

FROM SALT TO START:
COMPLIANCE BEHAVIOR AND THE EVOLUTION OF
BARGAINING METHODOLOGY IN
SOVIET-AMERICAN STRATEGIC ARMS DIPLOMACY, 1972-1989

by

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ABSTRACT

This dissertation examines the development of Soviet-American strategic arms diplomacy from the early 1970s to the late 1980s. It argues that bargaining activity during this period produced an evolving set of operative principles, or a "methodology" of strategic arms diplomacy, which has bridged particular agreements and has tended to drive policymakers into recurring patterns of choice throughout the process. It further argues that compliance behavior has played a key role in stimulating adjustments in bargaining methodology, because both sides have pursued successive negotiations against a background of accumulating experience under the terms of older agreements.

Chapter 1 introduces the dissertation's central arguments and discusses the links between compliance behavior and bargaining methodology. Chapter 2 identifies factors that may have compliance-enhancing and -inhibiting effects, and argues that treaty-constrained behavior is best viewed as a product of ongoing interactions among these factors. Chapter 3 explains why Soviet and U.S. compliance practices since 1972 are prone to conflicting assessments, and why these conflicts make it difficult to prove or disprove competing hypotheses regarding the motivations behind such behavior on the Soviet side. This chapter also assesses the historical record in light of the several factors discussed in Chapter 2 and identifies the presence of certain "structural" frictions in the Soviet-American context which were not previously considered.

The study then explicates the rule-making process. For analytical purposes it defines an agreement as a composite of: framework rules, which represent the internal structure of restraint; scope rules, which are criteria for including or excluding weapons; and verification rules, which govern procedures for monitoring compliance and sorting out problems. After discussing the formative stages of the bargaining process in Chapter 4, patterns of rule-making in each category are analyzed. Chapter 5 demonstrates that a systematic progression in framework rules governing force concentration is juxtaposed against sharp discontinuities in those governing force modernization. Chapter 6 concludes that the inevitable trade-offs between preserving flexibility for oneself versus thwarting treaty circumvention by the other side has led to recurring patterns in scope rule selection. Chapter 7 discusses trends in verification rule-making and the significance of glasnost. Chapter 8 evaluates the impact of bargaining dynamics and compliance behavior upon the rule-making process from the SALT to the START eras.

To my mother
and the memory of my father

To my mother
and the memory of my father

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ACRONYMS AND ABBREVIATIONS

ABM	Anti-ballistic missile
ACDA	Arms Control and Disarmament Agency
ALCM	Air-launched cruise missile
AMSA	Advanced manned strategic bomber
ASAT	Anti-satellite weapon
ASW	Anti-submarine warfare
ATBM	Anti-tactical ballistic missile
BMD	Ballistic missile defense
BMEWS	Ballistic missile early warning system
BW	Biological weapons
CIA	Central Intelligence Agency
DDR&E	Director of Defense Research and Engineering
DIA	Defense Intelligence Agency
DoD	Department of Defense
DPM	Draft presidential memorandums
ELINT	Electronic intelligence
EW	Early warning
FBS	Forward based systems
FOBS	Fractional orbital bombardment system
FROD	Functionally-related observable difference
GAC	General Advisory Committee
GLCM	Ground-launched cruise missile
HOE	Homing Overlay Experiment
ICBM	Intercontinental ballistic missile
INF	Intermediate-range nuclear forces
JCS	Joint Chiefs of Staff
LPAR	Large phased-array radar
LTBT	Limited Test Ban Treaty
MAC	Military Airlift Command
MaRV	Maneuvering reentry vehicle
MIRV	Multiple independently-targetable reentry vehicle
NATO	North Atlantic Treaty Organization
NCA	National command authority
NPT	Non-proliferation Treaty
NSDM	National security decision memorandum
NTM	National technical means of verification
OSI	On-site inspection
PAVE PAWS	Phased-array radars for SLBM launch detection
PBV	Post-boost vehicle
POE	Point of entry
R&D	Research and development
RV	Reentry vehicle
SALT	Strategic arms limitation talks
SAM	Surface-to-air missile
SCC	Standing Consultative Commission
SDO	Selected Direct Observation

SDI Strategic Defense Initiative
SLBM Submarine-launched ballistic missile
SLCM Sea-launched cruise missile
SNDV Strategic nuclear delivery vehicle
SSBN Sub-surface ballistic nuclear (nuclear-armed
ballistic missile-carrying submarine)
START Strategic arms reductions talks
SVC Special Verification Commission
TLI Treaty-limited item
UN United Nations

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Contrary to popular mythology, "dissertating" is not a completely solitary enterprise, one in which the poor student struggles alone to find a path over forbidding terrain, guided by forces that are largely beyond his or her control. Granted, the terrain may be unfamiliar, and the task of transforming thoughts into the written word is one that only the author can perform. Yet it is impossible to imagine that ideas and arguments -- even, alas, imperfect ones -- could ever really develop without the stimulation, criticism, and encouragement provided by others. Anyone who has ever finished a dissertation knows this all too well.

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Washington, D.C.

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1.

INTRODUCTION

Soviet-American arms control has been described variously as an exercise in prudence, a dangerous delusion, and a ploy by the superpowers to codify the arms race. Shorn of all such labels, however, arms control is first and foremost a process of diplomacy. By "process" I mean a situation of ongoing bargaining between the two governments that aims at producing agreed rules on the size and character of their respective military postures. While this diplomacy of rule-making is often complex in its technical detail, the underlying problems of equality, reciprocity, and flexibility have always been simple to identify, even if difficult to resolve. As this process has played out over time, one can see the imprint of certain cumulative effects, both on the rules themselves and on the patterns of bargaining that led to their creation.

Since the early 1960s both sides generally have negotiated in a step-by-step fashion, selecting out issues like nuclear testing or biological weapons, which appeared ripe for accord and promising in terms of paving the way for more extensive controls. This sort of approach also typifies negotiations on strategic offensive and defensive weapons, though more for reasons of practical necessity than policy preference. In fact, during the early stages of their

dialogue, both sides acted as if they were striving for comprehensive strategic accords, only to strike bargains where they could in the interest of achieving results within realistic time frames. The products of these efforts are a series of treaties, accords, and communiques which stand as milestones along the path of diplomacy: the 1972 Anti-Ballistic Missile (ABM) Treaty; the 1972 Interim Agreement on Offensive Weapons (SALT I); the 1974 Vladivostok Accord; the 1979 Agreement on Strategic Offensive Arms (SALT II); and, by the end of 1989, a general framework for a first phase of strategic arms reduction (START).¹

The negotiations spanning these agreements provide not only a rich menu for research but also, alas, much grist for controversy. Part of the problem, surely, is our close proximity to the subject. Two plus decades of living under the terms of major strategic agreements simply is not a long time in historical terms; we are still hostage to unfolding events that may change the way we interpret the arms control experience. Moreover, any fair-minded retrospective on the process would have to concede its disorderly aspects.

¹ For a good discussion of the step-by-step approach, see Albert Carnesale, "Introduction: A Framework for Analysis," in Albert Carnesale and Richard N. Haass, eds., Superpower Arms Control: Setting the Record Straight (Cambridge, Ma.: Ballinger Press, 1987), pp. 1-6. The 1987 treaty on intermediate-range nuclear forces (INF) is an important part of this sequence of accords, although, as will be discussed in Chapter 6, it does not cover weapons that conform to usual Western definitions of "strategic" systems.

Looking back, historians of the future will almost certainly observe that Soviet-American strategic negotiations of the 1970s and 1980s were productive in fits and starts, very much unlike a "process" in the sense of a steady progression from one point to another.² These historians may also conclude that U.S. and Soviet leaders rarely sought a particular agreement simply on its own merits, but rather as a way to put domestic political opponents on the defensive, to shore up alliance commitments, or to be seen as a peacemaker in the eyes of world opinion. Fred Ikle has called this phenomenon "negotiating for side effects," but his characterization downplays the importance of these factors.³ Explicitly political aims, such as drawing Moscow into a "web" of international relationships or putting Washington on the public relations defensive, generally have been at the core rather than the periphery of arms control negotiations.

Finally, a future historiography of Soviet-American strategic arms diplomacy will almost certainly highlight the

² In other contexts, however, the lack of an orderly, incremental process is not necessarily a barrier to progress. As Thomas S. Kuhn has argued, great advances in the natural sciences generally were not the product of incremental progressions but the result of unsettling sea-changes (or "paradigm shifts") in the basic working assumptions of a given field. The Structure of Scientific Revolutions, 2nd ed. (Chicago: The University of Chicago Press, 1970).

³ Fred Charles Ikle, How Nations Negotiate (New York, N.Y.: Harper & Row, 1964), pp. 43-58.

cycles of euphoria and disappointment that typified expert assessments of the negotiations at various points along the way. Events that were seen at the time as diplomatic breakthroughs did not always prove lasting. More often than not, they simply refocused attention on new or unsolved problems, creating in their wake tensions between the parties and a requirement to find new solutions. Appraisals by experts and pundits of these events generally followed this pattern of initial optimism leading to subsequent disappointment and criticism.

From the late 1970s, when the emerging SALT II agreement ran into serious domestic difficulties in the United States, throughout most of the 1980s, the dominant theme in many public commentaries was one of deep pessimism. "Arms control has essentially failed," wrote Leslie Gelb in a widely cited 1979 article.⁴ Soviet-American negotiations, he argued, "have done little more than to codify the arms race." To some observers, like Gelb, the proximate reasons for failure were political attacks on the process by left- and right-wing critics and inflated public expectations which the grinding pace of negotiations could not satisfy.⁵

⁴ Leslie H. Gelb, "A Glass Half Full," Foreign Policy, No. 36 (Fall 1979), p. 21.

⁵ Thus, for example, Barry M. Blechman argued that the basic problem of pursuing arms control in the American political system stems from the tendency of policymakers and others to obfuscate differences between arms control as a modest technical objective (i.e., to stabilize deterrence) and more grandiose disarmament aims (i.e., to foster fundamental change in political relations), and the fact

According to many proponents of this view, arms control was not flawed in concept but rather executed imperfectly or wrongly understood. Philip Farley has characterized superpower arms control as "an experiment that has just begun, not one that has been tried and found wanting."⁶

Other observers have interpreted the problem quite differently. Conservative critics lay most of the blame for the failures of arms control at the doorstep of the Soviet Union. Accordingly, the agreements of the 1970s were "fatally-flawed" because Soviet leaders sought and obtained unfair advantages or lulled the United States into a false sense of security.⁷ As Richard Perle has argued: "There is no doubt that the Soviets have proven remarkably adroit at exploiting ambiguities in arms control agreements to proceed with activities that it was the intent of one of the parties -- us -- to preclude by treaty....the Soviets have not hesitated to mislead us, deliberately and all too

that arms control has little appeal to the traditional constituencies that would support more far reaching changes in Soviet-American relations. See "Do Negotiated Arms Limitations Have a Future?" Foreign Affairs, Vol. 59, No. 1 (Fall 1980), pp. 117-118.

⁶ Philip J. Farley, "Harvard's Skewed Analysis," Arms Control Today, Vol. 18, No. 1 (January/February 1988), p. 30.

⁷ A thorough history and critical analysis of the "lulling effect" argument is found in Sean M. Lynn-Jones, "Lulling and Stimulating Effects of Arms Control," in Carnesale and Haass, eds., Superpower Arms Control, pp. 223-274.

successfully."⁸ Others have attributed the disappointing results of arms control more to the bargaining process itself. Senator Malcolm Wallop and Angelo Codevilla have scathingly attacked the arms control process for fostering dangerous illusions about the Soviet Union and "delegitimizing" hard questions about how the Soviet Union would use its strategic power. As they argue: "...by the wondrous substitution of procedure for substance... American arms controllers transformed in their own minds a mortal enemy into a partner with equal interest....This line of thought does not axiomatically deny that one day we might have to deal with a Soviet Union intent on actually using its weapons to its own advantage. But it pushes that day out of the mind's practical reach."⁹

Criticisms of the process are not the exclusive preserve of doctrinaire conservatives. Many others fault the negotiations for not keeping up with new technologies or for channeling the arms race in new directions. Bruce Berkowitz has characterized arms control as a "self-extinguishing process" that breaks down completely when "the participants find themselves mainly deploying weapons that are not easily

⁸ See statement of Richard Perle in U.S. Congress, Senate Armed Services Committee, Soviet Treaty Violations, 98th Congress, 2nd sess. (Washington, D.C.: U.S. Government Printing Office, 1984), p. 7.

⁹ Malcolm Wallop and Angelo Codevilla, The Arms Control Delusion (San Francisco: ICS Press, 1987), pp. 48-49.

controlled."¹⁰ According to Berkowitz, arms control has provided an "artificial incentive for a conservative military bureaucracy to become innovative" and the resulting weaponry has created a situation that is far worse than would have been the case without arms control.¹¹ Other observers do not take such a grim view, but simply stress the modesty of arms control accomplishments. As Albert Carnesale and Richard Haass put it: "If history teaches anything, it is that arms control has proved neither as promising as some had hoped nor as dangerous as others had feared."¹²

At the outset of the 1990s, the prospects for arms control are being buoyed by a spirit of renewed optimism. Negotiations have been swept along in the wake of dramatic improvements in superpower relations and the accession to power of a reform-minded Soviet leadership under Mikhail Gorbachev. Given all the tensions which plagued bilateral relations during the early 1980s, it still seems remarkable that Gorbachev and Ronald Reagan were able to transform the arms control component of the Soviet-American relationship from symbolic posturing to concrete bargaining. The INF Treaty was the first major step in that transformation.

¹⁰ Bruce D. Berkowitz, Calculated Risks (New York, N.Y.: Simon and Schuster, 1987), pp. 49-51.

¹¹ Ibid., p. 29.

¹² Carnesale and Haass, "Conclusions: Weighing the Evidence," Superpower Arms Control, p. 355.

Under its terms, the Soviet Union accepted numerically asymmetrical reductions, the complete elimination of a major operational weapon system -- the SS-20 missile -- and the controlled presence of on-site inspectors at former missile bases, support facilities, and production plants on the territories of each side. Steps of this magnitude were simply unthinkable prior to Gorbachev. Summing up a widespread view, former U.S. Ambassador Raymond Garthoff observed that the INF Treaty "relegitimizes the arms control process after nearly a decade of neglect and unjustified charges of failure."¹³

Interestingly, however, as the Gorbachev leadership and the Bush Administration have begun to expand the range of negotiations, new voices of dissent are being heard, questioning whether formal bargaining can keep pace with public expectations and increasingly rapid political change. "Arms control is essentially a form of centralized regulation," observes John Mueller, "and carries with it the usual defects of that approach."¹⁴ He continues: "...arms reductions will proceed most expeditiously if each side feels free to reverse any reduction it later comes to regret. Formal disarmament agreements are likely simply to

¹³ See statement of Raymond L. Garthoff in U.S. Congress, Hearings before the Senate Committee on Foreign Relations, The INF Treaty, Part 3, 100th Cong., 2nd sess. (Washington, D.C.: U.S. GPO, 1988), p. 65.

¹⁴ John Mueller, "A New Concert of Europe," Foreign Policy, No. 77 (Winter 1989-90), p. 6.

slow and pedantify this process."¹⁵ Others have pursued this line of criticism in questioning the new enthusiasm for conventional arms negotiations in Europe. Lawrence Freedman has warned that conventional arms control is becoming an "over-bureaucratized monstrosity" that risks being overtaken by events.¹⁶ To avoid this outcome, Kenneth Adelman has urged adoption of "evolving, parallel" policies. "Reductions initiated by their side," he argues, "that are below our levels in key categories would be matched by us, and vice-versa....This is a dynamic approach, one that recognizes rapid changes in Eastern Europe and in economic conditions. The formal number-crunching approach must end in a static formula."¹⁷

In the search for major arms reductions, therefore, the events of our current period, though dramatic, cannot be said to represent a decisive boost for the formal bargaining process; new challenges and criticisms are emerging. A good deal of caution is required in venturing broad historical judgments on the success or failure of arms control diplomacy based on its conduct during particular periods of time. No single event -- be it a breakthrough or breakdown -

¹⁵ Ibid., p. 9.

¹⁶ Lawrence Freedman, "The Politics of Conventional Arms Control," Survival, Vol. XXXI, No. 5 (September/October 1989), p. 395.

¹⁷ Kenneth L. Adelman, "Bush Wasn't Tough Enough," The New York Times, December 5, 1989, p. A35.

- can forever redeem or condemn the process in any categorical sense. Everything depends on the goals and contents of the negotiations and the capacity of both sides to keep the bargaining process attuned to the requirements generated by larger trends in relations. Indeed, as a statement about superpower politics, the real significance of the past two decades is not that arms control has somehow "succeeded" or "failed" in meeting specified goals but that it has endured for so long through bad times and good. Writing in 1973, John Newhouse predicted that strategic arms diplomacy would become a semi-permanent part of superpower relations -- "at times a real negotiation, at times a dialogue carried on just to sustain the process" -- and events since then have shown the essential correctness of his view.¹⁸ What is more, certain internal dynamics in the bargaining process have had important shaping effects upon the framework and content of agreements from SALT to START.

THE CORE ARGUMENTS

Since the days of Nixon and Brezhnev, public audiences have become accustomed to hearing U.S. and Soviet leaders herald a new arms agreement as a dramatic new departure, a step that compensates for the deficiencies or fatal flaws of past efforts. Such claims should not be surprising.

¹⁸ John Newhouse, Cold Dawn: The Story of SALT (New York, N.Y.: Holt, Rinehart, and Winston, 1973), p. 267.

Politicians are often inclined to orchestrate public opinion. Yet, political rhetoric notwithstanding, many substantive features of impending or recent agreements have more in common with earlier ones than is commonly supposed. It is a good working hypothesis that treaty provisions do not materialize out of thin air, as if the strenuous exercise of goodwill could somehow spontaneously create agreement on substance. Rather, the choices that both sides make with respect to the content of new accords are shaped significantly by the results of trial and error that occurred in earlier years, under older agreements. Thus, while particular treaty provisions may be new, in many cases they are also a logical consequence of various rules that have evolved from previous arms control experience. This experience includes not only the negotiating record of past agreements but also the compliance performance of each side observed during an agreement's lifetime.

Generally, treaty-constrained behavior is analyzed in narrow legalistic terms, with the aim of proving or disproving specific allegations of Soviet or American cheating. This tendency reflects the fact that the natural reaction of any observer to initial evidence of a compliance problem would be to ask: "well, has the other side cheated or not?" Yet, while it is obviously important to test particular charges of noncompliance, most observers tend to leave it at that. The result is to miss the larger

significance of the compliance problems that have been encountered in bilateral arms control to date. Beyond simply scrutinizing specific problems, it is important to look more closely at the impact of compliance and noncompliance on the general evolution of arms control bargaining methodology.

As a point of departure, Soviet-American strategic arms diplomacy is best viewed as an historical process extending forward in time from the early 1970s to the present day and beyond into the foreseeable future. As noted above, the focus of the process is rule-making. But how does the creation of one rule bear upon successive ones? Specifically, are there evident patterns of continuity and change in the bargaining over rules? And how have disputes over treaty compliance affected the evolution of strategic arms agreements?

The context of the bilateral arms control process is a self-interested bargaining situation. To be sure, both sides have long shared a compelling interest in avoiding instabilities (however perceived) that could drag both into unwanted conflict.¹⁹ And both sides in the current climate

¹⁹ The common tendency to strive toward minimizing self-endangering risk is in some ways similar to the "live-and-let-live" phenomenon of tacit cooperation which occurred at times during the trench warfare of World War I. As explicated by Robert Axelrod, in static situations where opposing troops were dug-in at close quarters to each other, both sides sometimes fell into a pattern of reciprocal restraint (e.g., firing with a clear intention not to harm, or not firing at all), much to the frustration of local commanders. See Axelrod, The Evolution of Cooperation (New York: Basic Books, 1984), pp. 73- 87.

appear to see strong political and economic benefits in moving toward lower levels of force posture. At the same time, each side has engaged in negotiations fundamentally as a consequence of its own interests; neither has consciously sought to do the other any favors in the first instance, and both have been extremely sensitive to the risk of forfeiting uncompensated advantages.²⁰ The analysis here presumes these realities as the driving forces behind diplomatic behavior and seeks to focus instead on the substantive aspects of that diplomacy which have shaped the scope and contents of

²⁰ It is vitally important here to stress the self-interested character of the negotiating relationship. Most popular perceptions of arms control, certainly those that predominated in the United States prior to SALT, were quintessentially liberal in the sense of viewing the enterprise as an expression of shared interest among states to choose order and restraint over war or coercion. The American international law perspective has fueled this conception. As Louis Henkin states in the opening line of How Nations Behave (New York: Praeger, 1964): "In relations between states, the progress of civilization may be seen as movement from force to diplomacy, from diplomacy to law." (p. 3). Yet, the kind of arms control activity we have witnessed to date, arguably even under Gorbachev, tends to belie the notion of a thoughtful progression from lawlessness to restraint on the basis of shared interests or values. Each side has approached -- and indeed (notwithstanding occasional rhetoric to the contrary) justified -- arms control in the pursuit of national interests. A noted expert on Soviet strategic policy, Howard Stoertz, has offered a useful perspective on the Soviets' view of the process: "...the Soviets...enter arms negotiations as traders seeking to limit specific U.S. programs at minimum cost...rather than as partners who share positive goals with us. If the United States can recognize this reality, we may be better able to avoid either euphoria or disillusionment, to accept modest but useful limitations, and to work slowly toward a safer...strategic relationship." Howard Stoertz, "Observations on Soviet Negotiating Practice," in Leon Sloss and M. Scott Davis, A Game For High Stakes (Cambridge, Ma.: Ballinger, 1986), p. 46.

strategic agreements over time.

The central thesis of this study is that one can see in the evolution of Soviet-American strategic arms diplomacy from SALT to START identifiable patterns of change and adjustment within boundaries set by divergent strategic interests and a competitive bargaining situation. This process generally has been incremental in character. At an initial stage, both sides introduced new rules into their strategic relations -- rules set forth in the 1972 ABM Treaty and the SALT I Interim Agreement. These rules ushered in a period of adjustment and change; both sides found themselves on a steep "learning curve." The historical record shows that the result of this process was neither a complete breakdown of the rules nor perfect compliance, but a contained set of problems that generated tensions and clarified weaknesses in the structure and constraining effects of the rules. Compliance problems triggered a series of diplomatic interactions, which, in the search for solutions, led to alterations in strategic behavior or to modifications in the rules, often in the context of new agreements (e.g., SALT II, INF, and prospectively, a new START agreement). The important point to stress, however, is that the rule-making process itself did not proceed in a vacuum; it changed in identifiable ways as a result of compliance disputes. Both sides negotiated new agreements against the background of past compliance successes and

problems.

Thus, I will argue that the product of ongoing Soviet-American diplomatic interactions over the control of strategic arms since the early 1970s has been a gradually expanding set of operative principles -- in effect, an evolving methodology of arms control diplomacy -- that bridges particular agreements, and that tends to drive new participants on each side into recurring policy choices as the bargaining process plays out over time. The term "methodology" may be defined as a body of procedures, rules, or working concepts employed by a science, art, or discipline in the solution of a problem.²¹ Because bilateral negotiations have resulted in certain routinized procedures and concepts for dealing with problems, both of negotiation and subsequent compliance, "methodology" is an apt way to describe the output of the process.

One can see the tangible results of this phenomenon in the 1987 INF Treaty. Although its novel aspects are clear enough, many of the treaty's rules covering such things as the key definitions (e.g., what is a "cruise missile"), the mechanics of counting, and even the measures for improving verification by national technical means (e.g., opening hatches on the garages of SS-25 mobile launchers at prearranged times to permit observation by satellites) are the results of varying degrees of trial and error that

²¹ Webster's International Dictionary, 3rd Edition.

occurred in earlier years. And, to extend the argument further, many of the treaty's more innovative rules -- including those governing on-site inspections -- may not work as well as planned. So there will be new compliance controversies and new outcomes, probably in the form of new agreements. Each step is a phase in the process.

In making these arguments I would not venture to suggest that the process could play out indefinitely solely as a result of internal dynamics. Alas, Keynes' dictum that "in the long run, we're all dead" applies to arms control too. The fate of agreements on naval armaments -- the "strategic" weapons of the interwar period -- are proof that no bargaining process can outlive its historical period. However, so long as the impulse to negotiate continues, the process of rule-making generally will work in the fashion described here.

The Effects of Compliance Behavior

Given the importance of compliance and noncompliance to the rule-making process described above, the first part of this investigation will examine the essential characteristics of treaty-constrained behavior in an arms control setting. Part I includes Chapters 2 and 3. Chapter 2 explicates various factors that may act to reinforce or inhibit compliance with agreements and speculates about the interactive effects of these factors. Chapter 3 lays out the

historical record of Soviet-American compliance behavior in order to provide a basis for assessing the significance of various compliance problems in relation to the evolution of bargaining methodology taken up in the several chapters of Part II.

As noted above, compliance problems and the methodology of the bargaining process are linked through a series of dynamic adjustments. What form do these adjustments take? It stands to reason that whenever states introduce new rules into their relationship, they enter a transitional period in which their strategic behavior "catches up" to agreed standards. Several considerations will influence whether this transition is easy or difficult.

First, do the rules prescribe a substantial departure from existing forms of strategic behavior? Clearly, agreements calling for major reductions in deployed weapons or prohibitions on testing, etc., would necessarily require more significant alterations in standard operating procedures than preclusive agreements that ban activities in which neither side has ever engaged.

Second, how clear are the rules and is there common agreement on how to interpret them? Treaty provisions that leave room for conflicting interpretations are necessarily going to be harder to implement than those where the norms and taboos emerging from an agreement are made explicit.

Third, are the rules balanced and fair in terms of their constraining effects? If one side or the other finds itself burdened by unexpected disadvantages as a result of an agreement, there will be pressures not to implement or abide by that agreement. And even if the rules are deemed fair, it may also be hard to sustain a healthy agreement if one side has to make a substantially greater adjustment in order to attain compliance.

Fourth, are there incentives for the parties to take the rules seriously or disincentives to cheating? There is no obvious reason why two parties will view an agreement with equal degrees of seriousness. If the costs of violations -- accruing from exposure through verification techniques or from offsetting responses -- are seen by one side or the other as being small relative to the benefits, sustaining compliance could become a real problem.

To illustrate these adjustments in an everyday situation, imagine that you live near the line between two large municipalities, for our purposes, cities "A" and "B". There are all kinds of hazardous intersections on the streets that run along or through the city limits of each side. Then suppose that the two city councils decide to put in stop signs at all these intersections. On the first day after the signs are put in, as you are driving along, will you stop when you get to the line? Well, it depends. There are all sorts of reasons to think that compliance might be

hard. First, you are not used to stopping and so you might speed through one of the intersections without noticing the stop sign. Or some of the signs may be poorly placed or obstructed by graffiti. Or it may be that city "A" does not require its car owners to have headlights or windshield wipers, and so, relative to drivers from city "B," you may have a harder time seeing the signs clearly. Or if you were taught to drive by a taxi driver, you probably opposed the stop signs in the first place because they infringe upon your natural right to put other drivers at risk. So you may be tempted to cheat occasionally at intersections until the costs of violations begin to mount up. On the other hand, compliance might be a lot easier to achieve in other circumstances. Generally, if you are a cautious driver who slows down at dangerous intersections, stopping would only be a slight extension of habit. Or if you were the one who complained about these intersections in the first place, you will have a stake in the success of the new rules.

The basic point here simply is that the degree to which new rules are internalized by the parties involved will depend on a number of factors involving the clarity and constraining effects of the rules and the motives of those who must live by them. This, in turn, raises the obvious question of the possible outcomes. One can imagine three kinds. First, there could be a complete breakdown of the rules. After a month or two, the two cities may decide to

take the stop signs down, either because they created more problems than they solved, or because the costs of enforcement were too high relative to benefits. Second, on the other extreme, there can be perfect compliance. Everyone is happy and enforcement costs are low. Third, there can be a high degree of compliance, but also a contained set of problems whose resolution may require further action. Perhaps the two cities will enlarge some of the signs or replace them with yield signs at certain corners.

In general, this third outcome has been the norm with respect to the arms control experience at issue in this analysis. Some types of rules agreed to at early stages of the process did not work as well as was hoped. The ensuing problems set off diplomatic exchanges, which in turn led to modifications of a rule or of subsequent behavior, usually but not always in the context of follow-on agreements. As a result, the rule-making process itself was affected in demonstrable ways. Compliance problems clarified how the rules were inadequate and where the deals struck in the bargaining process were put at risk. Thus, as the parties have engaged in further rule-making, they have done so against the background of past successes and failures. Overall, this experience has had a channeling effect -- it has shaped and narrowed the menu of plausible bargaining choices over time and, as noted earlier, it has had a coopting effect on new players, pushing them into

discernible patterns of choice, even in situations where the goals of the agreement in question were quite different (e.g., arms limitation versus arms reduction).

A FRAMEWORK OF ANALYSIS

Any study that attempts to explicate the dynamic adjustments described above must impose some order on the diverse array of rules that have emerged from Soviet-American negotiations since the initial stages of the bargaining process. A conceptual scheme chosen for this purpose inevitably will be somewhat abstract; one simply cannot generalize about real world behavior without sacrificing some of its more incongruous, irrational qualities that do not fit into neat categories. The critical issue here is one of degree. Is the conceptual structure so simple as to ignore basic factors that affect the patterns of behavior being observed, or is it reasonably inclusive of all key factors, sacrificing detail mainly at the margins? Clearly, some risk of oversimplification is worth taking if in the process we extend the possibilities for systematic thought about the real world and for adducing lessons that can be applied profitably, both to the arms control process itself and to other investigations of international political behavior.

Let us start with the rules themselves. A commonsense appreciation of rules in any bargaining context would see

them as part of a larger structure -- an agreement -- designed to further some overarching principle. In most agreements, the overarching principle is inferred from the basic obligation spelled-out in the first article following the preambular clauses. The Article I formulation of the 1972 ABM Treaty is a good example. It states in part that in accordance with the rules contained in the agreement, each side undertakes not to deploy ABM systems for a defense of national territory and not to provide a base for such a defense.²²

To be sure, the rules themselves are not all alike; they need to be crafted in different ways in order to thwart every conceivable avenue for undermining the overarching principle of an agreement. So the question to be posed is this: If a complex agreement, like the ABM Treaty, could be "unpacked," how should the rules that constitute the agreement be sorted out? In other words, are there generic categories into which the various rules would fall? To answer this question, one can begin by attempting to draw parallels with domestic legal systems. In his seminal work on legal philosophy, The Concept of Law, Professor H.L.A. Hart defined a legal system as a "complex union" of primary

²² Article 1, para. 2, of the ABM Treaty, in U.S. Arms Control and Disarmament Agency, Arms Control and Disarmament Agreements, 1980 Edition (Washington, D.C.: U.S. GPO, 1980), p. 139.

and secondary rules.²³ Hart saw defects in conceiving of the legal foundations of modern social structures as simply a set of basic obligations, however defined, without reference to the problems of adjusting or updating their content. He therefore developed the idea of a supplementary set of rules to accomplish this purpose. To quote Hart: "...while primary rules are concerned with the actions that individuals must or must not do, secondary rules are all concerned with the primary rules themselves. They specify the ways in which the primary rules may be conclusively ascertained, introduced, eliminated, varied, and the fact of their violation conclusively determined."²⁴

Hart's framework offers a reasonable point of departure for this analysis. By extension, it is reasonable to conceive of arms control agreements as a kind of complex union of various types of primary and secondary rules. Each of the agreements to be explicated here contains rules that limit types and capabilities of weapons, including their development, testing, deployment, or use, as well as other types of rules that specify, to use Hart's words, the ways in which the primary rules may be varied, eliminated, or the fact of their violation conclusively determined. A good example of a secondary arms control rule is found in Article

²³ H.L.A. Hart, The Concept of Law (Oxford: Oxford University Press, 1961), p. 111.

²⁴ Ibid., p. 92.

XIII of the ABM Treaty which calls for the creation of a Standing Consultative Commission (SCC), within which the parties will, among other things, consider questions regarding compliance and discuss proposals for improving the treaty.²⁵

One drawback of applying Hart's model in the arms control context is that it is not much help in identifying the various types of primary rules that may exist. To do this, we need to put ourselves in the position of the arms control negotiators. Typically, by the time formal talks are underway, the overarching principle has already been agreed to by the political leaderships on each side. In the late 1960s, for example, both sides had begun to accept the fact that there was no real hope in the foreseeable future of constructing significant area defenses against ballistic missiles, and each appeared increasingly anxious to avoid being lured by the other into costly, ineffective ABM deployments. Thus, by the time formal talks opened in 1969, the leaders on each side had more or less accepted the possibility of comprehensive restrictions on ABM defenses, and they directed their negotiators to figure out how to do it.

In the ABM negotiations, and in many others since then, the participants on each side have attempted to construct

²⁵ Article XIII, para 1, The ABM Treaty, in U.S. ACDA, Arms Control and Disarmament Agreements, pp. 141-142.

two types of primary rules. First, they create what can be called framework rules. These define the quantitative and qualitative attributes of the weapon systems or activities -- or the so-called "units of account" -- to be limited or banned.²⁶ In the 1963 test ban treaty, for example, the unit of account is nuclear weapon test explosions or any other nuclear explosions. For test explosions in the atmosphere, the permitted number was set at zero; for explosions underground, the number was set at infinity. In the ABM Treaty, there are several units of account: ABM launchers, interceptors, radars, deployment areas, and test ranges. As Chapter 5 will discuss, the critical issues at stake in developing framework rules are: What aspects of military capability do both sides want to control? Should they be banned or allowed in restricted numbers? And, perhaps most importantly, what kinds of provisions should govern the mix of residual numbers and the tempo of technical innovations within special categories of systems?

This last point -- on technical innovation -- is worth stressing. Framework rules do more than just define the bargaining chips of the negotiation; they also aim to cordon

²⁶ The term "unit of account" itself is not new. For background on how units of account for arms control have been chosen in the past, see report prepared by Joel S. Wit for the U.S. Congressional Research Service, printed in U.S. Congress, House Committee on Foreign Affairs, Fundamentals of Nuclear Arms Control, Part III: Structuring Nuclear Arms Control Proposals and Agreements, 99th Cong., 1st sess. (Washington, D.C.: U.S. GPO, 1985), pp. 2-31.

off the most obvious routes for undermining the value of the bargaining chip. In the case of the ABM Treaty, for example, the treaty, as amended, sets a threshold of 100 launchers and interceptor missiles at one deployment area as the maximum allowable ABM capability. Yet one can imagine any number of ways to expand the capability of the deployment area without actually violating the numerical limit. One could store extra missiles on site and deploy new launch systems that could be rapidly reloaded after an initial salvo. Or one could build new interceptors with multiple independently-guided warheads (MIRVs). Thus, the central limits in the ABM Treaty are supplemented with other framework rules that, for example, prohibit systems for rapid reload and MIRVed interceptors. The basic idea is to ensure that once a unit of account is agreed, any action that would in effect alter the constraining power of that unit is identified and declared off-limits.

The second category of primary rules that figure prominently in negotiations can be called scope rules. In the process of defining the currency for negotiation, the two sides usually have to elaborate criteria for including or excluding weapons or capabilities from the scope of an agreement. This may seem like a straightforward issue until one considers the kinds of annoyances that can arise when some of the systems or practices that each side wants to limit also have applications that each may want to exempt

from restriction. For example, large radar installations that can help to provide early warning of strategic attack -- which is a perfectly legitimate function -- can also help provide a base for an ABM defense of national territory, something prohibited by the ABM Treaty. Correspondingly, modern sea-launched cruise missiles (SLCMs) that both sides deploy with conventional warheads for anti-ship missions can in theory be reconfigured to deliver a lighter, vastly more powerful nuclear warhead against strategic targets at distances of up to 2,500 kilometers. Constraining the latter capability, which is properly part of a strategic nuclear arms agreement, cannot be easily done without constraining the former capability, which is not. Choices such as these -- the bane of all negotiations on scope rules -- reflect the perennial balancing act that negotiating parties must perform, attempting to maintain flexibility for themselves while thwarting circumventions by the other side.

The main task of the negotiator in developing scope rules is to draw up a roadmap of guidelines for dealing with weapons that do not fit into neat categories. The roadmap usually identifies a three-fold choice. First, both sides can include all the dual-use systems in an agreement, though at the price of curtailing exempted applications and sacrificing some operational flexibility. Soviet SS-11 ICBMs were included in SALT I although a number were targeted on Europe and Asia. Second, both sides can choose to exclude

all the systems, though at the price of possibly opening up the agreement to circumvention. In SALT II, it was finally agreed that Soviet Backfire bombers would be excluded from direct restraints even though they have a marginal capability for intercontinental attack. Third, both sides can figure out a way to split the difference between conflicting desiderata. So, for example, large radars are permitted for early warning purposes under the ABM Treaty but only when located on the periphery of national territory, oriented outward. Or air-defense (anti-aircraft) weapons are allowed but cannot be tested in an ABM mode. Again, the basic idea with scope rules is to help define ordered choices in cases where some of the systems or activities that each side wants to limit also have legitimate exempted uses.

A third set of rules are essentially the secondary rules that Hart describes in his model. In general, these are designed for verification and compliance problem-solving purposes. In this analysis, they simply will be called verification rules. Here, the negotiator's task is more self-evident: to safeguard each side's ability to verify compliance with the primary rules; to confirm that both sides are counting treaty-limited forces in the same way; and to ensure that there are agreed methods for sorting out disputes over interpretation or other problems. All of the agreements analyzed in this study include verification rules

that have operated with varying degrees of effectiveness.

In Part II of this study, I intend to show how each set of rules evolved through an iterative process of negotiation, and how the logic structure implicit in the choices made by both sides resulted in an emerging methodology for dealing with new problems -- such as limiting multiple-warheaded (MIRVed) missiles, new forms of concealment, cruise missiles, etc. -- that preoccupied Soviet-American negotiations over a period of years.

As a prelude to this part of the analysis, Chapter 4 examines the origins of the bargaining process, focusing on the factors which shaped the attitudes of both sides toward the negotiations and the kinds of problems and opportunities these factors presented for rule-making. In Chapters 5, 6, and 7, I describe the kinds of framework, scope, and verification rules which were established at the outset of negotiations, and examine the different positions that each side sought to advance in the bargaining process. In each case, I analyze the compliance problems that emerged in the operation of the rules in question; what these problems indicated about the effectiveness of the agreements; how both sides reacted to the problems; and the extent to which the substance of the bargaining process changed as a result of these problems and efforts at resolution.

In a concluding section, Chapter 8, I consider the overall impact of bargaining dynamics and compliance

problems on the rule-making process.

PART I:

TREATY COMPLIANCE IN AN ARMS CONTROL SETTING

-- "If an arms control rule is broken,
the most that the community can
do is to destroy the rule."

Roger Fisher

-- "Throwing out the law because the
criminal has violated it does not
promote order."

Richard Barnet

2.

THE DYNAMICS OF COMPLIANCE BEHAVIOR

The specter of promises made and broken has long been a source of deep tension in East-West relations. From the Western perspective the Cold War itself was sparked by a compliance problem, being in part a byproduct of the collapse of the wartime agreements between the allied powers concerning Germany and Eastern Europe and the ensuing struggle over Europe and Asia. While this struggle was rooted fundamentally in conflicts of geopolitical interest and ideology, the lexicon of treaty noncompliance -- i.e., cheating, deception, "breaking the rules" of international conduct, etc. -- ran like a dark thread through much of the public discourse of the period. Many in the United States especially saw in Soviet diplomatic behavior an impulse to cheat that existed quite independently of any possible congruence of interest between East and West on the substance of negotiations. It was, in the eyes of many, a natural extension of Soviet domestic governance.¹ Breaking

¹ Alexander Dallin and Gail Lapidus have dubbed this perspective the "essentialist" school of thought. See "Reagan and the Russians: United States Policy Toward the Soviet Union and Eastern Europe," in Kenneth Oye, Robert Lieber, and Donald Rothchild, eds., Eagle Defiant (Boston: Little, Brown, 1983), pp. 206-207. Of course, the idea that domestic pathologies affect foreign policy behavior is not simply a matter of academic speculation. When former Secretary of Defense Caspar Weinberger debated with the British historian E.P. Thompson at Oxford in 1984, he took issue with Thompson on the question of whether the morality of Soviet and American foreign policy should be judged in

the law abroad may come easier when one rules with an iron fist at home.

Against this background of suspicion, every postwar U.S. administration which has attempted to negotiate with the USSR has had to run a gauntlet of problems created by concerns about past or potential Soviet treaty noncompliance. In the summer of 1946, acting on the instructions of President Truman, Clark Clifford, then a top White House aide, drafted a "comprehensive statement" on Soviet foreign policy. As part of this project, Clifford canvassed the major executive branch bureaucracies for their views. He received from the State Department a long list and analysis of Soviet violations of international agreements, which he used extensively in making the argument that Soviet foreign policy aims were fundamentally hostile and that the United States "should entertain no proposal for disarmament or limitation of armaments as long as the possibility of Soviet aggression exists."² Reportedly, Truman was deeply influenced by the Clifford report during the months

domestic terms. He said: "It seems to me we are [discussing internal conditions] -- we have to be. Because it is those conditions which give rise to a foreign policy and give rise to the ability to judge the moralities of that policy." See "Remarks of the Hon. Caspar Weinberger at the Oxford Union Debate, February 27, 1984," News release from the Office of the Assistant Secretary of Defense, Public Affairs, Washington, D.C., p. 6. (mimeo).

² Quoted in Arthur Krock, Memoirs: Sixty Years on the Firing Line (New York: Funk & Wagnalls, 1968), p. 229. The report is contained in an appendix to Krock's memoir.

preceding the enunciation of containment policies.³ During 1963, the Kennedy Administration, anxious to secure ratification of the limited test ban treaty, had to contend with charges of Soviet cheating on past agreements. A Department of Defense pamphlet, published in 1962, entitled Alert: Soviet Treaty Violations, was widely distributed in Republican circles during the summer of 1963 and caught the attention of senior White House officials.⁴ The pamphlet enumerated treaty violations by the Soviet Union of its non-aggression pacts with neighbors, the Kellogg-Briand agreement, the Four-Power arrangements over Berlin, and a dozen or more other pledges and formal commitments. Likewise, during the 1970s, the Nixon, Ford, and Carter Administrations found themselves confronted with an ongoing stream of allegations by conservatives of Soviet violations of SALT-related agreements and a U.S. cover-up of those violations.⁵ Then, in the early 1980s, the tables were

³ Ibid., p. 225. See also Richard M. Freeland, The Truman Doctrine and the Origins of McCarthyism (New York: Schocken Books, 1974), p. 67 and fn 56 on p. 369.

⁴ U.S. Department of Defense, Soviet Treaty Violations -- Alert No. 5 (Washington, D.C.: Office of Armed Forces Information and Education, 1962), 11 pp. The report was forwarded from Larry O'Brian to Mike Manatos, White House staff, under a cover note dated August 7, 1963. Lyndon B. Johnson Library.

⁵ For a representative sample, see David S. Sullivan, "The Legacy of SALT I: Soviet Deception and U.S. Retreat," Strategic Review, Vol. 7, No. 1 (Winter 1979), pp. 26-41; Senator Jake Garn, "The Suppression of Information Concerning Soviet SALT Violations by the U.S. Government," Policy Review, (Summer 1979), pp. 11-32; Elmo R. Zumwalt Jr., and Worth Bagley, "Soviets Cheat, and We Turn Our

turned as the Reagan Administration formally charged the Soviet Union with numerous treaty violations and, with the prodding of some conservative members of Congress, initiated the practice of releasing annual reports on Soviet noncompliance beginning in 1984.⁶ Even with the central involvement of the president in public accusations of noncompliance, there continued to be a drumbeat of unofficial charges through the end of the Reagan era that, in the final analysis, the Administration was not willing to endorse.

Given the hue and cry stemming from charges and countercharges of cheating, it is remarkable that such charges actually have had little lasting impact on policy decisions in Washington or Moscow on whether to pursue new types of arms control. Since the negotiating efforts of the 1950s, purported violations of past agreements have never been a major obstacle to a prospective deal that both sides really wanted. With hindsight, one can see clearly that the incidence and/or resolution of compliance disputes has been tightly coupled to the ups and downs of political relations overall. Thus, when relations were deteriorating, as in the

Backs," The Washington Star, August 10, 1975, p. 11.

⁶ The President's Unclassified Report on Soviet Noncompliance With Arms Control Agreements, The White House, Office of the Press Secretary, (mimeos), January 23, 1984, February 1, 1985, December 23, 1985, March 10, 1987, December 2, 1987, December 2, 1988, and February 27, 1990. Hereinafter cited as President's Report on Noncompliance.

early 1980s, noncompliance loomed as a serious stumbling block. Conversely, during periods of time when relations were improving -- in the mid-1960s, the early 1970s, and the late 1980s -- leaders on both sides generally were able to defuse problems or fence them into manageable levels.

Sometimes the shifts have been dramatic. Between 1984 and 1987, President Reagan declared several times that "Soviet noncompliance is a serious matter" that undermined "the confidence essential to an effective arms control process...." He also stated that "compliance with past arms control agreements is an essential prerequisite for future arms control agreements."⁷ Yet, by the Fall of 1987, and without anything close to full resolution of alleged Soviet or U.S. treaty violations, Reagan and Soviet leader Gorbachev completed work on the INF Treaty, receiving much acclaim from European leaders, the U.S. Congress, and the American public in the process. In the period from 1987 to 1989, important steps were taken on both sides to resolve outstanding compliance disputes; but the impulse to reach new agreements came first, pulling solutions to compliance issues along in its wake.

Generally, policymakers have sought to immunize arms negotiations from treaty compliance issues in three ways. First, they have on occasion taken issue with the charges

⁷ President's Report on Noncompliance, March 10, 1987, p. 2.

themselves, arguing that particular allegations of Soviet cheating were unjustified, or that the problems in question were minor ones and were being solved through quiet diplomacy. Secretary of State Henry Kissinger made essentially these arguments in an effort to quell persistent accusations of Soviet treaty violations in Congress and the press during 1974 and 1975.⁸ Similarly, during the latter stages of the SALT II negotiations in 1978, the Carter Administration found it necessary to issue a public report on SALT I compliance which concluded that there were no grounds for asserting unresolved Soviet violations of past agreements.⁹

Second, policymakers on occasion have taken the position that the new treaties under negotiation were substantial improvements over past efforts. Thus, in congressional testimony, then Secretary of State George Shultz defended the Reagan Administration's decision to proceed with the INF Treaty, in part because it incorporated "some lessons we learned the hard way," including more precise language and stronger verification than its

⁸ Press Conference of Secretary of State Henry A. Kissinger, Washington, D.C., December 9, 1975, cited in Roger P. Labrie, ed. SALT Handbook: Key Documents and Issues, 1972-1979 (Washington, D.C.: American Enterprise Institute, 1979), pp. 345-353.

⁹ U.S. Department of State, Bureau of Public Affairs, Compliance With SALT I Agreements, Special Report No. 55 (Washington, D.C.: Department of State, 1979), 6 pp.

predecessors.¹⁰ As part of this strategy, officials usually have attempted to decouple progress in one area from the resolution of compliance problems in another. So, for example, as Shultz urged the Senate's consent to ratification of the INF Treaty, he also indicated that the United States would not proceed with any further obligations regarding strategic defense programs until the now infamous Krasnoyarsk early warning radar, which was widely seen as a Soviet breach of the ABM Treaty, had been "dealt with satisfactorily."¹¹

Finally, policy officials have argued that new agreements could be expected to perform reasonably well in cases where both sides clearly saw the agreement as being in their mutual interest. As Shultz observed in the INF Treaty hearings: "The basis for the negotiations in the first place is that the parties seek an outcome that is in their mutual interest. The Soviets would not have assumed the obligations contained in the INF Treaty if they had not found its terms satisfactory."¹² Other officials have taken the same approach. Secretary of State Dean Rusk observed in 1962:

¹⁰ Statement of Secretary of State George P. Shultz in U.S. Congress, Senate Committee on Foreign Relations, The INF Treaty, Part 1, 100th Congress, 2nd sess. (Washington, D.C.: U.S. GPO, 1988), p. 26.

¹¹ Ibid., p. 27. As noted in Chapter 3, the Soviet Union has since admitted the violation and indicated that the radar station would be dismantled without compensation.

¹² Ibid., p. 26.

"Despite the fact that the Soviets callously ignore or repudiate treaties and promises that no longer serve their interests....we still must bear in mind that the Soviets are willingly observing many of their international obligations and can be reasonably expected to continue in the future, as long as they are convinced it is to their advantage to do so."¹³

Because particular compliance controversies often have a fleeting quality, they have generated much cynicism in the United States and elsewhere. Many observers take the view that compliance problems have been chronically distorted by anti-Soviet ideologues as a way to discredit arms control. Others have observed that Soviet countercharges have been inspired mainly by a desire to keep the "scorecard of violations" even. There is some truth to these perceptions. Some of the long "laundry lists" of charges leveled at Soviet practices since 1984 rest on strained or even spurious interpretations of the evidence and/or the relevant treaty language.¹⁴ It is also true that those who have been most deeply involved in pressing the compliance issue within the United States have often been the fiercest opponents of

¹³ Secretary of State Dean Rusk, quoted in Alert: Soviet Treaty Violations, p. 11.

¹⁴ A number of such instances are pointed out in Thomas K. Longstreth, "Report Aims to Sabotage Arms Control," Bulletin of the Atomic Scientists, January 1985, pp. 29-34.

new agreements.¹⁵ Huge bureaucratic battles in the U.S. executive branch have been fought over how to characterize compliance problems and how to resolve them.

On the whole, however, it would be wrong to treat compliance problems as if they were mainly the hallucinations of a few conspiracy theorists and ideologues. To point to obvious exaggerations is fair enough; but there is ample experience to show that the operation of complex agreements has a great potential for drawing both sides into acrimonious disagreement. Just as arms control has become a semi-permanent part of Soviet-American relations, compliance problems have become a commonplace feature of arms diplomacy. Why this should be so raises a host of important questions for arms control theory and practice. If each side freely entered into an agreement in the first place, what kinds of factors would lead to the erosion of its limits? Are there recurrent patterns in the ways that both sides have become embroiled in disputes over compliance? Is it possible to tell the difference between visible frictions associated with the self-interested behavior of two adversaries occurring within the confines of an agreement and those frictions which may suggest a more systematic effort by one side or the other to subvert an agreement?

¹⁵ A brief, critical report on some of the personalities involved is found in Jonathan Rich, "Arms Control and the Compliance Mafia," F.A.S. Public Interest Report, December 1984, pp. 6-7.

To deal with these questions, this chapter will explore the types of factors that can influence the dynamics of compliance behavior for better or worse. Then, the next chapter will examine the historical record to see where frictions have developed, how they have been interpreted by different schools of thought, and whether the record tends to alter or reinforce our general understanding of treaty-constrained behavior.

FACTORS BEARING UPON TREATY-CONSTRAINED BEHAVIOR

Scholarly inquiry into the treaty compliance phenomenon represents a diverse literature within international relations. Many of the best known works were not spawned by actual agreements but by the explosion of academic interest in arms control that occurred during the late 1950s and early 1960s, a full decade before SALT. Significant contributions were made by Richard Barnet, Donald Brennan, Hedley Bull, Richard Falk, Morton Halperin, Fred Charles Ikle, and Thomas Schelling, among other scholars.¹⁶ There

¹⁶ Hedley Bull, The Control of the Arms Race (New York: Praeger, 1961); Donald Brennan, ed., Arms Control, Disarmament, and National Security (New York: George Braziller, 1961); Thomas C. Schelling, Strategy of Conflict (Cambridge, Ma.: Harvard University Press, 1960); Fred Charles Ikle, How Nations Negotiate, and "After Detection -- What?," Foreign Affairs, Vol. 39, No. 2 (January 1961), pp. 208-220; Thomas C. Schelling and Morton H. Halperin, Strategy and Arms Control (New York: The Twentieth Century Fund, 1961); Richard J. Barnet and Richard A. Falk, Security In Disarmament (Princeton, N.J.: Princeton University Press, 1965).

have also been significant contributions by political scientists and international law scholars, which address arms control treaty compliance questions as part of larger investigations into the nature and operation of international agreements. Scholars in this category include Richard Bilder, Abram Chayes, Roger Fisher, Louis Henkin, and Oran Young.¹⁷

In general, discussions of treaty compliance within this literature display two notable characteristics. First, there has been a widespread tendency to explicate the dynamics of treaty-constrained behavior in utilitarian terms: as the product of rational calculations of costs and benefits, whether perceived by unitary actors or complex

¹⁷ Abram Chayes, "An Inquiry Into The Workings of Arms Control Agreements," Harvard Law Review, Vol. 85, No. 5 (March 1972), pp. 905-969; Louis Henkin, How Nations Behave (New York: Praeger, 1968); Roger Fisher, "Constructing Rules That Affect Governments," in Brennan, ed., Arms Control, Disarmament and National Security, and Fisher, Improving Compliance With International Law (Charlottesville, Va.: University of Virginia Press, 1981); Oran R. Young, Compliance and Public Authority (Baltimore: Johns Hopkins University Press, 1979); Richard B. Bilder, Managing the Risks of International Agreement (Madison, Wis.: University of Wisconsin Press, 1981). Within the larger field of international relations, there is a rich literature on international regimes and the nature of cooperation in the absence of centralized authority. Notable works include: Robert O. Keohane and Joseph S. Nye, Jr., Power and Interdependence (Boston: Little, Brown, 1977); Axelrod, The Evolution of Cooperation; and Kenneth Oye, ed., Cooperation Under Anarchy (Princeton: Princeton University Press, 1986). On the whole, however, this literature is more preoccupied with the conditions giving rise to cooperative forms of international behavior rather than with the characteristics of compliance behavior once formal agreements have been achieved. It is not, therefore, germane to this investigation.

organizations. Hence, a party to an agreement would probably not engage in violations so long as it perceived the benefits of imposing restraints on an adversary to be greater than the costs incurred by having restraints imposed on itself. This does not mean that all inducements to compliance were thought to be positive. Parties could be deterred from violations if the costs of cheating -- including the risks of being exposed prematurely through verification, the lapse of restraints on one's adversary, etc. -- outweighed the benefits of cheating.

A second characteristic of the literature has been the absence of any implicit or explicit agreement on what considerations ought to influence the way in which values are assigned to the cost and benefit sides of the compliance equation. On the whole, scholars tended to talk past each other. It does not simplify too much to say that those who appeared intrigued by the idea of arms control as a way to maximize self-interest and to avoid shared risks gave great weight to factors reinforcing compliance, whereas those who focused more attention on possible Soviet aims and behavior saw reasons to think that compliance might be difficult to achieve or maintain. In any event, this debate -- if one could call it that -- carried on through these works was largely prospective in nature. It focused on agreements that did not yet exist and the basic utilitarian model itself was

not challenged.¹⁸

The obvious point of departure for studying compliance is a treaty or some form of explicit exchange of promises between states. Negotiations leading to treaties are often deemed to be the arms control "process." In fact, what happens afterwards is just as important if not more so. As one negotiator has put it, "treaties are not perpetual motion machines which, once set in motion, run without further attention. Rather, treaties are like other complex and delicate human inventions; they require maintenance."¹⁹ The key variables in keeping an agreement intact are a thoroughgoing knowledge of the various factors that may enhance or inhibit compliance in any given case and taking steps to tilt the balance in favor of the status quo represented by an agreement. Correspondingly, a conceptual model of compliance should seek to explain behavior under treaty provisions as a product of these reinforcing and inhibiting factors.

¹⁸ Henkin (How Nations Behave, p. 46) disparages the pure utilitarian model as "a cynic's formula," but goes on to assess compliance behavior in the general area of international law in essentially utilitarian terms (pp. 45-83), underlining the point that "law observance, not violation, is the common way of nations."

¹⁹ Robert Mikulak, "Possible Improvements in the Biological Weapons Convention," unpublished paper presented at a symposium on "Biological Research and Military Policy," Annual Meeting of the American Association for the Advancement of Science, May 26, 1984, p. 4.

Reinforcing Factors

In general, scholars have identified five kinds of reinforcements to compliance with international obligations. The first and most obvious factor is convergent self-interest. For adversaries that enter into reciprocal forms of arms restraint, the most persuasive argument favoring compliance may be quite simply that it is a preferable situation to any feasible alternative -- be it fleeting superiority, a two-sided competition of indefinite duration, or a one-sided arms race that the other side eventually wins. Admittedly, one cannot ignore attributes of good faith, moral imperative, or personal rapport with one's counterpart that may influence a particular leader's decision to honor agreements. On balance, though, calculations of self-interest are political judgments that the advantages of sticking with an agreement would outweigh the gains of deviating from the status quo.²⁰ It is the convergence of self-interest which holds agreements together. One does not have to be an academic to come to such a judgment. Senator Frank Lausche and General Maxwell Taylor exchanged views on this point in 1959 during hearings on the nuclear test ban:

Sen. Lausche: . . . (D) I understand it to be your belief that the only time you can rely on such an agreement is when it is self-serving to each of the

²⁰ Young, Compliance and Public Authority, p. 18.

signatory parties?

Gen. Taylor: That is certainly the situation.

Sen. Lausche: Then it is your belief, on the basis of that statement, that so long as the situation and the agreement would be serving the interests of the Soviets, you could rely upon them in the performance of the agreement?

Gen. Taylor: I would say that is correct.

