabilities, NATO's conventional capabilities were such that the "conventional defense" phase was more nearly a "tripwire" defense wired to threats of nuclear response. The growth of Warsaw Pact theater nuclear capabilities[9] (along with continued increases in its conventional force capabilities) concentrated NATO attention on conventional defenses and led to some buildup of NATO's conventional capabilities. But heavy reliance was still placed on nuclear, especially U.S. strategic nuclear capabilities. More recently, as the margin of U.S. strategic nuclear superiority has been overtaken by the Soviets, leaving us in a situation of parity or rough equivalence, concern and action by the Alliance to redress conventional defense capabilities has been evident, culminating in a NATO Summit meeting in which all parties pledged themselves to increase their defense spending by at least 3 percent in real terms. This has, of course, both symbolic and real significance—symbolic in that all of the Alliance members have made their commitment, in marked contrast to the customary dissonance and discord with which collective military security decisions in the past have been met, and *real* in that the decision to invest more in

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[6]Ibid., p. iii (emphasis in original text).
[7]Ibid.
[8]Address to National Chamber of Commerce, Washington, D.C., April 30, 1979.
[9]Predominantly Soviet nuclear capabilities, but with some launch systems (but apparently not weapons) also in the hands of selected non-Soviet Warsaw Pact units.

defense is none too soon and none too much. Although one may question the magnitude of the response, there is no doubt about the direction.

Scarcely two years ago, a report by Senators Sam Nunn and the late Dewey F. Bartlett to the Senate Armed Services Committee began with the following paragraphs:

> It is the central thesis of this report that the Soviet Union and its Eastern European allies are rapidly moving toward a decisive conventional military superiority over NATO. This trend is the result of NATO's failure so far to modernize and maintain its conventional forces in response to the Warsaw Pact's buildup and modernization of conventional forces.
>
> In an era of nuclear parity between the United States and Soviet Union, the importance of a capability to wage war successfully below the nuclear threshold has mushroomed because of the declining credibility of nuclear responses to nonnuclear aggression.
>
> The viability of current NATO force posture in Europe and perhaps even NATO's strategy of flexible response and forward defense is questionable. There now exists a disparity between the Alliance's declared strategy and the ability of NATO forces to implement this strategy.[10]

NATO's military strategy is constrained by political considerations to one of forward defense, intended to minimize the amount of NATO territory lost before an initial attack could be halted. This form of defense is most demanding, in terms of requirements for firepower, mobility, and command and control. Because the Warsaw Pact enjoys the initiative as to time and place of its attack, it can concentrate forces at selected points along the line to try to achieve one or more breakthroughs. Thus NATO's defensive strategy requires both linearly deployed firepower well forward (or capable of rapid movement to forward positions) and adequate reserves—in terms of numbers, mobility, and firepower—to cope with breakthroughs of the linear forward defenses, should they occur.

The frontier in the central region of NATO is segmented into a number of areas of member-nation responsibility, largely patterned along the lines of post-World War II administrative responsibilities. This results in some maldeployment of resources: The U.S. forces in CENTAG, with better firepower and mobility capability, have the added defensive advantage of rugged terrain; but the less well-equipped and less numerous British, Belgian, and Dutch forces of NORTHAG (some of whom do not occupy forward positions in peacetime) defend terrain much more suited to rapid armored and mechanized thrusts by the Pact. To alleviate this imbalance, one U.S. armored brigade was moved from CENTAG to NORTHAG last year.

We need devote no space here to an enumeration of the static balances of weapons and men; suffice it to say that:

> The Soviet Union enjoys numerical superiority in nearly all categories of systems; they have considerably more tanks, artillery, air defense, and tactical aircraft.[11]

Against that, NATO has the recognized (at least since Clausewitz) advantage of the defender, which, in some respects, can offset an attacker's quantitative advantage. Moreover, if a general mobilization (without conflict) of some months' duration by both the Warsaw Pact and NATO were to occur, the Alliance can bring to bear enough incremental military capability to provide a highly credible conventional defense. The problem is, as the Secretary of

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[10] *NATO and the New Soviet Threat*, Report of Senator Sam Nunn and Senator Dewey F. Bartlett to the Committee on Armed Services, U.S. Senate, January 24, 1977, p. 1.

[11] *Fiscal Year 1980 Military Posture* . . . , p. 11.

Defense graphically observes:

> For some years the Soviets have stressed in their military doctrine the advantages of short preparation times, tactical surprise (preceded by cover and deception), mass, concentrated firepower and shock to break through the enemy's defenses, and rapid movement to exploit the breakthroughs. With each passing year, their capability to conduct this modern form of blitzkrieg has come closer to matching their doctrine. Large quantities of self-propelled artillery and tanks, the BMP armored fighting vehicle, river-bridging equipment, organic and mobile air defenses, and their newer aircraft with a deep-strike mission give them much of the capability for rapid offensive action. In addition, their ability to move their forces speedily into position for an attack is now estimated to be greater than we had previously thought.[12]

NATO has also tended to rely on its presumptive qualitative advantages in deployed weapons sytems. And, indeed, NATO still enjoys some qualitative advantages although the differential has narrowed:

> Some NATO systems are superior to the best Soviet systems, especially in tactical air, antitank, and sophisticated munitions. But Soviet forces generally, and to some extent non-Soviet Warsaw Pact forces, have sufficient modern equipment in depth—not merely a few items in a few key units.[13]

In other cases, the reverse is true. In a recent speech, General Bernard W. Rogers, formerly the Army Chief of Staff and recently nominated to replace General Alexander Haig as the Supreme Allied Commander, Europe, described the Soviet T-72 tanks, infantry fighting vehicles, long-range artillery, air defense weapons, attack helicopters, and electronic and chemical warfare systems as "the most advanced in the world," and noted that it would be "several years" before comparable systems were in the hands of U.S. troops on the line in NATO.[14]