Sen. Lausche: Well, that is at least one of the attitudes to be considered in approaching the question...of their compliance.²¹

A second factor often cited as an inducement to compliance is deterrence. States comply with agreements because they fear that noncompliant behavior might prove costly.²² The risk of violation, they reason, could involve other parties imposing sanctions or other countervailing measures, including reciprocal noncompliance, or even abrogating an agreement in an extreme case. Conceivably, noncompliance could also damage relations with third parties and adversely affect a wider array of interests.

Clearly, the deterrence argument rests very much on the effectiveness of the verification system. Almost by

²¹ U.S. Congress, Hearings Before the Senate Committee on Foreign Relations, Disarmament and Foreign Policy, 86th Congress, 1st sess. (Washington, D.C.: U.S. GPO, 1959), pp. 134-135.

²² Fisher, "Constructing Rules," pp. 57-58.

definition, there can be no deterrence without some threat that surreptitious attempts at violations would be detected in a timely fashion. Yet, as Ikle and others have pointed out, detection alone is hardly a sufficient condition.²³ The potential violator must also believe that detection by the other side would result in the denial of the benefits of noncompliance. In part, this means that there must be a threat of exposure, as distinct from simply detection. In other words, the evidence must be convincing to third parties and public opinion in order to substantiate charges of noncompliance. Above all, there must be a high probability attached to the likelihood of response by the injured party.

There are a variety of ways to make the threat of response more credible. Schelling has argued that it is essential "to leave as little room as possible for judgments or discretion in carrying out a threat."²⁴ Ideally, this would mean that the types of response initiatives would be set in advance rather than pulled together in an ad hoc fashion.²⁵ One way of doing this could be to make the linkage between violations and responses of various types more explicit. Within a treaty framework, for example, states may link certain types of noncompliance that

²³ Ikle, "After Detection -- What?," p. 221.

²⁴ Thomas C. Schelling, Strategy of Conflict, p. 40.

²⁵ Fisher, Improving Compliance, p. 41.

"jeopardize supreme national interests" to use of the withdrawal provisions or to a general decision to suspend compliance.²⁶ Defining and authorizing a penalty in advance, before an issue is raised, as Roger Fisher argues, "would appear to have greater legitimacy than one which is made at the last minute in an effort to deter a particular move."²⁷

A basic uncertainty surrounding the deterrence argument is that we can never be sure when and how well it "works." Deterrence is essentially a nonempirical concept. If a state did not violate an agreement last month, was it because it was deterred from doing so or simply because it had no desire to do so? We can neither fully prove nor disprove assertions that deterrence works in any given case.

A third factor often cited as a reinforcement to treaty compliance is the need to assure foreign policy flexibility. Unless a state is completely autarkic (which is rare, even for revolutionary states), it will seek to advance its foreign interests through international agreements to varying degrees. Compliance with these obligations is a norm of international conduct that, over time, becomes a

²⁶ For example, the Kennedy Administration took the position during the test ban ratification hearings in 1963 that in the event the Soviets renewed atmospheric nuclear testing, the United States would be released from its obligation not to conduct such tests irrespective of any move to withdraw formally from the treaty. See Bilder, Managing the Risks, p. 162.

²⁷ Fisher, Improving Compliance, p. 41.

prerequisite for doing diplomatic business. Government officials are generally anxious to maintain agreements if they perceive their legitimacy and credibility to be at stake. In a sense, commitments create options. Schelling has observed that "what makes many agreements enforceable is only the recognition of future opportunities for agreement that will be eliminated if mutual trust is not created and maintained, and whose value outweighs the momentary gain from cheating in the present instance."²⁸ Authors such as Henkin have likened a country's record of compliance to a business credit-rating.²⁹ In this view, a reputation for honoring promises underwrites a foreign policy that seeks to secure advantages through international negotiations and agreements.

A fourth factor with compliance-enhancing effects may be the need for domestic credibility. For many of the same reasons discussed above, government leaders often recognize that treaty compliance can underwrite a strategy of domestic politics -- for example, to garner political support, to legitimize existing policies, to outflank domestic opposition (whether in the electorate at large, in Congress, or in the politburo), or to shift the onus of noncompliance to other parties in the event that problems emerge in the treaty regime. Conversely, it is possible that domestic

²⁸ Schelling, Strategy of Conflict, p. 45.

²⁹ Henkin, How Nations Behave, p. 48.

costs could be incurred by precipitate noncompliance. Roger Fisher comments: "Explicit international engagements that get tied up in governmental policy become more difficult to escape....The government buys popular enthusiasm, conviction, and support for present policies at the cost of limiting the freedom of action with which it can change them."³⁰

Finally, a fifth factor reinforcing compliance may be organizational routine. While government leaders see compliance as a way to enhance their authority, the complex organizations they direct may crave it for consistency. The major imperative for any bureaucracy is to achieve a degree of consensus over the direction of policy which, once charted, defies the whims and eccentricities of individual policymakers or politicians. Like a supertanker at sea, the inertial force behind a given course in a large organization becomes substantial. Rules, guidelines, and standard operating procedures that are created to implement policy and control its effects will also develop an independent staying power. And because bureaucracies invariably take their cue from present or past policies, the pressures for conformity are also substantial. Individuals or groups who choose not to support existing policies incur the risk of being excluded from the decision-making process or being considered disloyal.

³⁰ Fisher, Improving Compliance, p. 154.

According to this viewpoint, which has been argued most cogently by Abram Chayes, the negotiation process leading to an agreement is an important consensus-building tool within governments. In general, all of the relevant participants must bargain among themselves and agree with the final outcome before an agreement becomes official state policy. Once this process has taken place, all of the defects normally associated with bureaucratic behavior -- rigidity, conformity, lack of imagination, etc. -- become virtues from the arms control standpoint.³¹ There will be institutional resistance to deviating from set standards, not necessarily because the standards are substantively optimal, but because they promote order. Rules make it possible "to coordinate the fragmentary tasks and specialized functions of many people in a large organization."³² The noncompliant acts of a few would undermine this consistency. To shift direction, in fact, would require adopting noncompliance as the status quo. Such an outcome would be very problematic, if this argument is correct. Governments could not easily sustain official illegality in one area without risking the general discipline that is critical to the overall effectiveness of the organization. Dissident groups within the government would be inspired to mount rear-guard action, to chisel away

³¹ Chayes, "An Inquiry Into Arms Control Agreements," p. 935.

³² Ibid.

at past decisions, or to drag out new policy reviews. As Richard Bilder contends, the idea that "nations enter into international agreements with the idea of cheating or tricking the other party assumes a Machiavellian rationality and flexibility of which most governments are not capable in the real world."³³

Countervailing Factors

Why, then, is noncompliance an issue at all? Is it simply that agreements are just as prone to Murphy's law as other forms of human activity? No doubt they are. But any serious effort at explanation must start by looking at the context of relations between the parties to arms control treaties. As it developed in the 1960s, contemporary arms control theory sprang from the premise that antagonism between nuclear-armed adversaries might not be complete -- that such states could at times perceive a limited convergence of self-interest in reducing the risks and burdens of arms competition and could act cooperatively in accordance with that perception.³⁴ Whatever the results of specific cooperative actions, however, the assumption of conflicting interests always remained. Those engaged in arms

³³ Bilder, Managing the Risks, pp. 9-10.

³⁴ Schelling and Halperin, Strategy and Arms Control, cited in Morton H. Halperin, "Arms Control: A Twenty-Five Year Perspective," F.A.S. Public Interest Report, Vol. 36, No. 6 (June 1983), p. 3.

control theorizing were never seriously preoccupied with the question of whether limited forms of security cooperation might have some larger salutary effects on the ideological or geostrategic conflicts between adversarial states. While larger effects were not excluded a priori, the focus of the theory was to provide a basis for understanding the incentives behind limited forms of cooperation in managing risks in the absence of more comprehensive solutions. Thus, from the compliance standpoint, the presence of certain inducements to cooperation, though significant, was never taken to mean that compliance tendencies would prevail overall. There would always be some tension given the larger clash of interests.

Specifically, even if parties to freely-negotiated agreements perceive a self-interest in complying at some level, one can conceive of at least four types of countervailing pressures that could undermine agreements or pull them apart. First, there is the ever-present risk of incomplete agreement, either with respect to the actual language of various provisions or to a treaty's putative effects. The implicit assumption in much of the foregoing discussion was that parties generally reach full consensus in the process of gaining agreement. But there is no logical reason that this should always be so. To the contrary, in a competitive bargaining situation, it is quite likely that in some key areas the parties will have paved over

disagreements with ambiguous language or simply "agree to disagree." And even if there are no substantive disagreements, they may each want to preserve some flexibility while at the same time conveying the impression of restraint.

How serious are these problems? If the disagreements are clearly noted, the treaty as a whole might still work satisfactorily within its narrowed scope. Furthermore, it is possible, as Chayes notes, that parties may seek to avoid exploiting ambiguities in an agreement for fear of undermining the other side's confidence in the treaty or having to accept the onus for a breakdown.³⁵ However, problems can arise when deliberately ambiguous language conveys the mistaken impression of full agreement. Actions that might otherwise constitute clear violations become shaded by opposing interpretations over the meaning of certain provisions. Thus, as Ikle notes, when Prime Minister Winston Churchill expressed concerns to Truman in 1945 over the Soviet position in Eastern Europe, he spoke of "misinterpretations" rather than violations of the Yalta agreements.³⁶ The vagueness surrounding the major wartime accords made it more difficult for the Western allies to agree on a means to pressure Stalin over the future of

³⁵ Chayes, "An Inquiry Into Arms Control Agreements," p. 937.

³⁶ Ikle, How Nations Negotiate, p. 10.

Poland and Eastern Europe. Soviet noncompliance was not a clear cut issue in the context of the Yalta agreements which, as Admiral Leahy observed, were "susceptible to two interpretations."³⁷

A second complicating factor for treaty compliance is the possible impulse of one party or the other to "free-ride" on the agreement. In classical economic theory, free-riding involves a situation in which some parties enjoy the benefits of a collective good without necessarily bearing any of the burdens incurred in providing that good. Mancur Olson and Richard Zeckhauser have applied the concept to alliance theory to explain the tendency of small parties to free-ride on the fact that larger countries normally bear a disproportionate share of the burdens involved in providing the collective goods (i.e., defense or deterrence) that help maintain a balance of power.³⁸

Similarly, as Young has argued, free-riding could exist in the arms control sphere.³⁹ A treaty can be thought of as a kind of collective good which contains a set of compromises. In this package of compromises, one side has

³⁷ Walter Millis, ed., The Forrestal Diaries (New York: The Viking Press, 1951), p. 51.

³⁸ Mancur Olson, Jr., and Richard Zeckhauser, "An Economic Theory of Alliances," Review of Economics and Statistics, (August 1966), cited in Olson, The Logic of Collective Action (Cambridge Ma.: Harvard University Press, 1971), p. 36.

³⁹ Young, Compliance and Public Authority, p. 32-33.

traded away some advantages against those held by the other side in the search for mutual restraint and stable deterrence. However, if either party calculates that it could recoup at least some of its foregone advantages at the margins without provoking the other side into response, it may elect to engage in a strategy of piecemeal or selective violations aimed at improving its relative position under an agreement. This appears to be consistent with the interpretation of Soviet compliance behavior that Secretary Shultz offered: "The pattern of Soviet behavior is not one of wholesale violation of arms control treaties. Their violations have been selective and specific."⁴⁰ Whether such behavior reflects a conscious policy choice or is simply the product of incremental ad hoc decisions is open to question. If it is the latter, it is hard to describe the result as a "pattern" in any sense which conveys the idea of coherent and centralized decision-making. As noted above, Bilder has argued that a carefully orchestrated campaign of cheating presupposes a Machiavellian logic on the part of states that is probably not feasible in practice. Ikle takes the contrary view: "...a potential violator might enter into agreements solely in order to seek gains by violating them. He would calculate that there would always be a chance of his escaping detection or that 'restorative measures' might be delayed or frustrated for political reasons. And if he

⁴⁰ U.S. Congress, The INF Treaty, Part 1, p. 27.

lost out on these chances, a mere return to the status quo would leave him no worse off than before he entered into the agreement. The violator, in fact, would be playing a profitable game: 'Heads you lose, tails we're even.'"⁴¹

The third complicating factor for sustained treaty compliance may arise with shifts in the perceived balance and fairness of an agreement. The free-riding phenomenon points to one obvious problem, but there are others that could stem from broader changes in power relationships occurring outside the scope of an agreement. To start with, the treaty's distribution of burdens and benefits could itself be unfair and hence unstable in the face of changes in the international political sphere. This is certainly the case with agreements that were imposed after a war by victorious powers upon the vanquished. Martin Wight observed that such agreements were "never more than temporarily successful."⁴² For example, under the Treaty of Paris of 1856, which ended the Crimean War, Russia was obliged to dismantle her naval bases along the Black Sea coast; but fourteen years later, as the rest of Europe was preoccupied with the Franco-Prussian War, Russian leaders saw an opening and denounced the Black Sea clauses.⁴³ Germany's decision to

⁴¹ Ikle, "After Detection -- What?," p. 231.

⁴² Martin Wight, Power Politics (London: Penguin Books Ltd., 1978), p. 248.

⁴³ Ibid.

reoccupy the Rhineland in the mid-1930s was a similar act of defiance. Such agreements often become objects of scorn domestically and may lose legitimacy internationally.⁴⁴

Even with freely-negotiated accords, however, complications may arise through political or technological changes that could depreciate the value of an agreement. Examples of this phenomenon are legion. The provisions of the 1968 Non-proliferation Treaty that call for expanded technical assistance to support peaceful nuclear energy programs have lost much of their value for current or would-be parties because such assistance can generally be obtained by non-NPT parties directly through various suppliers competing in the nuclear export market. Likewise, the constraining power of existing restrictions on weapons deployment in space -- a composite of the 1963 Limited Test Ban Treaty (which outlaws nuclear explosions in space), the 1967 Outer Space Treaty (which bans nuclear weapons in orbit) and the 1972 ABM Treaty (which, as traditionally defined, bans the testing, development, and deployment of space-based ABM systems and components) -- has declined with

⁴⁴ The Versailles settlement is a good example. During the interwar years, a significant segment of British public opinion came to regard German resentments toward Versailles as well warranted. Actions by Hitler to revitalize German military power that might otherwise have been perceived as threatening to British interests (and were, in fact, so regarded by senior military officers) were rationalized by some politicians as throwing off the oppressive shackles of Versailles. For a brief discussion, see Michael Howard, War and the Liberal Conscience (Oxford: Oxford University Press, 1981), pp. 97-98.

the development of advanced non-nuclear technologies for the satellite attack mission. It is also true that political or technological changes could enhance an agreement's military significance in unanticipated and possibly unwelcome ways. So, for example, the arms control significance of the 1972 Biological Weapons Convention, which bans all BW-related efforts except for research on defensive measures, has suddenly increased as new biotechnologies make it possible to produce genetically-engineered toxins that are more diverse and many times more lethal than existing chemical agents. And work being conducted under the auspices of the U.S. Strategic Defense Initiative (SDI) on the nuclear-pumped X-ray laser may in time face a major barrier in the provisions of the LTBT that prohibit nuclear testing in space -- a restriction that was not publicly foreseen when the treaty was signed in 1963.

Changes of the kind described here are bound to affect the incentives of each side to maintain strict observance of their treaty commitments. Treaty negotiators obviously are not clairvoyants and cannot predict every eventuality that might stress a treaty regime over an extended period of time. It is precisely this problem that explains why treaties normally include provisions for periodic review conferences or, in the case of the SALT agreements, an explicit allowance for SCC representatives to consider "possible changes in the strategic situation which have a

bearing" on treaty obligations.⁴⁵

The fourth and final complicating factor for treaty compliance lies in the existence of potential domestic hazards to a treaty regime. It was assumed in some of the preceding discussion that the consensus-building effects of treaty negotiation can create substantial pressures in favor of the new status quo. No doubt this is true; but perhaps only to a degree and only for a finite period of time. It is also possible that this very process of consensus-building could result in a rivalry between winners and losers (i.e., those whose advice was followed or not). Almost by definition, losers operate from the premise that the costs of a prospective treaty exceed gains irrespective of the other side's compliance. So what happens if the losers persist in their dissent? Because treaties are generally seen as political prizes by leaders who sign them, the domestic opposition on either side may have some incentive to disparage a treaty or even to make it a rallying point for dissent if it appears that too much was given away.⁴⁶ Thus, continued U.S. compliance with the ABM Treaty and

⁴⁵ Article XIII, para 1d, The ABM Treaty, U.S. ACDA, Arms Control and Disarmament Agreements, p. 142.

⁴⁶ Henkin points out that the division of powers resulting from separate branches of national government, as in the U.S. case, can be an impediment to compliance. How Nations Behave, p. 71. Yet, in light of congressional efforts to uphold the ABM Treaty and the informal SALT regime during the Reagan years, it is also possible to argue the converse -- that the separation of powers has in fact been a force favoring compliance.

informal observance of the SALT limits on offensive arms was constantly called into question during the early years of the Reagan era, in part because many of the individuals chosen by the President for senior positions in the administration had actively opposed those agreements as private citizens or congressional aides during the 1970s. In this and other cases, profound divisions over the direction of national policy could be exacerbated by agreements. The issue of ratifying the 1930 London Naval Treaty, for instance, sparked off a domestic crisis in Tokyo over Japan's strategic position in Asia that ultimately led to the ousting of the civilian government by the military and to the eventual collapse of the agreement.⁴⁷

SUMMING UP

As the foregoing suggests, the mere fact that parties perceive some interest in entering into agreements is no guarantee that their cooperation will be immune to frictions from a variety of sources. In thinking about compliance dynamics, therefore, treaty-constrained behavior is best viewed as the product of constant interactions between pressures that have centripetal and centrifugal tendencies. In this simple model, the factors of convergent self-interest, deterrence through verification and response, diplomatic or domestic flexibility, and organizational

⁴⁷ Wight, Power Politics, p. 248.

inertia all can act in a centripetal way as the "glue" which holds an agreement together. On the other hand, the hazards of incomplete agreement, free-riding incentives, shifts in the balance and fairness of particular accords, and the loss of domestic support could exert powerful centrifugal pressures, triggering problems and pulling agreements apart. Given the adversarial setting of most arms control agreements, it is logical to suppose that both forces could exist together, just as the orbital motion of objects in space is dictated by the interaction of the two forces.

This conception of compliance is rather at odds with the notion that a state's domestic governance or general foreign policy orientation -- whether it is status-quo (i.e., "law abiding") or revisionist -- are the key factors in determining its approach to living within the terms of agreements. But such a notion is questionable to say the least. Even if we grant that states may engage in diplomacy for reasons that could be malign (i.e., to lull the other side into a false sense of security) as well as benign, it does not necessarily follow that compliance behavior will invariably reflect one tendency or the other. It is the substance of the agreement itself which is most important. Compliance behavior is based less on altruism or respect for the law than on cold, self-interested calculations of benefit and cost -- calculations that may well oscillate

over a period of years.⁴⁸ It is very hard to imagine that if a status-quo state really believed that an agreement had become detrimental to its interests, it would be more likely to continue its adherence to that agreement than a revisionist state faced with the same situation.⁴⁹ Or, to turn it around, if a revisionist state really believed an agreement was proving useful as a constraint on perceived threats to its territory, it is hard to imagine that it would be more likely to risk the agreement by cheating than a status-quo state faced with the same situation.

In the end, because compliance decisions involve some ongoing consideration of costs and gains, gauging a treaty's durability is never a closed issue. At any given moment one needs to ask: Is it the centripetal or centrifugal forces

⁴⁸ Certainly U.S. incentives to maintain the current rules governing strategic defensive forces have ebbed relative to 1972, while somewhat ironically, Soviet incentives to achieve a strengthened framework of restrictions on strategic offensive forces, which were questionable in the early 1970s, appear to have increased.

⁴⁹ I will nevertheless cede the possibility that its preferred mode of exiting from an unwanted treaty might well be more sensitive to public opinion and customary international law, and thus could involve efforts to vitiate the agreement through reinterpretation or the use of the standard withdrawal clause on the grounds of supreme national interests. A revisionist state might be relatively more prone to simply break-out without much thought to offending opinion. It is also true that the character of a state's internal governance will play a role in its ability to "perceive" what its own interests really are. In a system with a highly participatory form of government, like that of the United States, consensus on national interest and policy direction is bound to be harder to achieve than in a non-democratic form of government.

which exert the greater pressure, on balance? If centrifugal tendencies appear stronger, the result could be a dramatic breakdown of the treaty or else a withering away of its usefulness or even its replacement by a wholly new strategic situation (e.g., the oft-cited desire of some advocates for a defense-dominant world). Conversely, if centripetal tendencies appear stronger, the result may be to keep both sides engaged in a process of adjusting the treaty regime to new political or technological realities and addressing compliance frictions through problem-solving diplomacy and new forms of restraint. In this latter case, compliance problems, while troublesome and possibly damaging unless dealt with promptly, can serve as an engine of change. "That which does not kill me," Nietzsche once said, "only makes me stronger."⁵⁰

⁵⁰ Friedrich Nietzsche, Twilight of the Idols (London: Penguin Books, Ltd., 1968), p. 23.

3.

EVALUATING THE SOVIET-AMERICAN RECORD

What kinds of problems have emerged in the operation of Soviet-American strategic arms agreements since 1972? And what does this experience reveal about the various factors cited in the last chapter as being influential in determining treaty-constrained behavior?

As argued below, the historical record is very complex and subject to conflicting interpretations. Analytical extrapolations based upon the record are therefore subject to important limitations. Specifically, they do not help to establish anything very concrete about intentionality on the Soviet side. Although we can infer certain proximate causes and effects from observing individual problems -- e.g., a dispute over activity "X" was triggered by conflicting interpretations of treaty provision "Y" or had the effect of allowing one side or the other to free-ride on treaty provision "Z" -- the record of observed behavior alone is not an adequate basis for proving or disproving competing hypotheses regarding what the Soviets may have intended in particular cases. Even so, the record does contribute significantly to our understanding of compliance dynamics as it pertains to both sides. It highlights some of the factors already cited for their compliance inducing or inhibiting effects; and it points to additional factors which were not

previously addressed.

THE EXISTING REGIME: STRESSES AND STRAINS

The network of rules governing U.S. and Soviet strategic defensive and offensive force postures dates back to the early 1970s. On the defensive side, the 1972 ABM Treaty, with modest amendments, continues to provide the basic foundation for regulating U.S. and Soviet activities. It embodies mutual agreement to forgo indefinitely large-scale deployments of anti-missile defenses, which at the time were widely seen as technically infeasible and dangerous from the standpoint of stimulating further increases in offensive weaponry beyond planned levels. The treaty allows small-scale deployments (initially at two sites, later reduced to one site for each) but constrains them in terms of spatial criteria, location, and numbers of ABM components (interceptors, launchers, and radars) to strategically-trivial levels.¹ The two sides also erected a number of barriers to ABM development and testing programs,

¹ Criteria for permitted ABM deployments are spelled-out in Article III of the ABM Treaty, see U.S. ACDA, Arms Control and Disarmament Agreements, p. 140. The radius for the deployment area on each side is set at 150 km, and each area may contain no more than 100 launchers and 100 interceptors. Thresholds are also set on the size and number of ABM radars in deployment areas. For a useful discussion of how "strategically-trivial" is defined in the context of ABM restraints, see Ashton B. Carter, "The Structure of Possible U.S.-Soviet Agreements Regarding Missile Defense," in Joseph S. Nye, Jr., and James A. Schear, eds., On the Defensive?: The Future of SDI (Lanham Md.: University Press of America, 1988), pp. 141.

ostensibly to prevent the establishment of "a base" for future deployment of non-trivial ABM defenses: the treaty prohibits development, testing, and deployment of ABM systems or components that are not fixed, land-based systems;² non-ABM systems like anti-aircraft interceptors and radars are not to be given ABM capabilities or tested in an ABM mode; and new radars for early-warning of missile attack are limited to locations along the periphery of national territory, oriented outward, so they cannot contribute significantly to ABM defense. The treaty expressly permits the modernization and replacement of ABM systems, but it limits development and testing activities to current or additionally agreed test ranges. It also prohibits the development, testing, or deployment of rapid reload systems, interceptors with multiple warheads, or launchers with the capacity for simultaneous launch of more than one missile interceptor at a time. Finally, it proscribes the transfer of ABM systems or components to other states and bans the deployment of systems or components outside of national territory.

Since 1972, each side has pursued ABM Treaty compliance

² Under the treaty's traditional interpretation, this rule applies to both existing "conventional" ABM systems and components (i.e., launchers, interceptors, radars) as well as to future systems or components based on "other physical principles," like directed-energy weapons or sensors. Under a more permissive reading, which was advanced by the Reagan Administration, future exotic forms of ABMs are exempted from the restrictions on the development and testing of non-fixed systems.

matters with the other on numerous occasions. Specific issues are summarized in Table 3-1. On the U.S. side, the dominant concern has been whether permitted development and testing activities in the Soviet Union were stretching or breaking parts of the treaty designed to provide insurance against "breakout" -- i.e., rapid deployment of a significant nationwide ABM defense. Since the treaty came into effect, the Soviets have engaged in a steady, substantial research and development (R&D) effort aimed mainly at improving their "conventional" (i.e., nuclear-tipped) rocket interceptor systems. They have modernized their permitted Moscow-area ABM deployment with new interceptors and radars, engaged in development of a rapidly-deployable ABM system with possible applications for nationwide defense, and developed new generations of anti-aircraft interceptors with limited capabilities against ballistic missiles.³ The United States raised questions about various aspects of these programs during the mid-1970s but refrained from issuing formal charges of noncompliance until early 1984, several months after it detected the construction of an early warning radar illegally sited near Krasnoyarsk, on the interior of the Soviet Union. In 1985 and subsequently, the Reagan Administration leveled a more

³ The Soviet Union reportedly has completed expansion of its existing Moscow ABM system up to the maximum permitted level of 100 interceptors and launchers. See, e.g., The International Institute for Strategic Studies, The Military Balance 1989-1990 (London: IISS, 1989), p. 34.

Table 3-1

ABM TREATY COMPLIANCE ISSUES: 1972-1989

ISSUE	PROBLEM	ACTION	STATUS/OUTCOME
<u>Soviet Activities Cited by the United States</u>			
- Concurrent SAM/ABM testing (1973-4, 1980s)	whether anti-aircraft radars are being illegally tested in an "ABM mode"	US raises concern in 1975; asserts "probable" violation beginning in 1984	evidence ambiguous; guidelines adopted in 1978 and 1985 to clarify permitted concurrent operations
- Deactivation of ABM Test Launchers (1974)	whether procedures used in dismantling excess launchers accord with SCC rules	US points out inaccuracies in notification and dismantling procedures	no further problems reported
- Concealment of treaty-limited activity (1974)	whether concealment activities deliberately impede verification	US points out an "expanding pattern" of concealment that might impede verification	"expanding pattern" of concealment stops expanding after US complaint
- ABM Test Ranges (1975)	whether Kamchatka range is a "new" ABM test range	US questions activities at Kamchatka; no violation charged	USSR indicates that test range existed at time treaty was signed; both work out criteria for establishing new ranges
- Krasnoyarsk radar (1984)	whether a large phased array radar (LPR) is an early warning radar in the wrong location	US asserts violation	USSR claims radar is allowed but halts construction in 1987; offers to trade for Thule & Flyingdales radars or reaffirmation of ABM Treaty, finally admits violation and agrees to dismantle
- Rapid Reload ABM systems (1985)	whether <u>Galosh</u> and <u>Gazelle</u> launchers have a "rapid reload" capability	US asserts "serious concern"	evidence ambiguous; no explicit agreement on definition of "rapid reload"
- Mobility of ABM components (1985)	whether smaller ABM radars are intended to be permanently fixed types or not	US asserts "potential" violation	evidence ambiguous; previous administrations assessed radars as not being mobile

Table 3-1, continued

ISSUE	PROBLEM	ACTION	STATUS/OUTCOME
- Upgrading of SAM interceptors to ABMs (1985)	whether SA-12 missile has capability to counter tactical ballistic missiles or strategic ones	US asserts concern	evidence insufficient to judge; tactical anti-ballistic missiles (ATBMs) are permitted
- ABM Territorial Defense (1985)	whether aggregate of activities since 1984 suggests that USSR is preparing nationwide ABM system	US asserts that USSR "may be" preparing nationwide defense	no unique evidence presented; judgment turns on evaluation of other issues
- Gornel Radars (1987)	whether ABM radars are deployed outside agreed test ranges	US asserts violation	Soviets host US inspection in late 1987; US restates finding; in 1989 US says radars are dismantled; charge dropped
<u>US Activities</u> <u>Cited by</u> <u>the Soviet Union</u>			
- Malmstrom ABM radar dismantling (1974)	whether partially constructed radar was dismantled in accordance with agreed procedures	USSR questions procedure	US supplies data in response to query; issue not pursued further
- Shemya Island radar (1975, 1980s-)	whether LPAR on Shemya Island is for ABM purposes	USSR suggests that radar is not permitted at specified location	US states radar is covered under treaty's exemptions for LPARs; USSR revisits issue in 1980s
- PAVE PAWS radars (1978-)	whether coastal early warning radars provide base for ABM defense	USSR requests clarification; later charges violation	US supplies data to indicate that radars are for early warning; later modifies radars to reduce interior coverage of United States; USSR revisits issue in 1980s
- SCC rules on confidentiality (1978-)	whether US press accounts of treaty compliance violate privacy rule	USSR complains about press coverage, US official statements	US asserts that SCC rules do not bind press coverage or statements in national capital

Table 3-1, continued

ISSUE	PROBLEM	ACTION	STATUS/OUTCOME
- ABM Territorial Defense (1985)	whether SDI program constitutes illegal preparations for a territorial defense	USSR asserts problem; Soviet legal experts claim a violation	US asserts SDI is permitted research, not a base for nationwide defense
- Homing Overlay Experiment (1985)	whether ICBM booster is tested in an ABM mode, and for MIRV capability	USSR asserts violation	US holds that booster was decommissioned and observably different from an ICBM
- Thule/Fylingdales early warning radars (1986)	whether new LPARs at these locations are permitted upgrades of existing facilities	USSR asserts violation	US rejects trade for Krasnoyarsk radar; asserts radars are permitted; offers to host Soviet inspection in 1989
- SDI-related nuclear testing (1986)	whether nuclear tests in Nevada are illegally conducted out of ABM test ranges	USSR asserts violation	US holds that nuclear testing is permitted research that is not bound by test range provisions
- Delta 180 Experiment (1986)	whether test vehicles in space are ABM capable or tested in an ABM mode	USSR questions compliance aspects of experiment	US asserts that test vehicles are not ABM components and experiment did not involve testing in an ABM mode

Sources: U.S. Congress, Senate Foreign Relations Committee, Briefing on SALT I Compliance, 96th Congress, 1st sess. (Washington, D.C.: U.S. GPO, 1979), pp. 48-55; The President's Unclassified Report on Soviet Noncompliance With Arms Control Agreements, The White House, Office of the Press Secretary (mimeos), January 23, 1984, February 1, 1985, December 23, 1985, March 10, 1987, December 2, 1987, December 2, 1988, February 27, 1990; "Odious Smear Blitz," TASS Statement, January 24, 1984, reprinted in "U.S. Charges of Treaty Violations Rebutted," Foreign Broadcast Information Service, January 25, 1984, pp. AA-4-5; "The United States Is Violating Its International Commitments," Izvestiya, January 30, 1984, reprinted in "U.S.S.R. Aide Memoire To U.S. on Arms Violations," Foreign Broadcast Information Service, January 30, 1984, pp. AA1-5; "A TASS Statement," News and Views From the U.S.S.R., Soviet Embassy, Information Department, December 30, 1985; Thomas Longstreth, "Soviet Countercharges," Arms Control Today, March/April 1984, pp. 10-11; U.S. Arms Control and Disarmament Agency, Adherence to and Compliance With Agreements (mimeo), February 11, 1987; The Arms Control Association, "Analysis of the President's Report on Soviet Noncompliance With Arms Control Agreements," Arms Control Today, April, 1987, pp. 1A-6A; Matthew Bunn, "ABM Treaty Compliance: Star Wars Tests on Shaky Ground," Arms Control Today (April 1988), pp. 11-19; U.S. Congress, House of Representatives, Report by the Permanent Select Committee on Intelligence, Intelligence Support to Arms Control 100th Congress, 1st sess. (Washington, D.C.: U.S. GPO, 1987); "Kremlin Apology," The New York Times, October 25, 1989, p. A12; author's interviews.

serious accusation that Soviet programs, taken in aggregate, suggested that the U.S.S.R. "may be preparing an ABM defense of its national territory."⁴ The Bush Administration has not altered these findings, although, as noted below, the Soviet Union under Gorbachev has made some effort to resolve certain problems on its side, most notably the Krasnoyarsk radar.

Soviet criticisms of U.S. behavior have focused mainly on the SDI program. U.S. ballistic missile defense (BMD) programs were relegated to a fairly low priority during the 1970s. Under pressure from Congress, the Defense Department deactivated the one permitted ABM deployment site, at Grand Forks, North Dakota, after 1975.⁵ American R&D work concentrated mainly on developing basic technologies for "hard site" defense of missile silos but stopped short of integrating basic components -- radars, interceptors, etc., -- into a fully functioning prototype system. With the advent of SDI, spending for BMD increased substantially during the 1984-87 period, and priorities shifted toward development of new technologies for a multilayered defense to intercept attacking ballistic missiles in all phases of flight. The emphasis accorded to "exotic" technologies (i.e., directed energy weapons and sensors) and space-based

⁴ President's Report on Noncompliance, March 10, 1987, p. 4.

⁵ William J. Durch, The ABM Treaty and Western Security (Cambridge, Ma.: Ballinger, 1988), pp. 9-10.

concepts in SDI contrasted sharply with the dominant role given to conventional land-based ABM systems in Soviet engineering development. As noted in Table 3-1, the Soviets have complained about various activities within the SDI and have charged that the overall program is a direct violation of the treaty's prohibition against providing a base for nationwide defense. They have been particularly scathing in their criticism of U.S. efforts to give greater scope to SDI by advancing in 1985 a new, more permissive interpretation of the treaty that would allow work on non-fixed (i.e., space-based, air-based, or land mobile, etc.) exotic systems and components to proceed through the stages of development and testing.⁶

With respect to offensive forces, Soviet-American negotiations generally have aimed at defining approximate parity at fairly high levels of destructive power. (This would be true even of a phase 1 START regime that envisaged cuts of between one-third and one-half in strategic warheads.) Relative to the defensive regime, which addresses only anti-missile weapons, the rules governing offensive posture are broader in scope, covering long range bombers and some intermediate-range systems with limited reach

⁶ Then Soviet Chief of Staff, Marshal Sergi Akhromeyev attacked the U.S. reinterpretation as a "deliberate deceit" that "distorts the essence of the ABM Treaty." Pravda, October 19, 1985, cited in Edward L. Warner, III, "SDI and the Existing Regime," in Nye and Schear, eds., On the Defensive?, p. 117-118.

against strategic homelands, in addition to intercontinental ballistic missiles (ICBMs) and sea-launched ballistic missiles (SLBMs).⁷ But they are also much more modest in the kind of constraints they levy on deployment and modernization. Under the 1972 SALT I Agreement, both sides agreed to an interim freeze of five years on the numbers of ICBM and SLBM launchers and allowed some latitude for deployment of additional sea-based missile forces as replacements for older ICBM or SLBM launchers. The agreement imposed modest constraints on the upgrading of launch silos and prevented increases in planned deployments of delivery systems, but ongoing work on new MIRVed missiles on each side generally was not affected and overall warhead levels rose dramatically throughout the 1970s and early 1980s. The 1979 SALT II Agreement spelled-out equal ceilings in major categories of offensive forces, constrained the MIRVing of current or new ballistic missiles to then-existing levels through flight-testing rules, and limited each side to one "new type" of ICBM. Short-term bans were imposed on deployment and testing mobile ICBMs and on the deployment of certain types of cruise missiles. Nonetheless, major asymmetries in the mix of forces, including Soviet advantages in ICBM throwweight (i.e., the lifting capacity

⁷ The ABM Treaty imposes only indirect restraints on air-defense weapons -- i.e., they cannot be given an ABM capability or tested in an ABM mode. As we shall see in Chapter 6, the place of SAM systems in the ABM Treaty was a contentious one during the negotiations.

of individual missiles) and U.S. advantages in sea-based and bomber forces, were allowed to stand. The major development since the late 1970s has been the 1987 INF Treaty, which provides for the elimination of about 2,400 Soviet and American INF missiles by the early 1990s.

As with the defensive regime, both sides have grappled with numerous compliance issues ranging from minor ambiguities to formal charges of violations. The problems raised by each side are summarized in Table 3-2. It is significant that during most of the period in question, the SALT agreements themselves were only being observed informally, which added much tension and acrimony to consideration of compliance problems. SALT I expired in 1977 but each side agreed to observe its limits pending a new, more comprehensive agreement. SALT II was not ratified by the United States after the Soviet invasion of Afghanistan, and the incoming Reagan Administration pronounced it unacceptable. Even so, by June 1982 the Administration had adopted the position that it would take no action to undercut SALT I or SALT II provided the Soviets exercised equal restraint.⁸ This situation lasted until May 1986 when Washington announced that, in response to several

⁸ On May 31, 1982, on the eve of the START negotiations, President Reagan declared: "As for existing strategic arms agreements, we will refrain from actions which undercut them so long as the Soviet Union shows equal restraint." Remarks by the President at Arlington National Cemetery, Weekly Compilation of Presidential Documents, Vol. 18, No. 22 (June 7, 1982), p. 730.

Table 3-2

OFFENSIVE ARMS AGREEMENTS COMPLIANCE ISSUES: 1972-1989

ISSUE	PROBLEM	ACTION	STATUS/OUTCOME
<u>Soviet Activities Cited by the United States</u>			
<u>SALT I</u>			
- III-X silos (1973)	whether new silos are for ICBM or other purposes.	US asks for clarification	USSR supplies data to show that silos are for command and control purposes; issue not pursued further
- Concealment activities (1974)	whether concealment at production and test ranges impedes verification.	US charges that "expanding pattern" of concealment might impede in future.	"expanding pattern" of concealment stops expanding
- SS-19 ICBM (1975)	whether SS-19 is prohibited as a "heavy" ICBM.	US asserts SS-19 is inconsistent with its (unilateral) definition of a "light" ICBM	USSR points out that missile is permitted; distinction between "light" and "heavy" ICBMs is agreed in SALT II
- SS-7/8 silo dismantling (1976)	whether USSR failed to meet deadline on silo dismantling	US sees potential violation, asks USSR to delay sea-based deployments until silos removed	USSR complies; problem resolved
- mobile ICBM deployments (1985)	whether SS-25 uses facilities that were deactivated at former SS-7 bases	US initially asserts no violation in early 1985; asserts violation in late 1985	USSR claims it is using only structures whose dismantling was not required at sites in question
- Conversion of SSBN (1985)	whether reconfiguration of a <u>Yankee</u> class submarine to a SLCM-carrying sub accords with rules on deactivation of SSBNs	US sees no violation but asserts that threat posed by SLCM carrier is "similar" to that posed by a former SLBM sub	only one conversion made; other <u>Yankees</u> apparently withdrawn from service completely

Table 3-2, continued

ISSUE	PROBLEM	ACTION	STATUS/OUTCOME
<u>SALT II</u>			
- SS-16 ICBM (1984)	whether mobile SS-16s are illegally deployed at a test facility	US asserts "probable" violation	USSR apparently removes SS-16 related equipment during 1985; issue not pursued further
- SS-25 ICBM (1984)	whether testing and deployment of SS-25 is prohibited under "new type" rules	US asserts "probable" violation in 1984 and a definite violation in 1985	USSR claims SS-25 is a permitted modification of an older ICBM
- Encryption of Telemetry (1984)	whether Soviet encryption of missile test data illegally impedes verification	US asserts violation	Washington summit communique (1987) indicates agreement that future telemetry will be broadcast unencrypted under a START treaty
- Strategic Nuclear Delivery Vehicle Limits (1985)	whether Soviet SNDV levels exceed permitted threshold (2504)	US asserts violation	USSR denies claim; issue hinges on status of two dozen or so <u>Bison</u> bombers that were to be converted to tanker aircraft
- <u>Backfire</u> bombers (1985)	whether production rate and temporary deployments to arctic bases violate SALT II understandings	US asserts that arctic basing is "inconsistent" with understandings; that data on production rate are ambiguous	evidence to suggest production rate decreased to slightly below threshold of 30 per year
- Concealment of Missile/Launcher Association (1985)	whether Soviets deliberately concealed association between SS-25 and its launcher during testing	US asserts violation	USSR claims that launchers are not concealed during actual tests
<u>INF Treaty</u>			
- Transits of missiles on launchers (1988)	whether movement of SS-20s from operating bases to other facilities was procedurally correct	US asserts that transits of missiles on launchers is a violation	Although USSR notified transits, it agrees to adjust practices after US complaints
- Non-declared Treaty-limited items (TLI) (1988)	whether the USSR failed to declare all TLIs during updates of data-exchanges	US asserts violation	USSR resolves issue by declaring TLIs

Table 3-2, continued

ISSUE	PROBLEM	ACTION	STATUS/OUTCOME
- Movement of training launchers (1988)	whether failure to notify transits of training launchers violates notification provisions	US asserts violation	USSR agrees that such notifications are required
- Siting of TLIs scheduled for elimination (1988)	whether missiles were stored improperly outside declared facilities, and whether missiles were wrongly located at site declared ready for elimination	US asserts violation	USSR agrees to adjust boundaries of elimination site; and US indicates it will reinspect deployment site declared ready for elimination
<u>US Activities</u> Cited by the Soviet Union			
<u>SALT I</u>			
- ICBM Shelters (1973-, early 1980s)	whether environmental shelters deliberately impede verification	USSR complains in 1970s; claims violation in 1980s	US modifies shelters in mid-1970s; agrees to discontinue use after 1979
- ICBM launcher deactivations (1975)	whether <u>Atlas</u> & <u>Titan I</u> launchers are capable of being reconstituted	USSR asserts some ambiguity; requests clarification	US supplies data to indicate status of launchers; issue not pursued after 1975
<u>SALT II</u>			
- deployment of sea- and ground-launched cruise missiles (1983)	whether deployment of SLCMs and GLCMs after expiration of SALT II protocol (banning deployment) is permitted	USSR claims a failure to solve cruise missile issue as intended by the protocol	protocol expired after 1981; US asserts protocol is binding only until expiration date
- Intermediate-range missiles (1983)	whether deployment of <u>Pershing IIs</u> and GLCMs in Europe is permitted	USSR asserts violation of noncircumvention provisions	US claims INF not subject to SALT provisions, being dealt with in separate negotiation
- <u>Midgetman</u> ICBM (1984)	whether <u>Midgetman</u> program is permitted under "new type" rules	USSR asserts that <u>Midgetman</u> is a "pre-programmed" violation of SALT II	US asserts that <u>Midgetman</u> is not to be tested or deployed until after expiration of agreement, and is a response to Soviet SS-25

Table 3-2, continued

ISSUE	PROBLEM	ACTION	STATUS/OUTCOME
<p>- Anti-satellite testing (1984)</p>	<p>whether US ASAT tests are permitted under rules on verification</p>	<p>USSR asserts that ASAT testing indicates intention to violate provisions on non-interference with verification means</p>	<p>US denies claim; testing is not prohibited; issue is not pursued further</p>
<p><u>INF Treaty</u></p>			
<p>- Cruise missile conversions (1989)</p>	<p>whether diversion of unassembled GLCM parts to SLCM production violates requirement to eliminate GLCMs</p>	<p>USSR officials say there is "every reason" to charge a violation</p>	<p>US says components in question were never assembled into GLCMs, and thus do not count as GLCMs under the elimination requirements</p>

Sources: U.S. Congress, House Committee on Foreign Affairs, Subcommittee on Arms Control, Soviet Compliance With Arms Control, 100th Congress, 1st sess. (Washington, D.C.: U.S. GPO, 1987), pp. 245-259; Edward L. Warner III, "SDI and the Existing Arms Control Regime," in Joseph S. Nye, Jr. and James A. Schear, eds., On the Defensive?: The Future of SDI (Lanham, Md: University Press of America, 1988), p. 127.; International Institute for Strategic Studies, Military Balance 1987-1988 (London: IISS, 1987); R. Jeffrey Smith, "Defense Dept. Applies New Math to Missiles," The Washington Post, February 8, 1989, p. A25; see also sources cited in Table 3-1; author's interviews.

uncorrected Soviet violations, it would no longer be bound by SALT agreements in future decisions on strategic force structure.⁹ The United States maintained technical observance of SALT II until November 1986, when it deployed its 131st bomber equipped with air-launched cruise missiles (ALCMs), breaching a key sublimit of SALT.¹⁰ Since that time, further breaches have been held in check by congressional authorizations restricting spending on systems that would exceed SALT limits.

From the U.S. perspective, the most problematic Soviet activities since the 1970s have centered on SALT's rules for controlling qualitative improvements and for safeguarding verification. As it happened, the two SALT agreements of 1972 and 1979 were negotiated just prior to the onset of new Soviet development programs for ICBMs; in each case, the replacement of older by newer, more capable missiles, while not violating the numerical ceilings, created controversies over whether the Soviets were in full compliance with rules on upgrading forces. In addition, the fact that Soviet MIRV programs (and corresponding U.S. ones) proceeded apace

⁹ On May 27, 1986, President Reagan stated that future weapons decisions would be based on the "magnitude of the threat posed by Soviet strategic forces and not on standards contained in the SALT structure, which has been undermined by Soviet noncompliance." Michael R. Gordon, "Reagan Declares U.S. is Dismantling Two Nuclear Subs," The New York Times, May 28, 1986, pp. A1, A12.

¹⁰ Michael R. Gordon, "U.S. Exceeds Limit Set in 1979 Accord on Strategic Arms," The New York Times, November 29, 1986, p. A1.

within SALT allowances had a corrosive impact on political support for the agreements. With respect to verification, U.S. complaints focused on concealment practices at production areas and test ranges, including the denial of most test data transmitted from missiles in flight to ground receiving stations, which made monitoring by satellites and other systems vastly more difficult.

Soviet criticisms of U.S. behavior have been more incremental and give some appearance of being conceived mainly (though not wholly) as countercharges to American complaints of Soviet wrongdoing. As noted in Table 3-2, the Soviets complained on several occasions about the impeding effects on verification of environmental shelters placed over some ICBM silos during routine maintenance and renovation. They also criticized on compliance grounds various modernization initiatives for U.S. land-based missiles, especially the new, single-warhead mobile ICBM, the Midgetman. Some of their more vociferous attacks were aimed at U.S. ground-launched cruise missiles (GLCMs) and Pershing II ballistic missiles which were deployed in Europe beginning in 1983 as part of NATO's decision to augment intermediate-range forces. These weapons were characterized by the Soviets as a serious circumvention of SALT II that upset the strategic balance.

Since the entry into force of the INF Treaty, a number of compliance issues have flared up. The United States

complained about apparent violations on the Soviet side in procedures governing the removal of INF missiles from deployment areas to elimination sites, while the Soviets raised questions about a Pentagon plan to redirect certain cruise missile components previously earmarked for GLCMs into the production program for SLCMs.¹¹ Both sides also experienced difficulties in reaching accord on instrumentation for the "portal" monitoring facilities at production locations. From outward appearances, however, both sides have worked hard to resolve these problems, and neither had charged any substantial violation of the treaty by the end of 1989.

CONFLICTING ASSESSMENTS OF THE RECORD

Although no longer the stumbling block to negotiations that it appeared to be only a few years ago, the compliance record summarized in Tables 3-1 and 3-2 remains a contentious issue in retrospective analyses of strategic arms control. This is especially true in the United States. During the late 1980s, a number of politicians, officials, and other observers came to judgments on Soviet practices that were sharply opposed. Former Secretary of State George

¹¹ See President's Report on Noncompliance, The White House, Office of the Press Secretary, (mimeo), December 2, 1988, pp. 12- 15; R. Jeffrey Smith, "Defense Dept. Applies New Math to Missiles," The Washington Post, February 8, 1989, p. A25.

Shultz called Soviet performance "far from perfect."¹² Senator Robert Dole, the Senate Minority Leader, has termed it "dismal."¹³ Former Secretary of Defense Harold Brown characterized it as "troublesome."¹⁴ On the other hand, General John Chain, formerly director of the State Department's bureau of politico-military affairs, told a Congressional committee: "If you take the body of the treaties in a macro sense, they [the Soviets] have complied with the large majority of the treaties."¹⁵ And a former deputy director of the Arms Control and Disarmament Agency, Spurgeon Keeny, said: "...the overall record of Soviet compliance has been remarkably good during an extremely difficult period."¹⁶ Disagreements of this magnitude were echoed by analysts of differing persuasions who exhaustively studied parts or all of the Soviet compliance record.¹⁷

¹² U.S. Congress, INF Treaty, Part 1, p. 26.

¹³ Ibid., p. 8.

¹⁴ U.S. Congress, Hearing before the Subcommittee on Arms Control, International Security, and Science, House Committee on Foreign Affairs, Implications of Abandoning SALT, 99th Congress, 2nd sess. (Washington, D.C.: U.S. GPO, 1986), p. 3.

¹⁵ Michael R. Gordon, "U.S. Aide Says Soviet Has Kept Most Arms Pacts," The New York Times, January 10, 1986, p. A3.

¹⁶ Comments of Spurgeon M. Keeny, Jr., "Briefing on the Administration's Report on Soviet Compliance With Existing Arms Control Treaties," Press Release, The Arms Control Association (mimeo), March 12, 1987, p. 3.

¹⁷ Among those who point to a major pattern of Soviet violations: William R. Harris, "Soviet Maskirovka and Arms Control Verification," in Patrick J. Parker and Brian D.

U.S. compliance has also been a contentious issue, both in the United States and elsewhere, although the range of viewpoints is narrower. The Reagan Administration asserted in 1987 that Soviet allegations regarding U.S. behavior were completely without merit and represented an effort to "invent countercharges" as a way to blunt legitimate U.S. concerns.¹⁸ Former U.S. officials such as Ambassadors Robert Buchheim and Sidney Graybeal have corroborated this point to a degree by observing that Soviet diplomats have been very sensitive to "the image of balance" and a desire to "keep the scorecard even" in their compliance dealings.¹⁹ At the same time, while agreeing that most Soviet charges strain

Dailey, eds., Soviet Strategic Deception (Lexington, Ma.: Lexington Books, 1987), pp. 208-221; Brian D. Dailey, "Deception, Perceptions Management, and Self-Deception in Arms Control: An Examination of the ABM Treaty," in Parker and Dailey, eds., Soviet Strategic Deception, pp. 225-259; Colin S. Gray, "Moscow Is Cheating," Foreign Policy, No. 56 (Fall 1984), pp. 141-152. Those who take issue with the critics include: Michael Krepon, "Both Sides Are Hedging," Foreign Policy, No. 56 (Fall 1984), pp. 153-172; Gloria Duffy, ed., Compliance and The Future of Arms Control (Cambridge, Ma.: Ballinger, 1988); Catherine Girrier and Allan Krass, Disproportionate Response: The Politics and Practice of Treaty Compliance (Cambridge Ma.: Union of Concerned Scientists, 1987); The Arms Control Association, "Analysis of the President's Report on Soviet Noncompliance With Arms Control Agreements," Arms Control Today, April 1987, pp. 1A-12A.

¹⁸ U.S. ACDA, Adherence To and Compliance With Agreements, (Washington, D.C.: ACDA Office of Public Affairs, February 11, 1987), Attachment 2, p. 1.

¹⁹ See comments by Ambs. Buchheim and Graybeal in U.S. Congress, Hearing before the Senate Committee on Foreign Relations, Briefing on SALT I Compliance, 96th Congress, 1st sess. (Washington, D.C.: U.S. GPO, 1979), pp. 30-31.

reasonable interpretations of treaty language, these and other experts are reluctant to rule all Soviet charges out of order. Graybeal, for instance, testified that Soviet complaints about the use of shelters over ICBM silos raised a "real and legitimate" compliance question.²⁰ Others have argued that the ABM Treaty does not provide a "strong legal base" for the radar installations at Thule and Fylingdales.²¹ There is also concern that U.S. justifications for certain SDI experiments have weakened the ABM Treaty. According to former U.S. officials Brent Scowcroft and William Perry, among others, the propriety of some of these experiments rests upon "fine distinctions between components and subcomponents that are not specified in the ABM Treaty, and upon effective criteria that measure BMD potential against a future 'responsive' offense rather than existing Soviet forces....These criteria are not mutually agreed upon measurements. We would probably not accept them as justifications by the Soviets if they chose to conduct similar activities."²²

In a sense, it should not be surprising that there is no clear convergence of views in debates surrounding compliance. Disagreements, in part, are a natural reflection

²⁰ Ibid., p. 11.

²¹ Aspen Strategy Group, The Strategic Defense Initiative and American Security (Lanham, Md.: University Press of America, 1987), p. 41.

²² Ibid., p. 43.

of the fact that the record is very complex and simply does not lend itself to one unified, inerrant interpretation of historical truth. Analysts ostensibly drawing from the same set of data arrive at widely divergent assessments. Why is this so? And is it possible to differentiate those assessments which fall within the range of reasonable disagreements about the record from those which stray beyond the bounds of any legitimate interpretation?

Areas of Agreement

As a starting point, it is worth pointing out several aspects of the compliance record that are not essentially in dispute. First, and most obviously, "compliance issues" are not the same thing as "violations." Diplomatic interactions over compliance have encompassed a broader array of issues than simply occurrences of actual or potential breaches of treaty language. Nine of the 42 cases summarized in Tables 3-1 and 3-2 involved clarifications or notifications where one side or the other sought data to reduce ambiguities in compliance assessments or to establish precautionary rules for future conduct.²³ At a minimum, this indicates occasional efforts by one side or the other to preempt

²³ These cases include: Deactivation of ABM Test Launchers (USSR), ABM Test Ranges (USSR), ABM Radar Dismantling (US), Shemya Island (US), III-X Silos (USSR), Concealment Activities, 1974 (USSR), Conversion of SSBN (USSR), Atlas and Titan Launcher Dismantling (US), Conversion of Cruise Missiles (US).

problems before they escalated to the level of public recriminations.

Second, in those cases bearing more directly on compliance, instances of clear-cut violations by either side have been very infrequent. Tables 3-1 and 3-2 show twenty-seven instances in which one side or the other warned about violations or potential violations. Yet, in only a few cases -- such as the Krasnoyarsk radar, dismantling procedures for older ABMs and ICBMs, and INF missile transits/elimination -- does the preponderance of evidence clearly overrule any plausible interpretation of an action as actually or potentially compliant within the meaning of relevant treaty provisions. (And some of these, it should be stressed, were minor technical violations, subsequently restored.) In most other cases there is some room for disagreement, either with respect to intelligence on the activity itself (e.g., the SS-16 case or the SA-5 radar testing issue) or to the application of the rules (e.g., SDI-related testing), which allows one party or the other to proclaim its compliance. This is one reason why a non-trivial number of cases are characterized in hedged terms, as "probable" or "potential" violations, or matters of "serious concern." The tentative nature of many verification judgments stem from uncertainties that are intrinsic to intelligence assessments.

A third, related observation is that many of these compliance problems were "built into" agreements during the bargaining process. In some cases, treaty provisions simply do not address specific contingencies or fully define all the operative terms. So, for example, with respect to telemetry encryption, how extensive must encryption be before it "impedes" verification? Or, in the case of the reloading of ABM launchers, how rapid must "rapid" reloading be before it becomes a prohibited act? Or, in the case of mobile ABMs, how transportable must radars and launchers be before they are no longer components intended for "permanently fixed" deployment? In other cases treaty language may be prone to differing interpretations. Both sides, for example, disagree over how to calculate the throwweight of the SS-25 missile, a key issue in establishing Soviet compliance with the "new-type" rules of SALT II. They also dispute whether the new U.S. radar stations at Thule and Fylingdales are allowed as modernization of existing facilities or prohibited as deployments of early warning radars outside national boundaries. As these examples indicate, a treaty can be silent or speak with conflicting voices. Either way, it becomes more difficult for the verifying party to sort out reasonable from spurious justifications offered by the other side in defense of problematic activity.

Fourth, the record shows that U.S. compliance concerns generally have been triggered by visible, if ambiguous Soviet activities rather than by traces of large-scale covert cheating programs. It is quite true that extensive concealment and denial activity has accompanied many Soviet strategic programs. In several cases (e.g., encryption, flight test operations, etc.) the scale of such activities has encroached on arms control limits. But none of these activities fairly can be said to have involved attempted concealment of significant levels of forces or activities that were flatly prohibited. Indeed, in almost all the cases concerning allegations of Soviet violations or potential violations, the offending conduct had to do with the scale, location, or performance characteristics of forces or activities that were expressly allowed under an agreement.²⁴

Finally, there is widespread consensus that, with few exceptions, the "value added" to military capabilities by individual violations or potential violations has been quite marginal compared to the significance of permitted force improvements over the same period of time. Certainly, with respect to offensive forces, the unique military benefits of actions such as deployment of the SS-25s, the possible covert deployment of SS-16s, or the array of concealment

²⁴ The one potential exception is the alleged deployment of SS-16 mobile ICBMs at the Plesetsk missile test range, which, if true, would have constituted a violation of the deployment ban on the SS-16 in SALT II.

activities of concern to each side, are all very small compared to the permitted deployments of MIRVed ballistic missiles and ALCM-equipped bombers which have boosted overall force loadings from a few thousand on each side to approximately twelve thousand warheads apiece since the mid-1970s. On the defensive side, value-added comparisons are less certain given the absence of deployment infrastructures with a nationwide "reach." Still, no one has seriously argued that disputed individual activities on either side have come anywhere close to the scale of effort required to establish a base for effective nationwide defense.²⁵ Radars, for example, are often cited as the "long-lead time" items in any defensive system. But none of the radar projects which have drawn both sides into disputes thus far -- Krasnoyarsk, Thule and Fylingdales, or the PAVE PAWS enhancements -- contribute decisively to either side's capacity to build an effective nationwide ABM defense. While they do augment early warning of missile attack, they are clearly not optimized for ABM battle management functions

²⁵ Even the Reagan Administration refrained from claiming that Soviet ABM breakout would be in any sense "effective." The fact that no crash programs have been undertaken on ICBM penetration-aides (pen-aides) on the U.S. side would suggest a lack of concern over the military implications of this possible breakout. Other commentators have been less complacent. Manfred Hamm has argued: "...the Soviets are on the verge of acquiring all the major elements for the potential to wage nuclear war against the United States at tolerable cost." See "Soviet SALT Cheating: The New Evidence," Memorandum 31 (Washington D.C.: The Heritage Foundation, 1983), p. 1.

and could not of themselves sustain defenses in the face of readily available and cost-effective countermeasures. A few extra SLBMs or cruise missiles from existing inventories would suffice to put these radars at risk.

Areas of Disagreement

Each of the foregoing observations, though not seriously contested in most appraisals of the record, has become interwoven with more contentious interpretations in ways that bear close examination. One bone of contention concerns the utility of diplomacy in ironing out or preempting problems. No one disputes that both sides have consulted on numerous occasions regarding ambiguous activities. The divisive question is: to what effect? Those who portray the overall record in positive terms point to evidence that Soviet representatives generally were forthcoming in clarifying activities on their side, and in adjusting or halting offending activity in response to U.S. complaints.²⁶ The cooperative spirit ceased when the U.S. renounced the SALT process after 1980. Those who take a pessimistic view, however, do not credit the SCC with any successes. Some critics argue that the Soviet Union never really met U.S. concerns, delaying responses or promising remedial steps that were never taken, and that "remedies"

²⁶ Comments of Amb. Sidney Graybeal in U.S. Congress, Briefing on SALT I Compliance, p. 17.

amounted to the United States accepting what had been done in violation.²⁷ Others contend that the SCC gave the Soviets a venue for mounting spurious countercharges, which deterred U.S. representatives from raising issues in the first place. Still others allege that the SCC provided a way for the Soviet Union to test the sensitivity of American intelligence capabilities by seeing whether telltale signs of offending activity would trigger U.S. protests in the SCC.²⁸ Former U.S. officials with SCC experience vigorously dispute these characterizations, but the debate continues. Some critics have even charged that the Soviets have selectively restored their compliance in a few areas (e.g., removing SS-16 equipment, slowing Backfire production marginally) as part of their overall noncompliance strategy, to attenuate U.S. responses while consolidating gains through cheating.²⁹

Analysts with opposing perspectives also divide on the quality of duplicity represented in the compliance problems which have occurred. Again, there is no dispute over the paucity of clear-cut violations. The question is: who bears

²⁷ See Remarks of Amb. Paul Nitze, U.S. Congress, Hearings before the Senate Foreign Relations Committee, The SALT II Treaty, Part 1, 96th Congress, 1st sess. (Washington, D.C.: U.S. GPO, 1979), p. 493.

²⁸ Harris, "Soviet Maskirovka," p. 214-217.

²⁹ William R. Harris, "Arms Control Treaties: How Do They Restrain Soviet Strategic Defense Programs?," Orbis, Vol. 29, No. 4 (Winter 1986), pp. 705-707.

responsibility for the shortcomings of agreements, the fuzziness of treaty language in certain areas, etc.? Critics contend that the USSR obtained unfair advantages by insisting on vague language as part of a deliberate strategy. As former Secretary of Defense Caspar Weinberger told President Reagan: "From the beginning, many felt that the Soviets used the arms control process to obscure their planned offensive buildup, weaving into the fabric of SALT I and the ABM Treaty the loopholes and ambiguities that they would later rely on to becloud or extenuate their violations."³⁰ Thus, some pessimists extend this line of argument to make the claim that Soviet negotiators engaged in deceptive bargaining practices and falsified data in order to lure the United States into accepting unequal provisions and loopholes in treaty language.³¹

Those with a less pessimistic view, however, reject such claims and point to other causes. Many of the ambiguities contained in agreements, they contend, are a reflection of the fact that certain types of prohibitions (i.e., on rapid reload, etc.) were intrinsically difficult to define and were not an indication of sloppy negotiating by the United States. They argue that U.S. negotiators also

³⁰ Secretary of Defense Caspar Weinberger, Memorandum to President Reagan (unclassified), November 15, 1985, Subject: "Responding to Soviet Violations Policy (RSVP) Study, (mimeo), p. 1.

³¹ Sullivan, "The Legacy of SALT I," p. 36.

sought general language or exemptions to protect options -- such as the development of tactical anti-ballistic missiles (ATBMs), deployment of INF to Europe, or deployment of large radars for verification purposes -- and they are not inclined to criticize the Soviet Union for "jumping through" U.S. inspired loopholes.³² (We will return to this issue in Chapter 6.) Finally, these individuals see no evidence to sustain the charge of deliberate deception. They point to instances in the negotiating record where the Soviets were careful not to take positions that would have raised legitimate questions about their behavior.³³

There is also disagreement over what significance should attach to the retirement of older strategic weapons. For some analysts, indications of malign Soviet intent

³² As a group of former U.S. officials, including William Hyland, Walter Slocombe, and Joseph S. Nye, has argued: "Where the United States has sought to protect specific U.S. program initiatives, it has tended to seek language which explicitly permits the initiative....Occasionally, however, the U.S. preference for general language is due to a manifestation of the old legal maxim inclusio unius exclusio alterius, i.e., to prohibit certain specific actions is, by implication, to permit others. Particularly where it is literally impossible to set forth all potential violations, the United States has sought either a general prohibition cast in terms of effect, not method...or stressed that a list of specific prohibitions is not all inclusive...." Carnegie Panel on U.S. Security and the Future of Arms Control, Challenges to U.S. National Security (Final Report), (Washington, D.C.: CEIP, 1983), p. 50.

³³ For example, on the question of the SS-19 deployment, see Walter Slocombe, "A SALT Debate: Hard But Fair Bargaining," Strategic Review, Vol. 7, No. 4 (Fall 1979), pp. 24-25.

suggested by compliance problems are very much reduced by the active steps taken by the Soviet side to maintain compliance with SALT Agreements, specifically by deactivating over 1,200 ICBM and SLBM launchers since the mid-1970s.³⁴ Others stress that in the wake of the 1972 agreements, the process of implementing new plans for strategic weapons programs on the Soviet side moderated considerably.³⁵ In contrast, the critics give little credence to the idea that those deactivations reflected any real constraints on Soviet force posture. The removal of older systems, they contend, was already planned as part of modernization and improvement programs that led to substantial warhead increases. Correspondingly, they reject the contention that SALT's limits forced any restructuring in Soviet strategic acquisition plans. Richard Perle has argued: "There is no significant difference between their forces today, and what their forces would have been without SALT."³⁶

³⁴ According to the Arms Control Association, Soviet SALT-required deactivations through 1985 included 1007 ICBM and 233 SLBM launchers. See Countdown on SALT II (Washington, D.C.: The Arms Control Association, 1985), p. 23. Other analysts put the figure of SALT-required deactivations at 500 to 600 launchers.

³⁵ John Steinbruner, "U.S. and Soviet Security Perspectives," Bulletin of the Atomic Scientists, (August 1985), p. 92.

³⁶ Statement of Richard Perle, in U.S. Congress, House Committee on Foreign Affairs, Soviet Compliance With Arms Control Agreements, 100th Congress, 1st sess. (Washington, D.C.: U.S. GPO, 1987), p. 22.

Pessimistic analysts also assert that the minor military value of most individual violations is no reason for complacency. To a far greater degree than their opponents, these analysts are prone to attribute strategic implications to perceptions of political weakness. Colin Gray argues: "The argument that Soviet treaty violations are not militarily important is wrong....A Soviet decision that U.S. political will is not to be taken seriously would have major military implications. Much additional military muscle would be required to offset a perceived deficiency in American resolve."³⁷ It has also been argued that optimistic assessments fail to account for the interactive effects of small scale violations, and that the Soviets may take a very expansive view of the kinds of violations that would be militarily useful to undertake.³⁸

Incriminating and Exonerating Interpretations

Ultimately, there is no perfect way to disentangle these disputes on the basis of some ostensibly fair-minded reading of the record. In deciphering the meaning of past

³⁷ Gray, "Moscow Is Cheating," p. 149.

³⁸ For example, Carnes Lord contends: "...given the Soviets' emphasis on nuclear war-fighting as opposed to deterrence and their apparent belief in the utility of strategic defense, it should not be surprising if their notion of military significance [of violations] is broader than that of the United States." See "Verification and the Future of Arms Control," Strategic Review, Vol. 6, No. 2 (Spring 1978), p. 29.

events the opaqueness of Soviet governance imposes substantial problems for compliance assessment.

Reconstructions of Soviet behavior must be based almost entirely on the observable output of Soviet decision-making -- the forces in being, their operational configuration and supporting infrastructure. The inputs that form the basis of policy, such as ideological mindset, planning objectives, or bureaucratic inertia or incoherence, are extremely difficult to weigh.³⁹ Often, the result is that the historical record tends to support exonerating as well as incriminating interpretations of Soviet motives in particular cases.

To illustrate this point, consider the ABM/SAM concurrent testing issue cited in Table 3-1. U.S. concerns in this case revolved around the repeated use of SA-5 air-defense radars during ABM testing in 1973 and 1974 at the ballistic missile test range near Sary Shagen in Kazakhstan. In early 1975, U.S. representatives at the SCC expressed concern that such activity might be inconsistent with Article VI(a) of the ABM Treaty, which inter alia bars

³⁹ The only available insights on the inputs to Soviet planning are those contained in emigre reports, which themselves are notoriously difficult to authenticate. For instance, according to Arkady Shevchenko, in the wake of the Soviet decision to sign the 1972 Biological Weapons Convention, Soviet Defense Minister Grechko instructed the military not to abandon its production of BW. Breaking With Moscow (New York: Alfred Knopf, 1985), p. 179. Joseph Douglass draws extensively on emigre research in his interpretation of Soviet arms control behavior, Why the Soviets Violate Arms Control Treaties (New York: Pergamon-Brassey's, 1988).

the testing of non-ABM components in an ABM mode. During the SALT I talks, U.S. negotiators had pushed hard to obtain this provision in order to preclude circumvention of the treaty through the covert upgrading of SAM systems, which were not limited, into ABMs. The Soviets had resisted such a constraint initially, on the grounds that non-ABM systems had no place in the agreement, and in part perhaps because they understood that such a limitation would give U.S. intelligence services a legal claim to collect data on their SAM defenses. In any event, they eventually acquiesced to the collateral constraint on testing "in an ABM mode" in the face of stiff U.S. insistence.⁴⁰

When queried on the matter, Soviet officials stated that the SA-5 system was not being tested against strategic ballistic missiles but was employed by test range personnel to monitor air traffic in the general vicinity of the Sary Shagen facility. Such an explanation appears plausible for several reasons. The Soviets have long held that they should be able to track unidentified aircraft close to the test area, which is not far from the Sino-Soviet border. In addition, some uses of non-ABM radars at test ranges were clearly permissible. Both sides reached a common understanding in the negotiations on allowing non-phased array radars to be used for "range safety or instrumentation

⁴⁰ See discussion on radar restraints in Gerard Smith, Doubletalk: The Story of SALT I (Lanham Md.: University Press of America, 1985), pp. 307-318.

purposes."⁴¹ A source familiar with the talks has observed that the Soviets had a need for a continuous wave (CW) instrumentation radar at their test ranges, and the SA-5's radar was the only system in the inventory which could be used for this purpose.⁴² These considerations provide grist for an exonerating interpretation -- that the Soviets, as claimed, were tracking airborne activities in and around the range, not making prohibited measurements on ballistic missiles.

Yet, incriminating interpretations also have been developed to explain Soviet behavior. The Soviets were well aware of U.S. concerns regarding the SA-5 radar. Indeed, it was precisely because of the SA-5 system that the United States, despite Soviet resistance, had pressed for the Article VI provision in the first place. Moreover, although the Soviets acquiesced to Article VI, they specifically declined to accept any of the criteria tabled by the United States for defining testing in an ABM mode.⁴³ Given these considerations, the fact that they reportedly pursued concurrent ABM/SAM activity for up to 18 months before U.S. officials complained arguably could be read as a desire to

⁴¹ U.S. ACDA, Arms Control and Disarmament Agreements, pp. 144-145.

⁴² Jan Lodal, "Verifying SALT," Foreign Policy, No. 24 (Fall 1976), p. 46.

⁴³ They did not expressly reject them either, however. For further discussion, see Chapter 6.

test United States readiness to insist on strict observance of treaty provisions (negotiated at U.S. insistence) addressing SAM upgrade. It has also been suggested that SA-5 radars could have been turned on at appropriate moments as a way to test the sensitivity of U.S. electronic intelligence (ELINT) collection systems. Although probing action of this kind was not barred by the treaty, it could have suggested a desire to reap intelligence benefits through the adroit use of a treaty provision. Finally, some observers contend that Soviet personnel were engaged in the illegal use of the SA-5 radar -- that is, to make measurements on target reentry vehicles during the testing of ABM interceptors -- and deliberately took advantage of the exemptions to cover their illegal actions.⁴⁴ As suggested by the Reagan Administration's charge of a "probable violation," the intelligence was inherently ambiguous. Short of observing the SA-5's radar scope at opportune moments, it is unlikely that U.S. intelligence could ever have made a clear-cut determination. Nonetheless, one does not have to accept the U.S. charge of noncompliance to conclude that there was good cause for concern. This concern evidently was serious enough to persuade the Soviets to halt their offending activity.⁴⁵

⁴⁴ Brian D. Dailey, "An Examination of the ABM Treaty," p. 247.

⁴⁵ Even here, however, there continues to be debate over whether the activity really ceased for more than a short period of time. Although the Reagan Administration provided no public evidence to show renewed instances of possible concurrent ABM/SAM testing, some analysts have

Another notable example, and one where the intelligence is much clearer, concerns the SS-7/8 ICBM launcher episode, noted in Table 3-2. Here, the Soviets were required under SALT I in 1976 to dismantle a number of ICBM launchers as they put to sea a corresponding number of new SLBMs on board Delta class submarines. Early in the year, U.S. intelligence reported that although the missiles had been removed from the launchers in question, only 10 of the 51 launchers had been dismantled and that the Soviets were likely to miss the deadline. The United States decided to raise the issue at the next scheduled meeting of the SCC. Before this was done, however, the Soviet side acknowledged the problem and provided the U.S. side with data on the situation that essentially corroborated American intelligence. The issue was resolved when, at U.S. request, the Soviets delayed moving their newest SSBN into sea-trials for three months, until dismantling procedures had been completed.⁴⁶

The Soviet Union's willingness to acknowledge a glaring problem and to cooperate in resolving it has been cited as a positive feature of the compliance record in the pre-

charged that the Soviets only stopped temporarily. The fact that SCC representatives continued negotiations up to the mid-1980s on clarifications regarding the extent of permitted SAM radar activities at test ranges would suggest some continuing concern over instances of concurrent testing, but it is unclear whether this fell within the category of the Administration's charges of a "probable" violation.

⁴⁶ U.S. Department of State, Compliance With SALT I Agreements, p. 3.

Gorbachev era. But if indeed it was a mistake, how could they have fouled up so badly in the first place? Reportedly, the missiles had been removed from their launchers for some time so that dismantling activities could have begun months in advance of the deadline.⁴⁷ The Soviets blamed their inability to meet the deadline on unspecified "technical difficulties" but gave no further explanation. Exonerating interpretations have portrayed the incident largely as a matter of internal slippage. According to one account, unusually severe winter weather prevented Russian construction crews from completing their demolition work on time.⁴⁸ It has also been suggested that the Soviet military simply may have failed to carry out their orders in the specified time frame and did not alert their civilian authorities until it was too late.⁴⁹ Incriminating interpretations point to other possibilities. President Reagan's General Advisory Committee on Arms Control (GAC), in a controversial report, stated that Soviet behavior in this instance "was probably not inadvertent, but rather was part of a deliberate Soviet effort to challenge U.S. arms

⁴⁷ Lodal, "Verifying SALT," p. 46.

⁴⁸ John Prados, The Soviet Estimate: U.S. Intelligence Analysis and Soviet Strategic Forces (Princeton, N.J.: Princeton University Press, 1982), p. 241.

⁴⁹ Lodal, "Verifying SALT," pp. 46-47.

control verification capabilities."⁵⁰ Another account suggests that the Soviets deliberately left some of their SS-7 launchers on operational status in order to maintain coverage of strategic targets until newer missile forces were deployed.⁵¹

As these examples indicate, even when there is substantial agreement on the facts of specific cases, the absence of detailed knowledge of policy inputs in the presence of contending hypotheses regarding Soviet behavior virtually guarantees that judgments will run in different directions. Relative to U.S. behavior, where at least the reasoning behind specific actions generally is clear (even if contentious or the result of bureaucratic wrangling), the historical record simply does not speak clearly with respect to Soviet intentions. It is extremely difficult to prove or disprove arguments that a given problem was triggered by a general policy to cheat on inconvenient agreements; or by ad hoc decisions to violate in some cases but not others; or by a general practice to violate as a response to real or perceived U.S. malfeasance; or some mix of each. Nor can one prove or disprove that Soviet noncompliance was the product of unauthorized cheating at lower levels or even deliberate

⁵⁰ General Advisory Committee on Arms Control and Disarmament, A Quarter Century of Soviet Compliance Practices Under Arms Control Commitments: 1958-1983, in William C. Potter, ed., Verification and Arms Control (Lexington, Ma.: Lexington Books, 1985), p. 245.

⁵¹ Harris, "Soviet Maskirovka," p. 216.

actions by top leaders disguised to appear as though the problems were simply bureaucratic in nature.

Bounding the Disagreements

Although disagreements over past or present Soviet intentions are bound to persist, the record still provides important clues for assessing the strengths and weaknesses of opposing interpretations of Soviet compliance behavior. Clearly, the record looks positive when one compares Tables 3-1 and 3-2 against the general degree of compliance that has existed under the ABM, SALT, and INF agreements. In purely quantitative terms, a ratio of 42 problems to hundreds of operative rules is quite small; when comparing only those problems which are violations or possible violations to the full array of rules, the ratio becomes smaller still. Such quantitative measures, of course, do not capture the military significance of compliance versus noncompliance. Here too, however, a positive reading of the record is supported. As violations or possible violations, the Krasnoyarsk radar, the SS-25 ICBM, and concealment practices which impede verification are usually cited as the most strategically significant. Yet the military gains accruing to either side look marginal compared to the observed limits -- on the MIRV potential of large ICBMs, on numbers of delivery systems, or on permissible ABM deployments -- that constrain both sides in significant

ways.

In this respect it is a major defect of most pessimistic interpretations to assert that the restraints in place were not consequential because the Soviet Union or the United States had no intention of building beyond them. Even if strategic plans circa 1972 were not significantly curtailed, future plans were also at issue.⁵² It is only prudent to assume that the Soviets could have made a decision to replicate the Moscow ABM system on a nationwide basis starting in the mid- to late-1970s, had they chosen to do so, in the face of greater than expected threats from U.S. offensive forces. During most of the 1960s, the dominant expectation in the United States was that the Soviets would deploy upwards of 10,000 ABM interceptors on a nationwide basis by the end of the 1970s.⁵³ While those estimates may have assumed full development of the SA-5 as an ABM system, which proved not to be the case, planned upgrades to the Moscow system were almost certainly in the pipeline by the early 1970s. Correspondingly, on the offensive side, the Soviets could have replaced all their

⁵² As Walter Slocombe has argued: "As is often the case with arms control agreements, the most significant effect of the SALT I agreement may have been in preventing future developments which were not yet planned, but which would have been a source of great concern had they later been adopted." See "A SALT Debate," p. 23.

⁵³ "Comment" of Paul H. Nitze, in Foreign Policy, No. 16 (Fall 1974), p. 16. See also Congressman Les Aspin, "Debate Over U.S. Strategic Forecasts: A Mixed Record," Strategic Review, Vol. 8, No. 3 (Summer 1980), p. 24.

then-current ICBMs, not just their large SS-9s, with "heavy" missiles, or fully exploited their throwweight with MIRV loadings, or built greater numbers of ICBM launchers in the face of U.S. ABM deployments.⁵⁴ Thus, while it may be legitimate to question whether arms control did in fact constrict then-current acquisition plans to any appreciable degree, it does not reasonably follow that all constraining effects were absent. To assert otherwise is to ignore the interactive aspects of strategic planning.

Pessimistic interpretations suffer from other notable flaws. Looking at the evidence, it is hard to sustain the charge that all loopholes, exemptions, or ambiguities in treaty language were crafted into agreements by the Soviet Union to hoodwink the United States. A fair characterization would be that U.S. negotiators generally did care more about precision, in part to assure verification rights, and in some cases Soviet opposition to proposed constraints or definitions stemmed from a desire to protect a program, such as the SS-19 ICBM. But loopholes were manufactured by both sides and there were few illusions on either side regarding what their effect would be.⁵⁵ Consequently, while frictions

⁵⁴ All the attention paid to the force multiplying effects of MIRV tend to obscure the fact that increasing the numbers of launchers could be very important to the Soviets in response to any U.S. ABM deployment with a boost phase component.

⁵⁵ For example, U.S. officials involved in SALT knew of the existence of the SS-19 program prior to the completion of SALT I. However, many analysts feel that the U.S. should not have resorted to the issuance of unilateral

over incomplete agreement on some treaty language did set the stage for controversies later on, it is difficult to discern anything uniquely malign in a general pattern of self-interested behavior in which both sides engaged.

The SCC also comes in for unduly harsh treatment by critics. Although it was hardly a panacea, the SCC's performance overall tends to belie Caspar Weinberger's caricature of it as "an Orwellian memory hole into which U.S. concerns were dumped like yesterday's garbage."⁵⁶ Both sides did exchange substantial amounts of data to clarify issues of concern like the function of the III-X silos and the status of deactivated ICBM and ABM launchers. Effective criteria were negotiated for activities such as the dismantling of systems, concurrent operations of ABM and SAM systems, and testing "in an ABM mode." Episodes of stonewalling and the vituperation that marred SCC proceedings in the early 1980s were much more a byproduct of stormy relations overall than a sign of some fatal flaw in

interpretations of treaty language, essentially restating positions that the Soviets had already rejected, because these gave the impression to Congress of greater restraint than was actually the case. There were also problems of intelligence estimation. The constraints on increases in silo size negotiated at U.S. insistence were less useful than expected because U.S. analysts apparently underestimated the size of new missiles which could be fired from modestly enlarged silos. See U.S. Congress, Report of the Senate Select Committee on Intelligence, Principal Findings on the Capabilities of the United States to Monitor the SALT II Treaty, 96th Congress, 1st sess. (Washington, D.C.: U.S. GPO, 1979), p. 3.

⁵⁶ Weinberger, "Responding to Soviet Violations," p. 9.

the concept itself.

As much as some pessimistic claims about the record are overstated, however, they should not be confused with criticisms that are fairer in other respects. It is entirely legitimate to fault the USSR for probing into the gray areas of agreements and engaging in activities that, given any reasonable reading of treaty language, it knew would run a clear risk of triggering American protests. Whether the Soviets acted out of a belief that they had to exercise legitimate rights aggressively -- to conceal anything not clearly forbidden, to use SAM radars at ABM ranges, to erect a radar at an ABM test range that they had not expressly designated, etc. -- or out of a desire to test U.S. resolve can never be known. But the effect of this behavior, whatever its purpose, was to vitiate the cooperative spirit of arms control and to cast Soviet motives in a bad light.

Soviet motives look even darker when considering the array of explanations they developed to justify questionable behavior. Although insignificant in purely military terms, the Krasnoyarsk radar was very damaging politically. The justification that the radar was permitted as a spacetrack facility was so untenable that the Soviets eventually had to drop it. It is hard to avoid the impression that the Soviets thought they could squeeze the United States into accepting a fait accompli. Their explanations of the SS-25 -- that it was a permitted modification of an older ICBM, the SS-13 --

came closer to plausibility but only in the sense that the SS-25 was a new system which they attempted to engineer (possibly unsuccessfully) within the 5 percent tolerances allowed by the SALT II agreement. The Soviets undertook this action in full knowledge that it would contradict claims by the Carter Administration regarding the putative impact of SALT II on Soviet modernization choices.⁵⁷

On the U.S. side, several problematic aspects of compliance behavior are noteworthy. One shortcoming in the early stages was a habit of specifying unilateral criteria for Soviet compliance where prior efforts to achieve agreed formulations had failed. While the Soviet Union, not unreasonably, felt little obligation to honor U.S. interpretations that were more restrictive than agreed positions, such interpretations created the impression of greater restraint than was actually the case and planted the seeds of future controversies. It is also legitimate to fault U.S. compliance behavior in certain cases for undermining efforts to insist on strict observance by the

⁵⁷ During the SALT II ratification process, Carter Administration officials argued that the "new-type" rule for ICBM modernization would force the Soviets into some hard choices. As then Secretary of Defense Harold Brown said: "...they [the Soviets] will have to choose either a replacement for their existing single warhead land-based missile, the SS-11, or another new missile with up to ten warheads....They cannot, under SALT II, develop both of these." U.S. Congress, Hearings before Senate Committee on Foreign Relations, The SALT II Treaty, Part 1, pp. 103-104. In fact, however, with deployment of the SS-24 (with 10 warheads) and the SS-25 (1 warhead), this is precisely what the Soviets did.

Soviet Union. Former U.S. Air Force Under Secretary Antonia Handler Chayes commented: "We have set bad precedents that have affected their [Soviet] behavior. For example, the problem of the environmental shelters, though not an act of deliberate concealment on our part, very likely contributed to the stepped-up concealment practices we witnessed on their side throughout the 1970s."⁵⁸ Finally, as noted earlier, the United States on occasion sought to justify its own R&D behavior in terms of compliance standards which were not mutually agreed and which probably would have provoked criticism in the United States if they had been used by the Soviets to justify similar activities.

Overall, the record examined here reveals a mixed picture. There has been less than perfect compliance but the yardsticks for distinguishing "good" from "bad" compliance turn out to be very subjective. The overall framework of quantitative limits of SALT survived the mid-1980s intact. In the main, both sides observed the numerical limits. Moreover, both sides cooperated in clarifying parts of the regime where ambiguities created problems. Offending actions were halted or altered if there appeared to be a political incentive for doing so. The Soviets' stated intention to dismantle the Krasnoyarsk radar would be, if carried out, a

⁵⁸ Remarks by former U.S. Air Force Under Secretary Antonia Handler Chayes, Workshop on "The Verification Debate," sponsored by the Center for Science and International Affairs, Harvard University, on September 11, 1984, Washington, D.C.

dramatic illustration of this. Finally, the record provides no persuasive support for the contention that the problems experienced to date have threatened the basic viability of the regime.⁵⁹ Actions indicative of a breakout strategy would include a broad range of compliant as well as noncompliant activities, such as the testing and deployment of MIRV loading greatly in excess of present levels, testing of penetration aides (e.g., decoys, chaff, etc.), the crash development of fully mobile ABM systems, mass production of ABM interceptors, etc., and other steps to prepare for nationwide deployment of ABMs over a time frame of several years. There is nothing in the public record to suggest that any of these things has occurred.

On the other hand, the record does reveal the extent to which assessments on compliance have been caught up in controversy over the expected results of agreements. The regime which has emerged since the 1970s necessarily involved the matching of constraints to each side's military posture with a view to achieving some anticipated effect (e.g., to achieve "parity," to force trade-offs in

⁵⁹ U.S. rhetoric on SDI during the 1984-1988 period was threatening to the regime in the sense that it suggested the precursor of a national policy decision to scuttle the ABM Treaty, unilaterally if need be, pending adequate technology development. Actual technology development has lagged far behind the rhetoric, however. On the Soviet side, both technology and rhetoric have lagged. It is very hard to attribute a breakout as opposed to a hedging rationale to Soviet deployment programs, given that their current technology base for ABMs essentially corresponds to that achieved by the U.S. during the 1970s.

modernization, to constrain MIRVing, etc.). These anticipated effects generated expectations, and weapons R&D or deployment activities which upset those expectations have had a corrosive effect on the regime. Where activities actually ran counter to agreed language, the issue of violations was clear and direct; but this seldom happened. A more common occurrence were activities which, while not directly violating agreed language, did jar expectations. Here, the relevant issue is that of circumvention -- i.e., an agreement yielded less than expected results because one side or the other found a way to evade restrictions. Exploitation of loopholes falls into this category. Finally, and relatedly, the compliant aspects of certain activities were justified on the basis of interpretations that distorted or contradicted any reasonable reading of the rules. Thus, for example, the Krasnoyarsk radar and the SS-25 ICBM were defended as legal by the Soviet Union on the basis of treaty interpretations which were plainly at odds with what the United States reasonably expected would happen.⁶⁰ U.S. justifications for the testing of space-based SDI components under a broad interpretation of the ABM Treaty has been at odds with what the Soviets, not

⁶⁰ Of course, even the disappointment of unreasonable expectations can be corrosive, as in the case of the SS-19, where the actual constraining effects of the upgrading provisions in the SALT I Interim Agreement were oversold by the Nixon Administration and, to a degree, overbought by the Congress.

to mention the U.S. Senate, reasonably thought would happen under that agreement. The general lesson here is that treaty provisions and expectations about their impact must be kept in line with each other. If the two diverge, compliance disagreements are bound to ensue, with or without the incidence of actual violations.

REAPPRAISING COMPLIANCE DYNAMICS

Does the record discussed above shed any light on the incentive structures which were identified in Chapter 2 as being the driving factors, for better or worse, behind treaty-constrained behavior? It is difficult to answer this question in any clear and decisive way. The mix of influencing factors pulling one way or another on governmental decision-making almost certainly has changed over time. There is no logical reason why the confluence of factors favoring compliance on either side in the early 1970s, during the heyday of detente, should be precisely the same as those favoring compliance during the late 1970s and early 1980s, when relations grew stormy. From the Soviet standpoint, it might be reasonable to suppose that as the diplomatic payoffs (i.e., expanded trade, Western technology, etc.) from SALT agreements began to evaporate in the later 1970s, the strategic logic of compliance and perhaps the deterring effects of U.S. verification played a greater role in shaping their incentives to stick by

existing agreements; but given the opacity of the Soviet system, these calculations would be very difficult to measure, both in an absolute sense and relative to any incentives pulling policymakers in the other direction, toward violations.

Furthermore, the type of behavior which could indicate the presence of compliance inducements poses an analytical obstacle. The SALT-era treaties, as distinct from the INF Treaty or prospective START agreements, did not mandate major changes in force structure or preexisting patterns of behavior. Thus, good compliance was largely (though not wholly) the byproduct of avoidance behavior -- i.e., refraining from actively violating agreements -- rather than affirmative behavior -- i.e., adjusting behavior in some affirmative way (say, by dismantling weapons) in order to assure compliance. Yet various meanings can always be read into avoidance behavior. Does the absence of violations reflect a perception of strategic self-interest, or the deterring effects of verification, or simply the persistence of bureaucratic routine? On any given day, any of these explanations might be possible.

Despite these limitations, one can still draw some reasonable inferences based on retrospective analyses. It has been well established that the Kremlin leadership was attracted to SALT for a variety of domestic political and diplomatic reasons. The leadership under Brezhnev, it has

been argued, craved parity with the United States, and saw SALT as enhancing its domestic and international prestige because of the opportunity to deal with the United States as an equal. It has also been argued that Soviet leaders wanted to create the appearance, if not the fact, of Soviet-American collusion against China, and that they wanted to exploit SALT to undermine congressional support for military spending.⁶¹ Such incentives, while not perhaps dispositive, would have constituted strong inhibitions against substantial noncompliance in the early stages of SALT.

More recently, the preeminent factor working in favor of Soviet compliance has been apparent concerns about U.S. moves to undermine Soviet notions of strategic stability, especially in the realm of strategic defense. The most remarkable manifestation of this was Foreign Minister Eduard Shevardnadze's October 1989 speech to the Supreme Soviet, in which he acknowledged that the Krasnoyarsk radar station was "an open violation" of the ABM Treaty and confirmed prior Soviet statements that the radar would be dismantled without compensation, thus restoring Soviet compliance. In coming to terms with this issue, Soviet leaders sought to remove an

⁶¹ For Shevchenko's view, see Breaking With Moscow, pp. 201-202. Accounts by Kissinger, Smith, and others make clear the extent of Soviet obsession with China and the repeated efforts of Soviet officials to craft agreements that would have an explicitly anti-Chinese dimension. See, for example, Henry A. Kissinger, White House Years (Boston, Ma.: Little, Brown, 1979), pp. 548, 554, 1152.

embarrassing contradiction between their own weak defense of the radar station and their desire to strengthen the ABM Treaty as a way of controlling U.S. SDI developments. Thus, an act of contrition that seemed scarcely likely in the mid-1980s was driven ultimately by a sense of larger strategic stakes in preserving existing limitations. Shevardnadze's words made this quite clear: "All these years, we have been working hard to keep the ABM Treaty as a foundation for strategic stability....And all the while, there stood the station, the size of an Egyptian pyramid, representing, to put it bluntly, a violation of the ABM Treaty. At last we resolved this issue and announced we would dismantle the station. This has brought some discontent in the country, as if we were forgoing our own interests. In fact, we are saving the ABM Treaty and opening the way to the conclusion of the treaty on strategic weapons...."⁶²

On the American side, the constellation of factors favoring compliance has not been as clear as one might imagine. Given the substantial build-up in force levels that SALT allowed, the strategic advantages of SALT were very much in dispute, especially among those who argued that SALT was cosmetic at best and damaging to U.S. security. Still,

⁶² Michael Dobbs, "Moscow Condemns '79 Afghan Invasion," The Washington Post, October 24, 1989, p. A1; see also "The Kremlin Apology: Excerpts from Speech," The New York Times, October 25, 1989, p. A12.

the influence of strategic inducements became more pronounced in the post-1981 period. When some in the incoming Reagan Administration argued that the SALT agreements should be discarded, counterpressures began to develop almost immediately, mainly from military and intelligence officials. Air Force Gen. Richard Ellis, then in charge of the U.S. Strategic Air Command, summed it up quite succinctly: "The Chiefs want a continuance of the adherence regime rather than deal with breakout on the Soviet side."⁶³ Meanwhile, State Department officials, including then Secretary Alexander Haig, argued vociferously that diplomatic considerations, specifically the need to maintain cohesion in NATO in the face of mounting public criticism on the pending INF deployments, dictated some sort of continued compliance with SALT.

As it turned out, the policy of maintaining informal compliance with SALT agreements, which was adopted in mid-1981, was not inconvenient for the most part. In this sense, the purported strategic and diplomatic inducements to compliance loomed even larger because there were no immediate opportunity costs in terms of U.S. force enhancement. The Reagan Administration did not face the dilemma of having to choose between desired strategic programs and maintaining agreed restraints until Trident

⁶³ Strobe Talbott, Deadly Gambits: The Reagan Administration and the Stalemate in Arms Control (New York: Alfred A. Knopf, 1984), pp. 224-225.

submarine deployments began to push U.S. MIRVed ballistic missile levels toward the 1,200 threshold in 1985.⁶⁴

Interestingly, once the SDI program began to gain some momentum in 1985, the administration's move to reinterpret the ABM Treaty suggested a variation on the informal compliance theme: to hold conventional Soviet ABM programs in check with the treaty while redefining other parts of the treaty in order to gain some latitude for space-based testing of exotic ABM components and systems. This was something akin to having one's cake and eating it too.

As for compliance-inhibiting factors, throughout the period at issue here a number of centrifugal tendencies have been apparent. First, there have been recurring disputes over treaty provisions where compliance criteria were murky or subject to self-serving unilateral interpretations. Telemetry encryption, the SS-19 ICBM deployment, the Thule and Fylingdales radars, ABM component mobility, and SAM upgrade are all issues which fall into the category of problems arising from the lack of complete and precise agreement. This experience confirms an observation made by

⁶⁴ The first affirmative U.S. move to stay within the SALT II framework occurred in June 1985, when President Reagan elected to deactivate an older Poseidon class submarine to make way for the USS Alaska, a Trident submarine, and so to remain within the sublimit of 1,200 MIRVed ballistic missiles. See Gerald M. Boyd, "Reagan Says U.S. Will Keep Abiding By '79 Arms Pact," The New York Times, June 11, 1985, p. A1, A10. Further Poseidon deactivations were made, but, as noted earlier, the policy of formal observance ceased in mid-1986.

Abram Chayes in his 1972 analysis of arms control agreements. Chayes described a gray zone of doubtful conduct, or a "penumbra", surrounding the core limits of agreements, which can result from "a familiar failure to define precisely enough, either from inability or political necessity, the prohibited conduct." Thus, he said: "...the combination of a core of clearly prohibited conduct and a more doubtful surrounding penumbra may sometimes provide a tempting setting for feints and probes..."⁶⁵ In fact, as the record shows, ambiguous treaty language was a magnet of sorts for compliance problems; it did not deter them.

What about free-riding tendencies? Taken in isolation, many of the problems cited above could be viewed as an effort to gain marginal advantages without provoking the other side into a response. The main items are those which fall on the Soviet side, such as the Krasnoyarsk radar and the SS-25, although SDI testing within the broad interpretation of the ABM Treaty proffered by the United States could also be read as a desire to bend treaty constraints without breaking them. Even so, as argued in Chapter 2, it is one thing to point to individual occurrences as symptoms of a problem, but quite another to infer from those occurrences a deliberate strategy of free-riding. On the U.S. side, Congress has effectively

⁶⁵ Chayes, "An Inquiry Into Arms Control Agreements," p. 937.

estopped the Executive Branch from taking advantage of the broad interpretation in its SDI testing activities; thus, the issue is moot. As for the Soviets, the verdict on their behavior during the early 1980s remains unclear. There is no evidence which categorically proves or disproves that particular events were linked together in a skillful, centrally coordinated strategy of free-riding. It is equally plausible to believe they simply reflected a certain lassitude in Soviet compliance behavior -- that is, an unwillingness on the part of higher authorities to modify activities being conducted at lower levels simply to avoid or correct a compliance problem, especially when to do so might end up being costly or overly generous in terms of avoiding offense to American sensibilities.⁶⁶

The friction-inducing potential of shifts in the distribution of burdens and benefits from agreements emerges very clearly in the record. On the U.S. side, the extensive development of Soviet MIRV capabilities in the wake of the SALT I agreement undermined the domestic legitimacy of the SALT process at both ends of the political spectrum and helped to create constituencies committed to a radical restructuring of the dialogue. Likewise, progressive U.S. moves toward the end of the decade to confront the Soviets

⁶⁶ Thus, for example, Krasnoyarsk was a good location for an EW radar, despite the ABM Treaty's provisions, and finding alternative sites for achieving the analogous capability would have entailed substantially greater cost and inconvenience.

on trade, human rights, and third world instabilities -- in effect, denying the Kremlin leadership some of its sought-after diplomatic benefits -- may have emboldened certain domestic critics to challenge SALT advocates within the upper echelons of the Soviet bureaucracy.⁶⁷ And within the military sphere, NATO's December 1979 decision to deploy U.S. INF forces in Europe in spite of Soviet efforts to preclude this through the non-circumvention language of SALT II marked a defeat for Soviet diplomacy and almost certainly vitiated an important potential benefit of the agreement in Soviet eyes.

To be sure, shifts in the expected payoffs of agreements did not automatically lead to compliance misbehavior. Their more immediate effect was to generate domestic hazards to the regimes in question. A prime example of this is seen in the strategic defense arena. For over a decade after the ABM Treaty came into force, U.S. planners faced a dilemma over how to react to ongoing R&D efforts by the Soviets aimed at improving their technology base in traditional, ground-based ABMs. Reflecting the situation in 1972, the treaty gave both sides leeway to continue R&D on fixed, land-based ABM components (i.e., radars, interceptors, launchers), yet it dealt quite stringently

⁶⁷ Shevchenko, for example, claims that the members of the Soviet Central Committee were constantly critical of Brezhnev's dealings with the United States during the late 1970s. See Breaking With Moscow, p. 298.

with non-fixed and (especially) space-based ABM components by banning their testing, development, and deployment.

As noted earlier, however, only the Soviets took maximum advantage of the permissive aspects of the treaty. They developed a new generation of ABM interceptors and radars, and continued to modernize and fill-out their existing defensive system in the Moscow region within the bounds set by the treaty. ABM work in the United States, which was justified mainly as a hedge against Soviet breakout, atrophied as a result of resistance in Congress, public lack of interest, and guilt by association with the seemingly endless debate over U.S. land-based ICBMs. A major consequence of this situation was a significant shift in relative advantage in ABM breakout capability. Whereas in the early 1970s the United States possessed a "lead-time" of several years over the Soviet Union in deployable technologies for large-scale missile defense, by the early 1980s it found itself lagging behind by several years.

The shift in "lead-time/lag-time" differentials was a source of much frustration in the U.S. R&D community and among conservatives in Congress. Among other things, it spurred controversy over Soviet intentions and led to a situation in which any new Soviet ABM development that skirted close to the ambiguous edges of the treaty inspired press leaks and allegations of treaty violations and impending Soviet breakout. The shift also, notably, prompted

some advocates in the community (albeit only a vocal minority at the time) to promote greater emphasis in R&D on exotic space-based systems, especially laser sensing and weapon systems, which might someday lead to the creation of a multilayered defensive system, and in so doing to exploit America's comparative advantage in high technology while leap-frogging more traditional Soviet ABM programs.

Given President Reagan's deeply held conviction in the essential rightness of comprehensive strategic defenses, it is quite unlikely that fine-grained analyses of the lead-time/lag-time issue played a role in his decision to launch the SDI program. Yet, SDI was a godsend to high-technology ABM advocates and was rationalized by many Pentagon officials precisely as a response to Soviet advantages. These advocates had long chafed under the ABM Treaty's purported inequalities; and, once articulated by the President, the SDI program provided a strong argument for efforts to loosen those parts of the treaty regime that constrained R&D work on space-based ballistic missile defense. The attempted reinterpretation of the treaty was the logical result.

When seen in the context of lead-time/lag-time considerations, the SDI episode is quite instructive in what it says about the incentives driving compliance behavior. Clearly, the presence or absence of violations is not the only legitimate measure for assessing the health of a treaty

regime; shifts such as the one discussed above also need to be factored in. If compliance behavior exacerbates differences in breakout or "creep-out" advantages over time, it can have a corrosive effect on agreed restraints and loosen their staying power.

Structural Factors and Compliance Behavior

Beyond revealing some of the various influences surrounding compliance behavior, the Soviet-American experience draws attention to factors not previously considered in the discussion of Chapter 2. The gist of that discussion was that a state's treaty-constrained behavior is a product of constantly competing influences, some favoring compliance, others not. In speculating about those influences, however, we presumed only that a state would act in accordance with its perceived self-interest; no special consideration was given to the structural or contextual aspects of the compliance relationship between the parties. By structure I mean specifically any similarities or differences in the "match" between a uniform set of agreed rules and the activities which are subject to limitation on each side. All else being equal, one could imagine that similarities in structure would tend to facilitate compliance, while differences or asymmetries would tend to create complications.

In looking at the record the complicating effects of structural asymmetries in two areas stand out prominently. The first concerns verification. Under SALT I and the ABM Treaty, both sides accepted the use of national technical means (NTM) for the purposes of verifying compliance. To assure the effectiveness of NTMs, and largely at U.S. urging, both sides attempted to elaborate some limits on concealment practices designed to defeat NTMs. (The negotiations on this point will be discussed in Chapter 7.) The task proved difficult. Concealment activities that may hamper verification can also serve the function of assuring the survivability of forces which rely on mobility and stealth rather than on hardness for protection.

Despite the dark purposes often attributed to it, there is nothing really nefarious about the idea of concealment for survivability's sake. It is no less legitimate for the Soviet Union to hide its mobile ICBMs from U.S. satellites than it is for the United States to operate its nuclear missile-carrying submarines in a submerged position, out of view of hostile forces. Some degree of concealment is even a virtue. It would not help stability very much if in a crisis the Soviet or U.S. leaderships acted precipitously on the basis of a mistaken impression that the other side knew where all its mobile forces were and could target them within a time frame of hours.

Thus, the SALT I negotiators found themselves in a quandary, attempting to limit but not to ban concealing practices. What they achieved was agreement that acts of "deliberate" concealment designed to impede verification would be banned. Notwithstanding the neutral formulations of treaty language, however, there is a clear asymmetry in the degree to which each side has relied upon NTMs to meet its verification needs. With a wealth of information on U.S. military posture available from competitive, open sources, the Soviet Union always has had a "safety net" for its verification practices that the United States could not match.⁶⁸ This difference came into sharp focus when both sides first came into conflict over the concealment issue.

In 1973, Soviet diplomats complained that the placement of prefabricated shelters over ICBM launch silos at Malmstrom Air Force Base in Montana was an act of prohibited concealment. U.S. officials denied this allegation and explained that the shelters were for "environmental" purposes, to protect personnel working in and around the silos from severe winter weather. The Soviets persisted, arguing that satellite observation was being impeded and that the large size of these shelters relative to ones which had been used by the U.S. Air Force in the 1960s raised

⁶⁸ One indication of this has been the Soviet Union's penchant on occasion for proposing treaty provisions that it could not verify except through knowledge of open sources. Its proposal in SALT I to ban the deployment but not the testing of MIRVs was a good example.

questions about U.S. intentions.⁶⁹ The issue was not resolved on the basis of these initial exchanges. Then, a year or so later, the United States complained about an expanding pattern of concealment activities that might threaten to impede verification in the future. Reportedly, the issues of concern included the placement of large canvass covers over Soviet submarine construction and repair facilities and the concealment of launchers at test ranges.⁷⁰ The Soviets denied any problem and kept up their string of complaints over the environmental shelters on the U.S. side.

In retrospect, the U.S. position in each of these episodes was a meritorious one. On the one hand, it was scarcely possible that U.S. ICBM shelters were really impeding Soviet verification, let alone "deliberately" so; the Soviets certainly knew from publicly available sources which types of missiles were in the silos in question. And there was a strong sentiment in the U.S. government that to show flexibility on this issue would only embolden the Soviets to raise false issues and to interfere with legitimate operational practices that were not intended to

⁶⁹ Strobe Talbott, Endgame: The Inside Story of SALT II (New York: Harper & Row, 1979), p. 116.

⁷⁰ Testimony of Secretary of Defense James Schlesinger, in U.S. Congress, Hearing before the Subcommittee on Arms Control, Senate Armed Services Committee, Soviet Compliance With Certain Provisions of the 1972 SALT I Agreements, 94th Congress, 1st sess. (Washington, D.C.: U.S. GPO, 1975), p. 3.

impede their verification.⁷¹ On the other hand, instances of concealment on the Soviet side appeared less easy to explain as anything other than deliberate, and they did raise genuine intelligence concerns for the United States, given its overwhelming reliance on NTM systems for verification.

The crux of the problem, however, was this: a neutral, parallel application of the rule on which the Soviets appeared to be insisting in this case -- not to conceal treaty-limited weapons from NTMs -- produced unequal effects which worked to the net disadvantage of the U.S. side. The United States faced a hard trade-off: in order for it to claim a right to challenge Soviet practices that it saw as threatening to verification it would have to undertake steps to allay Soviet complaints which were costly, inconvenient, and ultimately unnecessary from the standpoint of assuring Soviet confidence in verification. Perhaps the United States should have paid the price in order to hold the Soviets to a stricter compliance standard. In any event, the concealment issue was not resolved in the early years of SALT and continued to flare up until the full effects of Soviet glasnost policies began to be felt in the late 1980s.

The other area where structural asymmetries have obtruded into the compliance relationship is illustrated in the systems R&D approaches of both sides. As will be seen in Chapter 5, much time during the SALT II negotiation was

⁷¹ Talbott, Endgame, p. 117.

devoted to working out agreed rules on the modernization of ICBMs. In essence, both sides accepted the idea of allowing only one "new type" of ICBM on each side and then negotiated a complex set of rules to define the difference between new and merely improved ICBMs. Under this arrangement a missile that varied by more than five percent from an existing type in terms of launchweight, throwweight, and other parameters would be classified as a new type. Suggested by American negotiators, the five percent rule was proposed in the knowledge that the "new type" of U.S. missile -- the MX -- was fully protected and certain to fall unambiguously into that special category of new ICBMs. Soviet plans were less clear (except of course to the Soviets) at the time; they had several follow-on systems in development.

As an arms control tool, the new-types rule sought to resolve the twin dilemmas that qualitative innovation is difficult to limit verifiably and cannot simply be achieved by canceling new weapons if the scope for improvement in existing weapons is large. From the compliance standpoint, however, it is significant that negotiations on new types were conducted against the background of major differences between U.S. and Soviet approaches to technical innovation. The Soviet approach is generally quite conservative and incremental. Traditionally, Soviet designers have been reluctant to take risks with new technologies and are slow to absorb them into their defense production base.

Consequently, once they succeed in producing a reliable product, like a solid-fueled rocket booster or a mobile missile transporter, they tend to crank out many variations on the same basic design. In general, they also begin the testing of prototypes very early in the R&D process, in many cases well before a decision has been made to push a system into full scale development and ultimately to mass production. By contrast, the U.S. approach is more tolerant of risk. In a technologically dynamic environment, American planners are more comfortable with the idea of developing wholly new designs for successive generations of weapons. They also rely to a far greater extent than their Soviet counterparts on computer simulations to test initial research hypotheses and experimental design concepts; prototype testing is costly and generally occurs at more advanced stages.⁷²

These differences in these contrasting R&D styles were not simply an abstract concern; they posed complications for compliance. In the case of the Soviet SS-25 missile, noted in Table 3-2 and discussed in greater detail in Chapter 5, U.S. officials took the view that the missile could not be justified as a slight variation on an older missile, even though the older weapon, the SS-13, did have certain design parameters which were quite similar. Yet the job of coming

⁷² For insights into Soviet and U.S. approaches to technology development in the military-industrial area, I am grateful to Stephen M. Meyer of MIT.

to judgment on the SS-25 was a tortuous one, for the measurements required to ascertain compliance were demanding in terms of NTM data and would have been so even in the absence of extensive Soviet concealment through telemetry encryption. Thus, it is fair to ask whether the five percent rule was in fact well suited as a legal guideline for constraining new types of Soviet missiles. Intuitively, it seems very problematic to focus on slight variations in measurements as the basis for ascertaining compliance in a situation where incremental innovation is already the prevalent mode of behavior. There is some irony in the fact that the five percent rule appears to have been much better suited to verifiably limiting the U.S. rather than the Soviet style of research and development.

Given these experiences with verification and R&D styles, our understanding of compliance dynamics needs to be refined to encompass the idea of structure as an influential factor. One cannot simply abstract compliance behavior from the environment in which it occurs without ignoring a dimension which is essential to assessing its significance. True enough, rules which are ambiguous, which tempt free-riding, or which impinge unfairly are more prone to breaking down than those which are clearer, more categorical, and fairer in their application. But there is a class of problems that stem from the diverse interactions of agreed rules with the structural characteristics of the

societies and military establishments on each side. Such frictions can create or contribute to the centrifugal tendencies discussed above.

CONCLUSIONS

That compliance behavior has been an ongoing source of controversy during much of the strategic arms control process since 1972 cannot be denied. Yet the nature of the problem defies the simple characterizations that are often used to describe it. The main issue has not been the occurrence of significant violations; these have been few and far between. Rather, the issues of concern have stemmed from a larger array of treaty-constrained behavior -- compliant as well as noncompliant -- which resulted in disappointed expectations on each side regarding how agreed rules were supposed to work and which raised fears of adverse shifts in the relative potential of each side to break out of treaty restraints on short notice. Furthermore, these problems have been exacerbated by structural asymmetries in the compliance relationship which have put stress on agreements and have generated disagreement, especially in the United States, over the motives underlying problematic behavior.

We thus arrive at a question of singular importance: if the quality of compliance behavior on each side has provoked ongoing problems but was never damaging enough at any time

to drive the negotiating process to a halt, what larger meaning can compliance problems have? Have they shaped the rule-making process in identifiable ways? Have they inspired a degree of experiential learning? Intuitively, some shaping effects must be present, for no agreement could ever be wholly stable in the face of opposing force postures (even at much lower levels than exist today). Like a house that sits on a shifting fault line, an arms control regime will always be subject to the build-up or attenuation of pressures and tensions brought about by shifts in the strategic context. To admit the inevitability of earthquakes, however, is not to be paralyzed by them. To extend our metaphor, the long-term durability of a house near a fault line will depend on the willingness of its occupants to cooperate in taking whatever steps are necessary to reinforce the structure against all but the worst shocks and tremors. The same is true in the arms control sphere. From the long-term perspective, the important issue is not simply what kind of damage has been inflicted by individual instances of compliance problems, but whether these problems overall have prompted useful refinements in the strategic bargaining process and in the character and constraining effects of the rules over time.

PART II:

THE DEVELOPMENT OF BARGAINING METHODOLOGY

-- "The devil is in the details."

Paul Nitze

4.

THE FORMATIVE CONTEXT

To understand the evolution of Soviet-American strategic arms diplomacy and the effects of compliance behavior upon it, we need to examine the impulses which drew the two sides into the bargaining process in the first place. Traditionally, it has been the fear of adverse shifts in international power relations which has acted as a catalyst for strategic diplomacy between rival states. In Thucydides' day, for example, the growth of Athenian power following the victory over Persia in 480 B.C. sparked fears among neighboring states on the Peloponnesian peninsula, prompting Sparta to propose that the Athenians refrain from rebuilding their city walls and join Sparta in "throwing down the existing walls of the cities outside the Peloponnese."¹ Nothing came of this intriguing experiment in

¹ Thucydides, The History of the Peloponnesian War, ed. and trans., Sir Richard Livingstone (Oxford: OUP, 1972), p. 48. In Thucydides' account, the rebuilding of Athens' wall had an unsettling effect throughout Greece. Sparta and other cities were wary of the growth of Athenian naval power and saw the city fortifications as underwriting an offensive strategy. In fact, this was precisely their purpose; the Athenian statesman, Themistocles, believed that with the wall to help fend-off attacks, he could shift manpower from the city garrison to the fleet. In her proposal to Athens, Sparta argued that in the event of another Persian invasion, it would be much harder to evict the enemy from areas north of the Peloponnesian peninsula if Athens and other cities rebuilt their walls. Instead of city defense, Sparta contended, Athenian forces could use the Peloponnese as a base for operations. The Athenians, however, would have none of it and criticized the plan as one-sided. Themistocles

strategic defensive limitations, and soon thereafter ancient Greece lapsed into civil war.

In the early years of this century, Great Britain saw limitations on naval forces as a way to codify equality with the United States, its principal maritime rival after the first World War; both countries in turn feared the growth of Japanese power in the Pacific and looked to contain it in part through diplomatic means. The result was the Washington Naval Treaty of 1922, which lasted for about a decade. More than forty years later, the growth of Soviet strategic forces spurred American overtures on the possibility of controlling offensive and defensive strategic weapons. The ensuing negotiations -- the focus of this study -- are still unfinished business, and they lack any historical parallel if measured by the length of diplomacy and the number of agreements reached.

The impulse to negotiate of course is hardly a sufficient condition for achieving agreements, let alone durable or effective ones. For negotiating presupposes nothing more than a desire of one party to influence, for good or ill, strategic choices which the other party has within its own power to make. Such influence may be sought by cajoling, deceiving, bluffing, bullying, as well as

told his Spartan interlocutors that either "all the members of the confederacy should be without walls," or else the Athenian wall should be considered legitimate (p. 49).

through sweet reason; and agreements may or may not be the objective.² Logically, it seems unlikely that agreements could emerge unless three elements or conditions were present. First, the desire to influence choices must be in some sense reciprocal; it is only in the context of reciprocity that trade-offs can emerge. Second, both sides must perceive a security stake in the new or altered status quo, however defined. The status quo need not be comprehensive -- and probably could not be in an adversarial setting -- but is limited to aspects of the relationship where both sides sense penalties in allowing the free-play of military market forces to continue unimpeded. Third, there must be some means to verify the other side's compliance with confidence.

If experience is any guide, the intersection of these elements at any point in time is extremely rare. In our present case, Soviets and Americans negotiated with each other on security matters for over two decades without coming close to establishing a step-by-step process on limiting strategic force postures; none of the necessary pre-conditions for agreements obtained. This changed in the

² Again, Thucydides provides a good illustration. Themistocles traveled to Sparta on a diplomatic mission ostensibly aimed at calming fears in the Peloponnesian states about the Athenian city wall. However, the trip was really a delaying maneuver to buy additional time for the final push to completion of the wall, so that he could present Sparta with a *fait accompli*. *Ibid.*, pp. 48-49.

later 1960s when important adjustments in the strategic setting created more opportune circumstances. The key point argued below, however, is that the formative conditions, once achieved, not only shifted the pattern of interactions from generalized diplomacy to focused bargaining on specific agreements, they also shaped significantly the content of the bargaining in subsequent phases. Thus, the very conditions that paved the way for initial agreements also created certain complications which in turn shaped the agenda for the negotiation of follow-on accords. What resulted from Soviet-American arms diplomacy was not a comprehensive framework in one fell swoop, but an evolving regime of operative rules achieved in incremental steps, with each step affecting the successive ones in various ways.