Other NATO deficiencies or areas of concern—many longstanding—noted in the posture statements include: reinforcement and mobilization capabilities (especially the sea and air links to the United States); the lack of interoperability and cross-national support for both weapons systems and elements of command and control; a shortage of war reserve stocks, logistics support, and some categories of munitions, especially if consumption rates are high; and lesser chemical warfare capabilities, offensive and defensive. Another disparity arises because Warsaw Pact doctrine calls for (and its forces practice) continuous combat, even at night. Many NATO capabilities are degraded both at night and by adverse weather. Finally (for this report, as the listing of problem areas could be much further extended):

> Our existing theater and field army defense would probably be inadequate against the newer Soviet aircraft. The unsheltered portion of our aircraft, our airfields and stocks of equipment and supplies, and the nuclear element of NATO's forces could, under current conditions, be excessively vulnerable to attacks by the newer Soviet deep penetration aircraft.[15]

Let us now seek to summarize the conventional balance in NATO, both as it exists today and the prospects over the next few years. We begin with the summary views of the Secretary of Defense:

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[12] Fiscal *Year 1980 Defense Report* . . . . , pp. 100-101.
[13] *Fiscal Year 1980 Military Posture* . . . , p. 11.
[14] Speech by General Rogers to George C. Marshall ROTC Award Conference, Lexington, Va., April 20, 1979; reported in *Aerospace Daily*, April 24, 1979, p. 271.
[15] *Fiscal Year 1980 Defense Report* . . . , p. 102.

> At a rough estimate, the Alliance has actually bought and paid for most of what is needed to give that defense a high probability of success even against the largest attacks the Pact could launch without extensive . . . mobilization. . . . The difficulty of the Alliance is that it has simply not kept pace with the improvements made in the readiness and combat effectiveness of Soviet forces, particularly in the GSFG. We could not be any more sure of stopping quick attacks than the Soviet marshals could be confident of breaking through NATO's defenses. While I do not consider the balance a comfortable one, neither is it so discouraging as to paralyze our will to improve it.[16]

and the Chairman of the Joint Chiefs of Staff:

> In conclusion, a favorable outcome of a war in Europe . . . is not assured. The defensive margin is thin. The balance is not such, however, that Warsaw Pact forces can be assured of success either. Costs of an attack on Western Europe are likely to be high, and are probably so perceived.[17]

With regard to the Secretary of Defense's statement, it must surely be an objective of the Alliance that it be able at some future date to assert that NATO's leaders are *more confident* of NATO's ability to stop a sudden attack than the Soviet marshals could be about a quick defeat of NATO by conventional attack.[18]

The Alliance has not come to this rather perilous state of affairs either as the result of some massive failure of intelligence to accurately portray the Warsaw Pact threat with sufficient lead-time for the Alliance to respond, or as the result of some extraordinary short-run surge by the Pact to massively augment its capabilities. The Pact has simply:

> For years continued to out-man, out-gun, out-build, and out-deploy us in most meaningful military categories, all the while shortening our qualitative lead in many important areas.[19]

That being the case, the Alliance will not be made well either quickly or cheaply, even with a 3 percent per year real defense increase from all the Alliance's partners.

The magnitude of the task can perhaps be appreciated by reference to a current European best-seller—*The Third World War—August 1985*,[20] an exercise in "future history" performed for us by an impressive cast of high-ranking NATO generals and advisors, and principally written and edited by General Sir John Hackett, former commander of the British Army of the Rhine. The postulated 1985 NATO conventional defenses—greatly strengthened from those of today—are barely able to stop a Warsaw Pact attack short of the Rhine and major population centers in CENTAG and with the loss of only Northern Germany, Denmark, and the Netherlands north of the Rhine River estuary.

Comforting though that outcome may be, a *Newsweek* article reviewing the book[21] describes a more checkered future history. In the first six draft scenarios of "World War III," NATO *lost;* but Sir John was prevailed upon by various NATO colleagues and former colleagues to take another tack, on the grounds that "The somber conclusions . . . might do **'irreparable harm.'** "[22]

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[16] Ibid., pp. 101-102.
[17] *Fiscal Year 1980 Military Posture* . . . , p. 14.
[18] "We could not be any more sure . . ." is an ambiguous phrasing that does *not* rule out the more restrictive case "we could be (are?) *less* sure."
[19] *Fiscal Year 1980 Military Posture* . . . , p. v.
[20] Macmillan Publishing Co., Inc., New York, 1979.
[21] *Newsweek*, March 19, 1979, p. 55.
[22] Ibid.

Hence, the "seventh" scenario, with the Alliance triumphant. The *Newsweek* article further quotes Sir John as describing the book as "a cautionary tale" because of the hypothetical extensive strengthening of NATO defenses in the early 1980s, and adding:

> Invasion from a standing start in the late seventies . . . would almost certainly have brought the Russians to the Rhine in a very few days—unless NATO employed nuclear weapons.[23]

That leads us to the second aspect of NATO defense—the balance of capabilities at the theater nuclear level, to wh h a war in Europe might escalate if conventional defense were failing. As the Secretary of Defense notes:

> Our theater nuclear forces do not constitute a full-fledged and independent capability. They are, for the most part, organic to the general purpose forces. The longer range systems are integrated in targeting with the central strategic forces, many of which are programmed against theater targets.[24]

As to resources available:

> Of the nuclear weapons allocated to tactical use, about 7,000 are in the European theater. In addition, a significant number of POSEIDON RVs are formally committed to NATO, as well as the considerable nuclear capability of our aircraft carriers and other naval vessels.[25]

Their purpose is twofold:

> While theater nuclear capabilities are no substitute for non-nuclear capabilities, they have critical symbolic and deterrent functions of their own. These capabilities permit us to exercise nuclear options without immediately having to resort to strategic nuclear forces. At the same time, by increasing the risk of escalation, they link the theater with the U.S. strategic nuclear forces.[26]

But there are some pressing problems with regard to NATO's theater nuclear force (TNF) capabilities.