EARLY OBSTACLES TO AGREEMENT

During the early Cold War years, the search for productive East-West negotiations was effectively precluded by two fundamental obstacles. First, the status quo of the late 1940s and early 1950s was inchoate. The Axis powers lay in ruin, and political alignments throughout Europe and Asia were unsettled. Second, the character of Soviet military power was veiled in secrecy. This knowledge gap -- the lack of Western intelligence on Soviet forces relative to Soviet knowledge of the Western posture -- was perhaps a less

fundamental obstacle than the disputes over political alignment and ideology; and yet its resolution was an absolute prerequisite for dealing with other aspects of the confrontation through negotiation.

Shortly after World War II, U.S. and other Western intelligence services embarked upon an ambitious effort to develop a clearer understanding of Soviet military activities. With no access to Russian territory and little background knowledge on the Soviet military-industrial base, Western experts pieced together intelligence from a disparate and uneven network of sources.³ In hindsight it is well known that U.S. intelligence projections overestimated the scale of Soviet bomber and missile deployments during the late 1950s and early 1960s.⁴ To a significant degree, these forecasting errors were abetted by exaggerated claims by the Kremlin leadership, which had a strong stake in masking Soviet vulnerability in the face of overwhelming U.S. strategic power and an operational doctrine on the American side biased strongly toward the early, massive use

³ Prados, The Soviet Estimate, pp. 25-26; and David A. Rosenberg, "The Origins of Overkill," International Security, Vol. 7, No. 4 (Spring 1983), p. 21.

⁴ Lawrence Freedman, U.S. Intelligence and the Soviet Strategic Threat (Princeton, N.J.: Princeton University Press, 1986), pp. 66-88.

of nuclear weapons in wartime contingencies.⁵

On the diplomatic front, the secrecy surrounding Soviet strategic power became the symbol of the larger diplomatic stalemate. Still, the roots of the negotiating problem were largely strategic and conceptual: political alignments were not settled, and even if they had been, the question of bargaining methodology remained open. There simply was no historical analogue for the effective control of weapons of mass-destruction. Atomic and later thermonuclear power constituted a new and unprecedented threat which produced strong impulses for extreme remedies before these weapons were integrated into opposing force structures. "Ban the bomb" strategies dominated the public agenda. Many looked to the fledgling United Nations system as the only available way to regulate the technology and uses of atomic energy; but the wartime alliance structure on which the UN concept was based was breaking down, and the issue was ripe for impasse. The East accused the West of wanting "inspection without control" while the West responded that unverified disarmament was worse than none at all. This discordant theme was replayed numerous times in UN diplomacy during the early postwar years.

By the early 1950s, efforts to ban the bomb had lost

⁵ For a detailed treatment of Soviet strategy, see Arnold Horelick and Myron Rush, Strategic Power and Soviet Foreign Policy (Chicago: University of Chicago Press, 1966), pp. 105-125.

credibility. The Soviet atomic test of 1949 made such strategies less practical and raised serious doubts that Western inspection proposals, which were already unacceptable to the Soviets, could ever be effective even if implemented. In April 1952, Secretary of State Acheson appointed a panel of experts led by Robert Oppenheimer to rethink the matter for the next administration. The general thrust of the panel's argument was that political tensions between East and West and the scale of arms acquisition on each side would make progress on comprehensive measures for disarmament very unlikely. More realistic efforts at "arms regulation," it concluded, should be the new priority. "Inspection" could be made more "effective and less burdensome by the development and use of increasingly sensitive techniques of scientific intelligence."⁶ It was a prescient observation.

Gradually, American diplomacy shifted toward the general approach sketched out by Oppenheimer and his colleagues. Confidence-building rather than comprehensiveness soon became the major criterion for U.S. negotiating policy. Under Eisenhower's "Open Skies" proposal the United States argued that mutually-agreed overhead observation by aircraft could help to allay fears regarding

⁶ McGeorge Bundy, "Early Thoughts on Controlling the Nuclear Arms Race: A Report to the Secretary of State, January 1953," International Security, Vol. 7, No. 2 (Fall 1982), p. 27.

the dispersal of long-range bombers or large scale troop movements -- the precursors of surprise attack prior to the advent of ballistic missiles -- and yet be far less intrusive than other forms of inspection. The Soviets were hostile to the idea, however, and clashes over U.S. intelligence operations continued, culminating in the shooting-down of the American U-2 spy plane near Sverdlovsk, USSR, in 1960.

Where Eisenhower tried without success to establish a legitimate basis for reconnaissance by aircraft, U.S. officials fared better with satellites in the early 1960s. During late 1960 and early 1961, U.S. photo-reconnaissance satellites confirmed the absence of any widespread deployment of Soviet ICBMs, exploding the myth of Soviet missile superiority.⁷ At the UN and the disarmament talks in Geneva, the Soviets kept up their political offensive against U.S. intelligence collection, introducing proposals banning satellite-borne reconnaissance. By 1963, however, they gave indications of a more tolerant attitude. In 1967, they signed up to the Outer Space Treaty without insisting on any specific language banning satellite reconnaissance.⁸

Quite apart from the fact that they could not

⁷ Philip J. Klass, Secret Sentries in Space (New York: Random House, 1971), pp. 105-108.

⁸ Herbert Scoville, Jr., "The Technology of Surveillance," Society, Vol. 12, No. 3 (March/April 1975), p. 63.

physically shoot down U.S. satellites at that time, the Soviets' gradual acceptance of satellite reconnaissance has been explained in a number of ways. According to one view, the shift resulted from a tacit bargaining process leading to the restraint of anti-satellite capabilities on both sides.⁹ Others have suggested that Soviet views were conditioned by the development of their own programs -- they had, after all, established the precedent of satellite overflight with Sputnik -- and that they realized that the further militarization of space was probably not in their interests.¹⁰ The assiduous efforts by the Kennedy Administration to remove U.S. reconnaissance programs from the public limelight may have helped to avoid putting the Soviets on the public defensive.¹¹ Whatever the reason, by the 1960s the sharp political tensions over strategic reconnaissance were ebbing, and these programs were beginning to provide the kind of data that could be useful both for strategic intelligence and treaty verification. The unilateral aspect of this capability was especially attractive. As President Kennedy commented in the aftermath

⁹ Gerald Steinberg, Satellite Reconnaissance: The Role of Informal Bargaining (New York: Praeger, 1983).

¹⁰ See, for example, Raymond L. Garthoff, "Banning the Bomb in Outer Space," International Security, Vol. 5, No. 3 (Winter 1980/81), pp. 25-40.

¹¹ See discussion in Paul B. Stares, The Militarization of Space: U.S. Policy, 1945-1984 (Ithaca: Cornell University Press, 1985), pp. 62-71.

of Khrushchev's decisions to withdraw Soviet missiles from Cuba and to permit U.S. verification of the removal: "The camera...is actually going to be our best inspector."¹²

TRENDS IN STRATEGIC FORCES

While the development of technical intelligence collection was instrumental in narrowing the knowledge gap, the more proximate triggering factor for serious negotiation emerged from strategic force interactions of the 1960s. On the U.S. side, the acquisition of offensive delivery systems had essentially leveled off by 1967 after a substantial buildup in the Kennedy-Johnson years that saw deployment of 54 Titan and 1,000 Minuteman ICBMs, 656 Polaris and Poseidon SLBMs on-board 41 submarines, and retention of about 600 B-52 class bombers.¹³ Meanwhile, momentum had swung to the Soviet side. Beginning in 1965, the Soviets brought into service a new, third generation of ICBMs. Existing small scale and largely vulnerable deployments of SS-6 and SS-7 missiles were eclipsed by rapid deployment of SS-9 and SS-11

¹² Arthur M. Schlesinger, Jr., A Thousand Days: John F. Kennedy in the White House (Boston: Houghton Mifflin Co., 1965), p. 694.

¹³ Desmond Ball, Politics and Force Levels: The Strategic Missile Program of the Kennedy Administration (Los Angeles: University of California Press, 1980), pp. 50-51; J.P. Ruina, "U.S. and Soviet Strategic Arsenals," in Mason Willrich and John P. Rhinelander, eds., SALT: The Moscow Agreements and Beyond (New York: The Free Press, 1974), pp. 51-59.

ICBMs in hardened underground silos. Between 1966 and 1969, the Soviets added about 300 new ICBM launchers to their operational force each year, and by 1972 had deployed some 970 SS-11 and 288 SS-9 missiles.¹⁴ They also made a major investment in developing a mobile ICBM.¹⁵ In addition, there were clear indications by 1968 that the Soviets would pursue a substantial SLBM program, beginning with the Yankee class submarine. From the late 1960s to the early 1970s they put into service Yankee and (later) Delta class boats at a rate of about eight per year.¹⁶ At the same time, Soviet efforts in the strategic defense area appeared to be slackening off somewhat. After triggering much concern about a possible move toward a nationwide ABM system in the mid-1960s, the

¹⁴ David Holloway, The Soviet Union and the Arms Race, 2nd ed., (New Haven: Yale University Press, 1984), p. 43; William Hyland, "The U.S.S.R. and Nuclear War," in Barry M. Blechman, ed., Rethinking the U.S. Strategic Posture (Cambridge, Ma.: Ballinger, 1982), pp. 52-53. In advance of the freeze on new silo launchers in 1972, as Hyland points out, the Soviets started work on 20 additional silos that turned out to be for the SS-9 follow-on, the SS-18, bringing the total number of large ICBM to 308. Garthoff points out that the rapid increase in silo starts essentially ceased with the commencement of SALT negotiations; only 80 additional silos were started between 1969 and 1972 as contrasted to 650 in the two and a half years preceding the negotiations. See Raymond L. Garthoff, "Negotiating With the Russians: Some Lessons from SALT," International Security, Vol. 1, No. 4 (Spring 1977), p. 21.

¹⁵ But not with much success apparently. The weapon for this purpose, the SS-13, was eventually based in fixed silos and only deployed in small numbers (60).

¹⁶ Kissinger, White House Years, p. 1129; Freedman, U.S. Intelligence and the Soviet Strategic Threat, p. 154.

Soviets curtailed deployments of the Galosh ABM system around Moscow at 64 launchers by 1967. By that time, the U.S. intelligence community had come to the view that defensive installations going in around attack air-corridors in the northwestern Soviet Union were not optimized for intercepting ballistic missiles.¹⁷

It is difficult to pinpoint any single factor as the stimulus behind the growth of Soviet intercontinental strike forces during these years. At the very least, the Soviets perceived an immediate politico-military imperative to correct their glaring strategic inferiority that could no longer be hidden behind a veil of secrecy. Khrushchev's hasty covert deployment of medium-range missiles to Cuba in 1962 had ended in failure. Henry Kissinger, among others, directly linked the Soviet arms expansion of the early Brezhnev years to the humiliation that Kremlin leaders suffered at the hands of the Kennedy Administration during the Cuban debacle.¹⁸ On the other hand, William Hyland has portrayed the Soviet defense program of this period as a logical progression from previous efforts dating back to the late 1950s.¹⁹ He contends that the force levels which the Soviets attained by the early 1970s were roughly comparable

¹⁷ Prados, The Soviet Estimate, p. 164.

¹⁸ Kissinger, White House Years, pp. 196-197.

¹⁹ Hyland, "The U.S.S.R. and Nuclear War," pp. 52-53.

to what they expected U.S. ICBM forces to look like during the same general time frame.²⁰ Michael MccGwire has explained Soviet actions in somewhat similar terms, arguing that initial plans for ICBM forces in the 1965-1970 time frame were drawn up on the basis of then-existing doctrinal requirements for strategic superiority, but were adjusted to match projected U.S. force levels.²¹

Retrospective analyses certainly convey a clearer sense of the acute dilemmas that Soviet planners perceived as a result of the Kennedy-Johnson force expansion. Robert Berman and John Baker have argued that the Soviets saw in the Minuteman force an emerging threat that they could not offset with then-existing regional missile forces, strategic defense, or their still vulnerable above-ground ICBMs.²² One result was that the Soviets decided to expand production of their SS-11 variable range missile, which they apparently had developed for anti-naval missions (i.e., to target U.S. carrier task-groups), and deploy it instead as a counter to

²⁰ Ibid., p. 53.

²¹ Michael MccGwire, Military Objectives in Soviet Foreign Policy (Washington, D.C.: Brookings, 1987), pp. 235-236.

²² Robert P. Berman and John C. Baker, Soviet Strategic Forces: Requirements and Responses (Washington, D.C.: Brookings, 1982), pp. 50-54.

Minuteman.²³ Deployment of the SS-11 on a scale commensurate with the Minuteman (1,000 units) had not been expected by U.S. analysts; it was a major contributing factor to CIA forecasting errors in the mid 1960s that understated the scale of the Soviet ICBM buildup within a five year time frame.²⁴

The most conspicuous element of the Soviet buildup -- and one for which there was no U.S. counterpart -- was the SS-9 Scarp, a large payload ICBM deployed initially with a single warhead in the multimegaton range. No sooner had the SS-9 appeared in the operational inventory in 1966 than it was seen as an emerging threat to Minuteman.²⁵ How much of a

²³ Ibid., pp. 54-55. It nevertheless remains unclear exactly what kind of countering role the Soviets saw the SS-11 as playing. The SS-13 had proved unreliable in this role and was downgraded in favor of an expanded SS-11 program. But the SS-11 lacked the accuracy to be a counterforce weapon and thus cannot be considered as a military response to Minuteman. Berman and Baker (p. 53) argue that the Soviets wanted to politically match Minuteman deployments, preferably with the SS-13. MccGwire, Soviet Military Objectives, p. 484, suggests that the scale of the SS-11 deployment was consistent as an interim response to the Minuteman threat.

²⁴ Bruce Berkowitz, "Intelligence in the Organizational Context: Coordination and Error in National Estimates," Orbis, Vol. 28, No. 3 (Fall 1985), p. 589. The other major source of error results from the fact that the Soviets did not retire their 200 or so SS-7s and SS-8s, as expected. Les Aspin, "Debate Over U.S. Strategic Forecasts: A Mixed Record," Strategic Review, Vol. 8, No. 3 (Summer 1980), p. 37.

²⁵ The 1966 draft presidential memorandum identifies SS-9s equipped with accurate MIRVs together with ABMs as a worst case against which U.S. planning would have to hedge. See Robert S. McNamara, Draft Presidential Memorandum on Strategic Offensive and Defensive Forces for FY1968-72,

threat was a very contentious issue. Commenting on the intelligence over a decade later, Harold Brown stated: "Because of the technical characteristics of their earlier systems we were able to infer that, as early as 1962-1963, the Soviets had a policy of building forces for preemptive attack of U.S. ICBMs....The more than 200 SS-9s were almost surely targeted against the 100 Minuteman launch control complexes, two missiles to a complex for reliability. The Soviets, unable at the time to produce forces whose number, yield and accuracy were such as to be able to threaten our hardened missiles, opted to target our ground command-control. We, however, had already anticipated such Soviet actions, and in the late 1960s deployed alternate airborne launch control....In short, the SS-9 was a Soviet program of great megatonnage but little counterforce value."²⁶ Forecasts at the time were decidedly less sanguine, in large part because the SS-9 was widely seen as the logical candidate for MIRVing. The testing of the missile in a "triplet" configuration (3 warheads, not independently targeted), which commenced in August 1968, lent credence to this perception. Parts of the Pentagon and the intelligence community predicted a counterforce threat

Department of Defense, November 9, 1966, p. 7.

²⁶ Address by Secretary of Defense Harold Brown, "Responding to Soviet Strategic Weaponry," U.S. Naval Academy, Annapolis, Maryland, May 30, 1979, p. 3 (mimeo).

emerging from SS-9 deployments by the mid-1970s.²⁷

Hedging the Threat

The character of the Soviet buildup posed a sharp dilemma for U.S. policy planning. As is well known, then Secretary of Defense Robert McNamara and like-minded analysts believed that the development of dispersed and survivable Soviet forces fundamentally undermined any notion that U.S. force planning should be geared to weapons employment strategies more ambitious than assuring devastating retaliation against the Soviet Union in response to an attack. McNamara consistently questioned and later opposed the more ambitious forms of damage limitation -- i.e., having forces sufficient to destroy or disrupt the Soviet nuclear posture such that it could not cause severe damage to the U.S. population and industry -- that were in vogue in the U.S. Air Force.²⁸

²⁷ John Foster, Director of Defense Research and Engineering (DDR&E), among others, was a vocal proponent of the SS-9 counterforce threat potential. According to Foster's calculations, 400 SS-9s, each armed with 3 MIRVs of about 5 megatons in yield and with an accuracy approaching one quarter of a nautical mile would suffice to put then-existing deployments of Minuteman at risk (i.e., better than 90% destroyed). See comments in U.S. Congress, ABM, MIRV, SALT, and the Nuclear Arms Race, Senate Committee on Foreign Relations, 91st Congress, 2nd sess. (Washington, D.C.: U.S. GPO, 1970), p. 437.

²⁸ For instance, in outlining recommendations in his draft presidential memorandum (DPM) on strategic offensive and defensive forces for fiscal years 1965-1969, McNamara argued: "The prospects for 'damage limiting' by counterforce attacks may not hold great promise in the latter part of the

On the other hand, some kind of response to the Soviet build-up seemed necessary. The Johnson Administration found it increasingly difficult to reconcile force-sizing criteria that were not terribly sensitive to Soviet force levels with the widely held perception that some measure of U.S. superiority remained a vital component of deterrence overall.²⁹ As a result, while McNamara and his associates

1960s if the Soviets harden and disperse their ICBM force and build up their missile submarine force as we now expect them to do. I believe the recommended forces accomplish what might reasonably be done from this point of view, and that the extra capability proposed by the Air Force would make a contribution to 'damage limiting' too small to be justified in the light of its extra cost." See Robert S. McNamara, Draft Memorandum for the President: Recommended FY1965-69 Strategic Retaliatory Forces, Department of Defense, December 6, 1963, p. 6. Contrary to the popular mythology, U.S. targeting policy always presumed a significant counterforce component, and McNamara was quite careful in weighing relative hard-target kill potential on each side. In the 1967 DPM, for example, he compares the 1972 programmed U.S. missile force against the expected Soviet ICBM force in terms of hard-target kill, and comes up with a favorable ratio from the U.S. standpoint (700:300 targets at risk). See Robert S. McNamara, Draft Memorandum for the President on Strategic Offensive and Defensive Forces for FY 1969-73, Department of Defense, January 15, 1968 (revised), p. 7. The relevant point here is that the Soviet strategic buildup -- at least to the extent it resulted in deployment of more survivable second-strike systems -- offered McNamara a powerful argument against pursuing more expansive force postures that he regarded as profligate of weapons and scarce resources.

²⁹ A good example of the ambivalence is seen in the 1968 DPM's discussion of force planning options: "We do not intend to allow our policy of basing the size of our forces on the Assured Destruction mission to result in the Soviets overtaking us or even matching our strategic power. However, the relationship of 'nuclear superiority' as such to our military and political objectives is debatable....[o]nce each side has enough nuclear forces to be sure it can substantially eliminate the other's urban society in a second strike, the utility of extra nuclear forces is

sought to downplay the significance of nuclear superiority as a useful instrument of national policy, they continued to emphasize those measures of capability which greatly favored the United States, such as deliverable warheads, as the most meaningful measures of capability.³⁰ During the 1965-1966 time frame, a series of new initiatives was set in motion. The most notable of these were the upgrading of ICBM squadrons with procurement of the Minuteman II and III follow-on systems; replacement of Polaris A-3 SLBMs with Poseidon missiles on board 31 of 41 ballistic missile-equipped submarines; plans for dispersing and relocating long-range bombers during periods of tension; development of airborne command and launch control systems; and space-based early warning systems. The overarching aim was to hedge Soviet counterforce potential while assuring (and improving) coverage of Soviet targets in the face of a Soviet ABM system that had begun to be deployed in 1965. This was consistent with McNamara's avowed determination to hold the line against further force expansion which, in his view, compared poorly in cost-effectiveness and survivability terms with modernization of forces in being.

conjectural." Clark Clifford, Draft Presidential Memorandum on Strategic Offensive and Defensive Forces for FY1970-74, Department of Defense, January 9, 1969, pp. 6-7.

³⁰ Robert S. McNamara, The Essence of Security: Reflections in Office (New York: Harper & Row, 1968), pp. 56-57.

In this sense, MIRV technology was the key element -- and the great beneficiary -- of McNamara's efforts to strike a balance between the contrasting imperatives of restraint and response. Armed with MIRV, Pentagon civilians had a strong lever against Air Force preferences for major increases in the number of operational missiles; efficiency and cost-effectiveness considerations strongly weighed in favor of MIRV.³¹ In most cases, it promised a substantial reduction in cost per target destroyed in comparison with bombers or single warhead missiles.³² At the same time, MIRV provided an enhancement to deterrence which could be represented as a numerical superiority (in warheads) that would offset possible Soviet advantages in throwweight or launchers. Perhaps most importantly, McNamara and others saw in MIRV an indispensable tool for assuring coverage of

³¹ Jerome H. Kahan, Security in the Nuclear Age: Developing U.S. Strategic Arms Policy (Washington, D.C.: Brookings, 1975), p. 133. Initially, the Air Force resisted MIRV on the grounds that it would lead to reduced counterforce capability as the ICBM force shifted to smaller warheads. Studies undertaken during the mid-1960s, however, showed that any diminution in silo kill probability resulting from lower yields could be recouped by increases in the number of warheads. See discussion in Ted Greenwood, Making the MIRV: A Study of Defense Decision Making (Cambridge, Ma.: Ballinger, 1975), p. 39.

³² McNamara used cost per target comparisons to argue against the Advanced Manned Strategic Aircraft (AMSA), later termed the B-1, and in favor of the MIRVed Minuteman III. See Robert S. McNamara, Draft Memorandum for the President: Recommended FY1966-70 Programs for Strategic Offensive Forces, Continental Air and Missile Defense Forces, and Civil Defense, Department of Defense, December 3, 1964, p. 23.

since the United States maintains such large strategic forces and could expand them with less sacrifice than the Soviets."³⁵ In light of subsequent developments, it is unclear whether the Soviets in fact worried very much about the effects of MIRVed Minuteman or Poseidon forces upon their deterrent, at least in isolation from ABM. Although the Soviets initially had expressed a clear preference for limiting strategic offensive arms first, by the time that negotiations got underway in 1969 they had, in Arkady Shevchenko's words, shifted "180 degrees."³⁶ Soviet negotiators appeared far more intent upon protecting their offensive arms buildup than exploring the prospect of trading-off cutbacks in their programs as a quid for constraints on the modernization of U.S. forces. But ABM was an entirely different matter. Two-sided ABM deployment could impose burdens upon offensive forces that the Soviets were less well equipped to handle in the absence of MIRVed forces. They therefore gave every indication of accepting the idea of mutual vulnerability in practice, if not in principle, in the interest of gaining a lever on developments on the U.S. side that might leave them at a

³⁵ Clifford, Draft Presidential Memorandum, p. 22.

³⁶ Shevchenko, Breaking With Moscow, p. 201.

substantial disadvantage.³⁷

THE IMPACT ON NEGOTIATIONS

As the foregoing suggests, the prerequisites for serious negotiation seemed to be falling into place by the late 1960s. The knowledge gap was shrinking thanks largely to U.S. NTMs. Meanwhile, a rough parity was beginning to emerge. The United States was looking for ways to moderate the Soviet buildup of offensive arms while the Soviet Union appeared increasingly anxious to thwart any countering U.S. moves, especially in the strategic defense area, which would erode its hard-sought gains. Finally, the struggle for political alignment was becoming less of an impediment, because it was shifting from Europe and Northeast Asia toward areas of the Third World where nuclear weapons played less of a role than power projection capabilities (e.g., sea- and airlift, and carrier-based aviation, etc.) in shaping regional security. Amid these developments, one could clearly discern the outline of an emerging status quo that might have some appeal to both sides. Still, several

³⁷ Whether or not one believes that the Soviets meant to endorse mutual deterrence explicitly in the ABM Treaty or simply to improve their relative position vis-a-vis the United States in ABM technology, one can hardly deny that they accepted mutual deterrence as a practical consequence of the ABM Treaty for the indefinite future. The best affirmative case for Soviet acceptance of mutual deterrence as a basis for strategic relations is made in Raymond L. Garthoff, "Mutual Deterrence and Strategic Arms Limitation in Soviet Policy," pp. 112-147.

factors inherent in this situation promised to complicate efforts to formalize the new status quo through a bargaining process.

Strategic Postures: Balance and Imbalance

In the strategic realm, the fact of impending parity facilitated negotiations in a general sense, but the character of parity had important implications for the direction and content of the bargaining. First and foremost, nationwide ABM deployments were seen by both sides as expendable. Perhaps this was "parity" in its most elemental sense. The ABM mission had not been absorbed into the force structure of either side in a major way. In spite of vocal support for ABM from some quarters, neither country saw much utility in them;³⁸ and each appeared apprehensive about the financial and operational burdens of having to hedge against extensive ABM deployment on the other side. As a consequence, low numerical thresholds were not a priori contentious; nor, for that matter, were stringent rules against the development of new forms of ABMs. The more problematic issues were how far to press for limits on non-ABM capabilities or testing activity -- eg., early warning, air-defense -- that might have residual ABM

³⁸ This is not the same thing as saying that neither saw any role in ongoing R&D investments and, at least on the Soviet side, in small-scale deployment.

applications, and whether permitted R&D might give one side or the other a breakout advantage over the longer term.

From the bargaining standpoint the situation of mutual forbearance in nationwide ABM which was formalized by agreement in 1972 was the logical outcome. It was, of course, not the only possible outcome. Both sides in theory could have constructed a more complex regime in which high levels of ground-based ABM deployments on each side were related to each other and to offensive forces according to some specified measure of equality. But such a regime would have been completely out of phase with the technical reality of offense dominance which existed at the time.

With respect to offensive forces, the character of the situation in the early 1970s forced the negotiations in a different direction. Mutual forbearance was not a practical option given the levels of deployment already achieved; some kind of balance would have to be pieced together. Yet by that time offensive strategic forces had already begun to evolve in ways that would complicate efforts to strike internally balanced agreements with roughly symmetrical effects. "Codifying parity" was much acclaimed as an abstract proposition, but the substantive characteristics of parity as it existed reflected a series of complex imbalances between increasingly asymmetrical force structures. From the negotiating standpoint this raised the question of whether operative rules would simply attempt to

balance these differences or attempt to conform them through a process of restructuring. As will be seen in the next chapter, the idea of offsetting strength for strength held definite appeal for some policymakers. However, the core difference between the two force postures was difficult to offset: the Soviet proclivity to emphasize large payload ICBMs was seen as a clear indication of a destabilizing operational pattern -- i.e., preemption against ICBMs -- that could not be counterbalanced by U.S. advantages in long-range bombers or sea-based forces. Cutting into preemptive ICBM capability therefore increasingly became the sine qua non for widely supported agreements in the United States.

Finally, MIRV technology was a major unsettled question in the early 1970s; in this sense, the strategic status quo was still inchoate and could have been open to adjustment in various directions. The dilemma here was that, as the main ingredient of the U.S. response to the Soviet buildup, MIRV had already come to reflect a bureaucratic consensus within the U.S. defense community which was unlikely to be undone short of a major restructuring of Soviet strategic rocket forces. Had MIRV simply been a counter to Soviet ABM it too would have become expendable. But MIRV was also a means to allocate more rationally a fixed level of destructive payload among a larger number of targets; it was a useful lever against further wasteful expansion in U.S. force

posture; it was a potent symbol of continuing U.S. superiority at a time when superiority was still regarded as an indispensable part of deterrence; and it was justified by some as a hedge against certain types of Soviet violations of a mutual ABM ban.³⁹

Thus, the logic of MIRV was absorbed into U.S. defense planning well before the first testing of MIRVed systems in 1968. Although MIRV certainly had its share of critics in the early 1970s, the outcome which makes the MIRV decision look so shortsighted in retrospect -- namely, the combination of MIRV and large payload Soviet ICBMs -- was not regarded as inevitable by many in the United States at the time. Those who favored MIRV argued that the best way to proceed in negotiations was not to restructure then-current U.S. ICBM and SLBM programs, but to seek cutbacks in future Soviet MIRV capacity via mutual limits on ICBM throwweight.⁴⁰ Soviet MIRVing would then appear to be less

³⁹ Foster, for one, justified retaining the MIRV option under the SALT I agreements as a hedge against covert upgrading of the SA-5. See comments in U.S. Congress, Fiscal 1974 Authorization for Military Procurement, Research and Development, Construction Authorization for the Safeguard ABM, and Active Duty and Selected Reserve Strengths, 93rd Congress, 1st sess. (Washington, D.C.: U.S. GPO, 1973), p. 941.

⁴⁰ For discussion and a criticism of this view, see Raymond L. Garthoff, Detente and Confrontation (Washington, D.C.: Brookings, 1985), p. 134.

threatening.⁴¹ Whatever the merits of this position, it left open the nagging question of what capabilities the United States would offer in exchange for forbearance on the Soviet side. The MIRV problem went unsolved in SALT I and has plagued arms control ever since. Both sides now face the challenge of adjusting to a strategic world in which any known fixed target is theoretically at risk of prompt (e.g., 30 minute) destruction, and in which any highly MIRVed fixed, land-based system constitutes a valuable target that can be destroyed at a fraction of its price. This inherent vulnerability, coupled with the risk of incautious behavior in crises, is one of the strongest impulses behind the negotiating process.

National Technical Means: Benefits and Burdens

Without question, NTMs proved to be a substantial catalyst to bargaining. By providing a baseline of knowledge on Soviet force structure, they served as a filter of sorts for U.S. policymakers in sifting out inherently unverifiable proposals from the menu of options. NTMs enabled U.S. officials to gauge the types of force enhancements that

⁴¹ Thus, for example, as Senator Gordon Allott argued during the Senate debate on the SALT I agreements: "In terms of 'throwweight'...the Soviet advantage today is between 4 to 1 and 5 to 1. This is not intolerable until the Soviet Union MIRVs its missiles....The giant Soviet missiles make no military sense -- unless and until they are MIRVed." Congressional Record, August 3, 1972, p. 26687.

might upset the balance and whether those actions were detectable within a useful time frame. This calculation was not at all cut-and-dried; it was couched in statistical probabilities and was subjective to a degree. Nonetheless, it enabled decision makers to relate hypothetical treaty violations to some measure of military significance, and thus to identify "adequate" or "effective" standards of verification as distinct from an absolute one.

For the Soviet side U.S. NTMs were an unsettling fait accompli but one that, paradoxically, divested the verification issue of much of its military significance. During the 1950s, glasnost in things military would have meant forfeiting the illusion of power and would have revealed Soviet vulnerability to U.S. planners.⁴² Short of disbanding the entire U.S. Strategic Air Command, it is hard to imagine that any agreement would have been worth such a

⁴² Soviet vulnerability and fears about U.S. preemption reinforced Soviet concerns about effective peacetime control of Soviet forces, mainly out of concern that the Americans might overreact to apparent provocation. For this reason, during the 1950s the Soviets generally maintained very low levels of alert in peacetime, despite genuine fears of surprise attack. Soviet bombers did not engage in airborne alerts, and it is doubtful that nuclear weapons were even co-located with delivery systems. For a brief discussion based on workshop proceedings, see Lori Esposito and James A. Schear, The Command and Control of Nuclear Weapons: A Workshop Report (Queenstown, Md.: Aspen Institute for Humanistic Studies, 1985), p. 9.

price.⁴³ On the other hand, by the time the full implications of U.S. NTMs were becoming clear to the Soviets, they were starting to reap international prestige from their own space program.⁴⁴ Again, it was Sputnik that helped to establish the precedent for spacecraft overflight of national boundaries. In addition, with the advent of ballistic missiles, which compressed the tactical warning time of attack from hours to minutes, each side began to develop a stronger stake in spaceborne monitoring systems. Thus sprang up the basis of a tacit "live-and-let-live" regime of mutual reconnaissance which the political leaderships on each side simply exploited to the benefit of arms control diplomacy.⁴⁵ It also is reasonable to suppose that NTMs probably made the limited types of on-site

⁴³ This is not to say that the absence of extreme vulnerability ceteris paribus would have resulted in a more relaxed attitude toward verification. As David Holloway has pointed out, Soviet hostility toward openness in military affairs also has been a reflection of internal organization and security priorities in the Soviet defense-industrial community. See The Soviet Union and the Arms Race, pp. 126-127. It is unclear how much glasnost will change this situation.

⁴⁴ Paul Stares recounts that Khrushchev took considerable pride in Soviet satellite reconnaissance capabilities, even offering at one point to show satellite photos to Belgian Foreign Minister Paul Henri Spaak in 1963. Stares, The Militarization of Space, p. 71.

⁴⁵ Unlike the trench warfare metaphor, however, this regime probably would not obtain at all in wartime. The reconnaissance satellites that each side may regard as benign in peacetime could provide valuable targeting information in wartime and, for that reason, would almost certainly be prone to disruption or direct attack.

inspection that we now see emerging in INF and START more palatable to the Soviets.⁴⁶

Nonetheless, NTMs were by no means cost free from the bargaining standpoint. The principle of self-reliance in verification which NTMs represented did not relieve either side from the burdens of complex bargaining. Both sides got a taste of this during the Cuban missile crisis, where the United States insisted upon the right to monitor departing Soviet vessels from fixed-wing aircraft, helicopters, and ships, and sought guarantees from the Soviets that this could be done without risk of hostile fire. The Soviets acquiesced to these steps, but final agreement on them required settling a number of nitty-gritty details. Under these so-called "alongside" verification procedures proposed by the U.S. side, the Soviets agreed to disclose the call-signs of the vessels carrying the missiles and associated equipment, their scheduled sailing times from Cuban ports, and the number of missiles aboard each ship. They further agreed to store the missiles on deck, where

⁴⁶ As William D. Jackson perceptively comments: "On-site inspection on military bases during the 1950s and 1960s would indeed have provided a substantial volume of information. In the 1980s a substantial proportion of the security information which earlier would have been lost as a result of on-site inspection has already been lost to satellite surveillance. From a purely rational standpoint, satellite surveillance has made the risks of on-site inspection incremental risks." See "Verification in Arms Control: Beyond NTM," Journal of Peace Research, Vol. 19, No. 4 (1982), p. 350.

they could be photographed, and to remove canvass covers at prearranged times. The execution of these procedures was not flawless. Cargo ships did not always leave port on time. In one instance, a Soviet captain refused to uncover his cargo, and the Soviets actually declared more missiles than U.S. officials thought were in Cuba. These problems turned out to be minor ones, but they did underscore that technical collection activities involved a degree of jointness when the express purpose of the monitoring was to verify compliance with a stated action or agreement.⁴⁷ (The bargaining issues raised by the requirement of jointness will be discussed in Chapter 7.)

Reliance upon NTMs also raised the question of whether national intelligence services were competent enough to collect the necessary information. During the early phases of SALT, some in the U.S. government, including Kissinger,

⁴⁷ "Alongside" verification procedures were worked out in a series of meetings between Soviet and U.S. representatives in early November, 1962. Some of the procedures are spelled out in Telegram To: CINCLANT, From: Chairman, Joint Chiefs of Staff, Washington, November 11, 1962, titled: "Directive from Secretary of Defense on Arrangements for Inspection of Incoming and Out-going Shipments To and From Cuba," National Security File, Box 35 (Cuba, General), John F. Kennedy Library and National Security Archive, Washington, D.C. A general announcement of the procedures was made by the Pentagon in a press release, see Statement by the spokesman for the Office of Public Affairs, Department of Defense, November 8, 1962. Cuban Missile Crisis Papers, National Security Archive, Washington, D.C. On general results and some of the difficulties encountered, the author's interview with Raymond Garthoff, Washington, D.C. May 11, 1988 was very helpful.

felt that the CIA was being too optimistic about U.S. monitoring capability.⁴⁸ Questions arose as to whether the agency was factoring into its estimates the possibility that by slightly altering test and deployment patterns, the Soviets could thwart verification while denying any wrongdoing. To complicate matters, Richard Helms, then director of central intelligence, and other CIA officials were wary of making any commitments regarding verification that might force the CIA or other agencies to disclose the operational details of their NTMs, either to assure Congress that agreements were in fact verifiable or to prove allegations of Soviet violations.⁴⁹ Although the CIA eventually relaxed its opposition to playing a part in arms control, it continued to insist that the less said about NTMs in the negotiations, the better. Not surprisingly, however, it proved much harder to construct rules barring data-denial and other obstructive practices when both the collection systems and the required data could not be specified in agreed language.

In addition to fears regarding the adequacy of collection means, the quality of the analysis raised other concerns. One was the ever-present issue of false alarms. As Allan Krass has observed: "...any verification system must

⁴⁸ Freedman, The Soviet Strategic Threat, pp. 46-48.

⁴⁹ Halperin, "Arms Control: A Twenty-five Year Perspective," p. 8.

attempt to balance the military and political consequences of possibly missing some important events against the difficulties of trying to pick the real events out of the noisy background of false ones, as well as the political consequences of possibly responding to false alarms as if they were real."⁵⁰ In fact, worries about false alarms did slow down the process of generating intelligence findings on compliance issues in some cases, and, on the U.S. side, inspired critics to charge that U.S. officials were covering-up Soviet wrongdoing in order to protect ongoing negotiations. Correspondingly, the decentralized character of the intelligence community -- an "unruly collective of independent-minded organizations," as Stephen Flanagan has characterized it -- virtually guaranteed that compliance analysis in support of treaty verification would become bogged down in debates between various analytic branches. In part, this is due to the evolution of rather specialized intelligence functions within particular "producer" and "consumer" bureaucracies.⁵¹ But it is also due to the very real need to protect against massive intelligence failures

⁵⁰ Krass, Verification, p. 9.

⁵¹ See Stephen J. Flanagan, "Managing the Intelligence Community," International Security, Vol. 10, No. 1 (Summer 1985), pp. 60-62. In the parlance of the U.S. intelligence community, "production" usually refers to the collection, processing, and evaluation of raw data, and "consumption" refers to the use of finished intelligence for policy and analytical purposes by, for example, officials in the State or Defense Departments.

that cannot be caught at senior levels. Policy officials inevitably tend to be hostage to the analytical techniques and assumptions built into the monitoring process, and they rely upon the intelligence community to generate competing analytic assessments and thus to act as a hedge against parochial biases and "groupthink" tendencies that might pervade any single organization.⁵² The cost of a system of checks and balances, however, has been to amplify the potential for disagreements at lower levels on key monitoring judgments.

Between 1963 and 1968, for example, there was enormous debate among experts over how to assess the new SA-5 missile system, which, as noted above, first appeared at sites collectively known as the "Tallinn line" in the northwestern Soviet Union. Reportedly, officials in the Air Force, Army, and the Defense Intelligence Agency (DIA) initially took the view that the SA-5 weapon was intended specifically for ABM defense. In contrast, the CIA with some support from the Navy and the State Department held that the SA-5 was more likely to be a long-range anti-aircraft interceptor.⁵³ It

⁵² As Bruce Berkowitz argues, however, the coordination requirement can also introduce errors into the intelligence estimation process. See "Intelligence in the Organizational Context," p. 585.

⁵³ Public statements by then Secretary of Defense McNamara and others stressed the ambiguity of the situation, and in fact reasonable inferences based on available evidence at the time did offer some support for each position. As Freedman points out, those advocating the ABM interpretation stressed the optimal location of the Tallinn

was a high stakes argument, for the Tallinn line could have been the first indication of a Soviet decision to deploy a nationwide ABM system.

By 1968, it had become clear that the SA-5 was not going to be adequate for the ABM mission. The debate did not die, however; it simply shifted to the more specific question of whether the SA-5 could be upgraded to ABM status. Again, a range of conflicting viewpoints were expressed.⁵⁴ With the advent of ABM negotiations in 1969, covert SAM upgrading was seen by many as a logical way for the Soviets to break out of any treaty. U.S. efforts to deal with the upgrade issue by banning testing in an ABM mode did not put the issue to rest. When it was discovered that the Soviets had turned on their SA-5 radars numerous times

line for ABM defense and the high-altitude capabilities of the SA-5 in the absence of any high-level bomber threat posed by the United States. Those advocating the SAM interpretation pointed to characteristics of the site construction that paralleled Soviet SAM installations and stressed the technical limitations of the SA-5 radar. See Freedman, The Soviet Strategic Threat, pp. 90-93.

⁵⁴ The "upgrading" thesis was raised by John Foster, the Pentagon's top R&D official. Foster argued that upgrading the various components of the SA-5 system, essentially the radars, was an attractive option for the Soviets, since developing a wholly new ABM system would have been detectable and involved long lead times. Freedman, The Soviet Strategic Threat, p. 94. According to Prados, the DIA took the DDR&E viewpoint, while the CIA argued that the SA-5 was only a SAM system. Public statements by Clark Clifford, who replaced McNamara, in early 1969 stressed the technical problems involved in upgrading the SA-5, but DDR&E continued to press the issue during the early Nixon years. The Soviet Estimate, pp. 166-169.

during ABM testing in 1973-4, the data were not clear enough to decisively confirm or refute contending positions regarding upgrade. Under such conditions, the SA-5 testing episode, as a treaty compliance issue, simply became a convenient stage for rehearsing long-standing intelligence disagreements.

Viewed in this context, the contribution of NTMs to the negotiation of arms control agreements was very much a mixed blessing. While they did eclipse on-site inspections as the preferred U.S. choice for monitoring, NTMs raised other complications for negotiations.

SUMMING UP

Overall, one can see in the formative stages of the strategic bargaining process the emergence of several issues with great potential for shaping rule-making activity over successive phases of negotiation. The emerging asymmetries between Soviet and American force postures, especially with respect to ICBM capability, along with the development of MIRV technology, were destined to drive both sides toward major negotiating efforts aimed at limiting force concentration (i.e., how to prevent residual forces from being concentrated in destabilizing ways) and qualitative innovation (i.e., how to limit the destructive power of delivery systems). Similarly, the prospect of constraining ABMs to very low levels, though more comprehensive and

radical than other options for arms limitation, probably contributed to heightened concerns about non-ABM systems being reconfigured to prohibited roles; one did not have to be a clairvoyant to see that rule-making aimed at preventing such diversions could become a major focus of the bargaining process, and not only for defensive forces but eventually for strategic offensive forces as well. Finally, the development of NTM technology, so essential in reducing the knowledge gap, injected into the bargaining process new requirements to safeguard collection systems engaged in verification activity and to limit concealment, among other priorities.

The pattern of Soviet-American bargaining behavior precipitated by ongoing efforts to deal with these issues and related compliance problems is explored in the next three chapters.

5.

THE FRAMEWORK OF AGREEMENTS
FROM SALT TO START

Setting up a framework for restraint is the first and often the hardest step for parties in any arms negotiation. What aspects of military capability ought to be limited and can these be captured in some identifiable unit of account that is common to both sides? At what level (or levels) should thresholds on the relevant units of account be set? And if the overall threshold defines a non-zero limit -- i.e., if residual forces are permitted -- what additional steps might be necessary in order to suppress technical developments or operational practices that could undermine the constraining power of the agreement?

In weighing these questions, each side naturally will seek to limit those capabilities possessed by the other which it regards as most threatening. Identifying units of account which correspond to those capabilities is often the easiest step if only because so many possible choices are unattractive as options. To take some extreme examples, we could safely rule out computer chips, steel, or copper wire as prospective units of account. While all these things underwrite strategic capability, their correspondence to destructive potential is so indirect as to be of little use in limitations. On the other hand, fissionable material (in metric tones), warheads and missiles (either in number,

size, or destructive potential), delivery platforms (in numbers of bombers or submarines), flight testing (in numbers or range), or missile launchers (in numbers or size) all come closer to being useful units of account in strategic arms control. To choose intelligently among plausible options, however, one must apply the criteria of negotiability, verifiability, and, most importantly, desirability to each choice.¹ Agreements become possible when a balance is struck among these three elements.

Negotiability and verifiability are fairly self-evident concepts. If negotiability were the only issue at stake, both sides probably would choose a unit of account that each has in roughly comparable numbers, so that negotiated limits or bans would tend to cut equally and not burden either with unequal sacrifices. Similarly, both sides probably would gravitate toward units of account that each could verify confidently, so that the resulting agreements would not fall prey to suspicions regarding noncompliance. On the other hand, judging "desirability" is a far more complex matter, for this depends entirely on what kind of constraining effects one is looking for in a particular agreement. Generally, Soviet negotiating behavior has long reflected a desire to curtail U.S. advantages in qualitative innovation and has sought to prevent the deployment of new systems --

¹ See analysis by Joel S. Wit in U.S. Congress, Fundamentals of Nuclear Arms Control, p. 5.

be they ABMs, cruise missiles, bombers, submarines, or exotic "space strike" weapons -- for which the USSR had no immediate counter. Once they succeeded in fielding new weapons, however, the Soviets generally have resisted any limits on their ability to modernize forces.

For its part, the United States has consistently sought to reduce Soviet advantages in force size -- mainly in large ICBMs -- with proposals that have had the effect of restructuring on-line forces or of restricting their modernization potential. Correspondingly, U.S. policymakers generally have been unreceptive to proposals that would hamper their ability to balance Soviet leads in numbers with superior technology embodied in new types of weapons. Nowhere has the inherent tension in these contrasting Soviet and American approaches been more starkly illustrated than in the spirited disagreements during the SALT and, later, the START negotiations over limiting new types of weapons or constraining specific aspects of force posture, such as large payload ICBMs or cruise missiles, which one or the other side deemed to be destabilizing.

Desirability criteria also have an important meaning in a micro sense. In elaborating framework rules, negotiators generally need to address various hazards implicit in accepting non-zero limits as the basis of agreement.² The

² Zero-level limitations normally include requirements to dismantle the supporting infrastructure of production, servicing, and deployment facilities for treaty-limited systems, such as called for in the INF Treaty. The hazards

record shows that while the identification of units of account per se has not been difficult, the negotiation of collateral measures to suppress threats to a treaty's framework has proved much more difficult.

Generally, these hazards are three-fold. The first type can be called the modernization hazard.³ This problem centers on the ever-present risk that technical innovations applied to existing force structures can undermine the basic equality assumed in whatever limit is agreed upon. Missiles can be MIRVed, for example, or bombers can be equipped with long-range cruise missiles. The destructive power of individual weapons can be increased even if their numbers are not. This trend can result in unwanted concentrations of power within the agreed upon residual force levels.

A second type of problem is often referred to as the reconstitution hazard. One party or another could bring back retired forces into service, either covertly or overtly as part of a hasty abrogation of the treaty. Weapons could be only partially dismantled, for example, or kept up in some

posed by retention and maintenance of residual forces -- i.e., non-zero limits -- are not present.

³ Although this problem could also be deemed an "upgrade" hazard, the reference to modernization may be more appropriate for our purposes. The issue here is the enhancement of weapons that are already within the scope of agreement. The term "upgrade" can also mean augmenting weapons outside the ambit of an agreement -- like SAM systems -- so they can perform the functions of treaty-limited weapons. For this reason, I will use the term "upgrade" in connection with scope rules.

state of readiness.

The third type of problem can be termed the stockpile hazard. This refers to the possibility that weapons kept in reserve for training or test purposes could somehow be deployed quickly as reloads for on-line launchers or as part of covert deployments in facilities that are normally used for R&D, testing, or repair purposes. The stockpile could also be enlarged through covert production.

Although usually submerged in the arcana of arms negotiations, these hazards are painfully familiar to government officials responsible for negotiating agreements and closing-off every conceivable loophole.⁴ In the agreements at issue here, some of the rules devised to deal with these problems proved to be effective and became part of the evolving methodology of strategic arms control without much further adjustment; but other rules did not work out and had to be modified or dropped at later stages.

This chapter examines the negotiation of framework rules from SALT to START, paying particular attention to the ways in which early choices regarding units of account, thresholds, and collateral measures were reinforced or altered in subsequent efforts, and how the negotiations in general contributed to the emergence of identifiable norms

⁴ There are, of course, variations on these themes. Another route to circumvention is the possibility of transferring treaty-limited weapons or technology to third parties or the deployment of additional weapons under the guise of being for test and training purposes only.

and taboos to govern the structuring of agreements. As part of this examination, I also consider more generally the pattern of bargaining dynamics during this period, and in Chapter 8 posit some conclusions regarding the impact of these dynamics and of compliance problems upon the rule-making process.

SALT I DIPLOMACY: A POINT OF DEPARTURE

While the strategic situation of the late 1960s, as noted in Chapter 4, generated strong incentives on both sides favoring negotiations, it also created obstacles to agreement on the precise form of the limitations and on their putative constraining effects. To complicate matters further, the bargaining behavior exhibited by each side during SALT I revealed different conceptions of the balance that the negotiations were meant to stabilize. These differences contributed to uncertainty and confusion surrounding the basic objectives of each side, and in several notable instances led the negotiations down paths that proved to be suboptimal from the standpoint of developing a logical and internally coherent set of framework rules.

Specifying Units of Account

Of all the tasks involved in negotiating framework rules in SALT I, specifying the units of account proved to

be the easiest step. During the exploratory session at Helsinki in November 1969, the U.S. side tabled ideas for quantitative limits structured around launchers. The Soviet side responded favorably to these ideas but raised questions about the verifiability of restrictions on missile boosters, penetration aides, and other components of weapon systems when U.S. negotiators tabled additional suggestions for collateral limits.⁵ As it turned out, both sides adopted launchers of ballistic missiles as the basic currency of the offensive arms limitations. On the defensive side, they focused on ABM launchers, ABM-dedicated radars, permitted ABM deployment areas (whose size, character, and location took much negotiation) and ABM interceptor missiles located within permitted deployment areas.⁶ After some initial probing, the United States did not press for direct constraints on warheads, payload capacity, or missiles deployed or stored in reserve. Several considerations lay behind this decision.

To start with, direct constraints on weapons components and on production-related activity had fallen out of favor in the United States at the time. Five years earlier, President Johnson had proposed a freeze on "the numbers and

⁵ Smith, Doubletalk, pp. 102-103.

⁶ Both sides also agreed that future test ranges would be subject to mutual agreement. The Soviet Union did not initially agree to including limits on ABM interceptors (see Smith, Doubletalk, p. 131) but did so later on in the negotiation.

characteristics" of strategic nuclear delivery vehicles (SNDVs), including ABMs, bombers, as well as offensive missiles, with limited replacement of lost or retired systems allowed. The proposal was notable as a point of departure from comprehensive disarmament schemes, and its regime of data-exchanges and on-site inspections is mirrored to some extent in the provisions of the INF Treaty and the agreed START framework.⁷ But its scheme for direct controls on systems production, testing, and performance characteristics, which were reportedly included at the insistence of the Joint Chiefs of Staff (and which were far more invasive than the prospective START agreement), was far beyond anything that the Soviet Union was likely to accept, even if a freeze had accorded with its broader strategic interests at the time, which it did not.⁸ What the Johnson SNDV freeze proposal did accomplish, however, was to spark a serious consideration of possible alternatives, specifically deployment-oriented restrictions which were being developed

⁷ See statement by Acting U.S. representative Timberlake to the Eighteen Nation Disarmament Committee: Verification of Strategic Delivery Vehicles Freeze, August 27, 1964, in U.S. ACDA, Documents on Disarmament, 1964 (Washington, D.C.: U.S. GPO, 1966), pp. 367-373. The proposed provisions for the initial baseline count, production monitoring, and on-site verification of elimination of treaty-limited weapons are similar to those adopted under the INF Treaty.

⁸ According to Newhouse, it is doubtful that the inventory controls specified in the Johnson proposal were any more acceptable to the United States than to the Soviet Union. See Cold Dawn, p. 70.

within the State Department and the Arms Control and Disarmament Agency (ACDA).⁹

The trend toward deployment-oriented restrictions received an enormous boost from the growth of NTM capabilities. As noted earlier, throughout the 1960s intelligence monitoring increasingly keyed on a number of remotely "observable" measures of Soviet capability that could be exploited for arms control purposes: ABM radars, long-range bombers, and submarine-based launch systems for ballistic missiles.¹⁰ The Soviet shift in 1964 from above-ground ICBM launch systems to silo-housed launchers abetted this trend, for it made land-based ballistic missile deployments much easier to count. In addition, within the Pentagon, there were signs of greater acceptance of the idea of structuring agreements without extensive reliance on intrusive verification. The 1968 DPM observed: "...an agreement limiting numbers of missiles and launchers would...reduce, but not eliminate, the uncertainties against

⁹ Ibid., pp. 70-71; U.S. Congress, Fundamentals of Nuclear Arms Control, pp. 14-15. A notable step in this direction was seen in a 1962 ACDA-sponsored study which inter alia concluded: "If agreements or adjustments in other areas should permit the United States to adopt a second strike or purely retaliatory posture, then a series of measures involving a minimum of access to Soviet territory would become possible." (emphasis mine). Woods Hole Summer Study, Verification and Response in Disarmament Agreements, Summary Report, prepared by the Institute for Defense Analysis, Washington, D.C., November 1962, p. 6.

¹⁰ Testimony in 1970 by former CIA Deputy Director for Research, Herbert Scoville, Jr., in U.S. Congress, ABM, MIRV, SALT, and the Nuclear Arms Race, pp. 227-231.

which we would have to insure. Such an agreement could be maintained without on-site inspection."¹¹ In fact, by the time SALT negotiations were underway, the Joint Chiefs of Staff, most notably General Royal Allison, the Chiefs' representative at the talks, had come to the firm belief that an initial agreement should focus on simple units such as launchers, not on more complex and difficult to verify measures such as missile throwweight. Reportedly, the Chiefs' view was a key factor in persuading the Nixon Administration not to hold out for direct controls on missile or delivery vehicle characteristics.¹²

In sum, the decision to adopt deployed launchers as a currency for arms control came about largely by default -- it was the least worst choice. Such limits were more verifiable than limits on total inventories or on production and testing, and more negotiable because they avoided the necessity of on-site inspections. Moreover, there was no reason to suppose that constraints more extensive than launcher-specific limits were necessary in order to achieve strategically significant constraints, provided however that a supporting array of collateral limits on modernization could be agreed upon by both sides.

¹¹ Clifford, Draft Presidential Memorandum, p. 24.

¹² Smith, Doubletalk, p. 42, 114. Amb. Paul Nitze corroborates this point and provides further details, see Paul H. Nitze, From Hiroshima to Glasnost: At the Center of Decision (New York: Grove Weidenfeld, 1989), p. 288.

Setting Thresholds

The task of setting numerical ceilings for the various units of account proved to be more difficult. On the question of ABM limitations, the Americans initially proposed that each side be allowed one deployment area centered upon its capital or national command authority (NCA), with up to 100 launchers and interceptors. The Soviets had little problem accepting the one site idea, and indeed did so promptly, for it corresponded with their preferences for low ABM limits while leaving their rudimentary system around Moscow untouched. The Nixon Administration, however, grew increasingly uneasy about the asymmetrical effects of the NCA-only idea, because it foresaw little prospect that Congress would agree to fund NCA defense, and sought to distance itself from its own suggestion. As Raymond Garthoff and others have described, the process was awkward and embarrassing.¹³ On at least two occasions at the talks, U.S. negotiators on instructions hinted at a preference for a complete ban on ABMs but backpeddled on the idea before fully testing Soviet reactions. Then, in March 1971, as part of a restructuring of the Safeguard program (the Nixon Administration's version of Sentinel, redesigned for defense of ICBMs), the United

¹³ Garthoff, "Negotiating With the Russians," pp. 10-14.

States proposed a deal to codify existing plans: 4 permitted sites for ICBM defense as against 1 site for NCA defense. In response to Soviet objections, this was later modified to a 3:1 ratio in July 1971, and, a month later, to a 2:1 ratio before settling with the Soviets on 2 sites apiece (one ICBM and one NCA) with a minimum separation distance of 1,300 kilometers. This bewildering trek was of little military significance because all of the options fell within the range of strategically-trivial ABM deployments.¹⁴ But it served to show the tensions that could develop between bureaucratic imperatives (to salvage some U.S. ABM deployments to balance a small Soviet deployment) and the pressure that drives negotiations in favor of equality of rights as well as of outcomes.

Throughout the talks, the USSR was firmly committed to equal levels of ABM and to something it called "homogeneity" -- the right of one side to match the other's mission choice (e.g., defense of NCA or of ICBMs). The contentious issue was how to have this equality reflected in sublimits on various types of equipment. Apart from the threshold of 100 launchers per site, the Soviet Union generally opposed other

¹⁴ In the ratification hearings, Senator Jackson argued that a 100 launcher limit per site was totally inconsistent with defense of ICBM silos and argued that he would have preferred a zero-level threshold to one that provided for costly but ineffective ABM deployments. See comments in U.S. Congress, Senate Armed Services Committee, Military Implications of the Treaty on the Limitations of Anti-Ballistic Missile Systems, 92nd Congress, 2nd sess. (Washington, D.C.: U.S. GPO, 1972), pp. 374-375.

sublimits -- especially on radars -- which the United States proposed in order to constrain the capability of permitted deployment sites to roughly equal levels. It is quite possible that the Soviets feared that equal constraints at this level of force structure would actually leave them less capable in the face of more technically sophisticated U.S. systems deployed in comparable numbers. On several occasions, Soviet negotiators took exception to U.S. proposals to limit the type and number of ABM radars, arguing that each side should be free to design and deploy its major components on the basis of its own technology.¹⁵ The Soviets objected to stringent geographical limits on ABM radars for the same reason. In the end, however, they agreed to equal limits on the numbers and locations of ABM radars as part of a general deal in which the United States relaxed its insistence on a requirement for mutual agreement on the future construction of large radar stations for early warning and other uses.¹⁶ As a result, the ABM Treaty's ceilings are numerically balanced although (as will be seen in Chapter 6) at the expense of some clarity with respect to important scope rules.

Regarding offensive weapons, negotiations on the thresholds became bogged down in a now-famous disagreement that was never fully resolved in SALT I and was to plague

¹⁵ Smith, Doubletalk, p. 309.

¹⁶ Ibid., pp. 316-317.

arms control throughout the SALT era: whether the Soviet Union should be compensated for U.S. strategic advantages in forward-based weapon systems (FBS), including European-based and naval aircraft that could strike Soviet territory with nuclear weapons, as well as for U.S. advantages in technology and for other factors that work to the disadvantage of the Soviet Union. Soviet negotiators insisted that such factors should be accounted for in codifying parity in accordance with their concept of "equal security." They rejected U.S. proposals for equal aggregates of ICBM and SLBM launchers (and later bombers) along with phased reductions down to a common ceiling of 1,000 launchers, arguing that aggregate ceilings would have to include FBS.¹⁷ They were not prepared to proceed with offensive arms control on any other basis. From the U.S. standpoint, the practical consequences of the Soviet position would have been to require U.S. withdrawal of FBS to obtain symmetrical ceilings or, conversely, maintenance of those deployments by sacrificing equality in the number of launchers of intercontinental-range weapons. Not surprisingly, the Americans took the view that FBS were not strategic systems, but rather were intended to fulfill

¹⁷ Kissinger, White House Years, p. 541. U.S. negotiating guidance was explicitly to oppose any limits on FBS or intermediate-range weapons. Richard M. Nixon, National Security Decision Memorandum (NSDM) 69, Subject: Strategic Arms Limitation Talks, July 9, 1970, National Security Council Papers, U.S. National Archives, p. 3.

deterrence commitments to the allies by counterbalancing Soviet intermediate-range forces, which also were excluded from the agreement.

The standoff on the compensation issue put U.S. officials in a quandary. By 1970, Soviet ICBM levels were approaching about 1,500 launchers, nearly 50 percent above the Minuteman/Titan II force, while Soviet SLBM levels were quickly catching up to U.S. totals. The United States had no new programs to expand its force structure and thus little to trade in return for Soviet reductions to a common ceiling, assuming that such could have been agreed upon. Evidently, the responsible U.S. officials, Nixon and Kissinger, also calculated that withholding the one bargaining chip that the Soviets truly wanted -- an ABM agreement -- was probably too risky in view of the steady erosion of congressional and domestic support for the Safeguard program. To break the stalemate, Nixon made a decision to shift gears and to aim for the lesser goal of gaining Soviet agreement on an interim freeze of five years on offensive weapons in return for adjustments favorable to the United States on other issues.

Under the terms of this arrangement, reached between Kissinger and Soviet Ambassador Dobrynin and announced on May 20, 1971, the Soviets agreed to defer the FBS issue for later negotiations, to exclude bombers from the aggregate count, and to halt new construction of launchers for their

modern large or "heavy" ballistic missiles, a category that included the SS-9 and its follow-on systems.¹⁸ While U.S. officials made much of the Soviet deferral of FBS and the bomber exclusion, it remains the case that the imbalance in overall U.S. and Soviet launchers implied at least tacit acceptance of the Soviet claim for compensation.¹⁹ Moreover, the framework of the freeze was blurred by disagreement on an important issue of scope: whether submarines would be included. In the wake of the May 20th agreement the Soviets insisted that the accord did not include SLBM-equipped submarines. Some U.S. accounts suggest that Kissinger actually gave the Soviets the choice of including or excluding SLBMs and that they chose the latter.²⁰ This development sparked acrimony in the U.S. bureaucracy, which displayed surprising unanimity that SLBMs should be included in the freeze. Kissinger sought to resolve the issue during a secret trip to Moscow in April 1972, where he and Brezhnev agreed on a ceiling for the Soviet Union of 950 SLBM

¹⁸ At the time it was thought that there were 313 heavy missile launchers. Later, the number was reduced to 308 after additional intelligence revealed that some of the so-called III-X silos had been included in the count of heavy ICBM silo launchers. See Freedman, U.S. Intelligence and The Soviet Strategic Threat, p. 175.

¹⁹ Smith, Doubletalk, p. 93.

²⁰ Ibid., pp. 228-229. Providing additional details, Nitze says that Kissinger put the issue to Nixon, who expressed no preference, and that Kissinger informed the Soviets of Nixon's ambivalence. See From Hiroshima to Glasnost, p. 319.

launchers on 62 submarines, a figure that corresponded to what the Soviets claimed to have under construction.²¹ It was also agreed that above a certain threshold, later specified at 740, the Soviets would have to trade-in older launchers of ICBM or SLBM on a one-for-one basis in order to reach their maximum ceiling on SLBM launchers. U.S. deployments were limited to an upper threshold of 710 launchers onboard 44 submarines.

Soviet insistence on asymmetrically high SLBM levels has been explained in various ways. The Soviets themselves claimed at times that their numbers were sensitive to geographical problems -- notably the "choke-points" around Greenland and Iceland which their submarines must traverse in order to reach patrol areas in the North Atlantic -- as well as to the size of U.K. and French forces.²² In

²¹ Kissinger, White House Years, p. 1149. Kissinger characterizes this as a major Soviet concession, but others disagree. See Garthoff's analysis, Detente and Confrontation, pp. 161-166. In his memoir, Nitze observes that both sides disagreed over the point at which a submarine was deemed to be "under construction." The Soviets insisted that they had higher numbers of vessels under construction than the Americans thought they did, because they considered the threshold for construction to be the point at which work started on the propulsion system, while U.S. officials argued that the laying of the keel (which was visible to verification means) should be the threshold. See Nitze, From Hiroshima to Glasnost, p. 319.

²² As an indication of Soviet concerns over allied fleets, Ambassador Semenov stated on May 17, 1972 that the Soviet Union would reserve the right to increase its numbers of ballistic missile submarines in response to any increase beyond the total of 50 U.S. and allied submarines. See U.S. ACDA, Arms Control and Disarmament Agreements, p. 157.

addition, with the United States moving to highly MIRVed Poseidon SLBMs in the early 1970s, it may be that the Soviets went into higher launcher production to offset a U.S. advantage in SLBM warhead levels. Hyland has suggested that Soviet production was geared to deployment levels high enough to offset a lower average on-station rate relative to SLBM submarines of the United States.²³ MccGwire argues that the Soviets saw their SLBM force as the instrument to balance the combined strategic capability of U.S. SLBM and carrier-based aviation, a major component of U.S. FBS capabilities.²⁴ Whichever of these reasons comes closest to explaining Soviet force-sizing criteria, the fact of a Soviet production surge created an enormous problem for the SALT I negotiations. Evidently, Kissinger recognized only belatedly the advantage to the United States of including SLBM in the offensive freeze and gave the Soviets the figures they wanted in return for extending the scope of the agreement to include SLBM launchers.²⁵ To soften the inequality of the projected SLBM limits, the United States gained Soviet agreement, as noted above, on a scheme for trading in older ICBM as the final 210 SLBM were put to sea.

²³ Hyland, "The U.S.S.R. and Nuclear War," p. 54.

²⁴ MccGwire, Soviet Military Objectives, p. 241.

²⁵ U.S. military planners had concluded it was preferable not to build more Poseidon submarines but instead to push development and acquisition of the new Trident system, which would not be available until the end of the decade.

Prior to this provision, which was developed in discussions between Kissinger and then Secretary of Defense Melvin Laird in 1971, the U.S. position had been to allow a complete "freedom to mix" between SLBM, ICBM, and bomber components of the force postures.²⁶ Although this shift to a "one-way" freedom to mix approach did not result in any major restructuring of Soviet forces (and was not designed to do so), it did help to establish a taboo against the substitution of non-ICBM forces by additional ICBMs, which has been carried over to subsequent SALT- and START-era agreements.

It has long been part of the lore of strategic arms control that the ABM Treaty was more viable politically, if not strategically, than the Interim Agreement because its quantitative ceilings were equal for both sides. Senator Henry Jackson made this point the centerpiece of his criticism of the Nixon Administration's negotiating approach. "It is my view," Jackson said, "that the principle of equality reflected in the ABM Treaty ought properly to be applied to a future treaty on offensive systems....The Soviet Union must understand that the numerical advantages conceded to them in the Interim Agreement are not

²⁶ NSDM 69 called for complete freedom to mix: "...sea-based missiles, land-based ICBM launchers, and strategic heavy bombers could be substituted for each other on a one-for-one basis." Nixon, NSDM 69, p. 2; for background on the SLBM for ICBM trade-in idea, see Kissinger, White House Years, pp. 1130-1131.

permissible except as a transitory stage to equal balances."²⁷

Yet, the basic obstacle to achieving the rigorous application of the equality principle that Jackson desired was the stark difference between defensive and offensive forces with respect to the strategic implications of various numerical thresholds. Equality was not difficult to achieve in the ABM context because differentials in force levels meant little or nothing at the militarily insignificant levels to which both sides were already committed in principle. So, for example, the U.S. side had little to gain by holding out for higher launcher limits -- for instance, a level of 386 to 100 launchers implicit in its March 1971 proposal on permitted ABM deployment sites -- since a differential on this scale would have had only marginal significance in mounting any defense against ICBM attacks.²⁸

In contrast, on the offensive side, differentials in force levels were deemed to be strategically important, either in terms of the balance in the number and types of targets held at risk, or because of the perceived coercive political effects which would flow from a superiority in

²⁷ This was the gist of the so-called Jackson amendment which was attached to the congressional resolution approving the SALT I accord. Congressional Record, August 3, 1972, p. 26693.

²⁸ The launcher differentials in the U.S. 4:1 proposal for ABM sites is based on Garthoff's recollection, Detente and Confrontation, p. 150.

numbers. For these very reasons, equality was an elusive goal in negotiations on offensive restraints during the early 1970s. Both sides had staked their programs to the pursuit of asymmetrical advantages -- be they technical or quantitative -- as a way to offset perceived strengths on the other side.²⁹ Any effort to create equality across a range of units of account would have represented a truly radical diplomatic intervention into this ongoing process, in effect holding the highest priority programs of each side (e.g., MIRVs, large payload ICBMs) hostage to a common standard of comparison. Not only was there no conceptual basis for this kind of arms control, neither side gave any indication that it was prepared to force the sort of far-reaching internal bureaucratic compromises that would have been necessary to move in this direction. The Interim Agreement thus was at best a holding action. Hard issues of balance and equality were deferred.

Fencing-in Hazards

The unequal ceilings on strategic offensive delivery vehicles might have been considerably less contentious if the SALT I limitations had dealt more effectively with all likely hazards to the specified units of account. In fact, however, negotiations on these matters produced mixed

²⁹ To cite but one acknowledgement of this fact, see comments by Foster in U.S. Congress, Fiscal Year 1974 Authorization for Military Procurement, pp. 816-817.

results and only fueled controversy over the durability of the overall deal.

The stockpile problem -- that weapons in storage might be loaded quickly onto launchers for use in protracted warfare schemes -- did not pose any insuperable obstacles. To a significant degree, in fact, the problem settled itself, at least with respect to offensive forces. By 1965, with initial deployments of ICBM in hardened underground silos, the Soviets shifted away from "soft" above-ground launching systems where reload missiles had been part of the normal deployment pattern.³⁰ In effect, they traded a degree of reload capability for greater survivability afforded by hardening. Reloading was not a practical possibility for silo-based systems of the late 1960s because of the difficulties associated with repairing the damage inflicted upon a silo by a "hot" launch (i.e., igniting the missile booster inside the silo) in any time frame that would make reloading an attractive operational concept. On the defensive side, where the United States was more concerned with the viability of launcher-only limits, negotiations regarding stockpile issues were somewhat more complex. The Soviets initially did not accept U.S. arguments that the number of interceptors located within agreed deployment areas should be constrained along with the number

³⁰ Comments by Howard Stoertz, Jr., at annual meeting of the American Association for the Advancement of Science (AAAS), Philadelphia, May 29, 1986.

of launchers, but they ultimately came around to the idea of parallel launcher/interceptor limits by the end of 1970. Later on, in the buildup to the Moscow summit, they also accepted U.S. proposals to ban launchers designed for multiple interceptors and for rapid reload.³¹ These measures, combined with additional constraints on radars (discussed below), provided some protection against breakout scenarios involving the stockpiling of excess ABM interceptors. They also helped to establish a presumption favoring the segregation of stored missiles and on-line launchers.

Efforts to fence-in potential reconstitution hazards were handled in SCC deliberations during 1973-74 and eventually spelled out in a protocol governing procedures for dismantling and replacement of strategic weapons. Initially, there was no meeting of the minds on what degree of "deactivation" would suffice to remove a weapon system from the aggregate limits. Early Soviet proposals for such procedures were regarded by the U.S. side as too vague and, if adopted, they could have raised legitimate questions regarding whether deactivated weapons could be brought back into service as an operationally-ready force.³² U.S. diplomats countered by pursuing each issue -- ABM, ICBM,

³¹ Smith, Doubletalk, p. 368.

³² Author's interview with Sidney N. Graybeal, Washington, D.C., July 11, 1983.

SLBM launchers, etc. -- on a case by case basis, often in minute detail. Although the specifics of the 1974 protocol remain classified, the general scope of these provisions is widely known. Mark Lowenthal summarizes: "...in general the dismantling procedures require rendering the launchers wholly inoperable and incapable of being easily restored to working condition. For ICBMs this entails removing the cables and wires, severing all connections with available power sources, destroying the silo itself, and then filling in the blown silo with dirt. In the case of SLBMs the launch tubes must be rendered inoperable, either by destroying the submarine, cutting away the sections of the hull, or removing a certain percentage of the tubes and welding plates over the areas removed."³³ As it turned out, U.S. negotiators obtained between 80-90 percent of the provisions they had tabled and established the basis of a mutual understanding that the dismantling of treaty-limited systems should be done in such a way as to preclude their reassembly in less time than it would take to build new weapons.³⁴

While the stockpile and reconstitution hazards were handled fairly successfully, the same cannot be said for

³³ Mark Lowenthal, "The START Proposal: Verification Issues," Congressional Research Service Report, 1982, p. 4. It is more than a little ironic that this SCC protocol remains classified while the INF Treaty protocol for systems elimination, which spells out procedures for dismantling missile boosters in minute detail, is in the public domain.

³⁴ Graybeal interview, Washington, D.C., July 11, 1983.

efforts to fence-in hazards posed by the modernization of forces. Two developments in the talks posed major obstacles. First, both sides could not reach agreement on how to handle MIRV.³⁵ Second, in Soviet-American backchannel discussions in 1971, Kissinger gave an overbroad assurance to Dobrynin that "modernization and replacement" of weapons would be expressly allowed under the Interim Agreement. This assurance accorded with a long-standing Soviet preference for avoiding constraints on the upgrading of existing force structure but seriously hampered subsequent U.S. efforts to impose limited restrictions on the MIRV potential of that part of the Soviet ICBM force undergoing modernization and replacement.³⁶

³⁵ In the spring of 1970, the Americans proposed a ban on the testing and deployment of MIRV but coupled this offer with a demand for on-site inspection, not only of ballistic missile nose cones but also of SAM sites to verify a ban against upgrading activities that MIRV was meant to hedge. See Smith, Doubletalk, p. 172. The Soviets took the OSI caveat as an indication that the United States was more interested in shifting the onus of rejecting a ban to the Soviet side than in bargaining seriously about MIRV. However, the Soviets did not exactly seize the high ground on this issue. They counterproposed a ban on the production and deployment of MIRV, but not on flight testing (which they had not yet accomplished), which raised legitimate concerns about verification and was rejected by the U.S. side. Efforts to bridge these two positions -- for example, by accepting the Soviet preference for a production ban in return for gaining joint agreement on a flight testing ban -- were not seriously explored, and active consideration of banning or limiting MIRV in SALT I was dropped after 1970. Garthoff, Detente and Confrontation, pp. 140-141.

³⁶ Smith, in particular, laments the prejudicial effects of the May 20, 1970 agreement on the remainder of the SALT I negotiations dealing with ICBM controls. See Doubletalk, p. 332.

These two developments interacted in a perverse way: failure to ban MIRV made it more important than ever to gain some controls on the size and payload capacity of Soviet ICBMs, while explicit allowance for modernization made the prospect of obtaining even modest controls on MIRVing potential less likely.

The basic U.S. formula for modernization controls involved restrictions on increases in the dimensions of launch silos and a provision to preclude the replacement of light with heavy ICBMs. Under this plan, any missile larger than the SS-11 (of which there were over 1,000 in the Soviet force by 1972) was to be defined as a heavy missile. From the U.S. standpoint, the obvious attraction of an agreed definition on the light/heavy ICBM demarcation line was to ensure that the only Soviet missile larger than the SS-11 (which was not MIRV capable) would be the SS-9 and its follow-on. The silo limitations were deemed to be an important collateral measure that would add verifiability to the general prohibition on the conversion of lights to heavies. As Raymond Garthoff notes, the threshold fit in well with U.S. planning, for the replacement of Minuteman I with MIRVed Minuteman III ICBMs could go forward without any problem.³⁷

³⁷ Author's interview with Raymond Garthoff, Washington, D.C., April 4, 1985. This point was underscored by the fact that when Brezhnev raised the possibility of a ban on any increase in the size of missile boosters (as opposed to silos) at the 1972 Moscow summit, the U.S. side was thrown into momentary panic. As Kissinger pointed out

The Soviets were hostile to the general outline of the U.S. scheme, which they asserted was inconsistent with the idea of an interim freeze as specified by the May 20, 1971 agreement. In the final stages of the negotiations, they did agree that there should be no significant increase in silo dimensions. Negotiators pinned down the meaning of "significant" to a range of 10-15 percent. The Soviet Union also accepted the general prohibition barring the substitution of lights with heavies. It refused to budge, however, on the proposed U.S. definition of a heavy missile while not offering any counterproposal. This disagreement was never resolved. The United States finally issued a unilateral statement that essentially recapitulated its position. This step was taken even though there were clear indications that the Soviets already had planned MIRVed replacements for the SS-11 that would not meet the U.S. definition of a light ICBM.³⁸ Thus, as the Interim Agreement went into effect, there were nagging questions about the magnitude of Soviet MIRV programs and the constraining value of the silo size provisions. Despite optimistic statements

(White House Years, pp. 1218-1219), prohibiting any volumetric increase in missile size would have prevented the deployment of MIRVed Minuteman III. It also would have precluded the SS-17/19 deployments. To the relief of the U.S. delegation, Brezhnev's handlers quickly realized his grave blunder and the Soviet proposal was withdrawn.

³⁸ See Garthoff's revealing footnote on his conversations with Soviet diplomatic counterparts during the SALT negotiations, Detente and Confrontation, pp. 169-170.

to the contrary by senior U.S. officials, negotiators well understood these problems and their potential for stirring controversy later on.

The issues surrounding modernization and replacement on the defensive side were more amenable to solution, in large part because allowances to engage in such activity were always understood to be more circumscribed in the context of a treaty severely limiting ABMs for an unlimited period. The thorniest problem involved the size and power potential of the radar base for the permitted deployment areas. From the earliest stages of the talks, the United States had sought tight constraints on radars as a hedge against breakout while the Soviets had sought to preserve flexibility in part on the grounds that engineering design options should not be unduly limited.³⁹ As noted above, however, the Soviets did accept geographical, numerical, and power potential constraints on ABM radars as part of a larger package involving U.S. concessions on the treatment of non-ABM radars. The other aspects of the negotiation on modernization controls on ABMs were more straightforward. Both sides agreed early on to ban land-mobile and MIRVed ABM systems. In addition, despite apparent misgivings in the military ranks on both sides, each agreed in 1972 to proceed

³⁹ In the 1971-72 time frame, the Soviets were more amenable to radar restraints on their Moscow system, which was already designed and deployed, at least in part, than to restraints on an undesigned and undeployed hard-site defense system for ICBMs. Smith, Doubletalk, p. 317.

with severe restraints on new forms of ABMs: a flat prohibition was imposed on the development, testing, and deployment of sea-, air-, and space-based weapons to complement the ban on non-fixed land-based systems already agreed. Both sides also agreed that ABMs or their components based on "other physical principles," such as directed energy weapons or sensors, would be subject to the general limitations on development and testing (i.e., only at agreed test ranges) and would not be deployed unless the modalities of such were agreed to by the parties in advance.⁴⁰

Notwithstanding these notable steps, the overall SALT I package represented a controversial starting point for efforts to develop durable framework rules. The stated objective that guided the talks early on -- to strike a comprehensive framework for defensive and offensive forces that would stabilize deterrence and codify parity -- did not materialize in the agreed-upon rules. Instead, the negotiations veered off down two separate tracks -- one defensive, the other offensive -- that were not well coordinated and not at all parallel.

Both sides did achieve significant long-term restraints on ABMs; the units of account contained in the ABM Treaty were widely regarded as viable for the foreseeable future, and any concerns about the prospect of modernization or

⁴⁰ Ibid., pp. 343-344; Garthoff, Detente and Confrontation, pp. 153-154.

other hazards were overshadowed by both the extremely low thresholds set for permitted deployments and specific constraints on long lead-time items (i.e., ABM battle-management radars).⁴¹

At the same time, the only restrictions agreed upon for offensive weapons were temporary and improvised. Any additional leverage that the United States might have wielded from its advantages in ABM technology did not translate into Soviet concessions on offensive forces. Whether because of strategic design or internal bureaucratic pressure, Soviet behavior demonstrated a clear preference for protecting its then-current ICBM and SLBM development programs over any approach involving substantial self-restraint in return for corresponding limits on U.S. force improvement programs. This preference may have reflected a natural if shortsighted judgment in Moscow that significant offensive arms restraints were not necessary because momentum had swung to the Soviet side in any event. It is also true, however, that the U.S. side chose not to attempt to bring other sources of leverage into play. Specifically, senior U.S. policymakers resisted any serious exploration of trading off advantages in U.S. MIRV programs

⁴¹ In general, the launcher and interceptor units of account are still recognized as viable even with the more recent interest in moving toward exotic space-based BMD systems. Traditional radar limits, however, are becoming less viable because of new sensor technologies which are being developed for other missions (i.e., early warning, ASAT) but which have inherent BMD capabilities.

in return for restrictions on Soviet ICBM modernization. This reluctance was due in part to the fact that arms control methodology had not progressed beyond the point of treating controls on MIRVs as a binary "yes/no" choice. In SALT I, no arms control alternative to a MIRV ban was ever developed by either side, and it is not clear that the feasibility of such was seriously examined on either side until 1973. U.S. behavior was also greatly affected by idiosyncratic factors.⁴²

In the end, while the negotiating process clarified basic strategic objectives for offensive restraints -- particularly, to improve the survivability of land-based missile forces -- it laid a less than sufficient foundation for achieving that goal.⁴³

⁴² The most notable was President Nixon's pervasive suspicion of Ambassador Gerard Smith, members of the U.S. SALT delegation, and the State Department generally, not only because he regarded them as a source of anti-White House leaks but because they were perceived to be too eager to compromise and soft on defense. Kissinger, Smith, and others have documented Nixon's perception in great detail. See Kissinger, White House Years, pp. 11, 14-15, 822, 1216-1217; Smith, Doubletalk, pp. 233-242, 375-378, 466-468; and Seymour Hersh, The Price of Power (New York: Summit Books, 1983), pp. 161-167.

⁴³ The inadequacy of the Interim Agreement was widely recognized. For example, on May 9, 1972, the U.S. Delegation informed the Soviet side that failure to complete a more comprehensive offensive arms agreement within five years could constitute a basis for U.S. withdrawal from the ABM Treaty. As for future objectives, Gerard Smith stated: "The U.S. Delegation believes that the objective of the follow-on negotiations should be to constrain and reduce on a long-term basis threats to the survivability of our respective strategic retaliatory forces." See U.S. ACDA, Arms Control and Disarmament Agreements, p. 156.

SALT II DIPLOMACY: MANAGED GROWTH

SALT II marks a turbulent period for strategic arms diplomacy. With a framework for defensive controls in place, attention shifted entirely to offensive weapons. None of the substantive differences of SALT I, however, proved to be any more tractable in the early stages of talks on a comprehensive agreement; both sides started out very far apart. Moreover, the political setting for negotiations -- stressed as it was by Soviet-American tensions over trade policy, human rights, and the corrosive effects of Watergate on the Nixon presidency -- was hardly conducive to progress. The eventual SALT II agreement was not as comprehensive or permanent as anticipated, and it was thrown into limbo by the collapse of East-West relations in the wake of the NATO INF deployment decision and the Soviet invasion of Afghanistan in late December 1979.

Nonetheless, from the standpoint of bargaining methodology, SALT II diplomacy represents a critical phase for arms control. It marked the first efforts at dealing with the modernization hazards that eluded SALT I, at limiting aerodynamic systems along with ballistic missiles, and at developing rules to govern the payload capacity and performance characteristics of major weapon systems. This experience had important effects on the development of bargaining methodology, even though SALT II itself was never

formally implemented and was eventually renounced by the United States in November 1986 as a constraint on planning decisions.

Equality Versus Stability?

SALT I's unequal launcher ceilings -- little more than a snapshot of where both sides stood in one measure of strategic power in the early 1970s -- created a major political imperative in the United States to regain numerical balance. There was not much dissent from this general objective in Washington. Indeed, the Nixon Administration lent active support to the Jackson amendment to the consternation of some liberals who saw its rigid insistence on equality in numbers and throwweight as straight-jacketing U.S. negotiating flexibility.⁴⁴ Kissinger's oft-cited rationale for the Interim Agreement was to buy time for the United States to establish a stronger bargaining position.⁴⁵ At the same time, numerical

⁴⁴ According to William Hyland, the White House staff even took the lead in drafting the Jackson amendment language, with Kissinger and Jackson essentially agreeing to its provisions in advance, even while Jackson was criticizing the SALT I accords in public. See Hyland, Mortal Rivals, (Random House, 1987), p. 100.

⁴⁵ For example, he observes in his memoir that: "We were determined to avoid ever again being in a situation where only the Soviets had strategic programs underway." See Kissinger, White House Years, p. 1245. He also recounts his comments to Secretary Laird: "The way to use this freeze is to catch up. If we don't do this we don't deserve to be in office." Ibid.

equality was not the only goal at stake; stability objectives began to loom larger after SALT I. Failure to ban MIRVs begged the question of how their introduction into the arsenals of both sides could be managed. The Soviets, having worked hard to reduce their strategic vulnerability in the late 1960s, confronted a reversal of this trend in the early 1970s with the initial deployments of MIRVed Minuteman III squadrons.⁴⁶ For the Americans, the central considerations were how soon Soviet MIRVed ICBMs would put Minuteman at risk and whether arms control could arrest this trend. As noted earlier, it was a given among virtually all top U.S. policymakers in the 1970s that substantial Minuteman vulnerability would introduce an instability into the strategic balance -- in effect, by inviting preemption during crises -- that could not be offset through any combination of sea-based or bomber forces. While dire warnings of SS-9 counterforce threats never materialized, it was clear by the early 1970s that the follow-on systems to the SS-9s and SS-11s would be MIRVed. The working hypothesis was 6-8 warheads per missile.⁴⁷

⁴⁶ Useful analysis which points to such a shift is found in Bruce Blair, Strategic Command and Control: Redefining the Nuclear Threat (Washington, D.C.: Brookings, 1985), pp. 305-308. See especially the trend of Minuteman III deployments, ibid., Table A-1, p. 307, and the coincident shift in vulnerability calculations for the Soviet Union in Figure A-1, p. 308.

⁴⁷ This was Kissinger's projection, noted in an NSC meeting of March 21, 1974. See Henry Kissinger, Years of Upheaval (Boston: Little, Brown and Co., 1982), p. 1019. His calculation of 6-8 warheads on 1,500 ICBMs put his Soviet

In the abstract there was nothing inconsistent about pursuing both numerical equivalence in launchers and low numbers of MIRVs. As a practical matter, however, the United States had little leverage to force the Soviet Union to concede its numerical advantages in launchers confirmed under SALT; it could build up to those levels (about 2,500 launchers) but asymmetrical reductions appeared anathema to the Soviet leadership at the time, especially given its staunch position on including U.S. FBS in force totals. Correspondingly, the United States was already well advanced into its MIRVed Minuteman III deployment -- 400 by about 1973 -- making it very unlikely that the Soviets would forgo acquisition of MIRV technology unless the Americans were prepared to cede some major advantage.⁴⁸ The dilemma for the United States was thus how to conserve its bargaining position in the face of conflicting goals: to limit Soviet MIRVs to less than destabilizing levels would mean to forgo some measure of force improvement (probably Minuteman III),

MIRV projection in the range of 9,000-12,000 warheads. Based on ICBM throwweight projections of 10-12 million pounds, other estimates for Soviet MIRVing ranged up to 15,000 ICBM warheads and beyond. In testimony, Schlesinger projected a range of 7-8,000 and noted that higher estimates were possible but assumed some combination of Soviet throwweight and warhead technology on par with U.S. systems. See U.S. Congress, Senate Foreign Relations Committee, U.S.-U.S.S.R. Strategic Policies, 93rd Cong., 2nd sess. (Washington, D.C.: U.S. GPO, 1974), p. 6. All these projections for ICBM MIRVs turned out to be high; as of late 1989, Soviet ICBM loadings totaled about 6,500 warheads.

⁴⁸ In addition, MIRVed Poseidon SLBMs had already begun to be deployed on board U.S. submarines from 1971.

and this in turn would make it ever more difficult to achieve equality with the Soviets in launchers or even to exert leverage in favor of reductions with the threat of a countervailing buildup.⁴⁹ A further complication was that the most natural avenue to compromise -- to set a limit on Soviet MIRVed missile launchers at U.S. levels -- was really not much of a limit at all. Because of their throwweight advantages, the Soviets could deploy 3 to 4 times the number of warheads on an equal number of missiles, more than enough to threaten a substantial portion of the Minuteman force given expected improvements in ballistic missile accuracy. The United States was in no position to reciprocate this kind of a counterforce threat.

Initial U.S. SALT II proposals, expressed as general principles in 1973 and subsequently formalized in NSDM-245 in 1974, did little to attenuate the latent tensions in the American bargaining position. Reflecting the imperative of the Jackson amendment, the U.S. negotiating position called

⁴⁹ The idea of threatening a build-up in response to continued stalemate in SALT was raised several times. For example, Nixon records that Kissinger warned Gromyko during the 1974 summit that the United States might be compelled to MIRV all its Minuteman missiles in the absence of a new agreement within a two year period. See Richard Nixon, RN: The Memoirs of Richard Nixon (New York: Grosset and Dunlay, 1978), p. 1031. At another point, Schlesinger evidently suggested an additional outlay of \$2 billion for new programs if SALT I failed. According to one account, he argued for low ceilings on Soviet MIRV or, failing that, for a "five year, all out arms race." Leslie H. Gelb, "Vladivostok Pact: How It Was Reached," The New York Times, December 3, 1974, p. A26. Nothing of this sort ever materialized.

for equality in the total numbers of ICBM and SLBM launchers and strategic bombers. The initial figure chosen -- 2,350 -- was roughly a midway point between lower U.S. totals and higher Soviet ones.⁵⁰ Missile throwweight was also proposed by the United States as a unit of account for the first time, not as an alternative to launchers but as a supplement. Strongly advocated by Pentagon officials, this throwweight proposal called for an equal ceiling on MIRVed ICBM throwweight, the effect of which would have been to restrict Soviet MIRVing to a few hundred missiles.⁵¹

⁵⁰ Evidently, this figure was suggested by U. Alexis Johnson, the chief SALT II negotiator. See U. Alexis Johnson with Jef Olivarius MacAllister, The Right Hand of Power (Englewood: Prentice-Hall, 1984), p. 600.

⁵¹ A precise figure for a throwweight threshold was not proposed, however. Johnson was instructed to inform his Soviet interlocutors that the United States was unlikely to accept a level higher than the aggregate throwweight of the entire Minuteman force. Kissinger, Years of Upheaval, p. 1018. While the proposal might have been a good going-in position, it was hardly fair or balanced in terms of its effects. At a level of 1,000 units and with a programmed mix of 550 Minuteman IIIs, and 450 Minuteman IIs, the throwweight total for the U.S. side would have come to about 1,930,000 lbs. At this level, the Americans could have deployed as many as 877 Minuteman IIIs (2631 warheads) by deactivating the remainder of their Minuteman IIs while the Soviets would have faced a choice between fielding a maximum of 115 SS-18s (1150 warheads) or possibly a maximum of 257 SS-19 (1542 warheads) or some mix of the two ICBMs at lesser levels. The SS-17 with 4 MIRVs was also a possible choice but would have compared very poorly to the other two systems in a sharply constrained environment. In 1974, U.S. officials could not have known for sure how many warheads the Soviets would finally deploy on their MIRVed ICBMs, but the effects of the U.S. throwweight proposal were no doubt understood by Soviet planners, who did know. Throwweight values are taken from the International Institute for Strategic Studies, The Military Balance, 1988-1989 (London: IISS, 1988), pp. 210, 215.

Possibly as a sweetener to the Soviets, the U.S. delegation also expressed willingness to negotiate a ban on cruise missiles of intercontinental range as well as a ban on long-range ballistic missiles stationed on surface ships or on aircraft.⁵²

None of this was acceptable to the Soviets; the gap between their initial positions and U.S. proposals was enormous. They urged extension of SALT I's unequal ceilings into a permanent agreement and inclusion of FBS as well as strategic bombers in the aggregate count. They also proposed very robust non-circumvention language to preclude any transfers of delivery systems to allies. (The ABM Treaty forbade the transfer of ABM systems to third parties but allowed cooperation on anti-tactical ballistic missiles to go forward; a categorical non-transfer provision on the offensive side would have undermined the NATO position on FBS and unacceptably frozen long-standing Anglo-American cooperation on sea-based deterrent forces.) In addition to these measures, the Soviets called for the closure of overseas U.S. submarine bases and the removal of nuclear weapons aboard long-range bombers.⁵³ Finally, they proposed

⁵² Johnson, The Right Hand of Power, p. 588. This suggestion of a cruise missile ban was later dropped after Kissinger persuaded the Pentagon in July 1973 not to cancel the ALCM program.

⁵³ Ibid. The proposal on bomber loadings reflected a longstanding Soviet anxiety about the U.S. practice of keeping a portion of the B-52 fleet on constant airborne alert -- a practice which the U.S. maintained until its space-borne missile detection system became fully

that "major new weapons" be banned -- including the B-1 bomber and the Trident submarine -- but that weapons undergoing "modernization" (e.g., the replacement of the SS-9s and SS-11s with the MIRVed SS-18s, SS-17s, and SS-19s) be allowed to proceed.⁵⁴ U.S. officials saw this proposal as a Soviet ploy to seize unilateral advantages in the modernization process and it was promptly rejected.

With both sides committed to conflicting conceptions of a permanent agreement, negotiations during 1973-74 sputtered along with little more than occasional probing of each other's bargaining positions. In an effort to generate a more flexible approach, the chief U.S. negotiator, U. Alexis Johnson, forwarded some private suggestions to Kissinger in November 1973. The novel element in Johnson's ideas was a threshold on total throwweight which would attempt to relate bomber payload (a major U.S. advantage) to missile boosting power (a major Soviet advantage).⁵⁵ The combined effect of the low aggregate ceiling and the throwweight limits would then compel Soviet reductions in their SS-9/18 ICBM force

operational in the early 1970s. In the same way, the Soviets have consistently included among their proposals for confidence-building measures a prohibition against the massed take-off of strategic bombers.

⁵⁴ See Paul H. Nitze, "Assuring Strategic Stability in an Era of Detente," Foreign Affairs, Vol. 54, No. 2 (January 1976), p. 218.

⁵⁵ Johnson, The Right Hand of Power, pp. 598-599. In Johnson's plan, bomber payload was to be calculated at one-half of their actual capacity, in compensation for their slower flight time relative to ICBMs.

balanced in part by some U.S. reductions in B-52 bombers. As an added inducement for Soviet cuts, Johnson also evidently favored the idea of forgoing the Trident submarine while instead equipping the Poseidon fleet with the new C-4 (Trident I) missile.

As it turned out, Johnson's plan foundered on Pentagon objections that it was not possible to weigh the value of bomber forces relative to ballistic missiles and that bombers should therefore be excluded. Nonetheless, his ideas were significant in the sense that they signaled the first step in a recurring U.S. tendency, seen not only in SALT but later in START, to achieve broader formulations of equivalence in which U.S. advantages could be used as catalyzing agents for structured limits on Soviet forces of interest to the United States. It was a kind of "grand compromise" for offensive forces that the U.S. side had half-heartedly tried to achieve with the use of ABM bargaining chips in 1972.

Kissinger's own evaluation of the situation led him down a different path in the search for optimal bargaining trade-offs. In his retrospective account of SALT II, he clearly puts himself in the camp of those who saw the paramount problem as being the strategic instabilities

created by MIRV.⁵⁶ However, the Pentagon's approach to dealing with this problem -- throwweight restrictions -- would force a wholesale restructuring of the Soviet rocket forces unless the Soviets were prepared to live with far fewer missiles than the United States. This outcome seemed very unlikely. Instead, Kissinger saw more potential in a force concentration rule limiting the distribution of weapons under the aggregate limit -- in this case, a sublimit on MIRVed ICBMs. The principal issue raised by a sublimit, like all ceilings on key units of account, was where to draw the line. To set it on par with U.S. MIRVed missiles, as noted above, would have given the Soviets a destabilizing advantage in warhead-carrying capacity; to set it below projected U.S. MIRV levels would have risked triggering a bureaucratic revolt in the Pentagon.

Why not, Kissinger asked, simply drop the requirement for overall equality in launchers -- in effect, to extend SALT I, at least temporarily -- in return for Soviet acceptance of a "an offsetting asymmetry" in the numbers of MIRVed ICBMs? Kissinger unveiled his scheme at an NSC meeting in late March 1974, just prior to visiting Moscow to finalize arrangements for Nixon's visit in June. It was presented as a three year add-on to the Interim Agreement,

⁵⁶ This is clearly indicated in Kissinger's constant criticism of the Pentagon's equal aggregates approach. See for example his revealing footnote in Years of Upheaval, pp. 264-65.

which would counterbalance the unequal launcher levels by limiting the Soviets to under 300 land-based MIRVed ICBMs while allowing the United States to complete its planned deployment of 550 Minuteman III missiles. As Kissinger recalls: "I did not really expect the Soviets to accept the numbers we would be proposing. There was no realistic prospect that they would confine themselves to 270 land-based MIRVed ICBMs. But if the principle of unequal aggregates for MIRVs was accepted, I hoped to shape an outcome that would delay the Soviets' achievement of a first-strike capability."⁵⁷

Perhaps to his surprise, the main bureaucratic players seemed to close ranks behind the idea; in particular, Secretary of Defense James Schlesinger gave conditional approval to the plan. But there turned out to be little latitude for real bargaining. In Moscow, Brezhnev did agree in principle to unequal MIRV ceilings but at levels high enough -- 1,100 for the United States, 1,000 for the Soviet Union -- to vitiate any real constraining effect. The Soviets also rejected any sublimit specifically on MIRVed ICBMs. A few weeks later, Kissinger floated a counteroffer to Gromyko of an 850 MIRVed missile ceiling for the Soviets with a sublimit of 600 MIRVed ICBMs, but Schlesinger publicly disassociated himself from it in early June, reasserting the Pentagon's staunch support for the equal

⁵⁷ Ibid., p. 1019.

aggregate approach.⁵⁸ From Nixon's viewpoint, it was the Pentagon's about-face that essentially barred any "flexible negotiating" on SALT during his last summit with Brezhnev.⁵⁹

Arguably, the demise of Kissinger's approach may have stemmed less from internal opposition to its substance than from a desire in parts of Congress and the Pentagon to block any desperate move by Nixon to revive his failing presidency with a snap agreement. That said, however, there is no clear evidence to suggest that, having budged on the principle of offsetting inequalities, the USSR would have really applied it as a tool for suppressing MIRV capability. Kissinger has portrayed this episode as a lost opportunity, and it has been argued by others that an agreement in 1974 could have affected Soviet acquisition plans then being drawn up for the 1976-80 time frame.⁶⁰ However, so far as is known, the Soviets never signaled any willingness to accept a low sublimit on MIRVed missiles (e.g., less than 1,000) during

⁵⁸ In fact, Schlesinger was quite happy to accept a differential in MIRVed ICBMs. Under his proposal, the Soviets would have been allowed 300 less MIRVed ICBMs (360 to 660) under an overall aggregate ceiling of 2,500 deployed SNDVs, see ibid., p. 1158. The catch was that he was not prepared to sacrifice overall equality in SNDVs in order to achieve that outcome, despite the fact that the Pentagon had no plans to field 660 Minuteman IIIs or 2,500 SNDVs.

⁵⁹ Nixon, RN, p. 1035.

⁶⁰ Kissinger, Years of Upheaval, pp. 1028-1029. In fairness to Kissinger the historian, he points out that missed opportunities can never be proven. For discussion on the connection between SALT and Soviet planning, see Garthoff, Detente and Confrontation, p. 432.

this time frame; nor did they ever name a price -- even an outrageous one -- for accepting such a limit. Reinforcing this pessimistic interpretation is the fact that, despite hints that they would show flexibility in dealing with the new Ford Administration,⁶¹ the Soviets continued to reject U.S. proposals to cut their force of 308 heavy ICBMs or to bar their MIRVing, even though they were at the same time proceeding with two MIRVed replacements for their smaller SS-11.⁶² These facts, coupled with lobbying by the Pentagon for leeway under SALT to proceed with Trident, effectively precluded any constraints on MIRV. When the Vladivostok framework was agreed to in November 1974 by Presidents Ford and Brezhnev, its ceilings of 2,400 on overall launchers and 1,320 on MIRVed ICBM and SLBM were too high to impose any obvious constraint.⁶³ MIRVed missiles were preferentially restricted for the first time but at such a high level as to make any constraining effect, for either side, essentially theoretical for nearly a decade.

⁶¹ See account of Ford-Gromyko meeting of September 20, 1974 in Gerald Ford, A Time to Heal: The Autobiography of Gerald R. Ford (New York: Harper and Row, 1979), pp. 183-4.

⁶² Garthoff, in Detente and Confrontation, p. 443, supplies a fact not reported in other accounts, namely that the U.S. proposal of September 1974 in effect would have limited MIRVing to non-heavy ICBMs.

⁶³ With one exception: the Soviets would have had to reduce their overall aggregate by about 100 launchers, a level that was still 200 above programmed U.S. forces.

The Significance of Vladivostok

It is against this background that one should assess the Vladivostok compromises. While the Vladivostok accord was not a formal treaty, it was a framework agreement which represented a series of highly consequential bargaining adjustments for each side. For the Soviet Union, it marked the end of formal demands in SALT II for compensation on FBS within the overall aggregate totals -- a step of no lesser consequence than Gorbachev's decision to drop insistence on including British and French nuclear forces within the INF negotiations nearly thirteen years later.⁶⁴ It also signaled an end to the more extreme Soviet proposals in SALT II on banning new U.S. strategic systems. These concessions, however, came at a substantial price: the Soviets staved off U.S. demands for cuts in heavy ICBM and achieved a high launcher ceiling which, as they almost certainly reckoned, the Americans were unlikely ever to match.

For the U.S. side, Vladivostok resolved the stability vs. equality trade-off decisively in favor of equality. Indeed, it marked the end of the road for any real U.S. effort at limiting ICBM vulnerability wholly through

⁶⁴ However, Soviet officials did on occasion threaten to revisit the FBS issue, see Thomas Wolfe, The SALT Experience, (Cambridge, Ma.: Ballinger, 1979), p. 200, and certainly threatened to do so when the Carter Administration tried to reintroduce the issue of cutting heavy ICBMs in 1977. According to U. Alexis Johnson, the Soviets continually insisted that FBS was not off the bargaining table for good, and would have to be addressed in SALT III. See U.S. Congress, The SALT II Treaty, Part 5, p. 491.

constraints on the Soviet MIRV buildup, whether by offsetting inequalities or direct limits on throwweight. Thenceforth, without unilateral basing adjustments, it was at least theoretically possible that most U.S. ICBMs as well as submarines in port and non-alert bombers would be at risk to prompt attacks at some point in the future. This so-called "window of vulnerability" created by the MIRVed throwweight differential was the basis upon which Paul Nitze and other critics eventually came out against the Vladivostok understanding and any agreement stemming from it.⁶⁵ The idea of shaping procurement and arms control policies around the concept of adequate survivability based on a favorable warhead/target ratio -- that is, proliferating low-value aim points to such a degree that the "price to attack" becomes unacceptable to the side striking first -- did not become a widely accepted goal for U.S. policy until the Scowcroft Commission popularized it in 1983.⁶⁶

Finally, for both sides, Vladivostok meant the end of a search for a permanent offensive arms agreement.⁶⁷ In

⁶⁵ This was the centerpiece of Nitze's now famous attack on the Vladivostok framework, see Nitze, "Assuring Strategic Stability," p. 220.

⁶⁶ Report of the President's Commission on Strategic Forces (Washington, D.C.: U.S. Department of Defense, April 1983), p. 14.

⁶⁷ The decision on a finite time frame for the new SALT II agreement was actually taken at the Moscow summit in July 1973, not at Vladivostok, although the Vladivostok accord formalized it. In a revealing comment to the press,

bargaining terms, the accord conformed to the pattern set by the 1972 SALT I Interim Agreement of achieving limited progress at the price of deferring hard issues for subsequent negotiations. Those issues -- principally the matters of negotiating verifiable limits on the force loadings of different classes of missiles and bombers, of limiting new missile types, and of dealing with gray-area weapons such as the Backfire bomber (a scope issue, which will be examined in Chapter 6) -- dominated the negotiating agenda during the remainder of the SALT II period.

Compliance Frictions

Despite its high launcher limits, the Vladivostok package could have imparted substantial momentum to SALT II

Kissinger explained this choice in terms of the bargaining problems raised by either a temporary extension of the interim accord (with new MIRV limits) or by a permanent agreement. He said: "Extending the interim agreement....presented a number of extraordinarily difficult problems because we would be pressed in terms of quantity, since a number of our new programs, such as Trident, are going to be deployed starting around 1978, 1979; and...the Soviet Union would be pressed in terms of quality, because their deployment of MIRVs is only now starting. And the difficulty of making an agreement with a cutoff date of 1979 is, when you have gone through all the agony, you have not put a cap on the rate of deployment....On the other hand, when you talk of a permanent agreement, you get yourself frozen into situations in which the technology is so unpredictable that it is very difficult to make reasonable judgments, and this is why the period 1985 was chosen. It was chosen in the hope...that if such an agreement were reached next year, we would be talking about a ten-year agreement." Press conference of Henry A. Kissinger, Moscow, July 3, 1974, reprinted in Labrie, ed., SALT Handbook, p. 259.

diplomacy. A major reason that it did not was a flurry of charges of noncompliance with SALT I which dominated political discussions in the United States during 1975 and intermittently thereafter until the completion of SALT II.

The most noteworthy development was the Soviet SS-19 ICBM, which was flight-tested beginning in August 1973. Armed with a payload of 6 warheads, the SS-19 turned out to be about 50 percent larger in volumetric terms than the SS-11 and possessed more than 3 times the throwweight potential. Between 1974 and the early 1980s, the Soviets retrofitted 360 SS-11 silo launchers with SS-19s of three different variants, two of them MIRV-equipped. They also installed 150 SS-17s, a missile closer in size to the SS-11 but with roughly twice the throwweight capacity. Equipped with 4 warheads, the SS-17 was less a bone of contention than the larger SS-19. Its ability to be "cold launched" (i.e., ejected from the silo by compressed gases prior to ignition) was a troublesome innovation, however, for it raised the possibility of silo reloading operations within some meaningful time frame and created a new requirement to clarify in agreed treaty language the relationship of non-deployed missiles and on-line launch systems.⁶⁸

⁶⁸ The notion of a strategically significant time frame depends entirely on one's view of the feasibility of protracted warfare scenarios. U.S. intelligence has not assessed this reload capacity as "rapid" but as one that could be exploited over several days. See Soviet Military Power, 1981 (Washington, D.C.: U.S. Department of Defense, 1981), p. 56. Perhaps the main attraction of cold-launch for the Soviets was not reloading per se but the possibility of

Neither the SS-19 nor the SS-17 actually violated agreed treaty language. Under SALT I's rules on upgrading, the modernization of missile forces was explicitly allowed unless it resulted in greater numbers of heavy ICBMs or a significant increase in the size of existing launch silos. The problem was that, as noted earlier, the Soviet Union had persistently refused to accept a U.S. proposal to designate the SS-11 as the dividing line between light and heavy ICBMs, while the United States refused to adjust its proposed definition upward, opting instead to restate unilaterally for the record that it would regard any missile significantly larger than the SS-11 as a heavy missile. This was a move that U.S. officials would later regret. Referring to the silo upgrade provisions and other "safeguards" in the agreement, Kissinger told members of Congress in June 1972 that SALT I would bar the substitution of the SS-11 by heavy ICBMs.⁶⁹ He was not entirely

deploying larger throwweight ICBMs in silos that were already constrained by agreement. For a given silo size, the cold-launching technique permits deployment of larger ICBMs than would be the case if the missile had to be ignited inside the silo during the launch sequence. See Department of Defense, Annual Report, Fiscal Year 1979 (Washington, D.C.: Department of Defense, 1978), pp. 49-50.

⁶⁹ In his briefing to Congress, Kissinger spoke of several "safeguards": first, that substituting light with heavy ICBMs was barred; second, that silo configuration could not be changed in a significant way; and third, that both sides had agreed to define the term significant as a 10 to 15 percent increase in silo dimensions. See remarks by Kissinger, June 15, 1972, printed in U.S. Congress, Military Implications of the Treaty on the Limitations of Anti-Ballistic Missile Systems, p. 128.

incorrect. Without the silo restrictions, there would have been no clear barriers to replacement of the entire Soviet SS-11 force with SS-18s.⁷⁰ Contrary to Kissinger's suggestion, however, there was no bar to "in-between" ICBMs significantly larger than the SS-11, which would meet the U.S. definition of a heavy ICBM. There is some evidence to indicate that U.S. intelligence may have underestimated the size of a new missile that could be fired from a slightly enlarged SS-11 silo.⁷¹ Given Soviet opposition to an agreed definition of a heavy ICBM, however, it is unrealistic to suppose that this miscalculation alone would have led U.S. officials to develop exaggerated notions of the constraining power of the Interim Agreement. Nonetheless, the fact remains that the Nixon Administration's claims were badly undercut by Soviet compliance behavior.

As the Soviet Union's best shot at acquiring MIRV capability at the time, the SS-19 was a strategically significant development by any measure.⁷² With a maximum

⁷⁰ This was not simply a theoretical concern. Then Secretary of Defense Melvin Laird, for one, was careful to justify the silo restrictions in terms of preventing the replacement of SS-11s with SS-9 class missiles (i.e., the SS-18). See comments by Laird, *ibid.*, p. 548. At the same time, so far as is known, there was no evidence to indicate that the Soviets ever seriously intended to replace SS-11s with SS-9s or their follow-ons.

⁷¹ U.S. Congress, Principal Findings on the Capabilities of the United States to Monitor the SALT II Treaty, p. 3.

⁷² According to Jan Lodal, who served on the NSC staff during this period, the SS-19 was viewed by U.S. experts as the Soviets' "main prospect for developing a workable MIRV."

force loading of 2,160 warheads, the SS-19 force has carried more than one-third of total deployed Soviet ICBM warheads. Yet some critics have overstated the compliance-related aspects of this case by arguing that the Soviets deceptively inserted a loophole for the SS-19 into the agreement.⁷³ It is hard to see where deception took place. One does not have to look very far to realize that SALT I's rules on upgrading were recognized at the time as allowing substantial room for new and larger missiles. As Kissinger himself observed at the time: "No doubt one of the reasons for the Soviet reluctance to specify a precise characteristic is undoubtedly that they are planning to modernize within the existing framework some of the weapons they now possess."⁷⁴ Moreover, while the official Soviet position was that the proposed American definition was unnecessary, because NTMs could distinguish between light and heavy ICBMs, this fact alone does not validate the charge of deception. Soviet negotiators at SALT I had let it be known by the Spring of 1972, more than a year before the SS-19 was flight-tested,

See Jan Lodal, "Verifying SALT," p. 49. It is worth noting that the accuracy of the SS-19 has been downgraded in recent years. The 1986 edition of Soviet Military Power, p. 25, asserted that the SS-19 Mod 3 has "similar capabilities" to the silo-busting SS-18 force. But the 1987 edition stated that the SS-19 Mod 3 has significant capability against all but unhardened targets." See Soviet Military Power, 1987, p. 29.

⁷³ Sullivan, "The Legacy of SALT I," p. 35.

⁷⁴ Kissinger briefing of June 15, 1972, in U.S. Congress, Military Implications, p. 128.

that the U.S. definition was unacceptable because they had in development a system that would be inconsistent with it.⁷⁵ The Soviet side thus did not encourage the United States to believe falsely that a unilateral statement to which they had already objected would have some binding effect. The real fault lies in Kissinger's decision to table a unilateral statement in the first place and to assert the existence of "safeguards" in the agreement that did not in fact exist. Why these steps were taken in the face of clear evidence that they would raise problems later has never been fully explained.

Another event which raised doubts about compliance with framework rules involved the apparent establishment of a Soviet ABM test range on the Kamchatka peninsula (see Table 3-1), in the vicinity of a well established impact area for ICBM tests. In the Fall of 1975, U.S. intelligence observed the installation at Kamchatka of a prototype ABM tracking radar, dubbed Flat Twin, which was a main component of a new Soviet ABM system, the ABM-X-3, then in the early stages of engineering development. Reportedly, this radar initially had been deployed at the Sary Shagan test range, then disassembled, moved to Kamchatka and reassembled there, all within a period of months.⁷⁶

⁷⁵ Garthoff, Detente and Confrontation, pp. 169-170, 174.

⁷⁶ Thomas K. Longstreth, John E. Pike, and John B. Rhinelander, The Impact of U.S. and Soviet Ballistic Missile Defense Programs on the ABM Treaty, (Washington, D.C.:

This activity raised two issues from the compliance standpoint. The first was whether the Kamchatka range should be classified as a "new" or "existing" ABM test range. Under the treaty, both sides accepted the obligation that new test ranges would be subject to mutual agreement. This requirement was proposed by the U.S. side in order to prevent a situation in which key units of account -- in this case, ABM radar components -- were deployed in excess of agreed ceilings under the guise of a test program.⁷⁷ The problem was that Kamchatka was not included on a list of existing U.S. and Soviet test ranges furnished by the United States during the final stages of the ABM negotiations, and the Soviet side took no action to amend the U.S. declaration, asserting somewhat ambiguously that "national means permitted identifying current test ranges."⁷⁸ When queried about the matter in the SCC, Soviet representatives stated that a test facility on Kamchatka had in fact existed

National Campaign to Save the ABM Treaty, 1985), pp. 57-58.

⁷⁷ As John E. Rhinelander, a legal advisor on the SALT I delegation, later stated: "The effect of Article IV (on test ranges) is to prohibit either side from constructing ABM components, for instance, around Leningrad or New York, under the label of a 'test range.'" See "The SALT I Agreements," Mason Willrich and John Rhinelander, eds., SALT: The Moscow Agreements and Beyond (New York: The Free Press, 1974), p. 133.

⁷⁸ This assertion did not amount to an endorsement of the U.S. statement, despite the fact that it is listed erroneously under the heading of "Common Understanding" in U.S. Arms Control and Disarmament Agency, Arms Control and Disarmament Agreements, 1980 Edition, p. 145.

in 1972, even though they had not specifically identified it as such, and that they were prepared to consider it as a current test range within the meaning of the ABM Treaty.⁷⁹

The second question was whether the radar installed at Kamchatka violated the treaty's prohibition on land-mobile ABM components (i.e., not being of a permanently fixed type). The time frame of a few months within which the Flat Twin was disassembled, transported to Kamchatka and reassembled triggered concern among some experts. As in the test range case, the idea behind a ban on mobility was mainly to erect a barrier against breakout, this time by preventing either side in their respective R&D programs from developing ABM components that could be stockpiled and then deployed on extremely short notice. When the Carter Administration examined the issue in 1979, it concluded that the Flat Twin and associated radars were not mobile in the sense of being able to be moved about or readily hidden.⁸⁰ However, the dividing line between mobile and merely transportable components is an inherently fuzzy one; judgments about mobility focus not only on the time frame of movement, but on the extent of assembly or disassembly required as well as the need for special site preparations

⁷⁹ U.S. Department of State, Compliance With SALT I Agreements, p. 3.

⁸⁰ Ibid., p. 6.