> For our forces to serve their deterrent functions, not only must we give them options suitable to their tactical missions . . . ; we must also be able to enhance their survivability and ensure their capabilities for target acquisition and command-control-communications.[27]

> Today, however, the NATO TNF is becoming obsolescent; considerable modernization, upgrade and replacement are needed. The increased size, strength, capability and mobility of Soviet forces, conventional and theater nuclear, make improvement in the NATO TNF a prudent priority task.[28]

We need not recount here the on-again/off-again history of the decision to acquire or not

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[23] Ibid., as quoted.
[24] *Fiscal Year 1980 Defense Report* . . . , p. 82.
[25] Ibid. Despite the formal commitment of these U.S. SLBM RVs to NATO, and therefore their "proper" designation as a part of our forward-bases systems, the SLBMs will count under the strategic ceilings imposed by the SALT II treaty. This is in contrast to the treatment of Soviet systems (such as BACKFIRE), which, despite the capability to conduct intercontinental attack missions, are not counted as strategic.
[26] Ibid., p. 84.
[27] Ibid., p. 86.
[28] *Fiscal Year 1980 Military Posture* . . . , p. 10.

the enhanced radiation warhead as an integral part of NATO's theater nuclear force modernization. Although the United States and NATO "consider options," "identify needs," and have "programs in development," the Soviet Union is *deploying* new capabilities. As General Alexander Haig, former Supreme Allied Commander, Europe, noted, the modernization of the theater nuclear forces was one of his three main concerns:

> It gives me no comfort today as I increasingly recognize the consequences of our failure to take courageous action in the decade of the 1960s, when in the wake of the Cuban missile crisis, the United States unilaterally withdrew its ground-based rocket systems from NATO Europe. Indeed, it is that fact, that unilateral restraint, which looks all the more ludicrous today as we observe corresponding Soviet actions, which include a systematic buildup and thickening of all the nuclear systems under their command and control—Frogs, Scuds, Scaleboards—and most importantly, in the longer range and intermediate range systems, the development and deployment this year of the SS-20 and the Backfire bomber.[29]

A recent newspaper article suggested that still newer Soviet theater nuclear systems are being introduced.[30]

The Chairman of the Joint Chiefs of Staff, in the introduction to his more detailed statement, says flatly:

> The former clear-cut U.S. lead in theater nuclear capabilities has been overtaken by the Soviets. The implications of this vanished edge could become particularly serious in a NATO context.[31]

The Secretary of Defense notes that the Soviets might be seeking to develop a first-strike capability either with theater nuclear or with new conventional aircraft delivery capabilities, and concludes:

> U.S. and NATO strategy allows for a possible NATO first use of nuclear weapons, if that should prove essential. But the Soviets might preempt us.[32]

Indeed, that may be the cutting issue: Given both the problems of survivability of the delivery systems and the rather cumbersome political consultations that must inevitably attend any Alliance nuclear release decision, and given the recent disclosures of highly placed Warsaw Pact agents in West Germany/NATO councils, are the Soviets not likely to have timely warning of NATO release deliberations and thereby be tempted to preempt?

In summary, the balances in NATO, both conventional and nuclear, are less robust than the Alliance might wish, or can accept in the long haul. Improvements to the balances will be neither quick nor cheap; moreover, the pace of Soviet activities suggests that, like Alice and the Red Queen, the Alliance must run faster just to stay in place. Within that wide band of uncertainty of conflict outcomes that make assessment of force capabilities difficult, NATO seems closer to the lower end of the range, overly reliant on pessimistic Soviet assessments of the inherent risks of escalation and of the confidence they could have in achieving rapid victory, buttressed of course by the natural incentives on both sides to prefer peace to war—at least until some major crisis disturbs that norm.

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[29]Remarks by General Haig quoted in *Aviation Week and Space Technology*, 16 April 1979, p. 19; General Haig's other two "main concerns" were the disarray on the southern flank of NATO and the consequences for the alliance of Soviet actions in the Middle East, Africa, and elsewhere.

[30]*New York Times* article by Richard Burt, 24 April 1979, p. 1; the article alleges that at least one—the SS-21—of these new short-range nuclear missiles has already been deployed with Soviet forces in East Germany.

[31]*Fiscal Year 1980 Military Posture* . . . , p. vi.

[32]*Fiscal Year 1980 Defense Report* . . . , p. 86.

In light of this less than comforting assessment, we need next review the state of the balance at the "third level" of the NATO Triad—the strategic nuclear forces—to determine what added deterrent contribution they may offer. That strategic umbrella the Alliance has had at hand in case of stormy weather may now be called upon to provide *more* deterrent protection just when many believe the deterrent margin is shrinking.

THE STRATEGIC FORCES BALANCE

We need devote less space to assessments of the strategic nuclear balance because aspects of it are examined in somewhat more detail in the text and because defense officials' strategic assessments are more clear-cut than their assessments for NATO. After the obligatory restatement of the adequacy of the balance today, the Secretary of Defense notes:

> Unfortunately, longer-term stability is not fully assured, and the future competition in strategic capabilities is likely to become more dynamic than need be the case. As I pointed out last year, the main impulse for the dynamism comes from the Soviet Union in the form of a large ICBM force with an expanding hard-target-kill capability, a much-publicized civil defense effort, and the likelihood of significantly upgraded air defense capabilities.[33]

General Jones, Chairman of the Joint Chiefs of Staff, puts it even more bluntly:

> It is now generally accepted by most defense analysts that, regardless of U.S. actions, Soviet strategic capability will increase relative to that of the U.S. throughout the mid-1980s, with or without a SALT agreement.[34]

And the Secretary of Defense, in the more detailed section of the posture statement dealing with the balance of strategic forces, after presenting a set of figures portraying "relative force size" at various points in a strategic exchange, summarizes their implications as follows:

> The increasing vulnerability of our ICBMs means that by 1982 the balance calculated to result after a Soviet first strike and a U.S. retaliation would be less favorable than we would wish, though remaining U.S. forces would be enough to wreak enormous damage.[35]

Following that low point in 1982, we are told that programmed improvements to both the SLBM forces (entry into service of the Trident class of missile-carrying submarine) and the bomber forces (introduction of the air-launched cruise missile (ALCM) aboard the B-52 force) will begin to redress the imbalance, and

> deployment of a new survivable ICBM will reverse it.[36]

Unfortunately, under current plans, deployment of M-X in some yet to be selected survivable basing mode will begin only in 1986, and it is unlikely to be completed much before 1990.

Worse yet, an important caveat to that already pessimistic trend assessment is included:

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[33] Ibid., p. 80.

[34] *Fiscal Year 1980 Military Posture* . . . , p. v.

[35] *Fiscal Year 1980 Defense Report* . . . , p. 116; indeed, *both* sides would retain the ability to wreak "enormous damage" on each other's societies.

[36] Ibid., p. 116.

> We should not lose sight of the fact that until survivable ICBMs are deployed, the relative outcome of these exchanges will be more sensitive to uncertainties associated with the possibility of attrition of SLBM and bomber forces being greater than expected, and to command and control uncertainties.[37]

How did we come to this state of affairs? After all, only a few short years ago, the posture statements contained both a list of prospective Soviet threats and an enumeration of timely U.S. counters:

- For the threat to Minuteman in the mid-to-late 1980s, the U.S. M-X missile in a (granted, not yet defined) survivable basing mode, to be available by the early 1980s.
- For the pre-launch threat to bombers posed by Soviet SLBMs and the penetration threat posed by improved mid-1980s Soviet air defenses, the B-1 bomber—quicker to take off from shorter runways, and harder to nuclear effects than the B-52—and for penetration of defenses, an advanced version of SRAM plus the ALCM, in addition to the lower radar signature, higher penetration speed, and improved ECM of the B-1s themselves.
- For the submarine forces, against which the threat was hard to define (its nature or its timing), a hedge in the Trident (C-4) missile that would greatly expand the on-station patrol area of our submarines. Also, as a replacement for the beginnings of the block-obsolescence of the existing Polaris/Poseidon force, a new submarine, also called Trident.

But, in the interim, the B-1 and improved SRAM have been canceled and the M-X repeatedly delayed; the Trident program has also been delayed, but by development and production problems rather than by the actions of decisionmakers. Also in the interim, we have badly misjudged the rate of technical progress by the Soviets:

> The Soviets are now estimated to be introducing new missiles with more warheads and improving the accuracy of their warheads more rapidly than we had expected a year ago.[38]

with the result that

> Analysis of intelligence data on new versions of the SS-18 and SS-19 missiles indicates that by the early 1980s a substantial threat to our MINUTEMAN will exist.[39]

Likewise, with regard to the improved bomber forces, now reduced to the addition of ALCMs to the aging B-52 force, this year's posture statement reviews a catalog of threats under development—an AWACS aircraft, interceptors with look-down/shoot-down detection and attack capabilities, and a new surface-to-air-missile, the SA-X-10, for intercepting low-altitude targets. The timing of these threats, formerly a "mid-1980s threat," is now estimated as follows:

> Such an AWACS aircraft is unlikely to become operational even in small numbers before 1982, although a look-down/shoot-down fighter with a capability against bombers and fighters could begin to enter the force in 1981.[40]

But the timing of our remaining counter—the ALCM—is given as follows:

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[37] Ibid.
[38] Ibid.
[39] Ibid.
[40] Ibid., p. 73.

> To make this ALCM program consistent with the usual definition of initial operational capability (IOC), we have changed the date of IOC from September 1981 with one *aircraft* loaded with cruise missiles to December 1982 with one *squadron* of B-52s (16 U.E.) loaded with external cruise missiles.[41]

Moreover, with regard to the pre-launch survivability problem for the bomber force, little has been done (and most of that negative). In the early 1970s SAC bombers stood alert on 29 main operating bases and 13 satellite bases. Since then all of the satellite bases have been abandoned and several main operating bases closed—all for economy reasons; for the same reason, the alert rate has been reduced. Thus far, the Soviets have chosen to impose a modest threat to this posture; Soviet submarines have tended to operate well off shore from the U.S. coasts, and they have not demonstrated the once-feared depressed-trajectory SLBM that would further reduce bomber reaction times to escape from their bases. Both could change quickly.

Those straitened circumstances have also affected SAC's ability to hold a highly generated condition for an extended time should a prolonged crisis ensue. Deficiencies in material, skilled manpower, and numbers of alert locations are not readily correctable on short notice. Indeed, in view of the declining survivability of ICBM RVs, a compensation would be to go back to increased bomber alert rates.