(e.g., concrete foundations, etc.).⁸¹

Unlike the SS-19 deployment, the Kamchatka matter was not deemed at the time to have much strategic significance as a compliance problem.⁸² Had the Soviet Union been forthright in declaring the facility in 1972, as the United States did for its own, the problem might never have come up. (The USSR was not, however, required to make such declarations at the time.) As it turned out, in pursuing the case further in SCC discussions, U.S. officials got the Soviet side to acknowledge that Sary Shagan and Kamchatka were the only existing ABM test ranges in the Soviet Union.⁸³ This admission not only settled the immediate issue at hand -- in effect precluding the sudden appearance of other "existing" Soviet test ranges -- it also signaled an

⁸¹ The time frame criterion seemed to be the dominant consideration during the negotiations. According to some observers, the U.S. interpretation of mobility or "transportability" was that if components could be moved within a few days or a week, such activity would be inconsistent with the treaty. See Longstreth, et al., U.S. and Soviet Ballistic Missile Defense Programs, p. 58. However, a slightly longer time frame -- from a week to several months -- was also of concern, even if not clearly at odds with the intent of the ban on mobile components. I am grateful to Albert Carnesale, of the U.S. SALT I delegation, for this observation.

⁸² Nonetheless, as a compliance issue per se, and in contrast to the Carter Administration's conclusion, the Reagan Administration in 1985 assessed the evidence with respect to the ABM component mobility issue as "ambiguous" and stated that there was the possibility of a "potential violation." See President's Report on Noncompliance, February 1, 1985, p. 8.

⁸³ U.S. Department of State, Compliance With SALT I, p. 3.

important step toward a more systematic approach to data exchanges and other verification rules under future agreements, to which we will return in Chapter 7.

**Renewed Efforts at Constraining Modernization:
Fencing-in MIRVs**

The development of MIRV-equipped Soviet ICBMs brought into sharp focus the central methodological drawback of the SALT I framework: numerical limits on launch systems required a supporting array of modernization constraints to be effective, but the silo restrictions that were supposed to serve this purpose had more modest effects than many in the United States had been led to believe. Given their importance for verification, it was scarcely possible that launchers would be dropped as a unit of account. Increasingly, however, the negotiations faced the challenge of trying to limit weapons performance. This forced each side into a bargaining process aimed at determining which aspects of strategic capability -- the number of payloads, explosive power, accuracy, more and better silo restraints, etc. -- should be limited; and also on ways to make verifiable distinctions between or among strategic weapons of differing capability.

Sorting out these issues was a painstaking process. The negotiations never really managed to overcome the minutiae of accounting and definitional disagreements during the

remainder of Ford's and Kissinger's tenure.⁸⁴ At the delegation level, agreement was reached on a counting rule for MIRV missiles, whereby any booster tested with multiple payloads would be counted as MIRVed, and thus subject to the MIRV sublimit, regardless of whether it was actually deployed with MIRVs. Both sides also agreed in principle that SALT II would ban the storage of spare missiles and reloading equipment at operational launch sites.⁸⁵ Aimed at fencing-in the cold-launch technique which made rapid reloading theoretically possible, this provision firmed up the presumption in favor of strict segregation of non-deployed missiles and operational launchers. However, a host of other issues ultimately eluded agreement and further negotiation was deferred until after the 1976 U.S. presidential election and the advent of a new administration in Washington.

⁸⁴ Both sides came close to a deal covering Backfire and cruise missiles during Kissinger's visit to Moscow in January 1976. The general framework of this tentative compromise was to add to the Vladivostok thresholds a separate allowance for 300 Backfire bombers and roughly the same number of cruise missiles on U.S. surface ships while lowering the overall aggregate from 2,400 to 2,200. As part of this arrangement, the Soviets also agreed not to count each ALCM against the MIRVed launcher aggregate, as they had insisted upon in the wake of Vladivostok, but to count ALCM-equipped bombers against the MIRV sublimit. What apparently nixed the deal was an urgent cable from Washington indicating that the Pentagon firmly opposed forfeiting the option to deploy SLCMs on submarines. See Mortal Rivals, pp. 159-161. For details on Soviet treatment of ALCMs up to January 1976, see comments in U.S. Congress, The SALT II Treaty, Part 5, p. 281.

⁸⁵ Talbott, Endgame, p. 36.

In contrast to his immediate predecessors, Jimmy Carter brought to the U.S. presidency a strong philosophical interest in arms control and a willingness, at least initially, to explore the prospects of more far-reaching agreements. Perhaps for this very reason he was also eager to find common ground with critics of the Ford-Kissinger approach within his own party, especially Sen. Henry Jackson, whose support for a new agreement would be critical to successful ratification. Jackson's insistence on revisiting the issue of cutting Soviet heavy ICBMs pushed the U.S. planning process toward a more radical formula involving deep reductions and technical restraint. The product of this effort was a comprehensive package featuring cuts of 20-30 percent in the Vladivostok aggregates, a 50 percent cut in Soviet heavy ICBMs, a complete ban on new types of ICBM, and a missile flight-testing quota, which Secretary of State Cyrus Vance presented in Moscow during his first visit in March 1977.⁸⁶ A Gorbachev conceivably

⁸⁶ The full package included: an overall equal aggregate of 1,800 - 2,000 launchers; a MIRVed missile sublimit of 1,100 - 1,200; a MIRVed ICBM sublimit of 550; a reduction in heavy ICBM to 150; a ban on the development, testing, and deployment of new types of ICBM; a ban on the modification of existing ICBMs; a ban on mobile ICBMs; a flight-test limit of 6 ICBM and 6 SLBM per year; a ban on cruise missiles above 2,500 km in range; ALCMs of between 600 - 2,500 km range would be limited to heavy bombers; and Backfire would not be included if the Soviets would provide a list of measures to assure that the bomber would not be used in a strategic role. The basic elements of this package were spelled out by Vance, in his March 30, 1977 Moscow press conference, see Documents on Disarmament, 1977, p. 178. See also U.S. Congress, The SALT II Treaty, Part 4, p. 482. Figures and supplementary detail are supplied by

might have seized upon the proposal as a basis for negotiation on matters of long-standing Soviet interest. (The U.S. plan would have eliminated the MX missile while leaving Soviet fourth generation missiles intact, albeit at lower levels.) But Brezhnev and Gromyko spurned the package as a betrayal of Vladivostok, and the Carter Administration suddenly found itself caught between a major impasse with Soviet leaders and disappointed expectations at home.⁸⁷

What happened next is a good illustration of the inertial influences of arms control as a diplomatic process. Faced with the need to reestablish a credible bargaining position, the Carter Administration fell back upon a more modest approach as a way to bring into balance Soviet insistence on the Vladivostok framework with its own desire for limitations that would arguably be a more progressive version of arms control. Somewhat ironically, one of the vehicles for this was a variation on the force concentration rule for MIRVed ICBMs which Kissinger had attempted to negotiate previously. Support for this option within the U.S. government was driven in part by a growing belief that the Soviets would never budge on cutting heavy ICBMs, and in part by a new concern that even if cuts in heavy ICBMs were

Garthoff, Detente and Confrontation, p. 806.

⁸⁷ The quality of scorn in the Soviet reaction was vividly demonstrated in an unprecedented press conference held by Gromyko in the wake of Vance's visit. See news conference remarks by Gromyko, March 31, 1977, Documents on Disarmament, pp. 181-182.

obtained, they would not buy very much in the way of constraints on prompt counterforce potential if Moscow could offset such cuts with SS-19s.⁸⁸ A threshold of 550 on MIRVed ICBM had been tried in March 1977 but rejected by the Soviets as part of the U.S. comprehensive package. U.S. planners therefore began to look at options more compatible with Vladivostok -- sublimits in the 700-800 range -- with the possibility of adding ALCM- equipped bombers into the framework as an inducement to the Soviets.⁸⁹

⁸⁸ The Carter Administration made a slow and politically embarrassing retreat in its proposals to constrain Soviet heavy ICBM. Initially, in its comprehensive proposal, it wanted a limit of 150 on heavy missile launchers; then, in May 1977, Vance proposed to freeze MIRVed heavy ICBMs at 190 (in effect, preventing further retrofitting of SS-9 silos with SS-18 missiles); finally, in September the United States proposed a "heavy systems" sublimit in which the Soviets could keep 250 MIRVed heavy ICBMs balanced by 250 U.S. cruise missile equipped bombers. This latter proposal echoed the earlier throwweight limit proposed by U. Alexis Johnson in 1974. However, the Soviets rejected all three approaches. Meanwhile, the SS-19 issue was becoming paramount in the calculations of U.S. officials. For a detailed account, see Talbott, Endgame, pp. 101-103.

⁸⁹ The 550 figure corresponded to the number of U.S. Minuteman III already deployed and so would have had no effect on U.S. plans. The idea of counting ALCM-equipped bombers under a MIRV sublimit had been tentatively agreed to in principle during Kissinger's January 1976 meeting in Moscow, but was not widely accepted as part of the agreed framework in the United States, in part because of the disputes between Moscow and Washington shortly after Vladivostok over how to handle cruise missiles. In retrospect, this solution was a good compromise in that it offered the United States operational flexibility within a limited scope but was not nearly as constraining as the initial Soviet proposal that every long-range ALCM deployed aboard bombers should be counted against the overall ceiling of 2,400. Wolfe, The SALT Experience, p. 202.

In theory, new sublimits were a sensible way to make the Vladivostok framework more relevant to the force multiplying (and concentrating) effects of MIRV. Yet, for a sublimit on MIRVed missiles to have any effect, there logically had to be supplemental controls on the number of MIRVs on each system in order to negate the circumvention potential implicit in untapped ballistic missile throwweight -- a potential that would allow an SS-18 ICBM, for example, to be loaded-up with 20 or more additional warheads.⁹⁰ As an alternative to throwweight limits, the Carter Administration focused its efforts in 1978 on achieving a freeze on missile "fractionation" (i.e., the number of RVs per missile). The bargaining on this issue was tortuous and involved some horsetrading. The Soviets were loath to limit the fractionation potential of their SS-17 and SS-19 ICBMs to 4 and 6 warheads respectively while the Americans insisted on going ahead with a 10 warhead package for their new MX ICBM.⁹¹ Furthermore, Gromyko wanted to apply the same

⁹⁰ Under SALT counting rules, the SS-18 and its follow-on were limited to 10 warheads. Given past test experience there is some reason to think the SS-18 could be uploaded to carry 14 RVs without major alterations; its throwweight, however, gives it a potential to carry up to 30 warheads. This estimate was supplied by then Secretary of Defense Harold Brown in testimony, see U.S. Congress, Senate Armed Services Committee, Military Implications of the Treaty on the Limitation of Strategic Offensive Arms and Protocol Thereto (SALT II Treaty), 96th Congress, 1st sess. (Washington, D.C.: U.S. GPO, 1979), p. 15.

⁹¹ Talbott, Endgame, pp. 180-181. As Talbott tells the story, the primary reason for attributing 10 RVs to the MX was political, to put it on par with the SS-18. Pentagon studies had concluded the missile was more efficient with

principle to bombers, so that the ALCM loadings for individual aircraft were subject to agreed counting procedures. He made Soviet acceptance of the missile fractionation idea contingent upon American acceptance of ALCM constraints.

Beyond restricting the "value added" potential of MIRVed throwweight, limits on fractionation interposed another demand on the bargaining process -- the need to segregate MIRVed from unMIRVed forces for the purposes of verification. Once it had become clear that the USSR was going to acquire MIRV capability, some in the United States feared that Soviet missile designers would be able to proliferate MIRV payloads clandestinely throughout the existing SS-9/SS-11 force. These anxieties turned out to be premature. The Soviets did not test older missiles with MIRVed payloads, and the characteristics of the MIRV components they did test on the front-ends of their new SS-17s/18s/19s made it virtually impossible to retrofit these assemblies on to older generation missiles.⁹² Furthermore, careful monitoring by U.S. intelligence of Soviet launch sites during 1974-75 revealed that some of the

6-8 warheads.

⁹² Lawrence Weiler, "The Status of SALT: A Perspective," in William H. Kincade and Jeffrey D. Porro, eds., Negotiating Security: An Arms Control Reader (Washington, D.C.: Carnegie Endowment, 1979), p. 31. For a reference to MIRV payloads, see Les Aspin, "The Verification of the SALT II Agreement," pp. 5-6.

modifications to silo launchers and associated command and control equipment required for new MIRVed missiles were quite visible to NTMs.⁹³ This ruled out the possibility that MIRVed missiles could be deployed in older, unmodified silos. Thus, the prospect of achieving verifiable MIRV sublimits boiled down to whether clearcut distinctions could be made between MIRVed and unMIRVed versions of the same missile class and whether the Soviets would retain single RV systems in launchers capable of handling MIRVed missiles.

Even prior to Vladivostok, U.S. planners had come to the judgment that MIRVed and unMIRVed versions of the same missile class could not be differentiated with NTMs, and they pressed for a broad rule attributing a MIRV capability to all missiles tested with MIRV. The Soviets initially resisted this rule on the grounds that they should not be penalized for deploying SS-18s with single warheads but, as noted earlier, they eventually accepted the rule in July 1975.⁹⁴ Developing a general counting rule for launch systems proved to be more elusive, in part because of disagreements over the status of modified Soviet launchers located in the vicinity of SS-19 deployments that were still

⁹³ See Kissinger's comments to the press, December 3, 1974, in Labrie, ed., SALT Handbook, pp. 302-303.

⁹⁴ The Soviets apparently wanted to retain some SS-18 Mod 3s with single warheads for maritime targeting at extended ranges. U.S. Joint Chiefs of Staff, United States Military Power for FY 1978 (Washington, D.C.: Department of Defense, 1977), p. 10.

equipped with SS-11s. In this case, the United States argued that there was no visible way to preclude modified, MIRV-capable silo launchers, even those which it knew were still equipped with the SS-11, from being reloaded surreptitiously with SS-19s at a later date. American negotiators thus insisted that the logic of the booster counting rule be applied to launchers as well. In September 1977, the Soviets agreed to the specific application of this rule in connection with two deployment areas -- at Derazhnya and Pervomaysk in the Ukraine -- where SS-11s and SS-19s were interspersed. However, they resisted the broader requirement to count all MIRV-capable launchers within the MIRVed aggregate until the very end of the SALT II negotiation.⁹⁵

As with most bookkeeping techniques, "class" counting rules were open to criticism on the grounds that they artificially distorted force structure and created perverse

⁹⁵ The interspersing of two missile types at these two locations might not have been so problematic except that U.S. intelligence reportedly had seen the remodeling of the older SS-11 silos at these sites (120 in all) and had also seen SS-19s being flight-tested from launchers indistinguishable from these reconfigured silos. New SS-19 silos were visibly different from older, remodeled ones but this fact alone did not preclude the latter from being outfitted with SS-19. Talbott, *Endgame*, pp. 111-114. It is in part for this reason that, along with the missile and launcher type counting rules contained in agreed language clarifying Art. II, para. 5 of SALT II, there is a separate provision which says that if a launcher merely contains or launches a MIRVed missile, it shall be considered MIRV capable, regardless of whether all launchers of that type were supposed to be developed and tested for MIRVs. See U.S. Department of State, *SALT II Agreement, Selected Documents No. 12b* (Washington, D.C.: U.S. GPO, 1979), p. 12.

incentives. Christoph Bertram, for example, criticized the technique of counting ICBM launchers and missiles "as if" they were fully MIRVed as a "positive stimulus to maximum exploitation of qualitative advances and hence to qualitative arms competition."⁹⁶ To assume the worst case, in short, was to invite it. As a tool for counting, however, the logic of conceding the likelihood of greater numbers through conservative counting rules in return for greater certainty and lower breakout potential seemed unassailable. For one thing, apart from test monitoring, there were no other ways to make clearcut distinctions between various iterations of the same type of missile. Even on-site inspections were deemed inadequate.⁹⁷ Thus, in an important sense, agreement on class counting rules clarified the principle that the performance capabilities (e.g., number of payloads, range, etc.) attributed to systems would be those observed during flight testing unless there were observable ways to distinguish between different types or classes of systems in deployment.

Within about six months after Vance's ill-fated visit to Moscow, both sides were able to maneuver the negotiation more or less back on to the trajectory set by Vladivostok.

⁹⁶ Christoph Bertram, "Arms Control and Technological Change: Elements of a New Approach," in Christoph Bertram, ed., Arms Control and Military Force (Farnborough: Gower, 1980), p. 154.

⁹⁷ See Kissinger's comments to the press, December 3, 1974, in Labrie, ed., SALT Handbook, p. 303.

In a series of meetings with Carter and U.S. officials, Gromyko accepted the two U.S. proposed sublimits -- one on MIRVed ICBM, later set at 820, and the other on ALCM-equipped bombers -- and also accepted some modest reductions in the numbers of the aggregate ceilings on total launch systems (2,250 from 2,400) and on MIRVed missiles (1,200 from 1,320). The effect of the MIRVed ICBM ceiling was to cut Soviet deployments to perhaps 100 less than they might have been in the absence of SALT -- a modest result, to be sure, but one that the Carter Administration could portray as a step in the right direction.⁹⁸ An important part of this deal was Soviet agreement to ban the production, testing and deployment of the SS-16, a mobile ICBM then under development. Eventually, the Soviets also agreed on freezing missile fractionation, on allowing the MX to proceed with 10 warheads, and on a formula for averaging

⁹⁸ There was a widespread consensus in the U.S. government that the Soviets were planning to field about 920 MIRVed ICBMs. See Cyrus Vance, Hard Choices: Critical Years in America's Foreign Policy (New York: Simon & Schuster, 1983), p. 60. Calculations underlying this assumption are provided by Garthoff, Detente and Confrontation, p. 813. With respect to ALCMs, under the U.S. proposal accepted by the Soviets, each side could have up to 120 ALCM-equipped bombers before counting them against the 1,320 sublimit on MIRVed systems. Once that limit was reached, both sides could only field additional ALCM platforms by drawing from their 1,200 MIRVed missile quota. However, the Americans were anxious to avoid a situation in which the Soviets could cash-in ALCMs for additional ballistic missiles, and so insisted upon a limitation of the freedom to mix principle.

payloads on ALCM-equipped bombers.⁹⁹ For its part, however, the United States forswore yet again any attempt to impose cuts on Soviet heavy ICBMs and finally agreed to the principle of treating ALCM-equipped bombers, in effect, as airborne MIRV carriers.

The "New Types" Negotiation

By itself, the main utility of the modified framework agreed to in late 1977 was to establish a formal numerical equality; the question of limiting new types of weapons was still to be addressed. The Vladivostok aide-memoire reportedly had explicitly referred to the possibility of "additional limitations on deployment of new types of strategic arms during [SALT II's] period of

⁹⁹ The U.S.-proposed averaging formula for bombers was a bow in the direction of Gromyko's insistence upon treating missile fractionation and ALCM loadings in an analogous fashion, albeit in a less stringent way than the Soviets wanted. (According to Talbott, the Soviets initially proposed to count each bomber against the 1,320 sublimit by multiples of 20 ALCMs. So for example, a bomber optimized for an ALCM load of 40 would count twice. See Endgame, p. 183.) Under the final agreement, both sides could have greater or lesser numbers of ALCMs deployed provided that the average for the whole fleet at any one time did not exceed twenty-eight. See U.S. Department of State, SALT II Agreement, pp. 28-29. With respect to missile fractionation, the Soviets accepted a flight-test provision barring the simulation of MIRV dispensing procedures in excess of the permitted number of RVs. See U.S. Congress, The SALT II Treaty, Part 5, p. 284. However, the Soviets did simulate RV releases prior to the treaty, and some in the intelligence community argue that the SS-18 could be configured with up to 14 warheads without any need for visible testing. For background see Richelson, "Old Surveillance, New Interpretations," p. 21.

effectiveness."¹⁰⁰ This provision reflected an obvious point of overlap between U.S. concerns about Soviet MIRVing and long-standing Soviet interest in constraining U.S. advantages in new technologies. Nevertheless, on the practical question of how to limit new types, Vladivostok was conspicuously silent; it provided guidance on the goal but not on the method. The most straightforward approach -- simply to limit weapon systems developed or tested after a certain date -- was not sufficient as a tool for reining-in technical innovation; it was well recognized that forces in being could be upgraded with newer components. In the broadest terms, in order to develop controls with real bite, both sides would have to choose between direct limits on specific types of technical developments, or a more indirect form of restraint, limiting the application of new technologies in specified mission areas (e.g., ballistic missile attack).

The direct route was tried first. In the Fall of 1977, the United States unveiled a very ambitious regime of controls aimed at precluding further improvements in ICBM accuracy, boosting power, and target coverage through a freeze on major missile subsystems. Under this proposal, any new ICBM equipped with a propulsion system, a guidance system, reentry vehicles, penetration aids, or a post-boost

¹⁰⁰ Reported in Gloria Duffy, et al., Compliance and the Future of Arms Control (Cambridge: Ballinger, 1988), pp. 62-63. The aide-memoire itself remains classified.

vehicle (a PBV or, in strategic parlance, a MIRV "bus") which differed at all from corresponding systems or components on existing ICBMs would be considered a "new type."¹⁰¹ Modifications to existing missiles in any of these parameters were to be barred. Almost immediately, however, the plan encountered resistance from several quarters. The Soviets objected to its comprehensiveness and intrusive aspects. Some on the U.S. side warned that limits on component hardware, especially on guidance systems, were not verifiable.¹⁰² There were also concerns expressed by Pentagon experts that including RV technology within the new-types criteria would impede work on maneuvering reentry vehicle (MaRV) technology.¹⁰³ By late 1977, there were growing pressures on the Carter Administration to rethink its proposal.

Indirect approaches did not look much more promising. Constraining ICBM capability through limits on flight-testing had already drawn opposition from the Soviets in March of 1977 and in any event would have forced both sides into a tortuous negotiation on quotas and on how to

¹⁰¹ See information submitted by Ambassador Ralph Earle and Dr. William Perry in U.S. Congress, The SALT II Treaty, Part 4, p. 482.

¹⁰² See comments by Vance, U.S. Congress, Senate Armed Services Committee, Military Implications of the Treaty on the Limitation of Strategic Offensive Arms and Protocol Thereto (SALT II Treaty), p. 510.

¹⁰³ Talbott, Endgame, p. 192.

avoid impinging upon unrelated military or commercial space launch activity. On the other hand, banning new ICBMs altogether, which Gromyko raised at one point, was too categorical a step for the United States and would not have solved the problem of defining permissible modifications in older forces.¹⁰⁴ The Americans were willing to prohibit new ICBMs for a three year period but wanted a one-time exemption -- to cover MX -- through the end of the agreement in 1985. The Soviets initially had advocated a ban on new MIRVed ICBMs, precisely to zero out the MX, but wanted an allowance to proceed with a new single RV ICBM as a replacement for its SS-11s and SS-13s. The natural point of convergence between these positions was eventually achieved in July 1978, when it was agreed in principle to ban new types of ICBM with one MIRVed or unMIRVed exemption for each side during the period of agreement.¹⁰⁵ While this was a reasonable way to accommodate conflicting preferences, it

¹⁰⁴ Comments by U.S. officials during the SALT II ratification hearings suggest that once the United States came to the judgment that constraints on ICBM performance as proposed under its Fall 1977 plan were not practicable, and thus that ICBM vulnerability could not be precluded through arms control alone, it was no longer willing to cash-in the MX as part of a "new types" negotiation. See U.S. Congress, The SALT II Treaty, Part 5, p. 274.

¹⁰⁵ For a brief background, see Vance, Hard Choices, pp. 103-104. Vance makes an interesting point that there were talks on a similar limit for SLBMs but these were discontinued by the United States after the Soviets insisted that the Trident I be counted as the U.S. new type. At the time, the United States was unwilling to give up the Trident II.

still forced both sides into protracted bargaining on criteria for distinguishing new from merely modified ICBMs.

In April 1978, the United States tabled a set of criteria for defining "new types" according to missile design parameters -- launchweight, throwweight, length, largest diameter, number of stages, etc. -- which were susceptible to measurement with NTM-collected data. Under this new plan, any change in fuel-type (e.g., from liquid to solid) or number of stages or a variation in any of the other parameters of greater than 5 percent would qualify an ICBM as a new type. Except for inclusion of fuel-type and constraints on boosting power (i.e., "total impulse"), which were later dropped, the mode of control focused not on technical modernization per se but on observable changes in the weights and dimensions of systems that would constrain Soviet options with respect to the mix of their follow-on ICBMs. Thus, constraint on Soviet program choices was the key issue for the United States. ACDA director Gen. George Seignious observed: "Our major goal in negotiating a ban on new types of ICBMs was to force the Soviets to make choices in such modernization....This provision will, for practical purposes, affect only the Soviet Union. For example, if they replace the SS-11 with a new, larger single-reentry vehicle missile, they will not be permitted to replace the SS-17 or SS-19 with a new 10-reentry vehicle missile. They may not do both under SALT II. This provision will force them to make

choices which they otherwise would not have to make...."¹⁰⁶

These revised U.S. proposals for "new-types" criteria constituted a form of indirect control, closely akin to SALT I's limits on silo size as a means of constraining the deployment of large ICBMs. They also represented the trading-in of a more ambitious goal -- to freeze technical innovation -- for a lesser one -- to force hard choices upon the Soviets in their modernization programs. While the Soviets accepted the U.S. position as a basis for negotiation, they waffled on the proposed 5 percent criterion, accepting it initially, then objecting to any limit on decreases in the parameters, and still later suggesting a 10 percent allowance for so-called "downsizing." Full agreement eluded both sides until May 1979, when the United States narrowed its list of proposed parameters in exchange for Soviet acceptance of the 5 percent rule for both increases and decreases in specified parameters.¹⁰⁷ The SALT II agreement was finalized a few weeks later.

Overall, the framework rules of SALT II were more substantial than those of the SALT I interim accord. The tools were more diverse: preferential limits on fractionated (MIRVed) missiles; "class" counting rules for MIRVs and

¹⁰⁶ Remarks by Gen. George Seignious II in U.S. Congress, The Military Implications of SALT II, p. 455.

¹⁰⁷ U.S. Congress, The SALT II Treaty, Part 5, p. 299.

cruise missile-equipped aircraft; and "new-types" rules to govern the modernization process. There were also some precedents borrowed from earlier efforts -- for example, the banning of rapid reload launch systems and the proscribing of spare missiles at launch sites, both borrowed from the ABM Treaty. By this time, however, the SALT effort had become completely out of phase with the general decline in East-West relations, and a long fallow period for negotiations seemed likely.

START DIPLOMACY: UNCERTAIN REDUCTIONS

At the outset of 1981, there was little question that the United States would attempt to alter radically the strategic bargaining relationship. As the new president, Ronald Reagan brought leading critics of SALT into his administration to manage his arms control policies. The new goal, he told reporters, would be "actual reductions in the numbers of weapons," not a continued buildup of arms which SALT II permitted.¹⁰⁸ Little more than this was said, however. The State Department enunciated a "no undercut" policy for the SALT II agreement: it would not be ratified or implemented but neither would it be undercut so long as

¹⁰⁸ Presidential news conference, January 29, 1981, in Weekly Compilation of Presidential Documents, Vol. 17 (Washington, D.C.: U.S. GPO, February 2, 1981), p. 66.

the Soviet Union exercised equal restraint.¹⁰⁹ The INF talks, a leftover from the Carter Administration, resumed in the Fall of 1981 while planning for START went forward more slowly amid a general expectation that talks would commence in mid-1982.

Searching for New Tools

With SALT II discredited as a model for arms control, Washington lacked an obvious starting point in developing its bargaining methodology. To some, of course, this was a definite virtue, for the whole idea was to rethink basic goals and methods in order to achieve agreements that would be at once less complex and more radical in their effects. The President's "zero option" proposal on INF -- to forgo new deployments of the U.S. Pershing II and GLCMs in return for dismantling of the Soviet Union's SS-20 force -- met these criteria but sidestepped some hard issues of central importance to START, such as how to count force levels and how far to cut them. SALT had been criticized because permitted forces levels were too high, because the Soviet advantage in MIRVed heavy ICBMs was left unscathed, and

¹⁰⁹ On June 21, 1982, Leonard Zamyatin, a member of the Soviet Central Committee, replied that: "If the United States will observe SALT I and SALT II, then the Soviet Union, to the same degree, will abide by the provisions of those agreements." Cited in Arms Control Reporter, July 1982, p. 607.B.7.

because verification was regarded as inadequate.¹¹⁰ But these criticisms alone were hardly a definitive guide on how to proceed with START.

Without any clear guidance from the White House, framework rule development quickly became a focal point for internal debates within the U.S. bureaucracy. Pentagon civilians, most notably the Secretary of Defense Caspar Weinberger and his aide Richard Perle, wanted a new unit of account to focus directly on destructive potential, capturing both throwweight and the number of warheads.¹¹¹ They and ACDA officials advocated a ceiling on ballistic missile warheads and a sublimit on ballistic missile throwweight. Meanwhile, Secretary of State Alexander Haig and his aide Richard Burt, agreed on the importance of limiting warheads directly but rejected throwweight-specific limits in favor of SALT-style launcher limits, both for reasons of verification and concerns that throwweight would prove non-negotiable in light of then-current imbalances.

¹¹⁰ See Secretary of State Haig's comments in U.S. Congress, Senate Foreign Relations Committee, Nuclear Arms Reduction Proposals, 97th Congress, 2nd sess. (Washington, D.C.: U.S. GPO, 1982), p. 132.

¹¹¹ Early on, Pentagon civilians sought interagency agreement on the idea of combining warhead numbers and throwweight into a single index number. In this case, throwweight totals would have been divided into 500 lb. increments. The total for each side would have been calculated by summing these increments and adding in the number of warheads. Arms Control Reporter, April 1982, p. 611.B.17. This approach was later dropped in favor of straight throwweight/warhead limits.

The other major party in interagency deliberations -- the Joint Chiefs of Staff -- did not have a clear position initially but eventually sided with the State Department out of concern that low ceilings on U.S. warheads would hamper coverage of Soviet targets if launchers were not also limited.¹¹²

With respect to numerical ceilings, interagency positions also diverged though to a somewhat lesser extent. A general direction in the discussions pointed to a ballistic missile warhead aggregate in the range of 4-5,000 RVs, amounting to a reduction of 30 percent or more in which cuts in Soviet ICBM RV would be counterbalanced somewhat by U.S. reductions in SLBM warheads. By SALT standards this certainly qualified as a deep cut, but not one that was clearly asymmetrical. On the other hand, various proposals for sublimits were clearly aimed at cutting into Soviet ICBM advantages. Pentagon and ACDA officials lobbied for a throwweight ceiling pegged at just under the U.S. capacity of about 4 million pounds and some 60 percent below the Soviet level of 11.2 million pounds. The State Department counterproposed a force concentration rule requiring that no more than one-half of all ballistic missile RVs could be deployed on ICBMs. If coupled with a low agreed limit on launchers, State Department officials asserted, this provision would have the effect of driving down Soviet

¹¹² Talbott, Deadly Gambits, pp. 261-262.

throwweight dramatically while avoiding a tortuous negotiation on throwweight itself. In fact, the distance between these two approaches was not very substantial, except that the State Department was willing to accept a sublimit on bombers and ALCMs as an inducement to the Soviets. Pentagon civilians strongly opposed this move on the grounds that it blurred a sharp focus on ballistic missiles as the main source of strategic instability and that it bore too close a resemblance to the SALT II agreement.

In spite of these differences, no one in the U.S. bureaucracy could fairly be accused of promoting positions that sought to achieve an agreed result through balanced concessions. Everyone wanted arms control to mandate a restructuring of Soviet land-based missile forces without much change on the U.S. side; the critical questions were what degree of restructuring was required and at what cost. Perle and company were staunchly committed to equal and low throwweight levels while Burt and his colleagues appeared more tolerant of allowing some asymmetries provided warhead levels were at least balanced. Interestingly, each side claimed that negotiability arguments tended to buttress its position. As a matter of bargaining strategy, Perle argued, it was probably better to force the Soviets to address a radically new concept on its merits than to haggle over marginal improvements in current agreements which Moscow

would attempt to discredit as a heavy-handed effort to extort unilateral Soviet concessions in order to save SALT. Burt and others replied that it was unwise to press for wholly new types of limits (e.g., on throwweight) when doing so would probably trigger exorbitant Soviet demands for deep cuts in areas of traditional American advantage (e.g., SLBMs, bombers).¹¹³

In contrast, on another key issue -- qualitative controls -- there was no real disagreement within the administration: these were not in the U.S. interest and should be eschewed. It was widely believed that modernization was essential for deterrence at whatever residual levels of force might be negotiated, and that the United States was in the difficult position of having to catch up. Perle played on this theme repeatedly: "75 percent of our strategic nuclear warheads," he said, "are carried by delivery systems that are 15 years old or older. By contrast, 75 percent of the nuclear warheads on Soviet strategic systems have been built within the last 5 years."¹¹⁴ Qualitative restraints also clashed with the general idea that force modernization was a prerequisite for negotiating from strength. The administration's 1981 plans

¹¹³ Ibid., pp. 235, 237.

¹¹⁴ Statement of Richard Perle in U.S. Congress, House Foreign Affairs Committee, The Role of Arms Control in U.S. Defense Policy, 98th Congress, 2nd sess. (Washington, D.C.: U.S. GPO, 1984), p. 46.

for resurrecting the B-1 bomber while pursuing the MX ICBM, the C-4 and D-5 SLBMs, and the Tomahawk SLCM had been justified in large part as negotiating leverage; to restrain these efforts at an early phase would be seen as a preemptive concession. As it was, modernization was an important quid for securing JCS approval for low numerical limits.

The Problems of Allocating Cuts

In light of all these considerations, the initial U.S. proposals for START, unveiled in May 1982, represented an artful if uneasy compromise among the conflicting pressures on the White House. Bowing to State Department preferences, ballistic missile warheads and launchers were chosen as the units of account; in a first phase of agreement, ceilings were to be set at 5,000 and 850 respectively. Also included was a proposed subceiling of 2,500 on ICBM warheads.¹¹⁵ The throwweight-specific limits advocated by Weinberger and Perle were put off to an uncertain second phase of negotiation. On the other hand, a number of qualifying guidelines for phase 1 negotiations cut clearly in the Pentagon's favor. The most significant of these was a requirement to limit the Soviet SS-18 to 110 and the SS-17/19 force to no more than 100 missiles in addition.

¹¹⁵ Strategic Survey 1982-1983 (London: IISS, 1983), pp. 24-25.

This was done to ensure that launcher cuts would in fact promote the kind of throwweight-reducing effects that the State Department and the JCS claimed for them. In addition, limits on cruise missiles were to be put off until phase 2, in effect removing them from phase 1 as possible bargaining chips in return for deep cuts in Soviet missiles.¹¹⁶

When superimposed upon then-current deployments and acquisition programs, the full restructuring effects of the U.S. START position upon Soviet forces were stark indeed. The proposals mandated a reduction of nearly 3,600 Soviet ICBM warheads (about 60 percent of their total) in order to reach the 2,500 sublimit. The 850 threshold for ballistic missile launchers levied a requirement to cut nearly two-thirds of Soviet launchers. To meet these provisions while also taking full advantage of the 5,000 warhead aggregate, the U.S. plan actually gave Soviet planners some incentive to go forward with highly-MIRVed SLBM forces. On the other hand, for the United States, the warhead and launcher aggregates mandated a smaller U.S. SLBM force -- a cut from approximately 6,400 RVs on 576 missiles to perhaps half of those levels -- though it also encouraged the replacement of the highly MIRVed Poseidon force (14 RV per missile) with newer Trident C-4 and D-5 SLBMs (8-10 RVs per missile). There was no constraining effect on U.S. ICBM RVs,

¹¹⁶ Talbott, Deadly Gambits, p. 268. According to Talbott, the phase 1 proposal allowed for a possible freeze on bomber numbers but went no further.

however, given that American totals (approximately 2,100) fell below the 2,500 sublimit; and deployment of MX was not precluded under the launcher and warhead aggregates assuming the general shrinkage of the SLBM force and replacement of some portion of Minuteman IIs and IIIs on a less than one-for-one basis.

Meanwhile, the Soviets staked out a START position that basically represented an extrapolation of the SALT framework into the early 1990s with the significant addition of a freeze-like constraint on force modernization. Their starting point was SALT's projected 1985 level of 2,250 overall launchers. From this, they proposed a phased reduction down to 1,800 launchers by 1990, coupled with modest reductions of about 10-15 percent in the various launcher sublimits. They also proposed a new, albeit unspecified, threshold on "nuclear charges" (later defined as ballistic missile RVs and bomber ordnance) at levels substantially below the then-current U.S. level of about 10,000 weapons. The proposed qualitative controls included a ban on all cruise missiles with a range over 600 km and a modernization freeze on both side's arsenals.¹¹⁷

Ironically, the Soviet START proposal embraced an aggregate limit on launchers that approximated the Carter Administration's ill-fated March 1977 SALT proposal -- a

¹¹⁷ The Arms Control Association, Background Paper: Strategic Offensive Arms Negotiations (mimeo), May 1988, p. 3.

plan which the Soviets had peremptorily rejected at the time and which Gen. Edward Rowny, a leading Soviet critic and the new chief U.S. negotiator, had supported.¹¹⁸ The comparison to SALT also created a political problem for the Reagan Administration: because the Soviet proposal did embrace the principle of reductions within an already agreed framework, it appeared more negotiable and accommodating than the U.S. position. Faced with a mounting public outcry for a nuclear freeze, U.S. officials already were under considerable pressure to show that U.S. proposals could also be a reasonable basis for bargaining. Haig argued in testimony: "...the unit of measure that has been put forth by the President for the numbers of warheads and missiles is, in general, compatible with the previous work that we had done under SALT II and other arms control discussions; and therefore, will be in general welcomed by the Soviet Union."¹¹⁹

In fact, the U.S. choice of direct limitations on warheads and deployed missiles (e.g., launchers) did coincide with the general Soviet approach as it emerged later on.¹²⁰ In the context of sublimits and other collateral

¹¹⁸ I am grateful to Robert Nurick of RAND for this observation.

¹¹⁹ Haig testimony, U.S. Congress, Nuclear Arms Reduction Proposals, p. 114.

¹²⁰ Although Haig, ibid., p. 139, made it clear in public statements at the time that the United States was focusing its efforts on limiting deployed weapons, there was much advocacy in the Reagan Administration for collateral

measures, however, it was hard to overlook the fundamental divergence between American and Soviet goals: The United States aimed at nothing short of recasting force asymmetries -- starting with the Soviet advantage in large ICBMs -- while at the same time protecting major U.S. force modernization; the Soviet proposal aimed at a shrinkage of force levels within an existing structure, supplemented with a qualitative freeze. Conceptually, there was no overlap here. It is useful to keep these baseline positions in mind when evaluating developments after 1985, when common positions began to emerge.

Noncompliance Deja Vu

As the nuclear arms talks headed toward stalemate in late 1983, both sides got caught up in a new cycle of charges and countercharges regarding treaty violations. While these developments were largely coincidental -- the collapse of the talks being triggered by the U.S. INF deployments -- the combined result was sustained tension and a palpable sense that all existing restraints were in danger of unraveling.

limits on overall inventories (i.e., non-deployed systems), especially among those who worried about protracted warfare scenarios. Under the emerging framework for START, the 1,600/6,000 ceilings would cover only deployed systems. Robert Einhorn, "The Emerging START Agreement," Survival, Vol. 30, No. 5 (September/October 1988), p. 387. As a collateral measure, however, there will be provisions for counting overall inventory and limits on certain types of non-deployed weapons, in particular mobile missiles.

In the realm of framework rules, the disputes again revolved around ballistic missile modernization, this time land-mobile systems. When SALT II was signed, U.S. officials had fully expected that a new fifth generation of Soviet ICBMs would begin to appear from the R&D pipeline within a few years, all but one type being limited to minor modifications in the design parameters defining a new type of ICBM. In October 1982, the Soviets initiated flight-testing of a new, MX-sized, solid-fueled missile with multiple warheads, later called the SS-24. Dobrynin duly reported this to Washington as the Soviet Union's one permitted new type, in accordance with the SALT II agreement.¹²¹ A few months later, however, the Soviets started flight-testing a smaller solid-fueled single RV missile dubbed initially the PL-5 and later the SS-25. As it turned out, the SS-25 was the more successful of the two test programs, and came into service in 1985; the SS-24 followed in 1987.

The SS-25 brought both sides into conflict on several compliance issues. The most significant was whether the missile itself constituted an impermissible "new type" or a permitted modification of an existing weapon. The SS-25 was something of an orphan system; it had no obvious predecessor among fourth generation Soviet SS-17, -18, or -19 ICBMs. When queried, the Soviets explained that the missile was a

¹²¹ Strategic Survey 1982-1983, p. 26.

modified version of the SS-13, an older, third generation solid-fueled system deployed in small numbers in the 1960s. After reviewing intelligence on the initial tests, however, American officials concluded that the SS-25's throwweight was substantially greater than that of the SS-13. On these grounds alone it was found to be a wholly new type of ICBM and thus a violation of SALT II. This charge precipitated a vigorous (and as yet unresolved) debate on how throwweight was to be calculated under the treaty. The Soviets claimed that the United States understated the throwweight of the SS-13 while overstating the throwweight of the SS-25, leading to a discrepancy.¹²² U.S. officials replied that even if the SS-25 missile were not a new type, it still ran afoul of SALT II's requirement that an RV on a new single warheaded missile not weigh less than 50 percent of the total throwweight of the system. Controversy surrounding this provision, which was intended to preclude the rapid addition of RVs to missiles has never been resolved, for it

¹²² Under their reading of SALT II's throwweight definition, Soviet officials have argued that the United States excluded certain components (i.e., a targeting device and penetration aides) in its calculations of SS-13 throwweight, while mistakenly including other components (i.e., an instrumentation package) into its calculation of SS-25 throwweight. For useful background see Duffy, et al., Compliance and the Future of Arms Control, pp. 65-71. U.S. and Soviet disagreements on throwweight have spilled over into START. By the end of 1989, the Soviets were holding to a literal interpretation of SALT II, while the United States was pressing for a definition that would include the "total mass that separates from rocket stages after they are fired." See Michael R. Gordon, "U.S. Proposes Limit on 'Star Wars' Tests," The New York Times, October 27, 1988, p. A10.

also hinges on the definitional dispute over throwweight.¹²³ Finally, there were disagreements over whether deployment of the SS-25 at former SS-7 launch sites violated procedures established under SALT I barring use of former facilities for new ICBMs. U.S. officials charged a violation (see Table 3-2) while the Soviet side asserted that the facilities being used at those sites did not include any which were deactivated as a result of agreed procedures.¹²⁴

None of these disputes was regarded as highly consequential in a strategic sense. Compared to other conceivable avenues to breakout involving ballistic missiles with counterforce potential, the strategic impact of deploying several hundred mobile SS-25s seemed slight; indeed, survivable single RV mobile systems clearly not designed for first strike applications, and thus held in strategic reserve, would tend to suppress unstable crisis behavior, if these systems were deployed on both sides. Nor was the possibility of sudden fractionation particularly troublesome; compared to the massive untapped throwweight potential of Soviet heavy ICBMs, even those remaining after START-imposed 50 percent cuts, the significance of adding

¹²³ If the SS-25's throwweight value actually were smaller, as the Soviets contend, the ratio of warhead weight to throwweight would presumably be higher, possibly at or above the level prescribed by SALT II. See Duffy, et. al, Compliance and the Future of Arms Control, p. 67.

¹²⁴ Jeanette Voas, "The Arms-Control Compliance Debate," Survival, Vol. 28, No. 1 (January/February 1986), p. 22.

one or possibly two extra RV per missile would be marginal.

Yet, when measured against SALT II and the constraining power imputed to the new-types rule by U.S. officials, the SS-25 development was far more significant. As noted in Chapter 3, it clearly undermined the claims advanced by senior U.S. officials that SALT II would force the Soviet planners to choose between new types of MIRVed and unMIRVed ICBMs. In hindsight this rationale appears to have been based on a faulty assumption that the liquid-fueled, silo based SS-11, rather than the older SS-13, would serve as the baseline for determining whether a new single RV system was a new type of ICBM. The public record on SALT II does not suggest that the SS-13 figured at all in U.S. calculations. Given their own overriding interest in developing a MIRVed mobile ICBM at the time, American officials may have speculated that the Soviets would follow suit, rather than to modernize an older missile with an uneven record in development. Moreover, the Soviets had agreed formally to forgo the SS-16, their only candidate for a single RV mobile system in the late 1970s. However reasonable these calculations may have seemed at the time, the SS-25 demonstrates that the Soviets had something quite different in mind: to develop two new systems substantially different from fourth generation missiles and to engineer one of them -- the SS-25 -- close enough to the parameters of the SS-13 to be justified as a permitted modification, albeit on a

contentious definition of throwweight. Rightly or wrongly, this was not what the United States expected would happen under the agreement.

For their part, while insisting that the SS-25 was permitted, the Soviets argued that the missile was a response to the U.S. decision to pursue the Midgetman which, they claimed, was a "pre-programmed" violation of SALT II.¹²⁵ While it is true that the Midgetman is unambiguously a new type, this charge looked very weak in light of the actual sequence of events. The SS-25 was first flight-tested in February 1983, whereas the Reagan Administration did not decide in favor of Midgetman until after April of that year, when the Scowcroft Commission recommended it for presidential decision. Moreover, that recommendation explicitly noted that flight-testing and deployment of Midgetman would not occur until after SALT II would have expired, thereby avoiding conflict with the then-existing political commitment not to undercut the treaty.¹²⁶ These arguments, however, did not deter the Soviets from continuing to press the charge.

The other troublesome compliance issue was a series of reports regarding possible deployment of mobile SS-16s at the Plesetsk missile test range. As noted earlier, the

¹²⁵ TASS Statement, June 11, 1985, cited in Warner, "SDI and the Existing Arms Control Regime," p. 127.

¹²⁶ The President's Commission on Strategic Forces, p. 24.

Soviets agreed under SALT II to forgo the testing, production, and deployment of the SS-16 at U.S. insistence. While a zero-level ceiling on SS-16 was part of the SALT II framework -- and thus a framework rule -- its real function was to underwrite the verifiability of an important scope rule: that any launcher associated with the SS-20, a modified medium-range version of the SS-16, would be eligible for exclusion from SALT II restraints. U.S. SALT negotiators had complained that similarities between the SS-16 and SS-20 would make it very difficult to detect the SS-16 with NTMs if it were intermingled with SS-20 regiments, especially if SS-20 launchers could themselves be used to fire SS-16s with little or no modification.¹²⁷ Since the SS-16 was clearly an ICBM, and since the Soviets had every incentive to protect their INF missile forces from collateral constraints which in turn would generate inconvenient U.S. demands for verification rights, Moscow very likely reasoned that the benefits of keeping the SS-16, which had experienced difficulties in flight-testing, were simply not commensurate with the costs. Banning it was the lesser of two evils.

In charging a "probable" violation of SALT II, American officials made it clear that the source of concern was not testing or development activity related to the SS-16 program

¹²⁷ See Vance's analysis, SALT II Agreement, pp. 23, 25.

but the possible deployment of a small mobile force.¹²⁸ Reportedly, the issue in question was whether unspecified construction activity and the presence of some launch equipment in the vicinity of stockpiled SS-16 boosters left over from the development program indicated an operationally-ready force. This was not a scenario that worried Carter Administration officials, who had argued that the Soviets were not likely to produce or deploy the SS-16 in the absence of further testing.¹²⁹ However, some in the Reagan Administration apparently believed that given the close proximity of missiles and launchers, one could not prove a negative -- that no SS-16 were deployed -- and that loading and firing these boosters could probably be done with relative ease. The Soviets denied that the SS-16 was operational and argued that the activities in question were associated with R&D on the new SS-25 program. In late 1985, however, the Soviets took certain actions at Plesetsk which resulted in a U.S. decision to drop the SS-16 from its list

¹²⁸ Public statements from Washington and the tentativeness of the charge at the time suggested that the pertinent intelligence data was disputed within various parts of the Reagan Administration; prior to the formal charge, U.S. military officials had stated explicitly that there was no intelligence to indicate active deployment of SS-16s at Plesetsk. See U.S. Congress, Senate Appropriations Committee, Department of Defense Appropriations for Fiscal Year 1984, Part 1, 98th Congress, 1st sess. (Washington, D.C.: U.S. GPO, 1983), p. 313.

¹²⁹ See comments of Ambassador Ralph Earle in U.S. Congress, Military Implications of SALT II, Part 4, p. 1467.

of treaty compliance problems.¹³⁰

Although the SS-16 episode was negligible in strategic and political terms, it did serve to underscore an important point regarding rules governing non-deployed systems. Concerns about the status of SS-16 missiles almost certainly never would have been raised -- even by the most ardent critics -- if boosters and launchers had not been present in the same general location. It was this same type of concern that had prompted both sides to agree on provisions barring non-deployed interceptors at ABM deployment areas and banning spare missiles nearby putatively reloadable ICBM launch silos. Yet, in banning the production, testing, and deployment of the SS-16, SALT II did not prescribe the disposition of the remaining equipment; there was no requirement to dismantle existing launchers or to keep them separate from boosters. No doubt this step seemed unnecessary at the time, given the Carter Administration's position that the SS-16 was never fully developed as well as its expectation that any residual ambiguities could be sorted out with NTM and discussions in the SCC. Beyond that, a requirement to eliminate boosters or launch equipment would have generated a portentous requirement for on-site inspection, something which seemed out of reach in the pre-Gorbachev era and which in any event would have seemed

¹³⁰ Duffy, et. al, Compliance and the Future of Arms Control, pp. 42-43.

disproportionate to the small value added by an elimination requirement on top of a highly verifiable testing ban. Still, the absence of any guidelines in this area did represent an unfortunate exception to the evolving norm that stockpiled systems claim their non-deployed status in part by being visibly separated from launch systems. And since the Soviets were not inclined to help U.S. intelligence sort out ambiguities in the early 1980s, the issue was ripe for controversy.

In spite of continuing friction, these compliance issues did not erect any insuperable barriers to reconvening the Geneva talks. Indeed, with its Soviet policies drawing domestic and international opprobrium, the Reagan Administration could ill afford to allow the prosecution of alleged SALT violations to be the sole element in its approach toward Moscow; it also had to show that it could somehow "do better" in arms reductions. Thus, pressures by conservatives in Washington to discontinue U.S. "no undercut" SALT policies as a response to Soviet noncompliance may actually have increased U.S. executive branch interest in resuming talks in Geneva. Second, persistent American accusations may have inhibited Moscow from trying to press on with a START negotiating approach based strictly on an extrapolation of SALT rules. As it was, the slow eclipse of the Brezhnev generation in the Soviet leadership between 1982-85 was already beginning to loosen

the political underpinnings of an approach based on a rigidly inflexible defense of past agreements.

Movement Toward an Agreed Framework

At the resumption of talks in March 1985, the prospects for major movement seemed as remote as ever. Both sides picked up where they had left off, retableing their old, conflicted bargaining proposals. Furthermore, the new mandate issued by Gromyko and Secretary of State George Shultz -- "to work out effective agreements aimed at preventing an arms race in space and terminating it on earth, at limiting and reducing nuclear arms and at strengthening strategic stability" -- was too vague and longwinded to offer much helpful guidance.¹³¹

Yet the negotiating context had changed in two very significant ways. First, the top policymakers on each side were now much more directly involved in the dialogue than they had been during Brezhnev's final days. This involvement, and the presence of a dynamic new leader in the person of Mikhail Gorbachev, greatly increased the saliency of the negotiations and created an imperative for results. Second, and equally important, Soviet diplomacy was becoming more assertive, driven in part by the objective of trying to establish a clear linkage between reductions in offensive

¹³¹ ACA, Background Paper: Strategic Offensive Arms, p. 5.

arms and restraints on the U.S. SDI program. From Moscow there came a flurry of new proposals aimed at calibrating offensive cuts of various sizes to limits of various types on strategic defense research, including a mutual reaffirmation of the ABM Treaty which SDI, at least in a symbolic sense, placed in jeopardy. The core principle underlying Moscow's new approach was simple enough: the stricter the limit on SDI the deeper the cut in ballistic missiles. While this trend in Soviet behavior tended to validate the conventional wisdom that SDI had "brought the Soviets back to the talks," it also put pressure on the Reagan Administration to define its own terms for agreement and not to allow Soviet diplomacy to become the pacing element of the negotiation.

Within a few months both sides found themselves caught up in an accelerated bargaining situation.¹³² In October 1985, the Soviets unveiled a plan for 50 percent cuts in all "strategic" delivery systems, including American FBS, if the U.S. side would agree to ban all "purposeful" SDI-related research. This was clearly not acceptable to the American

¹³² Material for this discussion is drawn from ibid., pp. 5-13, and from Ronald F. Lehman II, "The Strategic Arms Reductions Talks: A Treaty Takes Shape," NATO Review, August 1987, pp. 19-23; "Arms Control," Strategic Survey 1985-1986, pp. 52-55; "Arms Control," Strategic Survey 1986-1987, pp. 52-64; and Ivo Daalder, "Nuclear Modernization Choices for the New U.S. Administration: Strategic Weapons Decisions," The Council for Arms Control Bulletin, No. 42, February 1989, p. 1.

side -- and indeed went beyond ABM Treaty limits on R&D -- but the 50 percent struck a responsive chord in the White House. Responding a few weeks later, U.S. officials accepted the general principle of 50 percent cuts so long as no constraints were placed on SDI, and they counterproposed a series of sublimits applying the 50 percent criterion to cuts in launchers, ballistic missile RVs, ICBM RVs, and long-range ALCMs, excluding FBS. In late November, Reagan and Gorbachev endorsed the principle of 50 percent reductions as an area of "common ground" at their meeting in Geneva, but no progress was made in resolving differences over SDI.

In May 1986, the Soviets tried a different tack. They attempted to balance offensive cuts of a lesser magnitude, about 30 percent, against some allowance for basic research on SDI provided that the United States would commit itself not to withdraw from the ABM Treaty for a period of 15-20 years. Reagan accepted the non-withdrawal idea in July but counterproposed a 7 1/2 year time frame along with rights to test SDI systems in accordance with a broad interpretation of the ABM Treaty, followed by the option to deploy SDI at the end of the non-withdrawal period. This was unacceptable to Moscow. In September, American negotiators followed up with two alternative proposals whose common element was an integrated 1,600 aggregate limit on ballistic missile launchers and bombers. The first option embraced the earlier

50 percent concept but with ALCMs included in the warhead count while the second was pegged to the higher ceilings implicit in the Soviet 30 percent cuts proposal of May. Then, in October, Reagan and Gorbachev held their impromptu session in Reykjavik. Although the meeting dissolved into acrimony over SDI testing and a now-famous bidding war over drastic cuts in nuclear weapons, the two leaders did reach agreement (hammered out between delegations headed by Amb. Paul Nitze and Marshal Sergei Akhromeyev) on a START framework encompassing ceilings of 6,000 on warheads and 1,600 on strategic delivery systems. As part of this package, the Soviets agreed in principle to cut their SS-18 force in half -- a significant step.

The 1986-87 period also marked a major turning point in bilateral dealings on INF. In the months leading up to Reykjavik, Gorbachev had let it be known that the USSR would accept the complete elimination of INF from Europe. Although dressed up as part of a comprehensive plan to ban all nuclear weapons by the year 2000, this new and surprising Soviet position was close enough to the old U.S. "zero option" of 1981 to inspire talk of reviving a separate negotiating track for INF. Several months after Reykjavik, this "delinking" of INF from other issues did occur, with the result that the talks were put on a completely new footing. There was no longer any need to negotiate a complex set of framework rules for counting and limiting deployments

in Europe. Having accepted zero in principle, the remaining issues were ones of scope (that is, how to preclude circumvention of the ban) and verification. The best way to make the ban work, it was agreed, would be to include INF stationed outside of Europe as well as all shorter-range missiles (of between 500-1,000 km) in the ban and then negotiate a complete elimination of the infrastructure supporting INF forces.

In START, of course, such sweeping solutions were never an option; the negotiators still had to work out the framework for balancing and stabilizing residual force levels. Nonetheless, the Reykjavik arrangements provided the basic contours for ongoing negotiations. Both sides registered agreement at the December 1987 summit in Washington on a 4,900 ballistic missile sublimit, on a substantial cut in Soviet missile throwweight, and on a new set of rules for counting ballistic missile warheads.¹³³ At their final major summit, in Moscow in June 1988, Reagan and Gorbachev managed to reach some common ground on limiting mobile missiles, including provisions to limit the number of non-deployed mobile ICBM and to store such missiles separately from launch vehicles.¹³⁴ By late 1989, the new

¹³³ The joint communique of the Reagan-Gorbachev Washington Summit, December 1987 is found in "Joint Communique Lays Out Talking Points," Congressional Quarterly Weekly Report, December 12, 1987, p. 3064.

¹³⁴ Arms Control Reporter, June 1988, pp. 611.D.75-78.

administration under President George Bush had indicated that it would not revisit the basic framework of START but instead press for resolution of remaining disagreements while deciding which kinds of U.S. force modernization initiatives seemed most sensible in light of START and the general retrenchment in spending on defense.

In examining the diplomatic record, one can hardly deny that Soviet concerns about the American SDI program were a major factor shaping the negotiations during the later years of the Reagan Administration. Indeed, despite the fact that both sides agreed to drop the idea of an ABM Treaty non-withdrawal period in discussions on space and defense matters, Moscow continues to insist that any U.S. departure from a strict reading of the ABM Treaty might trigger its withdrawal from a START agreement. In this sense, the incentive structure for the talks has reflected the oft-cited idea of a "grand compromise" involving Soviet acceptance of deep (mutual) cuts in offensive ballistic missiles in return for a U.S. commitment to a stable regime of controls on Soviet and American strategic defensive capabilities. At the same time, it would be oversimple to say that movement toward START was simply a function of Soviet offers to cash-in progressively greater increments of offensive arms in exchange for U.S. restraint in the defensive realm. If one factors out the public posturing and the occasional digressions, it is clear that both sides made

significant adjustments in their respective bargaining positions on strategic offensive force postures and planning.