This may be all the more attractive if, as the posture statements seem to imply, some reductions in the availability of SLBM warheads will occur during the early 1980s, as part of the phasing in of new systems. According to the posture statement, the first Trident submarine will begin operations in 1981 in the Pacific from a new base at Bangor, Washington, at which time the ten oldest Polaris submarines will be retired. The Trident will carry 24 missiles without MIRVs, so at first glance the numbers of RVs seems comparable. But, of course, the Trident is only one boat and will not be at sea continuously. Similarly, a total of 12 Poseidon submarines are to be retrofitted with the longer-range Trident missile, replacing the Poseidon missile (both are MIRVed). But the Trident-equipped boats

> will operate from a refit site at King's Bay, Georgia, that will be activated with the planned withdrawal from the POSEIDON refit site at Rota, Spain, in the spring of 1979.[42]

The first Trident-equipped Poseidon was scheduled to go on patrol in October 1979, so there is at least some interval in the early 1980s during which (a) some Poseidon submarines will be out of service for retrofitting, and (b) the force still equipped with Polaris missiles will have to operate from a location other than Rota, thereby reducing their on-station time. Of course, as both the Trident-backfitting into Poseidon submarines and more of the Trident submarines come on line, the weapons available in the submarine leg of the Triad will increase substantially; but that does not help during the critical early 1980s period, when Minuteman will be vulnerable and the introduction of ALCMs will be "playing tag" with the introduction of improved Soviet air defenses.

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[41] Ibid., p. 123.
[42] Ibid., p. 121.

Appendix B
INPUT MEASURES: MILITARY EXPENDITURE RATES AND TRENDS[1]

Military expenditures (ME) cannot be used as a measure of national security or even military security for several reasons. Those concepts embody many other factors besides the development, sustenance, and capability of military forces; ME measures inputs to force potential, not outputs; and the efficiency with which ME is transformed into relevant outputs may differ among services, weapons systems, and countries. At best, then, ME is a gross indicator of military force potential, but it is not without merit:

> Relative defense spending, annual or cumulative, is the best single crude measure of relative military capabilities, if efficiencies are not too different. And in *military* matters, Soviet and U.S. efficiencies are not so far apart as in the civilian sector.[2]

Estimates of Soviet ME are useful in several measures: comparative U.S./USSR ME, rates of growth of ME, and percentage of GNP that ME represents. The CIA makes estimates of ME using a "building-block" approach, calculating in effect the costs in dollars the United States would incur to replicate discrete elements of the Soviet military establishment. Obviously, because relative factor prices are different between the United States and the Soviet Union, an element of bias enters these comparisons (and would also be present were we to price elements of the U.S. defense establishment in rubles).[3] Nonetheless, the comparisons, particularly those emphasizing trends over time or disparities over a number of years, provide useful insights into the relative efforts on national defense.

The dollar value of Soviet activities, net of military pensions, currently exceeds comparable U.S. expenditures by about 45 percent;[4] the comparable valuation of U.S. military activities in rubles—a valuation that is inherently more uncertain—shows an estimated Soviet margin of 25 percent. Thus, whether valued in dollars or rubles, the current Soviet expenditure margin over U.S. expenditures is substantial. Nor is this a recent phenomenon, as a glance at the following figures will confirm.[5]

Figure 1 displays the magnitudes and trends over time for the estimates of expenditures for military forces net of RDT&E (upper bars) and for RDT&E (lower bars) in constant 1978 dollars.

As is evident, the Soviet trend over time is one of steady growth; the U.S. figures show an abrupt downturn after Vietnam. Note also the trends in RDT&E shown in the lower part of Fig. 1; both the pattern (Soviet growth, U.S. decline and leveling off) and the disparity in size over the last several years are worrisome, as will be discussed below.

Figure 2 displays two sets of graphs—the left-hand column shows dollar amounts and the

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[1]This section draws heavily on previous Rand work reported in A. J. Alexander, A. S. Becker, and W. E. Hoehn, Jr., *The Significance of Divergent U.S.-USSR Military Expenditure*, The Rand Corporation, N-1000-AF, February 1979.

[2]*Fiscal Year 1980 Defense Report* . . . , p. 5.

[3]That is, Soviet forces rely heavily on conscripts for manpower and pay them accordingly; the United States uses volunteers paid at "civilian comparability" wages, so the resulting dollar cost attributed to Soviet military manpower is very high. Similarly, some U.S. high technology items would, if priced in rubles, be very costly for the Soviet defense establishment to produce.

[4]If *all* personnel costs are deleted from both U.S. and Soviet valuations, to eliminate all disparities associated with conscript-vs.-U.S.-volunteer pay rates, the USSR still outspends the United States by more than 25 percent.

[5]Figures 1 through 3 are drawn from data presented in *A Dollar Cost Comparison of Soviet and U.S. Defense Activities, 1968-78*, SR79-10004, National Foreign Assessment Center, Central Intelligence Agency, January 1979.

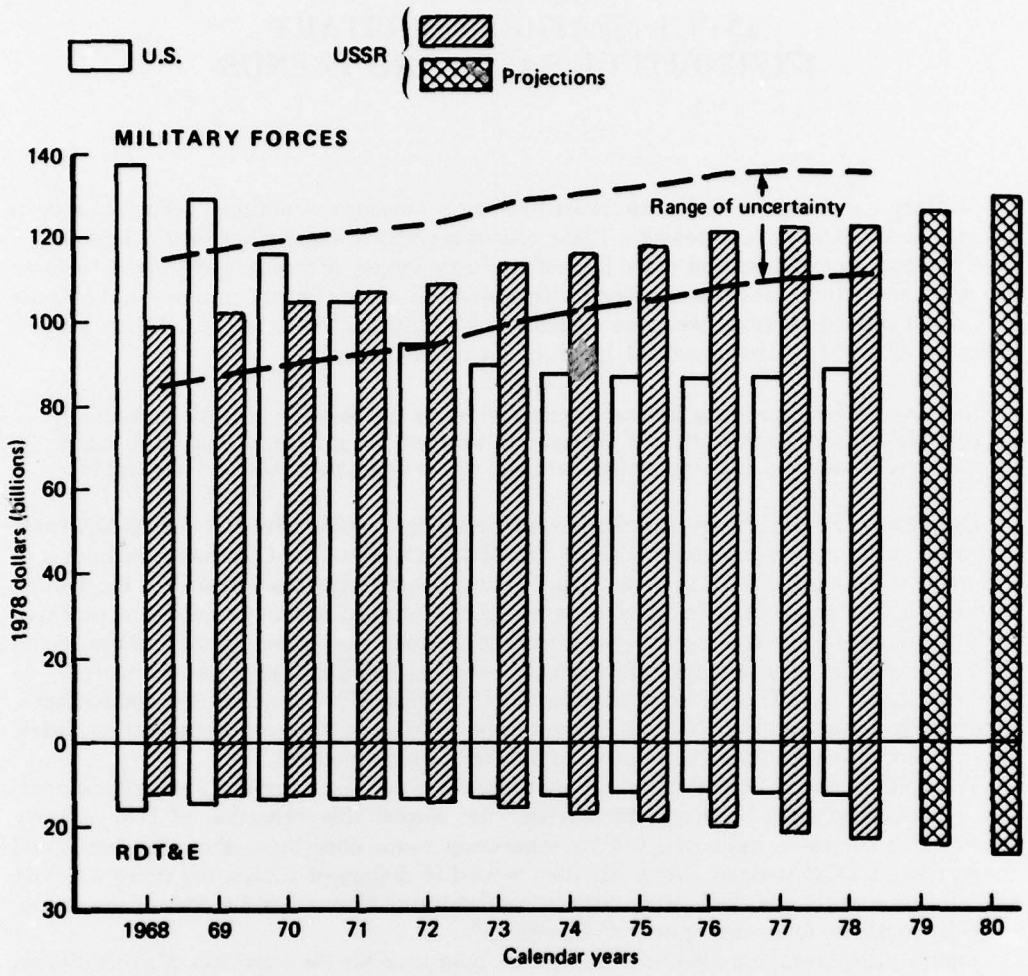

FIG. 1—TOTAL U.S. AND SOVIET DEFENSE ACTIVITIES

SOURCE: SR79-10004

right-hand column translates those dollar amounts and trends into percentage rates and trends, taking the U.S. spending as 100 percent—for strategic forces, general purpose forces, and support forces.

Over the decade, Soviet strategic forces activities measured in constant 1978 dollars averaged two and one-half times those of the United States; the ratio increased from roughly 2:1 in the Soviets' favor during the first half of the decade to roughly 3:1 in their favor over the latter half of the decade. This sharp relative increase begins immediately after the SALT I agreement entered into force and continues at the same high level today as we await the outcome of the SALT II ratification process.

For general purpose forces (GPF) the trends are similar, although the Soviet margin over the United States in this category averaged only 35 percent higher for the decade. However, the first half of the decade saw U.S. GPF expenditures trending sharply downward from the Vietnam peak; over the last half of the decade, the Soviet GPF total quite consistently exceeded the U.S. GPF total by 75 percent.

Only in the support forces category did U.S. spending exceed the estimated Soviet outlays, by about 35 percent for the decade. The U.S. margin diminished throughout the decade, however, and by 1978 U.S. and Soviet spending on this category were nearly equal.

An alternative to the mission-oriented categorization of military expenditures shown in Fig. 2 is to split the total expenditures along resource use lines—into operating expenditures (maintaining the readiness of existing weapons and facilities) and military investment expenditures (acquisition of new weapons and facilities). These data are displayed in Fig. 3, using the same format as Fig. 2 ("dollars" on the left, "percentage relative to U.S." on the right). The data on operating costs, the component most affected by the manpower costing distortions, show the familiar U.S. pattern of declining expenditures during the first half of the decade and stability over the latter half. The Soviet trend is steadily upward and is some 20 to 25 percent above the U.S. rate over the latter half of the decade.

A more striking gap is to be found in the investment category—the addition of new weapons and facilities to the existing stocks. The U.S. trend is again familiar; declining through the first half and stable (with a slight V-shaped trough) during the second half. The Soviet trend shows stability to about 1972, then a marked upward trend. During the last half of the decade, the Soviet investment rate exceeded that of the United States by a wide margin in percentage terms (nearly 75 percent over the period) and in absolute magnitude (nearly $100 billion over that span).[6] Although that investment difference may seem astonishing at first glance, no one who has read about new deployed Soviet weapons systems (four new ICBMs, the Backfire, SS-20, new missile submarines and SLBMs, new tanks, new armored combat fighting vehicles, the wholesale modernization of tactical air forces, new air defense systems, and the emergence of substantial surface naval capabilities) can be surprised that the sums the Soviets have invested have been enormous by any accounting.

The final resource category the CIA estimates is RDT&E, for which dollar-cost estimates of the Soviet aggregate are even more difficult:

> Estimates of the dollar cost of reproducing Soviet RDT&E activities are derived in the aggregate using a less certain methodology and are less reliable than the other estimates in this paper. Nonetheless, it is clear from the number and increasing complexity of the weapon systems that the Soviet activities were both large and growing during the period under review. U.S. outlays for RDT&E, on the other hand, declined steadily

[6]For some insight into the hardware implications of $100 billion in terms of current U.S. systems, see Alexander et al., N-1000-AF, Section III.