The most notable step taken by the USSR was to agree to reductions down to an aggregate ceiling of 6,000 warheads and 4,900 in ballistic missile RVs. By itself this was not exactly a unilateral concession; a common ceiling on missile RVs, on paper at least, would also entail substantial overall reductions for the U.S. side given its large SLBM loadings. Even so, the fact remains that Gorbachev's proposed cuts of 1985 were roughly double the size of any contemplated by any previous Soviet government. They actually brought the Soviet bargaining position below the original U.S. proposed ceiling on missile RVs (5,000) of 1982. More importantly, the principle of 50 percent cuts, though blurred somewhat by permissive counting rules for bombers, discussed below, provided a strong lever for achieving reductions of corresponding size in Soviet heavy ICBMs and, later, in ballistic missile throwweight, both of which were high priorities for American negotiators and significant concessions by the Soviets.

On the American side there were two significant adjustments, the first and most obvious being a progressive relaxation of quantitative controls on strategic launchers. From its extremely low level of 850 in 1982, the U.S. figure rose to 1,250-1,450 in 1985 and then, at Reykjavik, to 1,600

with the incorporation of bomber forces. The second change was apparent in the U.S. approach to bombers and ALCM limitations. In 1982 the United States had flatly opposed including aerodynamic forces within an initial START agreement on the grounds that these systems were not destabilizing, first-strike weapons like "fast flying" MIRVed ballistic missiles. Four years later, however, U.S. negotiators were using ALCMs quite explicitly as a quid for satisfaction on other issues.¹³⁵ First, in 1983, the United States offered a separate limit of 400 bombers and no more than 4,000 ALCMs. Then, in its September 1986 proposals, the United States offered to cut its allowance of 4,000 ALCMs by 50 percent. Later on, at Reykjavik, it agreed to integrate ALCMs into the 6,000 warhead aggregate, implying further shrinkage to approximately 800-900 ALCM slots or so, depending on the application of specific counting rules.

From the bargaining standpoint, however, it is clear that adjustments like those just described were eased considerably by compensating action taken by the other side. Bombers and ALCMs are a case in point. The American decision in 1986 to include bomber forces under the START ceilings was eased considerably by Soviet willingness to "discount" bombers not equipped with ALCMs, thus in effect not charging other bomber ordnance (e.g., gravity bombs and short-range

¹³⁵ U.S. ACDA, Issues Brief: Nuclear and Space Talks: U.S. and Soviet Proposals, ACDA Office of Public Affairs, January 22, 1990, p. 3. (mimeo)

attack missiles) against the overall limit on warheads. Correspondingly, the Soviet decision to cut heavy ICBMs by 50 percent occurred within roughly the same time frame in which the United States softened some of its previous positions on ballistic missile and RVs sublimits. The initial U.S. proposal of 1982 for a sublimit of 2,500 on ICBM RVs floated upwards to 3,000 in 1985 and then to 3,300 a year later; the U.S. demand in 1982 that the Soviets cut about two-thirds of their SS-18s was relaxed once the Soviets agreed to halve their force of heavy missiles; and, finally, in 1988, the U.S. side dropped a proposal for a combined sublimit of 1,650 on warheads of heavy missiles, mobile ICBM, and ICBMs with more than 6 RVs.¹³⁶

Interconnected shifts of this kind were instrumental in gaining agreement on central features of the treaty framework once the general objectives for START -- 50 percent cuts and 1,600 launchers -- had begun to emerge prior to Reykjavik.

From mid-1988, when Gorbachev and Reagan reached agreement on the general contours of START, to the end of 1989, negotiations on framework rules became preoccupied with fleshing out unresolved issues of counting, sublimits, and collateral limits on non-deployed weapons. In the Fall of 1989, both sides drew closer to agreement on limiting

¹³⁶ At the same time, the United States has continued to press for a ceiling of 3,300 on ICBM RVs.

deployments of mobile ICBMs, after the Bush Administration dropped its insistence on an outright ban.¹³⁷ For their part, the Soviets moved toward accepting U.S. proposals for more permissive counting rules for ALCM-equipped bombers.

Somewhat more contentious were U.S. proposals to impose limited forms of qualitative controls by banning the further flight-testing and modernization of the SS-18, and by banning the testing of short time-of-flight (or "depressed trajectory") SLBMs. On the whole, however, agreement on a phase 1 START agreement appeared to be a virtual certainty within the 1990-91 time frame. The only matter in doubt was how much both sides would choose to defer -- such as the SLCM question (discussed in Chapter 6) -- and whether such deferrals and permissive counting rules would generate criticism that both sides are settling for superficial agreements in order to keep up with the astonishing pace of political changes in East-West relations.

START Methodology: Balancing Survivability and Breakout Issues

Given the proliferation of MIRVs and cruise missile weapons that occurred during the latter years of SALT, it

¹³⁷ A number of Washington officials, including Sen. Nunn and reportedly Gen. Brent Scowcroft, expressed interest in the idea of banning mobile MIRVed systems. See R. Jeffrey Smith, "Scowcroft Seeking Ban on Some Mobile Systems," The Washington Post, January 15, 1990, p. A1. Indications were, however, that such limits would be put off until a second phase of START.

was logical that both sides sooner or later would see advantage in adopting warheads as a major unit of account for strategic accords. Although quantitative limits on warheads can be viewed as a natural outgrowth of the RV fractionation limits in SALT II, the constraining effects sought in each case were quite different. Whereas a fractionation freeze is aimed at capping untapped throwweight potential, a numerical ceiling denominated in RVs imposes direct penalties on highly MIRVed forces. Thus, an MX with 10 warheads suddenly "costs" more than 3 times as much as a Minuteman III with 3 warheads, and an SS-19 equipped with 6 RVs is six times more valuable than a single-warheaded SS-25. With this built-in differential, MIRVed missiles will bump up against common ceilings more quickly than unMIRVed ones. As a disincentive to high levels of fractionation, warhead-specific limits thus attempt to achieve in a quantitative sense the kind of restraints on ICBM performance improvements that SALT's qualitative controls on silo-size and new types failed to achieve in a situation in which economies of scale and limits on launchers led both sides to invest heavily in MIRVed forces.

Not all aspects of warhead-specific limits are salutary, however. Strictly applied, they tend to value bombers with large payloads on a par with highly MIRVed ICBMs, neglecting the important facts that aerodynamic

weapons arrive more slowly on target and may be vulnerable to air-defenses. Beyond that, warhead limits impose a price for calculating force loadings based on physical capacity or on the maximum number of payloads observed during flight-testing; actual force levels are often smaller, and both sides end up counting non-existent warheads. In START, some U.S. officials have complained that such counting rules would actually understate Soviet warhead potential while inflating U.S. force loadings.¹³⁸ Finally, in a situation of deep cuts, warhead limits might not promote force survivability, the key ingredient of crisis stability. If time and expense posed no constraints, defense planners would probably absorb warhead cuts by designing and deploying new systems with lower individual warhead-carrying capacity. But weapons development is a long and hugely expensive process, and in the intervening period planners may have little choice but to implement warhead cuts by shrinking the number of high-payload delivery systems. If the remaining delivery systems of one side became more vulnerable to the residual forces of the other -- either to attacking warheads or to non-strategic forces (e.g., anti-submarine weapons) -- the result would be less not more stability at lower force levels.

Between 1986-89, much time in START was spent

¹³⁸ Ronald F. Lehman II, "The Arms Control Legacy of the Reagan Administration: A Focus on START," Strategic Review, Vol. 16, No. 4 (Fall 1988), p. 17.

developing methods to cope with these disruptive side-effects. As noted earlier, the United States succeeded in gaining Soviet agreement to discount substantially non-ALCM bomber weapons under the 6,000 RV ceiling. The U.S. side also sought to obtain a discount, albeit less substantial, for ALCMs but ran into Soviet objections which both sides were still attempting to resolve by the end of 1989.

Methodologically, the discount for bombers agreed at Reykjavik took the form of an "attribution" rule under which both sides assigned an arbitrary RV value -- "one," in this case -- to all non-ALCM bombers no matter how many weapons they actually carried. Because the value is arbitrary, the requirement to inspect actual loadings is relaxed and verification is eased considerably. Both sides simply agreed that, for accounting purposes, an American B-52 or a Soviet Bison without ALCMs should be equivalent to a single warhead weapon -- such as an SS-25 -- but only one-tenth as valuable as an MX or an SS-18 ICBM. As for ALCMs, both sides agreed to count each ALCM as 1 RV against the 6,000 ceiling but disagreed for a long time on how many ALCMs to attribute to each bomber. U.S. negotiators proposed to attribute six, and then ten, weapons to each ALCM-capable bomber.¹³⁹ Each side

¹³⁹ U.S. B-52s are capable of carrying 20 ALCMs but those types of B-52s actually equipped for ALCM delivery would carry a load of 12; the U.S. B-1B and Stealth could carry 36 but are not to be deployed with ALCMs under START I.

could then spread its accountable ALCM slots across a larger number of platforms, not only complicating first strikes against bombers but avoiding highly intrusive on-site inspections at bomber bases which ultimately could not guarantee compliance given the relative ease of ALCM reloading operations. The Soviets, however, argued that cruise missiles generally require tighter limits than bombers alone, because they are more difficult to detect and shoot down than penetrating bombers, and initially insisted upon counting ALCMs using the "maximum-equipped" formulation in SALT II.¹⁴⁰

With respect to ballistic missiles, concerns about stability in the implementation of deep reductions in warheads steered counting rule negotiations towards a somewhat different formula. At the 1987 Washington summit, both sides accepted the idea of "declaratory" rules for counting warheads on existing and future types of ballistic missiles. Under this scheme, the two sides would declare the number of RVs installed on each type of ICBM and SLBM; the RV numbers could be changed provided notification was given; and there would be agreed upon inspection procedures for verifying these declarations. The actual numbers declared for ICBMs -- MX, Minuteman, and corresponding Soviet systems -- matched the figures cited in SALT II "as tested." For

¹⁴⁰ Reportedly, the Soviet Bear-H bomber which can carry 12 ALCM would be counted as carrying eight.

SLBMs, however, there would be a significant measure of downloading from maximum tested levels of fractionation: the U.S. Trident II would carry eight instead of ten or twelve RVs, for example, while the Soviet SS-N-23 would carry four instead of ten.¹⁴¹

The main appeal of declaratory counting rules is the program flexibility they provide to both sides. Neither side is forced to charge non-existent warheads or decoys against the 6,000 ceiling. Both can choose, if they wish, to spread existing warheads more evenly across a larger number of delivery systems. The results are particularly striking if superimposed upon a future Trident force, which has been the main U.S. concern. If one were to hypothesize a nominal force of 3,500 SLBM warheads, about the level projected under START, a drop from 12 to 8 warheads per Trident D-5 missile would allow those warheads to be spread across a much larger number of missiles -- roughly 437 rather than 290 -- which would translate into an additional 6 Trident submarines, assuming each carried a full complement of 24 missiles.¹⁴²

¹⁴¹ "Joint Communique," p. 3064.

¹⁴² To underscore its concerns about survivability, the United States proposed a rule to exclude submarines in overhaul from the SLBM warhead count, which would allow retention of 2 or 3 additional submarines on each side. See Paul H. Nitze, "The Nuclear and Space Talks: The Reagan Legacy and the Path Ahead," Arms Control Today, Vol. 19, No. 1 (January/February 1989), p. 9. By late 1989, the Soviets had indicated interest in this idea but no agreement had been reached. It is also possible that the United States could load less than a full set of 24 missiles per Trident

From the bargaining standpoint, an arms reduction regime that gave both sides latitude to download MIRV missiles would be very desirable as a transitional step to a smaller force structure, one in which individual delivery systems each possessed smaller destructive capacity. Both sides could then use this flexibility to obtain greater survivability. ICBMs would become less valuable as targets if fewer were MIRVed; and SLBMs with smaller payloads could obtain greater ranges, increasing the size of the ocean areas in which alert submarines could patrol. On the other hand, extensive downloading of systems without any other programmatic steps could have destabilizing consequences over the longer term, especially if testing of these systems at much higher fractionation levels were permitted to take place.

The main breakout concern associated with downloading is a variant of the stockpile hazard noted previously; instead of spare boosters being reloaded, the concern is that RVs in storage could be brought back into service covertly. Situations that could aggravate suspicions are not hard to imagine. For example, the Soviets could declare one day that they were going to lower the standard MIRV load on their SS-24s from 10 to 5 and deploy another hundred

submarines as a way to spread the allocated warheads across a larger number of platforms.

missiles on rail-mobile launchers in the process.¹⁴³ Unlike "attribution" rules, which simply presume a certain level of weapons loading, "declaratory" rules would require some verification procedure. Equipped with such a procedure, U.S. personnel would be able to confirm some portion of the downloading of the SS-24 force, and perhaps to spot-check later with occasional challenge inspections. Over time, however, there probably would be some irreducible level of uncertainty regarding the location and status of spare warheads as well as the ever present possibility of covert storage of undeclared stocks.¹⁴⁴ One, of course, need not hypothesize a surreptitious cheating program to see breakout problems. There would be no bar to a legal abrogation of the treaty followed by extensive uploading of, say, SS-N-23 and D-5 SLBMs in nearby port facilities, or the uploading of ICBMs. Given that SALT's counting rules traded away some flexibility in return for greater insurance against surreptitious MIRVing, it is therefore not surprising that efforts to recapture that flexibility under START have

¹⁴³ The throwweight reduction and cap mandated under the phase 1 START accord might preclude this, but would still leave existing downloaded missiles as a source of concern.

¹⁴⁴ According to Congressman Aspin, the most worrisome breakout scenario under START would involve a combined covert deployment of legal spare missiles and illegally produced mobile launchers. Solid-fuel missile production is fairly distinctive to satellite reconnaissance while launcher production is not. Remarks by Cong. Les Aspin before the American Bar Association, Committee on Law and National Security, June, 27, 1988 (mimeo).

evoked criticism concerning breakout.¹⁴⁵

This is not to say that breakout feasibility should be accepted uncritically. Covertly uploading on-line forces undoubtedly would be a complex and time consuming exercise, especially if submarines or land-mobile forces had to be recycled through secure facilities as part of the process; and the ever-present risk of a challenge inspection at "suspect sites" could be a significant deterrent. One also has to ask what the incentives for breakout would be if the force posture of the other side was not highly sensitive to it. If, for example, the uploading of MIRVs on Soviet SS-N-23 SLBMs deployed off the North American coast would still be insufficient for the purpose of mounting an effective barrage attack on U.S. mobile ICBMs in conjunction with other forces, it would not contribute very much to Soviet capabilities for preemption.

Nonetheless, the idea of allowing a major gap to develop between MIRV loadings "as tested" and "as deployed" would probably be corrosive politically over the long term. Hitherto, on-site inspection has not been regarded as a useful tool for high confidence verification of missile

¹⁴⁵ See, for example, U.S. Congress, Report of the Defense Policy Panel of the House Armed Services Committee, Breakout, Verification and Force Structure: Dealing With The Full Implications of START, 100th Congress, 2nd sess. (Washington, D.C.: U.S. GPO, 1988), p. 33. A rebuttal to this report was made by then Secretary of Defense Frank Carlucci in a lengthy letter to Congressman Les Aspin, September 20, 1988 (mimeo).

fractionation. Deterrence of treaty violations may be a reasonable goal for challenge inspections; but monitoring confidence is quite another matter. While one cannot obviously dismiss such procedures a priori as tools for achieving such confidence, especially given mutual agreement to find a solution, the challenges involved are enormous.¹⁴⁶

In light of these considerations it is clear that the prospects for the emerging START framework will hinge on the performance of these counting rules and on the constraints on non-deployed systems and components as a barrier to breakout. That both sides currently have strong incentives to make the rules work is not in doubt; the question is whether there are inherent limitations in the rules themselves which might trigger doubts and suspicions in future periods of instability. Whereas in SALT the central problem was the modernization hazard posed by MIRV technology, in START the main problem is the "strategic surplus" implicit in excess missile and bomber capacity in a strategic context characterized by shrinking numbers of delivery systems. To be an improvement over previous agreements, START has to promote both greater survivability in the force postures of each side and a strategic balance

¹⁴⁶ Richard Garwin has proposed a method for reconfiguring downloaded or deMIRVed missiles with fiber-optic seals as a way to achieve timely warning of a breakout. See comments in "Technology, Verification, and Global Security: A Pugwash Symposium," Disarmament, Vol. 11, No. 3 (Autumn 1988), pp. 83- 84.

that provides no reward for risk-taking in times of crisis. Reductions per se do not necessarily accomplish this; it is the character of the reductions that matter. The reductions that are likely under START may be stabilizing because they penalize large ballistic missile deployments. Still, the transition to lower force levels -- represented by START and its successor agreements -- remains a bumpy road.

SUMMING UP: ELEMENTS OF CONTINUITY AND CHANGE

From SALT to START, one can see certain identifiable patterns in the way that both sides have sought to structure framework rules for successive agreements. To speak of "patterns" is not to suggest that the cooperative choices defining these patterns were themselves static or immutable. Change has been present along with continuity. Nonetheless, in successive phases of negotiation, the framework rules that emerged generally reflected a series of incremental adjustments over previous efforts, even though each new agreement aimed at achieving a better or different result than its predecessor. Change thus has occurred within well-defined contours; and it has been evolutionary in nature.

The factors favoring incrementalism are not mysterious. It is only natural to crave convenience in solving problems or creating rules. In governmental decision-making, as in other spheres of activity, to depart from a true and tested

approach generally risks the old retort: "If it isn't broken, don't fix it!" Bargaining incentives, as will be seen in Chapter 8, have also played an influential role in promoting incrementalism. And there may be other factors. Our principal task here, however, is to understand the implications of this dynamic for the substantive contents of strategic agreements.

Carry-Over, Innovative, and Purging Tendencies

The overall effects of the negotiating and compliance behavior spanning the agreements at issue here can be characterized in terms of three distinctive traits or tendencies. Most obviously we can see carry-over tendencies. These are well-defined continuities in framework rules. Some of the rules found in later agreements "look like" those agreed to in earlier ones. These rules served their purpose; they operated without any compliance problems; and they were carried over to new agreements without significant adjustment. The opposite of continuity in the arms control context is not simply change, however, but rather change of two distinct types. One type is reflected in various innovative tendencies. Here, rules were updated, expanded, or adjusted in response to new or unexpected compliance problems. In certain other cases, however, rules were dropped as new agreements were negotiated, either because they were no longer needed, or because they did not live up

to expectations, or because of compliance difficulties. This type of change can be called a purging tendency. The preceding discussion has provided good examples of each of these traits.

With respect to units of account, the record indicates a high degree of carry-over from one agreement to another. Not only have both sides arrived at common positions with remarkably little fanfare or acrimony, they have stuck to them. Indeed, missile launch systems -- a common currency in the ABM Treaty, SALT I, SALT II, and prospectively in START -- have acquired a certain permanence in arms control methodology which some experts see as outmoded.¹⁴⁷ Convenience is almost certainly the major reason for this tendency; operational launchers are something on which both sides can readily agree. In the strategic realm, launchers have been easy to count, and both sides have deployed them in numbers that are not grossly unequal.

Carry-over has also been seen in decisions not taken. Despite strong advocacy from some quarters in the United States, missile throwweight has never figured prominently in negotiations on units of account; its absence from direct negotiation can fairly be read as a carry-over tendency. Throwweight has been hard to measure, even to define, and historically there has been a huge differential favoring the

¹⁴⁷ Jan Lodal, "An Arms Control Agenda," Foreign Policy, No. 72 (Fall 1988), pp. 165-167.

Soviet Union; all these factors weigh against easy negotiability. As the record shows, throwweight was raised by the United States only temporarily in the initial stages of SALT II, and in the early 1980s it was consigned to an uncertain phase 2 in the U.S. START position. Even so, since 1987 there has been some movement in favor of formalizing throwweight reductions "as a result" of reductions in other areas. The Soviet Union eventually chose to accept such reductions at little apparent cost to itself, and in fact the measure may have had some positive appeal for Soviet planners.¹⁴⁸

A clear illustration of the innovative tendency was the addition of warheads (i.e., missile RVs and bomber weapons) as a unit of account for START. Interestingly, this change was introduced without much fanfare; it emerged de facto in separate U.S. and Soviet proposals for START tabled in 1982. Yet, in retrospect, the factors behind this convergence are fairly easy to discern. On the American side, interest in warhead limits was the product of disappointment over the inability of launcher and silo limits in SALT to constrain the growth of Soviet ICBM warheads. At the same time, for the USSR, warhead counting represented a more direct form of control on U.S. SLBMs and, in particular, on long-range

¹⁴⁸ From the Soviet standpoint, a low equal ceiling on throwweight could help to hedge future increases by the United States aimed at achieving some barrage attack capability against mobile ICBM deployment areas.

cruise missiles which started coming into the U.S. force posture in the early 1980s. Furthermore, by the mid 1980s, warheads were a potential negotiating currency that both sides had in roughly equal amounts. Thus, the circumstances seemed ripe for a shift. With respect to numerical ceilings, the choices regarding overall aggregate limits appear to have been a product of politically inspired decisions bearing little direct relevance to rule-making principles. In START decision-making, for example, there was nothing inevitable about the idea of 50 percent cuts; it was simply a more dramatic gesture than, say, 35 or 40 percent cuts.

From the methodological standpoint, the far more interesting phenomenon has been the progression of rules regarding force concentration under aggregate ceilings. Elements of carry-over and innovation have both been present. The relevant baseline here is the SALT I Interim Agreement. For all its defects, SALT I did establish the idea of "one-way" freedom to mix -- that the trading-in of ICBMs for SLBMs is okay but the reverse is not. SALT I also barred the conversion of light ICBM forces into heavy ICBMs, which, in conjunction with the freeze on launcher construction, created in effect a sublimit on heavy ICBMs. In follow-on negotiations these provisions were carried over with notable additions: SALT II added subceilings on ALCM-equipped bombers, MIRVed ballistic missiles, and MIRVed ICBMs, and extended one-way freedom to mix as a barrier to

the exchange of bombers for missiles. Depending on final details, START will carry over sublimits on bombers, ballistic missiles, and ICBMs, recasting them in terms of warheads (and thus reintegrating MIRVed and unMIRVed forces, which SALT had separated) while retaining the principle of one-way freedom to mix. The cumulative product of this process -- an interlinked structure of ceilings and subceilings -- is one of the most enduring attributes of strategic arms diplomacy. It exemplifies a gradual expansion of operative principles governing rule-making for limiting force concentrations under agreements: specifically, that bombers cannot be traded-in for ballistic missiles; that non-ICBM missiles cannot be traded-in for ICBMs; that smaller ICBMs cannot be traded-in for larger ones; and finally that non-MIRVed ICBMs cannot be traded-in for MIRVed weapons.

Because this hierarchy is biased against the traditional Soviet emphasis on ICBMs, the job of applying these principles through negotiated rules proved very difficult throughout the 1970s. The constraining power of the heavy ICBM sublimit was greatly vitiated by the inability of both sides to agree on a dividing line between light and heavy missiles. Similarly, the MIRVed ICBM sublimit, set at 820 in SALT II, was too high to preclude the growing theoretical vulnerability of fixed land-based missiles to prompt counterforce attack. In each of these

cases, Moscow accepted a U.S. proffered concept but was able to apply it on terms most favorable to the Soviet side. By including provisions for 50 percent reductions in SS-18 warheads, START would significantly cut into Soviet ICBM advantages. Interestingly, the cuts themselves produce no dramatic force concentration effects -- warheads on heavy ICBMs and on total ICBMs are now respectively about 26 and 55 percent of total Soviet force loadings, and these percentages will remain essentially unchanged under a 6,000 warhead aggregate.¹⁴⁹ However, if the Soviets chose to take greater advantage of the bomber discount allowed in START, the result would be a shift toward a more balanced, survivable posture.¹⁵⁰ Like SALT II, START would not "solve" the problem of ICBM vulnerability for either side; but it should make certain unilateral remedies easier to achieve.

While the discounting of bombers relative to ICBMs has been a consistent theme since SALT II, the overall rules set up to govern missile and bomber sublimits may be going through a major transition. Previously, by attributing capability to certain classes of weapons on the basis of performance during flight-testing, SALT II established

¹⁴⁹ These percentages are based on figures contained in The Military Balance 1988-1989, p. 230.

¹⁵⁰ Not all aspects of the START sublimits are resolved, however. The Soviets still insist on a 60 percent concentration rule which would be applied to SLBM warheads, if the U.S. continues to insist on a similar sublimit for ICBM warheads.

observed test performance as the operative principle for counting rules (i.e., the so-called "look alike, count alike" rule). In part because of the pressure exerted by reductions, START has shifted this burden to a system of declarations to be verified through the monitoring of actual deployments. This innovation will enhance force flexibility at the price of increasing verification uncertainties regarding actual force loadings (how much uncertainty is still unclear). It therefore remains to be seen whether this new scheme will work in practice. If it does reasonably well, the old SALT-style counting rules will have been purged from framework methodology; if not, they might be brought back and carried over into future START-style agreements.

Finally, with respect to suppressing various breakout hazards associated with the reconstitution, stockpiling, or modernization of weapons, the pattern of rule-making has been marked by discontinuities. On the one hand, a seemingly high degree of carry over has been observed in rules governing the dismantling of on-line weapons. SCC regulations prescribing the elimination of ABM and offensive missile launchers have worked reasonably well.¹⁵¹ The principle enshrined in these procedures -- that dismantling should preclude the reconstitution of a weapon in less time

¹⁵¹ Sidney N. Graybeal and Michael Krepon, "Making Better Use of the Standing Consultative Commission," International Security, Vol. 10, No. 2 (Fall 1985), p. 189.

than it would take to build a new one -- has been applied more broadly to cover new units of account since the days of SALT.¹⁵² Similarly, with respect to stockpile hazards, the consistent trend in rule-making since the ABM Treaty has been to enforce the separation of on-line weapons and spares or reloads. Just as SALT II proscribed the storage of boosters at operational launch silos, provisions that are agreed in START would assure that missile stocks, launchers, and warheads are kept separate. Here, the SS-16 ban was an exception that proved the importance of the rule: compliance ambiguities would not have been able to linger if the ban had been structured in accordance with the principles observed in rules on stockpiling and dismantling.

On the other hand, it is hard to find much consistency in rules governing modernization. The SALT experience proved very controversial. The silo-size constraints in SALT I clearly were not stringent enough to achieve the results that were imputed to them by the United States. It was not because the technique itself was flawed, for tighter limits on permitted expansion than the 15 percent allowance could have impeded the deployment of larger missiles. Rather, it was because the USSR would never have agreed to such an outcome, which would have meant forfeiting the SS-19.

¹⁵² The INF Treaty, for example, applies to ballistic and cruise missiles elimination procedures that are roughly comparable to those which were developed for the destruction of ICBM silos in SALT I.

Disputes over the SS-19 provided the impulse for the "new-types" rule in SALT II.

The consequence of this was not successful rule innovation, however, but only further problems, this time regarding the SS-25 ICBM. The SS-25 was not a development expected by the U.S. side. To make matters worse, the intended effects of the "new-types" rule were never very clear. No specific technologies were being limited. The rationale of "forcing trade-offs" in modernization was rather abstract and not clearly consistent with U.S. security interests. Even if the provision had worked, a trade-off involving the choice of a MIRVed over an unMIRVed system would have been no great boon to U.S. security.

Perhaps more than any other single factor, it was the "new-types" experience which undermined the idea that arms control can be used to constrain unwanted technical developments. The role of technical restraint in strategic arms diplomacy has been controversial ever since. Yet, without such rules, and in the face of rapid technical change, the framework for strategic arms reduction must be considered incomplete.

6.

THE BOUNDARIES OF RESTRAINT

No treaty can be effective if its coverage is unclear or subject to dispute. Just as framework rules are required to regulate the size and mix of forces falling within the domain of agreement, it is also necessary to develop supplemental provisions -- or scope rules -- which speak to the inclusion or exclusion of particular weapons and R&D activities. Without such rules, an agreement might hamper flexibility by overreaching into military or civilian activities that are unrelated to its purposes. Or, conversely, an agreement might not reach far enough, leaving certain key weapons or activities unconstrained which could later pose a risk of circumvention. As this chapter will show, the competing imperatives of preserving flexibility while thwarting circumvention have weighed heavily on both sides from SALT to START. Below, I examine major cases which have raised these concerns -- first in the strategic defensive realm, then on the offensive side -- and assess their implications for the evolution of bargaining methodology.

THE DILEMMAS OF LINE-DRAWING

While arms diplomacy focuses on limiting weapons, the sought-after constraining effects of agreements are often

measured in terms of mission performance. This distinction is central to any discussion of scope rules. In our present case, to speak of strategic agreements is by inference to draw bright lines between and around various classes of weapons capable of performing strategic offensive and defensive missions. But what precisely does "strategic" mean in terms of weapons?

Since Douhet's time, the concept of the strategic mission has been closely identified with the use of offensive air power to attack an enemy's heartland with the aim of destroying his capacity and will to wage war. Prior to military aviation, land and naval forces both could be used for strategic purposes, but only (usually) after defeating hostile forces on the battlefield or the high seas. Douhet reasoned that such tactical engagements were no longer a decisive element in warfare. He argued that "command of the air" -- defined not as aerial combat but as the bombing of an enemy's military-industrial infrastructure -- would effectively trump all other military operations, assuring a swift and decisive victory to the side which attained it first.¹ While Douhet's theories provided a powerful argument for the expansion of strike air power, the strategic bombing campaigns of World War II prior to Hiroshima failed to sustain many of his predictions

¹ Bernard Brodie provides the classic exposition of Douhet's theses, see Strategy in the Missile Age (Princeton: Princeton University Press, 1967), pp. 82-90.

regarding the level of damage inflicted and the likely impact on war outcomes. It was left to nuclear weapons and ballistic missiles to give Douhet's ideas a grim, lasting relevance.

Given the geographical distances that separate the Soviet and American homelands, offensive strategic arms in the superpower context are confined to bomber and ballistic missile forces designed for long-range operations. This attribute alone -- range -- makes an enormous difference in determining scope criteria for strategic agreements, if only because so many weapons would fall out of consideration as candidates for control. Range-like criteria (i.e., "battlespace," maximum detection range, etc.) are also helpful in distinguishing strategic defensive systems from tactical or local air defenses.

Another basis for making distinctions is type of armament. Nuclear-armed, long-range delivery systems are clearly more "strategic" than systems which are conventionally-armed and short-range. Still other criteria involve the idea of power potential. Radars with a power aperture product large enough to detect attacking missile warheads at long distances, or lasers with brightness sufficient to deliver lethal doses of energy onto rocket boosters or satellites at 2-3,000 km, fall more clearly into the category of strategic forces than, say, radars or lasers designed to protect tank divisions or carrier task groups.

Although these attributes convey a good sense of what strategic weapons are, the task of drawing clear lines around such weapons for treaty purposes is nonetheless a complex matter. Clearly, range cannot be the sole arbiter of what is a strategic weapon and what is not. The USSR has always argued that any weapons designed for use against its territory should be considered "strategic," regardless of their range. The U.S. B-29 bombers that were forward-deployed in Great Britain during the Berlin crisis of 1948 did not have an intercontinental range and would not qualify as a true strategic weapon today; nonetheless, Soviet officials clearly perceived them as a direct strategic threat.² Conversely, some of the longest range bombers currently deployed by each side -- Soviet Tu-95s and U.S. B-52s -- have important applications in reconnaissance, naval warfare, and other missions outside the strategic offensive arena. Armament type would perhaps be a more useful basis for distinction except for the fact that ordnance is often quite fungible; many bomber and missile types, especially U.S. cruise missiles, are inherently

² As General Nikolai Chervov later told an American television interviewer: "I knew about the atomic strategic bombers based in England the moment they arrived....We were evaluating the U.S. nuclear potential and in particular those ninety atomic bombers with one or two bombs abroad. That meant approximately two hundred bombs, which was a real threat. Two hundred Hiroshimas." WGBH TV interview cited in John Newhouse, War and Peace in the Nuclear Age (New York: Alfred A. Knopf, 1989), p. 67. The fact was, however, that the bombers had not yet been modified to carry atomic weapons.

dual-capable. Moreover, U.S. and Soviet nuclear weapons are routinely maintained for missions outside central strategic warfare.

On the defensive side, the problem of relating weapons to missions is even more slippery because strategic potential is a function of a variety of capabilities -- sensing and computational power, interceptor velocity, etc. -- which are hard to measure and can support a variety of applications. No one would seriously argue that an aircraft interceptor could qualify as an ABM-capable system; short of the poor pilot wandering into the path of an on-coming RV, it has no capacity to counter ballistic missile attacks. On the other hand, surface-to-air missile systems and ASATs require more careful handling by negotiators. They cannot be excluded a priori. One must look at the search volume of the sensors, the speed and range of the interceptors, the power of the computer support, and so forth. While the interception of bombers, subsonic cruise missiles, and satellites is a technically easier task than intercepting ballistic missile RVs, weapons deployed for those non-ABM purposes conceivably could be upgraded for the ABM mission with improvements in their sensors and data-processing capability. Large radar stations are perhaps the most difficult systems to categorize, because they can inherently perform a variety of civilian functions (e.g., air-traffic control, space-tracking) as well as military missions (e.g.,

ABM battle management, early warning, etc.).

Given that mission diversity makes it difficult to distinguish neatly between or among various classes of weapons on the basis of attributes like range, armament type, or power potential, negotiators have little choice but to balance the costs and risks associated with three possible choices of action. First, both sides could agree to include all weapons or components in a given class within the scope of limitations, regardless of mission. The price of this choice would be either to curtail non-strategic missions or possibly to deploy additional forces that are clearly not strategically capable in order to cover unmet needs. Alternatively, both sides could agree to exclude given classes of systems or activities. The cost of this action is circumvention (i.e., substituting the excluded system for those which are limited by agreement). Finally, in some cases, both sides could find a way to split the difference, including some systems of a given class while excluding others on the basis of some individuating procedure. This is often a tempting choice -- akin to having one's cake and eating it too -- but also the most complex to work out in practice.

STRATEGIC DEFENSIVE FORCES

What kinds of scope choices have characterized limitations on strategic defensive forces? Since the 1960s,

the strategic defense mission has cut across a broad array of systems: not only ABMs, but SAMs, aircraft interceptors, anti-satellite weapons, warning and attack assessment systems, and anti-submarine weapons. ABMs were singled out by negotiators largely for reasons of expediency and strategic significance: ABMs were not yet deployed in large numbers; they were technically undeveloped and cost-ineffective; and they were seen at the time to pose a real threat of stimulating a major expansion in offensive ballistic missiles.

In singling out ABMs, however, both sides faced three scope issues. First, they had to establish some basic guidelines for dealing with potential overlap problems between non-ABM defensive weapons and ABMs. Second, they had to make choices regarding whether to include or exclude so-called "exotic" ABMs (i.e., ABMs based on "other physical principles," in treaty parlance) capable of replacing then-current systems and components in the future. Finally, they had to decide how to handle large, multipurpose radars with some potential for contributing to the ABM mission.

SAMs and Non-ABM Defensive Weapons

At the outset of the SALT process, concerns regarding mission overlap focused most sharply on air defense. During the McNamara years, the United States had begun to draw down and reorient its continental air-defense forces. The

expansion of long-range Soviet bomber forces fell short of Western expectations as the Soviets began to invest heavily in the development of strategic ballistic missiles. As a result, the stress on the American side began to shift noticeably toward early warning of attack and away from active interception of hostile aircraft. This was not the case with the Soviets, however. Their national air-defense forces, incorporated under PVO Strany (Protivovozdushnaya Oborana Strany), attained the status of an independent service in the years following World War II.³ PVO oversaw the creation of a large air-defense network, concentrated along likely attack corridors and around key military and population centers. It maintained and modernized this system throughout the 1970s, and by the mid-1980s it included approximately 12,000 SAM launchers at over 1,200 sites, 10,000 air-defense radars, and more than 4,000 interceptor aircraft available for strategic defensive missions.⁴

Numerous reasons have been adduced to explain why the Soviets continued to bear the burdens of air-defense expenditure. Some interpreted it as a natural response to the enormous damage they suffered at the hands of the Germans during World War II. Others stressed the degree to which a strong air-defense posture has accorded with the

³ Durch, The ABM Treaty and Western Security, p. 3.

⁴ Department of Defense and Department of State, Soviet Strategic Defense Programs (Washington, D.C.: U.S. GPO, 1985), p. 17.

traditional emphasis of Soviet military planners upon damage limitation in their concept of strategic operations (i.e., intercepting retaliating forces after a Soviet preemptive strike against an enemy's missile forces). Still other explanations highlighted in varying degrees the threats posed by highly capable U.S. strategic bombers, regional third party air forces such as those of NATO and China, and U.S. forward-based strike aircraft. It is impossible to say which of these factors comes closest to explaining the Soviet commitment to air defense. What is clear is that Soviet air defense has provided a powerful stimulus to the U.S. Air Force to hone the penetration capabilities of its bomber forces with electronic countermeasures, stealth technology, and increasingly capable stand-off weapons (e.g., short-range attack missiles and cruise missiles) designed to destroy air-defense installations during the retaliatory phase of nuclear operations.

As an arms control matter the imbalance in air-defense capability created negotiating obstacles. I have already noted the acrimonious debate within the U.S. intelligence community over the possible contributions of an upgraded Soviet SAM network to ABM breakout capability. Both sides had tested SAM systems for possible ABM roles prior to the late 1960s, albeit without much success, so the idea of SAM upgrade was well established. Critics of the upgrade thesis argued that it would be very costly and technically

difficult to modify then-current Soviet SAMs for ABM missions, and that it would be an ineffective way to break out of treaty restraints because even upgraded SAM batteries would not have more than a minimal ABM capability. Proponents replied that there simply was no way to preclude the possibility of some covert upgrading, and that the overall protection provided might be substantial in view of the large numbers of SAMs involved.⁵ There was less disagreement on the proposition that improvements in SAM technology in the future would probably blur the line between SAMs and ABMs.⁶

In the midst of this debate, American policy development proceeded in a tentative, ad hoc way. During the Johnson Administration, Secretary Rusk attempted to resolve the SAM matter by erring on the side of inclusion. Either the Soviets should take steps to show that their SAMs were not capable of acting as ABMs, he said, or else they should agree to include their SAMs in the numerical totals for each

⁵ Dr. Donald Kerr, former director of the Los Alamos National Laboratory, summarized the analytical problem this way: "I always thought that the 'SAM upgrade' threat was overstated. Mobile air-defense systems in the field simply do not operate under conditions that would make them amenable to high-speed intercept of reentry vehicles. The problem with SAM upgrade is that the key developments are those we can't see: improvements in data-processing capability, the ability of radars to 'hand-off' targets to other systems, the ability to direct interceptors in a highly disturbed environment." Remarks at the J.F.K. School of Government, Harvard University, November 6, 1985.

⁶ See Foster's comments, U.S. Congress, Fiscal Year 1974 Authorization for Military Procurement, p. 818.

side.⁷ When the Nixon Administration got down to business on SALT, however, the matter was still being contested. Some U.S. officials believed that the case for including SAMs was extremely weak and regarded such proposals as throwing needless obstacles in the way of productive negotiation. But others in the Pentagon remained adamant. Foster, who was kept on by Nixon, raised the idea of counting SAMs as fractions of ABMs (e.g., an SA-5 being equal to one-half an ABM; the older SA-2 equal to one-third, etc.). The main attraction of this plan was that it would have neatly allowed full deployment of the U.S. Safeguard ABM (about 800 launchers) while obliging the Soviets to trade-in existing SAMs as a price for proceeding with new ABMs of their own.⁸ Ultimately, the Nixon White House decided to exclude SAMs from direct numerical counts and sought instead a series of collateral constraints on SAMs and radars to suppress putative upgrade hazards and to enhance verification.

The Soviets of course were well acquainted with U.S. concerns and put the worst possible construction on them once talks were underway. They accused the United States of trying to probe beyond the legitimate bounds of negotiations and to gather intelligence information.⁹ They ridiculed the

⁷ Prados, The Soviet Estimate, p. 166. See also Nitze, From Hiroshima to Glasnost, p. 288.

⁸ Author's interview with Raymond L. Garthoff, April 4, 1985.

⁹ Smith, Doubletalk, p. 307.

idea of converting SAMs into ABMs as unrealistic and absurd. Karpov dubbed it "an artificial" problem.¹⁰ Semenov quipped that the whole Russian population would have to "go without trousers for the next five years" if Soviet planners tried to give all their SAM radars an ABM capability.¹¹ It would be "superfluous," he argued, "to establish limitations of any kind on any type of antiaircraft SAM systems, and also on missile attack warning radars, space monitoring radars and antiaircraft radars."¹²

Whether the Soviets would have adopted this stiff posture if faced with a U.S. SAM network of comparable size can only be a matter of conjecture. In the absence of such a threat, however, the Soviets had little interest in suppressing upgrade hazards or in helping the United States to establish a legal requirement for collecting intelligence data on Soviet SAMs or radars. As a matter of bargaining strategy, they knew very well that virtually any limit on non-ABM defensive systems would cut asymmetrically against

¹⁰ Memorandum of conversation (memcon) A-540 from the U.S. SALT Delegation, dated September 3, 1971, p. 3, contained in declassified material in appendix A of U.S. Department of State, Office of the Legal Advisor, The ABM Treaty, Part I: Treaty Language and Negotiating History, May 11, 1987.

¹¹ Smith, Doubletalk, p. 315.

¹² Statement of Ambassador Vladimir Semenov, December 4, 1970, cited in Senator Sam Nunn's report, "Interpretation of the ABM Treaty: Part 4: An Examination of Judge Sofaer's Analysis of the Negotiating Record," in Congressional Record, May 20, 1987, p. S-6825f.

them.

Thus, until late 1971, Soviet negotiators assiduously avoided any stance that might validate the general principle that limits of some sort on non-ABM systems were essential to the effectiveness of the treaty. They objected to the U.S. idea of defining ABM systems and components in broad functional terms, as any system or component capable of countering ballistic missiles or their elements in flight trajectory, including "other devices" capable of performing the functions of then-current ABM components (e.g., radars, interceptor missiles, and launchers) as well as systems "indistinguishable from" ABM components.¹³ U.S. negotiators had pressed for a broad formulation to ensure that the treaty would encompass future ABMs based on directed energy technologies which might incorporate components different from those currently in existence; it was not explicitly the American aim to directly restrain non-ABM systems through a

¹³ Even in its broad formulation, the U.S. definition was crafted in ways to permit important exclusions. The reference to strategic, for instance, was carefully inserted to exclude anti-tactical ballistic missiles from the agreement. Even ICBMs were a matter of scope concern. John Rhinelander, the U.S. legal advisor on the SALT I delegation, pointed out in his analysis of the treaty that the formulation "in flight trajectory" was included to "preclude the assertion that an ICBM on one side that was targetable at ICBM silos on the other was an ABM system..." See Rhinelander, "The SALT I Agreements," p. 128. The reference to "other devices" is found in Senator Nunn's analysis, see "Interpretation of the ABM Treaty," p. S-6817. The reference to "indistinguishable from" is found in Smith's account, see Doubletalk, p. 270.

broad definition.¹⁴ The Soviets, however, feared that the Americans would later argue that because SAMs had some capability (however marginal) to counter ballistic missile warheads or were "indistinguishable from" ABMs, they should be defined as ABMs. The fact that some in the U.S. government were lobbying for controls on SAMs probably lent credence to this perception.

As a response, the Soviets proposed to define ABMs in the narrowest possible way: as systems, encompassing interceptors, launchers, and radars, "specially" constructed and deployed for an ABM role.¹⁵ The Americans balked at this, for it seemed to deny the possibility of exotic ABMs with different kinds of components as well as systems constructed for other purposes but reconfigured to perform as ABMs. It thus was a classic conflict of scope priorities, pitting American insistence on including all forms of ABM against Soviet insistence on excluding non-ABM systems from direct control.

The gap between these positions was not unbridgeable, however. Even while ridiculing the notion of converting non-ABM systems into ABMs, the Soviets let it be known that their mission-oriented ABM definition (i.e., "specially

¹⁴ Raymond L. Garthoff, Policy Versus The Law: The Reinterpretation of the ABM Treaty (Washington, D.C.: Brookings, 1987), pp. 39-40.

¹⁵ Statement by Soviet representative Grinevsky in memcon A-644 from U.S. SALT Delegation, December 13, 1971, p. 2. See appendix A, U.S. State Department, The ABM Treaty.

constructed...for an ABM role") did comprehend the idea that testing in an ABM mode would be one way of identifying the purpose of a system. Indeed, they presented this thought as a simple extrapolation of their skeptical view on the whole circumvention argument: since upgrading was a silly idea to begin with, the issue of testing for upgrading purposes would never arise. Karpov repeatedly stressed the relevance of testing: "...a system, whatever it might be, if it is tested in an ABM mode, it is an ABM system."¹⁶ At another point he observed that once such testing had occurred, "the old system would cease to exist. The new system would be deployed in an ABM mode."¹⁷

Soviet clarifications became a pivotal element in a series of compromises on establishing ABM scope criteria. What made agreement possible was a mutual decision to link determinations of scope -- what is or is not an ABM system -- to observable acts (i.e., testing) rather than to unilateral assertions of intended mission. In doing so, both sides got a measure of what they wanted. The Soviets were able to place their SAMs and other non-ABM defensive systems outside the legal boundary of the ABM Treaty, provided they did not test them as ABMs; at the same time, the Americans were able to establish a legal basis for monitoring Soviet

¹⁶ Comments of Soviet representative Karpov, September 2, 1971, cited in Nunn's report, "Interpretation of the ABM Treaty," p. S-6815.

¹⁷ U.S. SALT Delegation, memcon A-540, p. 4.

SAM programs, to watch for signs of illegal testing behavior.

The treaty language fell into place fairly quickly. The Soviets agreed on defining ABM components inter alia as any component tested in an ABM mode.¹⁸ In return, the U.S. side dropped the formulations "indistinguishable from" and "other devices" from its proposed ABM definition and agreed to settle the precise form of exotic ABM limits elsewhere in the treaty so long as the definitional article (Article II) acknowledged the possibility of ABM systems based on other than then-current components.¹⁹ Finally, both sides agreed on language barring the upgrading or converting of non-ABMs to ABM-capable systems.²⁰ What the Soviets had branded as a "superfluous" and "unnecessary" obligation turned out to be

¹⁸ One can reasonably infer this from a comparison of Grinevsky's statement in memcon A-644 and the final language of Article II, see ACDA, Arms Control and Disarmament Agreements, pp. 139-140. The importance of including the formulation "tested in an ABM mode" is underscored by the U.S. SALT I delegation in memcon A-677, December 20, 1971, p. 2, in appendix A, U.S. State Department, The ABM Treaty.

¹⁹ This was done by inserting the phrase "currently consisting of" into Article II, which had the effect of indicating that there might be systems in the future which might have components other than those listed in Article II. See memcon A-677, p. 1, and Garthoff's assessment of the interaction in Policy Versus The Law, pp. 44-45.

²⁰ The precise language is found in Article VI(a) of the ABM Treaty. In it, each party undertakes: "not to give missiles, launchers, or radars, other than ABM interceptor missiles, ABM launchers, or ABM radars, capabilities to counter strategic ballistic missiles or their elements in flight trajectory, and not to test them in an ABM mode." U.S. ACDA, Arms Control and Disarmament Agreements, p. 141.

acceptable in the end.

The missing element here was a common definition of activities constituting testing in an ABM mode. Paul Nitze, then a U.S. delegate, had engaged in some exploratory exchanges on criteria for ABM-related testing with his Soviet interlocutors; but no agreed formula emerged. Both sides recognized that refining a precise definition would be lengthy and complex, given the need to address individual components. Soviet negotiators displayed considerable reluctance in moving toward full clarification, and there were internal disagreements within the U.S. executive branch on how to proceed.²¹ In April, 1972, during the final hours of negotiation, Nitze tabled a unilateral American interpretation of activities that would constitute testing in an ABM mode.²²

Other issues were also left unclarified. Both sides

²¹ Author's interview with Raymond L. Garthoff, April 4, 1985.

²² Under the U.S. interpretation of 1971, testing in an ABM mode could occur if (1) "a launcher is used to launch an ABM interceptor missile, (2) an interceptor missile is flight tested against a target vehicle which has a flight trajectory with characteristics of a strategic ballistic missile flight trajectory, or is flight tested in conjunction with the test of an ABM interceptor missile or an ABM radar at the same test range, or is flight tested to an altitude inconsistent with interception of targets against which air defenses are deployed, (3) a radar makes measurements on a cooperative target vehicle of the kind referred to in item (2) above during the reentry portion of its trajectory or makes measurements in conjunction with the test of an ABM interceptor missile or an ABM radar at the same test range." See U.S. ACDA, Arms Control and Disarmament Agreements, p. 147.

agreed to exclude anti-tactical ballistic missiles (ATBMs) from the ABM definition.²³ Yet no effort was made to specify any clear dividing line between ATBM or dual-capable ATBM/SAM testing and ABM testing.²⁴ Moreover, while the operation of non-ABM radars in conjunction with ABM testing was ruled out by the United States as a matter of general practice, an agreed exemption was given to non-phased array radars if operated for range safety and instrumentation purposes.²⁵ As these examples suggest, the criteria for scope determinations were not at all free from ambiguity. At that time, however, potential compliance problems were seen as manageable and very much overshadowed by the accomplishment of gaining general agreement on the principle of an upgrade ban.

²³ At the time the United States was developing the SAM-D system for NATO air defense and saw the possibility of upgrading it to counter Soviet short-range missiles.

²⁴ The presumptive baselines for classifying such tests are the characteristics of ballistic missile RVs associated with strategic offensive forces. These RVs typically travel at higher speeds and altitudes than do tactical or intermediate-range RVs. However, as Herbert Lin correctly points out, there is no precise and clear dividing line, because some SLBMs which are included in SALT and START are less "strategic" in terms of their RV characteristics than some land-based intermediate-range weapons. See "New Technologies and the ABM Treaty," Michael Krepon and Mary Umberger, eds., Verification and Compliance: A Problem-Solving Approach (New York: Macmillan, 1989), pp. 186- 187.

²⁵ U.S. ACDA, Arms Control and Disarmament Agreements, p. 144.

Exotic Systems

While both sides moved toward closure on definitional and upgrade questions, they pressed on with parallel efforts to clarify the scope of limits on exotic ABMs.

Notwithstanding recent interpretations of the record, both sides actually were never very far apart on exotic weapons.²⁶ After much internal debate in Washington, U.S. negotiators in August 1971 tabled treaty language specifying a two-pronged approach to exotic ABMs: to bar their testing, development, and deployment in mobile basing modes (e.g., land-mobile, sea-, air-, and space-borne); but to allow their development and testing (while barring deployment) in fixed, land-based modes.²⁷ This differentiation was sought because the Pentagon was interested in ground-based laser

²⁶ Those who argue that Soviet negotiators never actually agreed to ban the development and testing of mobile exotic ABM systems or components under the treaty's Article V provisions would clearly dissent from this view and rely on Judge Sofaer's analysis of the ABM Treaty. See U.S. Department of State, The ABM Treaty, and his article, "The ABM Treaty and the Strategic Defense Initiative," Harvard Law Review, Vol. 99, No. 8 (June 1986), pp. 1972-1985. On the other hand, the record of declassified U.S. memcons from SALT I as well as subsequent analysis by U.S. negotiators and Sen. Sam Nunn provides a strong basis for concluding that the Soviets both recognized and accepted U.S. interpretations of the key definitional and other articles bearing on exotic weapons. See, for example, Garthoff, Policy Versus the Law, pp. 28-69, and Nunn, "Interpretation of the ABM Treaty," previously cited. While I make no effort to parse the key differences of interpretation here, the above analysis assumes the essential correctness of the traditional view of the ABM Treaty.

²⁷ The language of the initial U.S. draft proposal is found in Garthoff, ibid., p. 30.

systems and did not want to forfeit an R&D option.

Soviets officials proved receptive to severe restraints on mobile systems and agreed to operative provisions in the Fall of 1971.²⁸ On the other hand, while appearing to share an interest in handling fixed systems in a more permissive way, they went even farther, questioning whether deployment of these should be banned at all. Academician Shchukin, the principal Soviet negotiator on this question, framed the choice this way: "...both sides agree there should not be territorial defenses....thus, the agreement would ban the deployment of future systems in a manner providing territorial defense. If, however, new technology should make possible components carrying out the same tasks as existing components, but perhaps in a more efficient and less costly manner, why should those be prohibited? We are not prohibiting ABM components."²⁹

U.S. negotiators strenuously objected to this line of reasoning. Nitze argued that if a new system capable of

²⁸ The language for what eventually became Article V(1) was substantially agreed on September 23, 1971. See Garthoff, Policy Versus the Law, pp. 35-37, and memcon A-503 from the U.S. SALT Delegation, September 15, 1971, appendix A, U.S. State Department, The ABM Treaty, in which Karpov is reported to have agreed with Graybeal's interpretation that the Soviet proposed textual modifications covered "any type of present or future components" of ABM systems. The definitional article was agreed on December 22, 1971, see Garthoff, ibid., p. 44.

²⁹ Memcon A-639 from the U.S. SALT Delegation, December 10, 1971, p. 1, in appendix A, U.S. State Department, The ABM Treaty.

substituting for existing weapons (e.g., the 100 launchers and interceptors) was allowed without prior agreement, it might render the numerical limitations meaningless. To this the Soviets replied that if R&D ever progressed to a stage where deployments of exotic systems became feasible, the question of specific limits could be taken up in the SCC where the necessary regulations could be worked out.³⁰ At this point, both sides focused on working out an agreed statement that would spell out the idea of joint consultation, although it took a number of probes by U.S. negotiators to nail down Soviet acceptance of the principle that no deployment of fixed exotic systems would be allowed unless both sides were agreed and amended the treaty accordingly.³¹

³⁰ Nitze's reply and Shchukin's reference to the SCC are found in ibid., p. 2.

³¹ For example, according to memcon A-710, Garthoff queried his Soviet counterparts on what would happen if the consultation produced no agreement on deployment: would the party wanting to deploy be able to do so or not? Grinevsky initially sidestepped this question, saying the whole matter was purely hypothetical, and then suggested that a party could withdraw from the treaty if it wished. Others in the Soviet delegation, however, appeared to accept Garthoff's idea of resorting to amendment procedures specified in the treaty rather than withdrawal. See memcon A-710 from the U.S. SALT Delegation, January 11, 1972, pp. 1-2, appendix-A, U.S. State Department, The ABM Treaty. Final agreement was reached on January 26, 1972, see memcon A-743, ibid.

Large Radar Stations

Applying scope criteria to radars also proved to be a complex matter. With some systems, such as SAM radars, the "testing in an ABM mode" proscription could be helpful. Testing was deemed a necessary step in determining the upgrade potential of a candidate system. At higher thresholds of size and power, however, radar systems did not necessarily require visible upgrading modifications or extensive testing to be deemed ABM-capable. Hence, U.S. officials initially took a very restrictive approach: existing radars deemed to have an ABM application would be listed by type and number; any radars directly associated with existing ABM deployments would be limited numerically and restricted geographically; further construction of certain early-warning radars (e.g., "Hen House" radars) would be barred; and above a certain power threshold, any new radars built for other purposes would be subject to mutual agreement and would have to meet some agreed criteria that would rule out an ABM role.

None of this went over well with the Soviets. They objected to the whole premise of radar controls, arguing that launchers and interceptors, not radars, determine ABM capability. While conceding that permitted ABM radars might be limited geographically, they argued that each side should be free to determine the number and size of its radars on the basis of its own technology. They also asserted flatly

that early-warning radars could not operate as ABM systems and any limits on these would unjustifiably constrain the modernization of air defenses which were not covered by agreement.³²

The lengthy give-and-take which led to agreement on radars has been well chronicled elsewhere and need not be recounted in detail here.³³ The outlines of a deal began to emerge when the Soviets agreed after some haggling to numerical and geographical limits on ABM radar complexes. Meanwhile, the United States softened considerably its proposals for non-ABM radars, dropping the requirement for agreed criteria and a veto power on new deployments. In return, the Soviets agreed to a generic ban on new large phased-array radar installations above an agreed threshold, albeit with some notable exemptions for early warning, verification, and space tracking purposes.³⁴ As for early-warning radars, both sides converged on a middle ground position. Rather than numerical limits or a freeze, both agreed to allow new deployments but only on the periphery of

³² Smith, Doubletalk, pp. 305-306, 315.

³³ Ibid., pp. 301-318.

³⁴ Large phased-array radars (LPARs) which steer their beams electronically without moving the antenna were a source of great concern because of their potential to detect and to track hundreds of incoming missile RVs at long distances. The agreed threshold on LPARs was calculated in terms of "power-aperture product," which is the product of mean emitted radar power in watts and the area of the antenna size in square meters. The threshold was set at a value of 3 million watts-square meters.

national territory, oriented outwards.³⁵ Although less constraining than its earlier proposal, the United States reckoned that a peripheral deployment rule would substantially reduce the ABM potential of these radars. They would be harder to defend in outlying areas and, by facing outwards, their ability to detect attacking warheads would be limited to those in flight trajectory above the atmosphere where decoys and countermeasures could be used to confuse and spoof missile defenses.