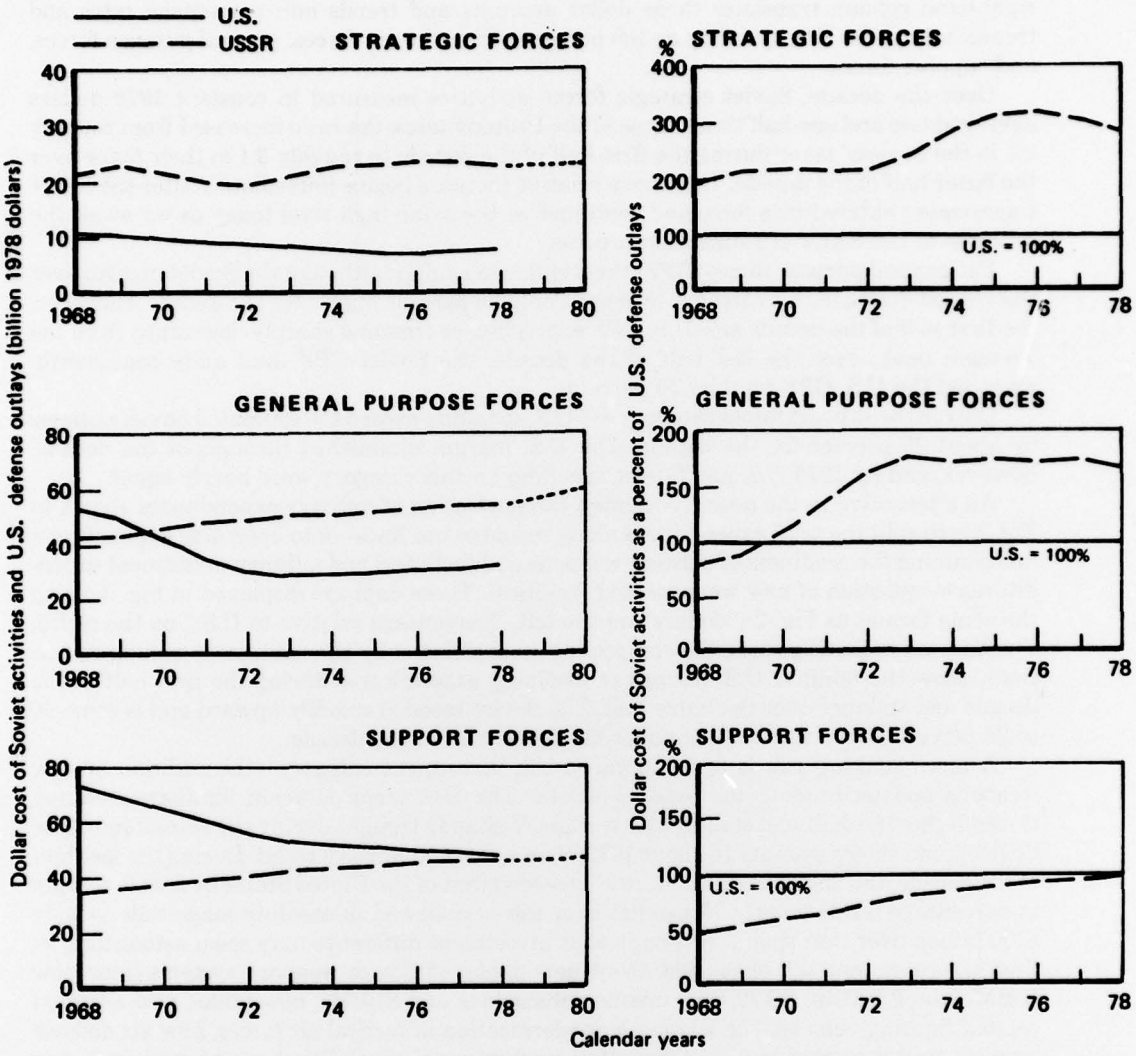

FIG. 2—U.S. AND SOVIET MAJOR MISSIONS*

*Scales vary
SOURCE: SR79-10004

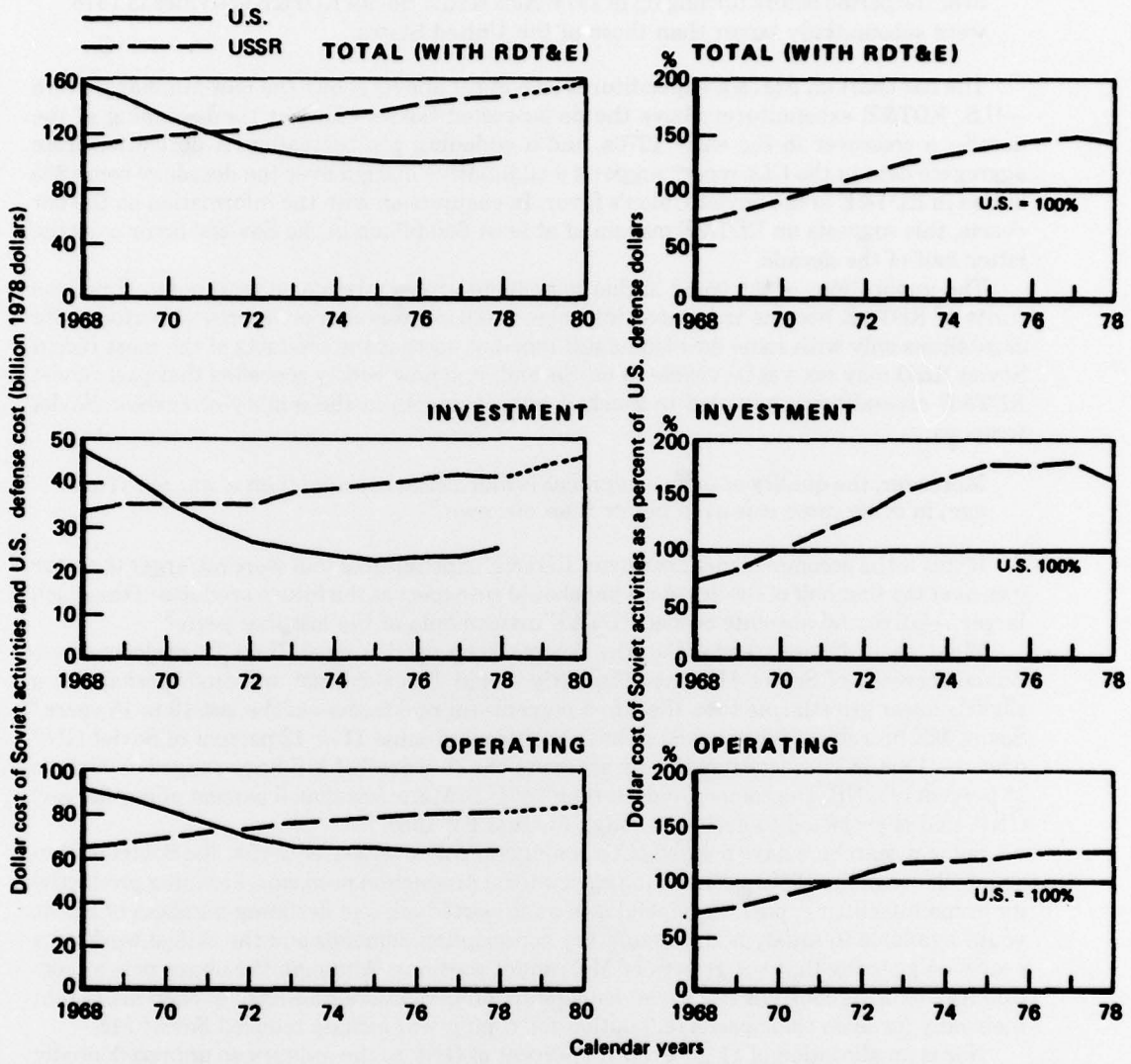

FIG. 3—U.S. AND SOVIET DEFENSE ACTIVITIES*

*Scales vary
SOURCE: SR79-10004

over the period before turning up in 1977. As a result, Soviet RDT&E activities in 1978 were substantially larger than those of the United States.[7]

The bar chart on RDT&E expenditures (see Fig. 1 above) shows the now-familiar pattern —U.S. RDT&E expenditures above the dollar-costed Soviet effort at the beginning of the decade, a crossover in the early 1970s, and a widening gap thereafter. A derivation from aggregate data in the CIA report suggests a cumulative margin over the decade of some $35 billion in RDT&E in the Soviet Union's favor. In conjunction with the information on the bar charts, this suggests an RDT&E margin of at least $40 billion in the Soviets' favor over the latter half of the decade.

The implications of the trend in this component are worrisome on two counts. First, the fruits of RDT&E become translated into new weapon programs or improved performance capabilities only with some developmental time-lag, so that the products of the most recent Soviet R&D may not yet be visible to us. Second, it is now widely conceded that past Soviet RDT&E expenditures have led to marked improvements in the quality of *current* Soviet weapons:

Moreover, the quality of their equipment is much closer to ours than it was ten years ago; in some cases it is even better than our own.[8]

If this is the accomplishment of Soviet RDT&E expenditures that were no larger than our own over the first half of the decade, what should we expect as the future products of the much larger relative and absolute Soviet RDT&E investments of the last five years?

What about future trends? Can the Soviets keep up this rate? The CIA projects a continued increase of Soviet ME until the early-to-mid 1980s at least, although perhaps at a slightly lower growth rate than the 3 to 5 percent—in real terms—of the last 10 to 15 years.[9] Soviet ME (in rubles) is estimated to have represented some 11 or 12 percent of Soviet GNP over the 1968-78 decade; estimates by others of the "burden" of ME have ranged as high as 15 percent of GNP. The comparable "burden" of U.S. ME is less than 5 percent of our (larger) GNP, and is projected to decline through at least FY 1984.[10]

Some researchers have pointed out a conjunction of adverse trends that the Soviet leadership will face in the 1980s—continuing agricultural production problems, declining productivity in manufacturing, possible dependence on imported oil, and declining numbers of Slavic youth available to satisfy both the military conscription demands and the skilled workforce needs—suggesting that the growth of ME cannot continue. Although the above new or continuing problems confront the Soviet leadership, no persuasive case has yet been made that their only (or even their preferred) option for coping will include reduced Soviet ME.

Nor is an allocation of 11 (or even 15) percent of GNP to the military so unprecedentedly high as to be unsustainable.

It is now clear that changes in U.S. military expenditures do *not* influence that Soviet allocation process greatly:

As our defense budgets have risen, the Soviets have increased their defense budget. As our defense budgets have gone down, their defense budgets have increased again.[11]

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[7] *Cost Comparison* . . . , p. 9.
[8] *Fiscal Year 1980 Defense Report*, p. 6.
[9] The estimate of real growth are nearer 3 percent when measured in dollars and nearer 5 percent when measured in rubles.
[10] *Fiscal Year 1980 Defense Report*, p. 3, and tables and graphs, pp. 322-323.
[11] Ibid., p. 6.