All told, the major scope choices in the ABM Treaty negotiations illustrate in varying degrees the three potential avenues for diplomacy. Non-ABM defensive systems and components were excluded from the agreement, and both sides, though mainly at U.S. insistence, agreed to bar upgrading activity, particularly testing in an ABM mode. Conversely, exotic systems and components were included to a degree consistent with verification requirements, and both sides agreed to some latitude for managed deployment of certain types subject to mutual agreement. Finally, on large radars, they essentially split the difference. LPARs built expressly for the ABM battle management mission were covered; those built for early warning were exempted except

³⁵ The relevant portion of Article VI provides that each side undertakes "not to deploy in the future radars for early warning of strategic ballistic missile attack except along the periphery of its national territory and oriented outward." ACDA, Arms Control and Disarmament Agreements, p. 141.

for the loose constraint on peripheral deployment. Location became the key agreed element in distinguishing between radars designed for these different missions.³⁶

Scope Rules in Operation

The discussion in Chapter 3 established the range of compliance problems that have arisen since 1972. With respect to scope issues, the most sustained set of disputes involved the role of non-ABM systems and components in ABM testing. As noted earlier, the Soviets repeatedly operated SA-5 radars to monitor air traffic in and around their missile test range at Sary Shagan between 1973 and 1975 while ABM systems were being tested. Concerned that these radars appeared to be making measurements on incoming ballistic missile warheads, U.S. officials in early 1975 raised the issue pursuant to the Article VI prohibitions on upgrade and testing in an ABM mode. The Soviets replied that the radars were being used for range safety and instrumentation purposes and claimed the practice was exempted on the basis of U.S. and Soviet statements made for the record during the negotiations. In support of this position, however, they reportedly proffered a very narrow

³⁶ Location and orientation were not the only possible criteria. A radar's frequency in megahertz would have been another way to distinguish between ABM and early-warning radars. The drawback of using any operational criteria, however, is that they could not be conclusively verified until the installation was already built and actually emitting energy.

construction of the testing provision: that tracking an incoming RV with a non-ABM radar did not constitute testing in an ABM mode, and was thus permitted, so long as the radar was not also being used to guide an interceptor to its target.³⁷ This was not consistent with the U.S. view.

One result of this exchange was a long sequence of SCC diplomacy aimed at clarifying the meaning of "testing in an ABM mode." Elements of an agreed definition were worked out in 1978, largely on the basis of the unilateral U.S. criteria.³⁸ As part of this arrangement, both sides agreed that "to avoid future misunderstandings" each would refrain from simultaneously testing ABM and SAM components and from utilizing instrumentation equipment to make measurements on

³⁷ Duffy, et al., Compliance and the Future of Arms Control, pp. 35-6.

³⁸ For a glimpse at provisions of this agreed clarification, see comments of Paul Nitze, "Permitted and Prohibited Activities Under the ABM Treaty," Speech before the International Law Week-end Group, New York, N.Y., October 31, 1986, printed in U.S. Department of State, Current Policy, No. 886, p. 2. Although Nitze does not say so explicitly, Ivo Daalder and Jeffrey Boutwell correctly argue that his comments can be read to infer that the 1978 agreed statement omits a portion of the earlier U.S. definition which specified testing at altitudes inconsistent with the interception of aircraft as an activity constituting testing in an ABM mode. See "TBMS and ATBMS: Arms Control Considerations," in Donald L. Hafner and John Roper, eds., ATBMs and Western Security (Cambridge: Ballinger, 1988), p. 186. In fact, the United States did not pursue an altitude criterion in negotiations on the testing definition out of concern that this might interfere with then-existing plans for ASAT development. Interview with Raymond L. Garthoff, April 4, 1985.

missile RVs.³⁹ This step aimed at barring a recurrence of the initial problem but left open the question of whether any form of SAM operations would be allowed during ABM testing. The Soviets maintained that they needed some latitude to operate air-defense systems if unidentified aircraft were detected flying in the vicinity of the test range. In 1982, both sides finally agreed to bar concurrent operations but only after U.S. and Soviet negotiators worked out a provision allowing for SAM radar monitoring of unidentified aircraft provided that notification of specific instances was given subsequently in the SCC.⁴⁰

ATBM development has also proved to be a source of irritation.⁴¹ Despite obtaining an exclusion for ATBMs, the United States did not pursue an upgrade for the SAM-D system during the 1970s, although it has done so for its follow-on

³⁹ The provisions in the 1978 agreed statement regarding concurrent testing and the use of instrumentation equipment are summarized in a letter of November 13, 1979, from J. Brian Atwood, Assistant Secretary of State for Congressional Relations, to Senator Frank Church. See U.S. Congress, Senate Foreign Relations Committee, SALT II Treaty: Background Documents, 96th Cong., 1st sess. (Washington, D.C.: U.S. GPO, 1979), p. 80.

⁴⁰ There were some internal disputes over reporting requirements pursuant to this exemption. Reportedly, agreement was reached in 1982 to permit notification at the semi-annual meeting of the SCC. The Pentagon, however, argued that notification ought to take place within ten days of the occurrence. Agreement apparently was reached on a 30 day deadline. See Michael R. Gordon, "CIA is Skeptical that New Soviet Radar is Part of an ABM Defense System," National Journal, March 9, 1985, p. 524.

⁴¹ For a detailed overview of this problem, see Daalder and Boutwell, "TBMS and ATBMS: Arms Control Considerations."

system, the Patriot, in recent years. Meanwhile, the Soviets pursued a new generation of SAMs -- initially, the SA-10 and later the SA-12 -- and reportedly tested an advanced version of the SA-12 against tactical and intermediate-range ballistic missiles on numerous occasions.⁴² In its public pronouncements, the Reagan Administration concluded that the SA-12 has the potential for intercepting some kinds of ballistic missiles but did not cite the Soviets with a violation, stating instead that the evidence was "insufficient to assess compliance" with the ABM Treaty.⁴³ Even in the absence of clearcut noncompliance, however, advanced ATBMs on both sides could in time come to represent a portion of air-defense infrastructure that would be particularly suitable for upgrading if these deployments were extensively internetted with warning systems and augmented with more capable acquisition sensors.⁴⁴ Under the INF Treaty, both sides have removed a significant portion of the non-strategic missiles against which ATBMs might be

⁴² The SA-12B's test record in fact has raised doubts that the weapons could operate effectively even in an ATBM mode. See Michael R. Gordon, "Defense Dept. Is Rebuffed on Soviet ABM Threat," The New York Times, March 5, 1987, p. A10.

⁴³ U.S. Department of Defense, Soviet Military Power, 1988 (Washington, D.C.: U.S. GPO, 1988), p. 56. See also President's Report on Noncompliance, December 2, 1988, p. 17.

⁴⁴ Sidney D. Drell and Thomas H. Johnson, "Managing Strategic Weapons," Foreign Affairs, Vol. 66, No. 5 (Summer 1988), p. 1040. The authors see widespread ATBM deployments as possibly providing a partial defense against SLBM attack.

deployed; but the treaty does not cover all tactical missiles or strategic cruise missiles, and it has given ATBMs a new rationale, namely insurance against breakout.⁴⁵

The ABM Treaty's testing provisions also figured in charges leveled by the Soviet Union at the United States. In its 1984 Homing Overlay Experiment (HOE), the United States tested a non-nuclear exoatmospheric interceptor and associated sensors, which were carried into space aboard a modified Minuteman I ICBM. Although the test was conducted from a declared U.S. ABM test range, the Soviets asserted that the use of a Minuteman booster to launch ABM components was impermissible, because it amounted to giving a non-ABM system capabilities to intercept strategic ballistic missile RVs. (The target vehicle had also been launched by a Minuteman ICBM from Vandenberg Air Force Base, California.) The United States claimed that the booster and its performance characteristics were observably different from a Minuteman missile, and that Minuteman I was no longer an operational ICBM in the U.S. inventory.⁴⁶ This issue has since fallen by the wayside but was never fully resolved.

More serious upgrade problems have revolved around the application of scope criteria to proposed experiments on

⁴⁵ Melissa Healy, "Another Anti-Missile Plan Finding New Justification," Los Angeles Times, November 29, 1987, p. 1.

⁴⁶ Longstreth, et. al., U.S. and Soviet Ballistic Missile Defense Programs, " p. 45.

advanced sensing and directed energy technologies mandated by the American SDI program. These experiments include the testing of space-based and air-borne sensors to track ballistic missiles during boost, post-boost, and mid-course phases of flight trajectory, as well as tracking and targeting devices associated with laser weapon systems designed for space-basing. The USSR has claimed that these and other elements of the SDI program represent a breach of the treaty's commitment not to establish a base for nationwide defense, and that they go beyond the permissible limits of research on non-fixed exotic systems. Although the Reagan and Bush Administrations have defended such testing as consistent with their broad interpretation of the treaty, under which any non-fixed exotic system or its component could be developed and tested, Washington officials also have claimed that these planned experiments could be allowed under the treaty's traditional interpretation because the devices would be tested against satellites rather than ballistic missiles and would not be sufficiently powerful to be construed as fully fledged ABM "components."⁴⁷

⁴⁷ With respect to testing against satellite targets, Paul Nitze stated that neither the United States nor the Soviet Union consider "tested in an ABM mode" to encompass tests against targets in space that do not follow a ballistic missile flight trajectory. See "Permitted and Prohibited Activities," p. 2. The U.S. position has been that field-testing of certain devices may be treaty compliant if the sensors, weapons, or platforms being tested are really adjuncts to components of ABM systems, due to inherent power or other limitations (e.g., computational power) that make them unable to fully substitute for ABM components. Some experts, however, have questioned whether

Discussions between the two sides on space and defense questions have not settled these questions.

Finally, with respect to large radars, compliance with scope rules has been a source of long-standing friction. As noted in Table 3-1, the Soviets lodged a complaint in the SCC over U.S. construction of a large radar, called Cobra Dane, on Shemya Island in the Aleutians, in 1975. They cited as evidence of its ABM application the fact that many of its elements had been taken from an older ABM radar, the Missile Site Radar, a component of the partially constructed Safeguard system located at Malmstrom Air Force Base, Montana, but subsequently disassembled.⁴⁸ The Americans responded that Cobra Dane was permitted, both because it was sited appropriately for early-warning purposes and because it was covered under the exception for NTM radars (e.g., radars to collect data on Soviet missile tests). The U.S.

such distinctions are too finely-drawn to serve as a basis for unilateral assertions of compliance. See Aspen Strategy Group, The Strategic Defense Initiative and American Security, pp. 43, 56. While it is clear from the negotiating record that both sides sought to exempt "adjuncts" designed to augment traditional components (e.g., radars), the dividing line between adjuncts and components was never specified in treaty language; both sides in effect have relied on a commonsense understanding of the treaty's general guideline that the line would be crossed if a device were capable of "substituting for" a traditional component. Durch, The ABM Treaty and Western Security, pp. 70-72, provides some good illustrations of how new technologies can blur the line between permitted adjuncts and prohibited components, as well as the line between permitted forms of research and prohibited development.

⁴⁸ David Morrison, "Radar Diplomacy," National Journal, January 3, 1987, p. 18.

side also claimed an NTM exception for a ship-borne radar system, Cobra Judy, which was subsequently stationed off the Aleutians to track Soviet strategic missile warheads for intelligence and verification purposes.⁴⁹

By the late 1970s, Soviet radar construction activity had begun to generate concerns in Washington. U.S. officials reportedly expressed concern that the first of a new generation of LPARs, located near the city of Pechora, more than 100 miles south of the Barents Sea, might not be close enough to the Soviet periphery to be considered an early-warning radar.⁵⁰ Shortly thereafter, the Soviets initiated work on four other Pechora-class radars, apparently in compliance with treaty obligations. The United States did not pursue the matter further at the time and did not list it as a violation subsequently.⁵¹ The initial U.S.

⁴⁹ Durch, The ABM Treaty and Western Security, pp. 47-48.

⁵⁰ Duffy, et. al., Compliance and the Future of Arms Control, p. 107.

⁵¹ According to Morrison ("Radar Diplomacy," p. 18), U.S. diplomats were prepared to charge in 1978 that the Pechora facility was not properly located on the periphery, but decided not to press the issue for fear of forfeiting the opportunity of raising an even more serious charge: that the radar might be part of a new ABM system. So far as is known, however, the United States never pursued this latter charge. The Soviets, for their part, consistently claimed that their Pechora-class radars were being deployed in a manner consistent with the treaty while taking account of "technical and practical" considerations. U.S. experts have taken this qualification to mean that the Soviets would opt for locations closest to the periphery which were also deemed to be geographically suitable and accessible to transportation. According to Longstreth, et al., U.S. and Soviet Ballistic Missile Defense Programs, p. 54., the

complaint in the SCC was met by Soviet criticism of new American SLBM detection radars, called PAVE PAWS, which were cited as possible violations of the Treaty's Article I commitment not to provide a base for nationwide defense. The Soviets apparently did not dispute that the radars were designed for early-warning purposes, but argued that their broad field of coverage (240 degrees) from southerly locations in Texas and Georgia provided coverage over certain interior portions of the continental United States.

The best known episode in the radar controversy started to unfold in July 1983, when U.S. intelligence detected construction work on the fifth in the series of Pechora-class radars, near Krasnoyarsk, in central Siberia. Situated over 700 km from the nearest frontier and oriented toward the vast expanses of upper Siberia, the radar did not meet the location and orientation tests specified in the treaty for early-warning radars. When queried about it, Soviet officials stated that the Krasnoyarsk facility was going to function as a space-tracking radar and they invoked Agreed Statement "F" exempting such radars from the generic power potential threshold set for LPARs. U.S. experts, however, concluded its main mission would be early warning, arguing that it resembled other Pechora radars rather than

Soviets did not justify the Krasnoyarsk radar in these terms, however.

any Soviet radars dedicated to the space-tracking mission.⁵² Beginning in 1984, the United States formally charged a violation of the ABM Treaty.⁵³ The Soviets rejected this finding and in 1986 countercharged that new U.S. LPAR construction at sites in Thule, Greenland, and Fylingdales, England, represented a breach of the early-warning radar limitations because they were not being located on the periphery of U.S. territory. American officials argued that these radars were part of permitted modernization work at existing early-warning sites associated with the U.S. Ballistic Missile Early Warning Systems (BMEWS), not new facilities within the meaning of the treaty's Article VI restriction on early-warning radars. Although the Soviets eventually admitted that the Krasnoyarsk station was a violation, the dispute over U.S. BMEWS programs has not been resolved.

⁵² More accurately, the Krasnoyarsk station is better suited as a "late-warning" radar, since it would not detect SLBM RVs launched from the Gulf of Alaska until they were already over Soviet territory. Moreover, as Durch points out, RVs aimed at targets in the Soviet Far East would tend to underfly the radar. See The ABM Treaty and Western Security, p. 49. Still, it is worth noting that Krasnoyarsk is located near the "periphery" of the present Soviet command and control system (which traditionally has been concentrated in the western USSR) and would provide initial detection for military commands in the central and western Soviet Union. In this sense, it is an "early-warning" system.

⁵³ In its initial noncompliance report of January 1984, the Reagan Administration characterized it as "almost certainly" a violation; in its February 1985 report, it was characterized simply as a "violation." See President's Report on Noncompliance, February 1, 1985, p. 8.

The Significance of Compliance Problems

What do these disputes tell us about the efficacy of the scope rule choices in support of the ABM Treaty? To answer this question one needs to look at the treaty not only in terms of its basic positive purposes -- to prohibit territorial defense or the base for one -- but also in light of what it was intended not to do -- to constrain operational flexibility in other mission areas. Treaty negotiators consciously steered a middle course where possible; they presumed the exclusion of non-ABM mission areas unless or until technical developments threatened to spill-over into the ABM arena. The question is whether this balance was achieved. One cannot say so categorically, for one can never prove a negative -- that no program flexibility was forfeited. However, there are few if any traces in the pattern of strategic arms development since 1972 to suggest that either side forswore an important R&D or procurement opportunity in air-defense, ASAT, early warning, or in other non-ABM areas, which it might have otherwise pursued but for the ABM Treaty.⁵⁴ Nor has either

⁵⁴ Perhaps the closest instance was the Aegis fleet air defense system. On the U.S. side, there was concern that the Aegis system, combining a ship-borne phased-array radar and a nuclear-version of the SM-2 missile (optimized to intercept Soviet sea-launched cruise missiles) might pose problems with Article VI's upgrade provisions, just as U.S. analysts have been concerned with the inherent upgrade potential of new Soviet SAMs with phased-array engagement radars. However, U.S. officials deemed Aegis to be compliant with the Article VI provisions on upgrade, noting that it

side sought to redefine the specific numerical limits on ABM components (e.g., 100 launchers, 2 large ABM radars, etc.) on the grounds that they unduly constrained capability to operate ABM systems and components in other roles.⁵⁵ Nor were there any major constraining side-effects which were overlooked or unappreciated at the time the treaty was implemented.⁵⁶ Given all this, it can be said with some confidence that the treaty achieved its negative goal of not overreaching to the detriment of operational flexibility on either side.

To say this goal was achieved, of course, does not necessarily mean that the choices implicit in the goal were sensible ones. Quite obviously, overreaching (and limiting flexibility on both sides) could have been a justifiable

had "essentially no capability" to counter strategic ballistic missiles and was not to be tested in an ABM mode. Moreover, the nuclear version of the SM-2 missile was not deployed, most likely for operational and cost reasons. For a redacted discussion of the issue, see U.S. Congress, Fiscal Year 1981 Arms Control Impact Statements, Statements submitted to the Congress by the President Pursuant to Section 36 of the Arms Control and Disarmament Act, 96th Cong., 2nd sess. (Washington, D.C.: U.S. GPO, 1979), pp. 387-389. I am grateful to Ivo Daalder and William Durch for background on this issue.

⁵⁵ Conceivably, the Galosh ABM interceptor could be used to counter U.S. satellites, though its use in any scenario short of strategic warfare is difficult to imagine.

⁵⁶ This stands in contrast to the limited test ban treaty, whose de facto prohibition on above-ground nuclear effects testing arguably has turned out to be a more far-reaching limitation on development of reliable counterforce capability than was commonly appreciated during the early 1960s.

policy choice if suppressing non-ABM activity was deemed a fair price to pay for keeping the treaty regime intact. Any net judgment on scope choices must therefore weigh whether non-ABM activities have undermined the treaty's positive goal of restricting ABM capability to very low levels and of erecting barriers to breakout so that the parties would not have to invest in potential hedges or countermeasures.⁵⁷ If undermining effects are present, one would have some basis for arguing that the parties should have broadened the scope of the treaty, sweeping ATBMs, SAMs, ASATs and other systems into the framework as a hedge against circumvention hazards.

Unfortunately, there is no objective standard for determining the point at which such hazards become significant; certainly none is specified in the treaty. If one takes a pessimistic view of technical change, one could pinpoint any variety of developments which might be construed as having adverse effects. While the projected production and deployment timelines for nationwide defense on either side are still on the order of years, the technological hurdles today to establishing "a base" for territorial defense are clearly fewer in number than in the early 1970s, in part because of activities in non-ABM mission areas. General advances in data-processing, modular radars, and rocket propulsion and guidance have narrowed the

⁵⁷ Ashton B. Carter, "The Structure of Possible U.S.-Soviet Agreements Regarding Missile Defense," pp. 142-143.

gap separating SAMs and ATBMs, on one side, and ABM systems, on the other. Each side's radar network for early warning and long range tracking of ballistic missiles is much more capable today, and further development of a variety of active and passive (and even "interactive") sensing technologies with space-based applications promise dramatic improvement in the future.

A common rejoinder to this line of argument is that any technically feasible defense today might be only marginally more effective than those that were on the drawing boards in the early 1970s, because ballistic missile capabilities on each side have also improved considerably since that time. Yet, while this may be true, such a comparison is a flawed measure for establishing the significance of ongoing technical activity as far as the treaty is concerned. Offensive forces may well enforce the viability of the regime in the sense of dampening breakout incentives. But it cannot be the case that the treaty was meant to rely on offensive force improvements to remain viable. On the contrary, it was supposed to lay the foundations for extensive limitations on the offensive side.

Moreover, such comparisons necessarily hinge on very subjective judgments of defense effectiveness. If one believes that robust strategic deterrence depends critically on one's ability to hold at risk some small number of high value targets on the other side (e.g., command centers,

fixed ICBMs), even a small infrastructure of local ABM deployments protecting those targets might be troublesome and thus deemed to be "effective." On the other hand, if one interprets targeting requirements for deterrence more flexibly, one might have a more relaxed attitude about the significance of ABM capability.⁵⁸ In any event, negotiators on both sides steered well clear of this dilemma. The treaty enjoins the parties to forbear not simply in those defenses presumed to be "effective." Rather, it obliges the parties to forbear in deploying any ABM defense of national territory, in providing any base for one, or in deploying any local or regional defenses beyond those permitted. A judgment on effectiveness presumably would be a final hurdle in any process of national decision leading to the deployment of strategic defenses; but one need not presume some measure of effectiveness to see compliance hazards to the treaty.

In dealing with scope problems in the 1969-72 negotiations, both sides understood that a regime of unlimited duration would have to adapt to changing circumstances. As Ashton Carter has pointed out, the ABM Treaty contains language that foresees and encourages

⁵⁸ Carter provides some useful illustrations of how differing perceptions of defense effectiveness could bear upon the problem of ASAT upgrade. See Ashton B. Carter, "The Relationship of ASAT and BMD Systems," Daedalus, Weapons in Space, Vol. 1: Concepts and Technologies (Spring 1985), pp. 175-176.

updating.⁵⁹ The treaty's presumption of managed adjustment is an especially important factor to consider when appraising the negotiating requirements and trade-offs that were perceived at the time. One can imagine any number of problems that would have arisen if the United States had sought to include ATBMs or SAMS in the scope of the ABM Treaty. Limiting air defenses, at a minimum, would have greatly strengthened the Soviet demand for including U.S. forward-based aircraft in the offensive package. And limiting or banning ATBMs would have generated similar demands within NATO with respect to Soviet tactical ballistic missiles. Negotiations might well have stalled on such objections. Correspondingly, a split-the-difference solution for large phased-array radars was the only choice that really made sense at the time. Both sides had a major stake in improving their early-warning systems. Indeed, each continues to have a great stake in the capacity of the other to refrain from desperate acts in periods of crisis. Reliable early warning is a prerequisite to acting and reacting rationally in a situation where strategic forces are put on a high state of alert. Suppressing improvements in early-warning capability in hopes of gaining greater insurance against breakout would simply not have been a sensible goal for the negotiations.

Given these calculations, together with a presumption

⁵⁹ Carter, "The Structure of Agreements," p. 142.

in favor of ongoing adjustment, it is difficult to gainsay the basic determinations of scope under the ABM Treaty. The choices were not flawed in any fundamental sense. But this does not necessarily mean that the provisions implementing those scope choices were necessarily correct or optimal. Indeed, as argued below, the compliance problems encountered to date in the operation of these rules speak tellingly to the inadequacies of these implementing provisions.

To start with, both sides have taken liberal advantage of exemptions which were ill-defined or, more accurately, left up to each party to define. The USSR justified its non-ABM radar activities on range safety and instrumentation grounds; and until 1989 it justified the Krasnoyarsk facility on the basis of a putative space-tracking mission. The United States claimed NTM exemptions for its Cobra Dane and Cobra Judy radars, and also argued that construction of new LPARs at Thule and Fylingdales was permissible under the treaty because there were already radars at those sites being used for early-warning purposes. There is, of course, nothing inherently problematic in the idea of exemptions per se. The allowances for space tracking and NTM radars in the treaty reflected a natural concern that one party or the other might need some relief from the power threshold specified in Agreed Statement "F" in order to carry out

other legitimate missions.⁶⁰ A common problem in all these cases, however, is the absence of any basis in clear treaty language for deciding whether a claim of exemption is legitimate or not.

The Krasnoyarsk radar is a prime illustration. Once the construction site was detected in 1983, it took U.S. experts very little time to reach the judgment that the radar being built was inappropriately located and oriented from the standpoint of treaty requirements. It was just too similar in appearance to other early-warning radars -- indeed, virtually indistinguishable from them -- to be considered anything else. The Soviets knew this. Whatever their original reasons for building the radar, they gave increasing indications beginning in 1985 that they were looking for face-saving solutions, and in 1989 they admitted it was a violation. Nonetheless, in the face of much criticism, the Soviets persisted with the space-tracking claim for years. The reasoning behind their position went something like this: LPARs for space-tracking are exempt from any size or location restrictions; there are no agreed criteria to distinguish between early-warning and space-tracking LPARs on the basis of external appearance; all early-warning LPARs also perform some space-tracking

⁶⁰ Arguably, however, the United States should have established a stronger legal base for upgrading the early-warning capabilities of BMEWS-related facilities. This was a case where a larger treaty loophole was called for.

roles; Krasnoyarsk, therefore, can be justified as a space-tracking LPAR. It was a contrived argument -- because space-tracking was clearly not the role for which the radar was optimized -- but not one that could be thrown out on the basis of the plain language of the treaty. What fatally undermined the Soviet position was its absurd implication. Carried to its extreme, the Soviet argument would have sanctioned the construction of LPARs of any size and capability, anywhere in the Soviet Union or the United States, provided they had some space-tracking capability. Neither side could have lived with such a precedent over the long term.

In hindsight, the initial U.S. proposals of 1970 to establish agreed criteria for distinguishing between various types of LPARs would have provided a clearer if more complex guideline for proceeding with new radar construction in non-ABM mission areas. Both sides then would have sought to reach agreement on design parameters that would minimize or rule out an ABM or early-warning capability. This approach, however, was eventually dropped in return for Soviet concessions on other issues.

Apart from the problems of unqualified exemptions, experience has shown the drawbacks of relying too heavily upon the yardstick of "testing in an ABM mode" in making determinations about what qualifies as an ABM system or component. The testing proscription, as noted above, was

meant to verifiably enforce the general ban on upgrading non-ABM systems specified in Article VI. The operative premise was that testing would be a necessary step at some point in any covert upgrading program, especially in cases like SAMs where upgraded performance depends critically on the integration of newer, more powerful components (e.g., modified radars) into the overall system. This assumption was not an unreasonable one, but efforts to peg a treaty obligation on it ran afoul of three obstacles. First, testing in an ABM mode is inherently hard to define by reference to discrete activities. Several years and much effort in the SCC were required to flesh out a common definition. Second, its application to new technologies is awkward because the Article VI upgrade provision was framed only in terms of traditional ABM components -- radars, interceptors, launchers -- whose functions could be redistributed in different ways in systems with non-traditional elements (e.g., particle beams, passive sensors, etc.)⁶¹ Without any measure of functional equivalence, it becomes harder to pinpoint the stage at which non-traditional elements could "substitute" for ABM components or to measure the value-added of testing to that substitution process.

⁶¹ Abram Chayes, Antonia Handler Chayes, Eliot Spitzer, "Space Weapons: The Legal Context," *Daedalus*, Weapons in Space, Vol. II: Implications for Security, Vol. 114, No. 3 (Summer 1985), p. 204.

Third, and more significantly, the testing yardstick has become less uniquely important in policing the outer boundaries of the treaty as the underlying technologies for ballistic missile defense and other mission areas begin to blur distinctions. Infrared sensing technology, for example, has progressed to a stage where future space-based sensors could be used not just to detect missiles being launched but to determine RV trajectories in mid-course flight, a task which currently only dedicated ABM radars can perform. Similarly, optical or laser-guided weapons were once only useful in the realm of air-to-ground warfare; now, however, high-acceleration rockets equipped with advanced optical homing sensors could be developed for ASAT missions but also have some inherent capability to intercept missile boosters or RV buses. In these and other cases, while actual testing against target vehicles with strategic ballistic missile RV characteristics would be important at some stage of development, it is not a prerequisite to obtaining general confidence in the ability of a particular system, component, or "adjunct" (e.g., a subcomponent not capable of substituting for radars, interceptors, etc.) to operate in support of ABM missions.⁶² Consequently, as the central

⁶² In theory, there are numerous ways both to enhance the ABM relevance of a non-ABM test and to skirt the ban on testing of dedicated systems. For example, Lin suggests that if an ASAT weapon were given trajectory data on its orbiting target only minutes before intercept, the test would closely resemble a test against a strategic RV in mid-course flight. Correspondingly, one could test directed energy sensors or weapons at power levels considerably below design limits.

delineating rule specified under the treaty, "testing in an ABM mode" has lost much of its value as a policing agent over activities that could constitute a base of preparations for territorial defense.

The diplomatic response to this development has been meager to date. From the beginning, both sides understood the potential for problems, but neither wanted to extend the process leading to the 1972 treaty when there existed an expectation of ongoing discussions aimed at adjusting the regime cooperatively. Yet bilateral discussion from 1974 to 1985 generally was confined to the clarification of terms which were not fully spelled out in treaty text; new rule-making was not a focus.⁶³ To some degree, the unlimited duration of the treaty probably has been a disincentive to major new undertakings. Absent a date of expiration, neither side appeared very anxious to embark on significant renegotiation given the ever-present risk that the final result might be less optimal to one or the other than a continuation of the status quo.

Since the commencement of the Defense and Space Talks in 1985, the situation has become more complex and difficult. On top of outstanding compliance problems, each

See Lin, "New Technologies and the ABM Treaty," pp. 192, 206.

⁶³ The protocol signed by Nixon and Brezhnev at the Moscow summit of 1974 reduced permitted ABM deployment areas from two sites to one apiece. See ACDA, Arms Control and Disarmament Agreements, pp. 162-163.

side has disagreed on what exactly the existing treaty regime allows in terms of development and testing, and whether it should be eclipsed by a transition to a defense dominant strategic situation.

To provide a stable environment for offensive arms reductions, both sides agreed to negotiate a period of non-withdrawal from the ABM Treaty (this idea has since been dropped), to address issues bearing upon permitted development and testing activity under the current treaty, and to discuss whether missile defenses beyond those permitted could be phased in at some later date. But whereas Moscow has sought to strengthen the treaty's traditional treatment of non-fixed ABMs and opposes any transition to defense, Washington has used the talks to advance its broad interpretation of the treaty and to press for the idea of a cooperative transition to a defense-dominant world. This basic divergence has denied the talks any common basis for agreement on principles, either in the context of a new defense and space treaty (as proposed by the United States) or as a protocol to the ABM Treaty (as proposed by the USSR). U.S. negotiators have proposed broad exclusions for R&D activity -- for instance, to exempt all ABM-capable sensors for test purposes and to allow testing of space-based weapons limited only by the number of satellites

involved at any one time.⁶⁴ Meanwhile, the Soviets have sought U.S. agreement on a list of devices not to be tested, and have proposed a threshold of "critical parameters" to delineate between permitted and nonpermitted ABM-related test activity.⁶⁵

Ultimately, whether the treaty regime is loosened, strengthened, or merely clarified, the idea of refining its scope has undeniable appeal. A variety of criteria for this purpose have been proposed.⁶⁶ What stands in the way of any further scope rule negotiations is the fundamental disagreement between the two sides on the basic purposes of strategic defensive limitations.

⁶⁴ The figure proposed was 15, and there would also be requirements for notifications of testing activity. See Michael R. Gordon, "U.S. Proposes Limit on 'Star Wars' Tests," The New York Times, October 27, 1988, p. A10. See also U.S. ACDA, Issues Brief: Nuclear and Space Talks: U.S. and Soviet Proposals (mimeo), January 22, 1990.

⁶⁵ Arms Control Association, Defense and Space Talks: Background and Negotiating History, January 1989, p. 5.

⁶⁶ See, for instance, Lin, "New Technologies and the ABM Treaty," p. 198. See also W.K.H. Panofsky, "Management of Permitted Versus Prohibited ABM Activities," October 20, 1987 (mimeo), pp. 7-8. Panofsky's approach would exempt testing conducted below a lower threshold and limit or prohibit it above an upper threshold; in the in-between gray area, testing activity would incur a requirement to discuss the nature and purposes of the tests and the power levels of the devices involved. As Panofsky states, the purpose of disclosure is to enable a party to judge whether the proposed experimentation will or will not "create a base" for deployment.

STRATEGIC OFFENSIVE FORCES

The context of scope rule-making for offensive arms agreements has been markedly different. First, and most obviously, the attributes of targets which delimit the strategic potential of given classes of systems are far easier to identify: location is the main thing that matters. Any weapon capable of striking targets situated in the other party's homeland is presumptively a strategically-capable weapon regardless of actual mission. In determining which weapons are actually designed for strategic missions, range is generally a dispositive criterion; less visible characteristics such as the speed or burn time of the boosters or the "power potential" of sensors are not critical in scope determinations. Not only is range capability strongly suggestive of the intended target locations and categories, it usually indicates whether the system is optimized for nuclear weapons delivery.⁶⁷ Furthermore, the strategic offensive mission area does not encompass a wide array of weapons; unlike ABMs, which had to be carved out from a larger category of systems, long-range ballistic missiles and bombers tend to single themselves

⁶⁷ Intercontinental range is not exclusively indicative of the strategic land-attack mission since in the past the Soviets built ICBMs for naval targeting. Regarding armament type, however, long-range has always been a good indicator of nuclear ordnance, since nuclear warheads are both lighter than their conventional counterparts and can compensate for guidance inaccuracies in a way that conventional weapons cannot.

out. Lastly, with one important exception -- cruise missiles -- both present and near-term trends in offensive weapons technology are not of the kind that would blur boundaries between strategic and other mission areas. Maneuvering or precision-guided RVs, stealth features, or depressed trajectory SLBMs are all examples of new technologies (or a new operational practice, in the SLBM case) which would improve the capabilities of strategic weapons but are not likely to turn theater or tactical weapons into strategic systems.

In light of these differences one might conclude that scope criteria are easier to apply in offensive than in defensive strategic arms control. In retrospect, however, ballistic missiles and aerodynamic weapons have clearly posed complications, albeit of different types, in determining the scope of particular agreements. This is due in part to geographical asymmetries between the two sides -- in particular, the relatively greater vulnerability of U.S. targets to sea-based forces, and the relatively greater Soviet vulnerability to intermediate-range delivery systems based in and around Europe -- and in part to the fungibility of certain types of offensive weapons, as discussed below.

Ballistic Missiles: ICBMs and SLBMs

By the late 1960s, intercontinental-range ballistic missiles were well on their way to becoming the weapon of

choice for strategic offensive missions. Swift, survivable, relatively cheap, and highly susceptible to command and coordination, land-based missile squadrons offered a degree of high-confidence, prompt target destruction potential that bomber and sea-based systems (then, mainly U.S. carrier-based strike aircraft or Soviet sub-launched cruise missiles) could not hope to match.⁶⁸ For all these reasons, and because of their increasing accuracy, they were also attractive candidates for restraint. As bargaining chips, ICBMs had the virtue of being unencumbered by any scope problems analogous to the "SAM upgrade" issue. Shorter-range ballistic missile forces were configured quite differently from ICBMs; civilian and scientific space launch capabilities on each side posed no ambiguities; and "testing in an ICBM mode" was not a real possibility with non-ICBM systems. In short, it was hard to imagine how one could develop non-ICBM systems or components and give them the capability of "substituting for" ICBMs.

Nevertheless, both sides in SALT I were at odds initially on general inclusion criteria for ballistic missiles because neither was prepared to accept the others' position on regional nuclear forces, specifically

⁶⁸ This is not to say that all characteristics of ballistic missiles are more advantageous from the military planning standpoint. Bombers are subject to recall, can escape their bases without having to attack their target set, and can attack targets of opportunity. On the other hand, bombers are slower than ballistic missiles and quite vulnerable on base.

forward-based systems in Europe. We have already seen how FBS and SLBMs complicated the task of setting numerical thresholds in the SALT framework; as a scope problem, this issue surfaced in disagreements over how to define the term "strategic." The United States had actually opened the Pandora's box by suggesting that the agreement might include launchers of Soviet IR/MRBMs targeted on Europe.⁶⁹ When Soviet negotiators objected to the inequity of including these forces while excluding U.S. FBS, the United States promptly shifted gears, proposing that "strategic" offensive weapons be defined according to intercontinental range and thereby excluding both sides' European-based forces entirely. Yet, the Soviets insisted on defining as "strategic" any weapon capable of hitting the territory of the other side regardless of mission. This broader formulation was not entirely self-serving, for it meant the inclusion of the Soviet SS-11 variable-range ballistic missiles even though a substantial number of these were

⁶⁹ Garthoff, Detente and Confrontation, p. 141. Subsequent U.S. guidance called for exclusion of Soviet INF missiles "except for those limits on IR and MRBMs which are necessary to insure adequate verification of the limits imposed on ICBMs." See Richard M. Nixon, NSDM 69, July 9, 1970, p. 3. One could fairly read such a requirement as a harbinger of U.S. intelligence concerns about possible associations between ICBMs and IRBM launchers which later emerged during SALT II regarding the SS-16 and SS-20 launchers. See discussion later in this chapter.

targeted on Western Europe.⁷⁰ However, their proposal neatly excluded dedicated Soviet theater forces (e.g., the SS-4s and SS-5s) while including U.S. FBS. This was unacceptable to the United States and its NATO allies.

As noted in Chapter 5, the joint decision of May 1971 to drop negotiations on a comprehensive agreement in favor of an interim freeze overcame the impasse created by the FBS standoff. Both sides in effect set aside bombers and theater weapons in order to concentrate on limiting the construction of new ballistic missile launchers. In its final form, the interim accord registered agreement to define ICBM launchers as those supporting missiles with ranges "in excess of the shortest distance between the northeastern border of the continental U.S. and the northwestern border of the continental USSR."⁷¹ While this definition was agreed in the context of interim restraints and only addressed one class of weapon, it nonetheless represented an important Soviet step toward a definition of strategic forces that would comprehend the idea of range as well as target location.

Unfortunately, the shift to an interim approach threw up new obstacles. Just as it sharpened the focus on ICBMs, it blurred the boundaries with respect to SLBMs. Prior to

⁷⁰ According to Berman and Baker, some 320 SS-11s were oriented toward Eurasian targets, Soviet Strategic Forces, pp. 122-123.

⁷¹ See U.S. ACDA, Arms Control and Disarmament Agreements, p. 154.

May 1971, the general U.S. objective had been to include sea-based missiles under SALT. The Soviets initially appeared not only to share this goal but sought even more ambitious coverage. They had proposed to include all SLBMs carried on-board nuclear-powered submarines; at another point they even agreed to include those deployed on board less capable diesel-powered submarines; and they sought and obtained U.S. acquiescence on banning SLBM launchers on surface ships.⁷² However, the Soviets perceived a direct linkage between FBS and SLBMs.⁷³ Once they agreed to drop claims on the former in the context of an interim agreement, their stance on the latter changed radically as they sought to protect their ongoing construction programs. Moscow only shifted back to accepting SLBM limits toward the very end of the negotiation, when the United States acquiesced to very high ceilings.

In terms of setting the scope on SLBMs, the key issue was not the ceiling but how to establish "floor" criteria -- a minimum threshold of capability above which SLBM and their submarines would be counted against agreed quotas but below which they could be exempted. This was not an easy line to draw, for the strategic potential of SLBMs is a function not

⁷² Smith, Doubletalk, p. 189.

⁷³ This position is consistent with their operational patterns in which SLBM-carrying submarines patrolled in European waters. These forces have included not only older Golf class submarines but some of the Yankee class as well.

only of missile range but of submarine capability. In the late 1960s and early 1970s, sea-based forces on each side were still evolving. None of the SLBMs then operational on either side could match ICBM ranges. The U.S. C-3 Poseidon (4,600 km) and Soviet SS-N-6 (3,000 km) came closest; the older U.S. A-3 Polaris (2,400 km) and the Soviet SS-N-4s (700 km) and SS-N-5s (1,400 km) were farther away. During the mid-1960s, the Soviets had operated their diesel-powered Golf class submarines, equipped with the SS-N-4 SLBM and later the SS-N-5, in parts of the Atlantic and Pacific, apparently against mainly regional targets. Their Hotel class nuclear-powered submarines armed with SS-N-5 missiles patrolled off Nova Scotia, suggesting limited coverage of coastal targets in the continental United States.⁷⁴ The diesel submarines, however, had little capacity for sustained operations -- or "on-station" time -- in forward areas without basing facilities, and Cuba was closed to them under the U.S.-Soviet understandings reached after the missile crisis. Beyond that, these submarines were not stealthy enough to be very secure in areas heavily patrolled

⁷⁴ Berman and Baker, Soviet Strategic Forces, pp. 94-95; MccGuire contends that the Hotel class were targeted on U.S. submarine and surface fleet port facilities. See Military Objectives in Soviet Foreign Policy, p. 97; Kissinger suggests that Golfs were deployed on station off the U.S. Atlantic coast prior to 1967 and off the U.S. Pacific coast prior to 1969, but subsequently withdrawn. See Kissinger's comments to the press, June 24, 1974, reprinted in Labrie, SALT Handbook, p. 228.

by Western ASW forces.⁷⁵ By the late 1960s, both the Golfs and the Hotels were eclipsed by the newer Yankee class SSBN with the SS-N-6 SLBM, with the older boats being redeployed more clearly in theater roles. Six of the Golf class boats, for example, were redeployed to the Baltic fleet between 1976 and 1989, to the annoyance of Scandinavian states.

When the SLBM issue came up in post-May 1971 SALT negotiations, the Soviets declared that their older submarine forces -- then comprising about 100 missile launchers on approximately thirty submarines -- were simply too old and too limited in range to be seriously considered on par with modern sea-based strategic forces (e.g., the Yankees and Poseidons). They warned that to insist on including them would force reconsideration of the whole FBS issue, for it was absurd to discuss these weapons while excluding aircraft of equal or longer ranges. In fact, few experts in the United States attached much strategic value to older Soviet SLBMs, yet no one was anxious to overlook them when Soviet insistence on high numerical ceilings on SLBM launchers was certain to be controversial anyway. Moreover, the issue was contentious within the U.S. executive branch. White House unwillingness to push the

⁷⁵ Kissinger stressed that the Golfs were very noisy, could only stay submerged for two or three days, and that the older ones had to surface in order to fire their missiles. See Labrie, *ibid*. Moreover, in the wake of U.S.-Soviet tensions over Soviet naval port visits at Ceinfeugos, the Soviets were not about to send their SLBM-carrying submarines into Cuban ports.

Soviets hard on SLBMs spawned opposition from an unlikely coalition of arms control negotiators, who saw the exclusion of Golfs and Hotels as giving the Soviets latitude to build newer submarines before reaching their agreed "trade-in" point of 740 SLBM launchers, and the Joint Chiefs, who favored inclusion of the older systems in the overall limit as a matter of general principle.

Against this background, the deal finally brokered by Kissinger at the 1972 Moscow summit was very much a split-the-difference solution. The United States acceded to Soviet wishes and excluded Golf class submarines from the agreement altogether, while the Soviets agreed to count launchers on Hotel class submarines against the 740 threshold and to retire them if they built up to their maximum agreed ceiling of 950 launchers. The Soviets also undertook two "upgrade"-like obligations with respect to the Golf class: if they were equipped with new missiles, their launchers would count against the 950 total; and if they were not modernized but retired, they could not be used as trade-ins for additional modern missile-launching submarines up to the maximum allowance. Only the first of these qualifications was actually spelled out in the agreement.⁷⁶ The provision regarding non-replacement was called into

⁷⁶ The protocol provides in part that: "the deployment of modern SLBMs on any submarine, regardless of type, will be counted against the total level of SLBMs permitted for the U.S. and the U.S.S.R." U.S. ACDA, Arms Control and Disarmament Agreement, p. 153.

question after the summit, when the Soviets suddenly stated they were now prepared to accept the initial U.S. position (i.e., to include Golfs). The United States flatly rejected any change, however, and the American reading of the record was clarified in a mutually-agreed interpretative statement of July 24, 1972, which Kissinger worked out with Dobrynin in Washington.⁷⁷

What caused this attempted flip-flop was a recognition by the Soviets, albeit belatedly, that their "victory" on SLBM exclusion was really a pyrrhic one. In their eagerness to thwart constraints on shorter-range sea-based weapons, the Soviets failed to see the advantage of including

⁷⁷ Kissinger, Years of Upheaval, p. 1146. That the United States proposed and the Soviets accepted a specific commitment not to use the Golfs as trade-ins for newer SLBM-carrying submarines is well established in various accounts of the record. Kissinger strongly implied this in his Moscow press conference, see U.S. Congress, Military Implications of the Treaty on the Limitations of Anti-Ballistic Missile Systems, pp. 108-109. Later, in his memoirs, White House Years, pp. 1238-1241, he recounted the bargaining with the Soviets on this issue and boasted that his approach was more favorable to U.S. interests than the Joint Chief's plan to include the Golfs, p. 1238f. On the other hand, there was nothing in the plain language of the interim agreement that actually prohibited the exchange of Golf submarine launchers for newer boats; indeed the language in the protocol that additional Soviet SLBMs over the 740 threshold could become operational as "replacements for...ballistic missile launchers on older submarines," a reference that was meant to address Hotel class submarines, did not specifically exclude the Golf class. Presumably, this is why the United States felt the additional agreed statement was necessary. Kissinger was adamant on the need to force the Soviets to trade-in something more substantial -- that is, either older ICBMs or nuclear-powered submarines (i.e., H-class subs) -- than obsolete diesel submarines in exchange for new systems above the 740 threshold.

obsolescent Golfs against the upper numerical ceiling, and thus to reserve room in the quota for a future replacement, rather than to exclude these weapons at the price of upgrade-like constraints. In subsequent statements, Kissinger presented the outcome as a case where shrewd U.S. diplomacy paid off.⁷⁸ Given its prior position on the importance of including Golf boats, however, U.S. recognition of this counterintuitive effect was also somewhat belated. It was less a case of the Americans outwitting the Soviets than the Soviets outwitting themselves.

The Golf episode provides some useful insights on the effects of certain kinds of scope choices. No one doubted that these Soviet submarines were of marginal strategic value in their normal operational setting. From the standpoint of arms control methodology, the key question was: what kind of circumvention risks were raised by excluding the Golfs?

It seemed unlikely that the Soviet Union would station its existing fleet of 20 or so Golfs in strategically

⁷⁸ See Kissinger's comments to the press in Labrie, SALT Handbook, p. 228. Although the benefits of the trade-in ban on Golf class submarines were real enough, they were still less advantageous to the United States than the option of including the Golfs in the initial baseline count of 740 launchers. Had Golfs been included, Soviet submarine building programs would have brought them much more quickly to the figure of 740 launchers, the point at which they had to trade-in ICBMs or other systems for new submarines up to the 950 level.

provocative ways. These were slow, noisy boats, and thus vulnerable to ASW. In theory, the Soviets could have built additional diesel-powered Golf submarines, declared them not to be "modern" as defined by the agreement, and equipped them with spare SS-N-5s. There was nothing in SALT I to prevent this.⁷⁹ Again, however, given the lack of forward basing facilities and other factors, this kind of circumvention seemed terribly remote. Kissinger correctly surmised that the best use of Golfs would be as trade-ins for nuclear-powered boats. Excluding them from the count would help to prevent this from happening. In addition, an extra requirement to count them if the missiles themselves were modernized would force upon the Soviets a totally illogical choice -- to squeeze out new SLBM launchers under their quota of 950 in favor of putting new launchers and missiles on old, outmoded boats. This they were not about to do.

Given all these calculations, the scope decisions concerning SLBMs in SALT I made good sense for the United States: the circumvention risk was small, the Golf exclusions would work to the advantage of lower aggregate numbers and capabilities, and no real operational

⁷⁹ According to Smith, Doubletalk, p. 398, the Soviets defined a "modern" submarine as one which was nuclear-powered and which became operational after 1965. The term is not fully defined in the agreement itself.

flexibility was sacrificed.⁸⁰ For the Soviets, the final outcome preserved the principle that regionally-oriented forces should be exempt from strategic agreements, even at the cost of greater flexibility in the replacement process. Finally, it is worth stressing that the idea of drawing a line between nuclear and diesel-powered submarines for the purposes of strategic agreement was a principled choice for both sides. Nuclear propulsion is the attribute that gives a submarine the capacity for sustained, long-range operations. (Later on, we will see other situations in which essentially the same set of calculations can lead to a different outcome.)

In terms of compliance under SALT restraints, the essential correctness of the basic scope choices were borne out by subsequent behavior. The Soviets gradually have retired without replacement their Golf class submarines over the years. Within the domain of strategic forces substantial modernization and replacement occurred throughout the 1970s and 1980s, but this was not inconsistent with the agreement: on the Soviet side, older submarines, like those of the Hotel and the Yankee class, and older land-based missiles, the SS-7s and SS-8s, have been traded-in for newer submarines; and on the U.S. side, older Poseidons have been

⁸⁰ One can argue that the effect upon the aggregates was beneficial in that if the Soviets had been able to use the Golfs as trade-ins, they would have been left with 60 or so SS-7 or SS-8 launchers as well as newer submarines.

retired in favor of Trident.

With respect to ICBMs, the only unforeseen event bearing on scope matters involved the so-called III-X silos. In 1973, construction activity observed by U.S. intelligence indicated that the Soviets were building silos whose purpose was genuinely unclear. If constructed for ICBM launchers, they would have been a major violation of the SALT I freeze. (Some of this construction actually had started before SALT I was completed, and it was assumed by the United States at the time that these were ICBM silos being initiated prior to the freeze.)

When questioned about the activity, Soviet representatives stated that these facilities, though similar in appearance to launch silos, were actually for command and control purposes. U.S. intelligence had already reached this conclusion but was concerned that the facilities might be dual-capable or readily converted.⁸¹ Rather than to take Soviet claims at face value, U.S. representatives asked for specific evidence indicative of the command and control function. In an uncharacteristic display of pre-glasnost openness, the Soviet Union did so with little acrimony, furnishing detailed information on construction and design that could not be gleaned solely by NTM. U.S. representatives then requested externally visible design

⁸¹ Comments by Schlesinger in U.S. Congress, Soviet Compliance with Certain Provisions of SALT, p. 3.

alterations -- specifically to narrow the silo aperture -- to preclude the launching of ICBMs. The Soviets complied with this and the result was confirmed by U.S. intelligence.⁸²

This interaction on the III-X silos was a highly consequential one, both for future scope rules and compliance procedures. It provided an operational test of the principle that for claims of exclusion to be valid, they had to be justified, and that verifiable indicators would need to show not only some evidence of intended purpose but also proof that the exempted system could not function as a treaty-limited system. Methods of limitation based on this test, specifically the notion of functionally-related observable differences, or FRODs, were developed subsequently to enable both sides to avoid having to make case-by-case determinations on weapons exclusions.

By the late 1970s, both sides thus had managed to establish a rational baseline for ballistic missile scope choices which has been modified only incrementally in subsequent negotiations. The ICBM definition was carried over into SALT II with the addition of a precise threshold value, 5,500 kilometers. The rules governing older Soviet

⁸² Schlesinger, *ibid.*, p. 21, referred explicitly to U.S. proposals for design changes. Howard Stoertz provided further details, conversation with the author, May 19, 1988.

submarines were carried over as well.⁸³

In addition, new issues proved amenable to solution. One matter which emerged was how strategic negotiations should proceed in light of the SS-20 IRBM deployments. As noted earlier, U.S. analysts had worried that SS-20 regiments could become a base for surreptitious deployments of the SS-20's intercontinental-range mobile variant, the SS-16, since it appeared that SS-20 launchers could also accommodate the SS-16. Because the Soviets clearly wanted to exclude their SS-20 launchers from the SALT II aggregate, they signed on to a provision obliging both sides not to convert non-ICBM launchers into ICBM-capable launchers, and not to test such launchers for that purpose. The verifiability of this rule was underwritten by a specific Soviet obligation not to produce, test, or deploy the SS-16, and not to produce its unique component parts (a plausible route to the upgrading of SS-20s).

Another, less significant issue concerned the disposition of some 18 launchers at the test range at Tyura-Tam. Soviet officials argued that these were old test and training launchers for fractional orbital bombardment (FOBS) missiles and thus should be exempted from the

⁸³ See U.S. Department of State, SALT II Agreement, pp. 8, 11. During the ratification debate, before the agreement was formally withdrawn, a motion to have the Golfs included was defeated in the Senate Foreign Relations Committee by a vote of 10 to 5. See U.S. Congress, The SALT II Treaty, 96th Congress, 1st sess. (Washington, D.C.: U.S. GPO, 1979), pp. 67-68.

aggregate. U.S. officials said they appeared to be operational launchers for SS-9 ICBMs (the booster for FOBS) and should either be counted or dismantled. Eventually, the Soviets agreed to dismantle twelve of these launchers and to convert the other eight to test launchers for missiles undergoing modernization.⁸⁴ Both the SS-16 ban and the FOBS dismantling/conversion were tailored remedies whose common aim was to prevent the scope of agreement from expanding into unwanted areas.

To date, negotiations in the START era have been relatively unencumbered by lingering definitional and scope problems regarding ballistic missiles. Land- and sea-based missiles falling within the agreement have been clearly identified in bilateral statements since the end of 1987.⁸⁵ Further, by eliminating land-based missiles below the 5,500 km threshold, the INF ban will buttress START against any encroachment from new or improved medium-range missiles. A dominant unanswered question is whether new forms of testing might be agreed upon which would require special scope rules. A test quota, for instance, would necessitate a common definition of "testing in an ICBM mode," both to distinguish ICBM tests from unrelated space-launch activity

⁸⁴ U.S. Department of State, SALT II Agreement, p. 37.

⁸⁵ Collateral limitations on non-deployed missiles are essentially a framework issue, since the missiles themselves are clearly strategic.

not charged against a quota and to close loopholes for circumvention (e.g., destroying test vehicles shortly after burn-out, etc.). Finally, while the INF Treaty has helped to clarify START's scope, it may have done so at the price of sparking bilateral disagreements over scope issues at lesser ranges.⁸⁶

Aerodynamic Weapons: Bombers and Cruise Missiles

If ballistic missile issues were becoming more tractable by the early 1980s, bombers and cruise missiles were driving negotiations into ever greater complexity. Aircraft inherently are more multi-purpose than ballistic missiles given their capability to perform at various ranges and speeds, to be refueled in flight, and to carry payloads of various types. It has been hard to develop inclusion criteria for strategic bombers and cruise missiles without constraining flexibility in non-strategic mission areas;

⁸⁶ In May 1989, Soviet foreign minister Eduard Shevardnadze warned that the Soviet Union might stop elimination of its SS-23 rockets as required by the INF Treaty if the United States pursued the modernization of its short-range nuclear weapons, particularly the Lance system. Reportedly, the Soviet position at the time the treaty was signed was that the SS-23 did not have sufficient range to be included in the ban. U.S. officials, however, disputed the range estimates, and the Soviets finally agreed to SS-23 inclusion on the condition that the United States undertake not to develop a similar missile. U.S. officials deny that any linkage was ever agreed. See report by R. Jeffrey Smith, "Alliance Caught in Superpower Squeeze," The Washington Post, May 14, 1989, pp. A1, A31. As it turned out, the USSR completed its elimination of SS-23s and political changes in Europe have made the whole issue of Lance modernization irrelevant.

and, correspondingly, it has been hard to exclude non-strategic systems in any open-ended way without exciting fears of circumvention. The result has been rules which are often cumbersome and difficult to verify.

SALT I negotiations on aerodynamic systems played out in a desultory fashion. American negotiating policy was especially erratic, a reflection perhaps of the absence of highly threatening Soviet bombers or cruise missile forces to concentrate minds in Washington. At first, bombers were simply omitted from U.S. proposals; then, in response to Soviet criticisms, they were included under separate but unequal ceilings; still later, they were integrated into a common ceiling with ballistic missiles.⁸⁷ For their part, the Soviets consistently sought bomber limits as a way to curtail U.S. numerical advantages, but were unwilling to concede their advantages in ICBM launchers to obtain this result. Finally, after May 1971, bomber and cruise missile limits simply were cast aside in the switch to an interim approach. This de facto exclusion was almost certainly a great relief for the United States. Beyond staving off Soviet FBS demands, it enabled U.S. officials to claim their own form of compensation for Soviet missile advantages; and,

⁸⁷ Bombers were omitted in the "Illustrative Elements" tabled by the United States in the first Helsinki meeting, see Smith, Doubletalk, pp. 88-90; the approach of common ceilings for ballistic missile launchers and bombers was authorized in the policy review of July 1970, see Nixon, NSDM 69, p. 1.

notably, it relieved Washington of having to explain why aircraft should be included in offensive arms control while air defenses under the ABM Treaty were allowed to run free.

In SALT II, aerodynamic weapons quickly moved to the forefront of scope problems after the 1974 Vladivostok accord. Both sides were now agreed in principle to bomber inclusion; the contentious issue was whether the Soviet Backfire should be counted among them. The Backfire became operational in 1974. By 1979, when SALT II was completed, about 200 of them had entered into service, the force being split equally among Soviet Long Range Aviation and Naval Aviation; another 130 or so have been added to the Soviet order-of-battle since then.⁸⁸ The Backfire raised all of the hoary scope problems associated with bomber weapons. With an operating radius somewhat in excess of 4,000 km, it was always regarded by Western intelligence as a medium-range, peripheral attack aircraft -- to be used against targets in Asia, Europe, and surrounding maritime regions -- not a strategic bomber.⁸⁹ Nonetheless, Backfire was deemed to have some marginal intercontinental capability against U.S.

⁸⁸ According to the IISS, Backfire totals as of 1988 include some 358 aircraft, of which 178 are assigned to long-range aviation and 180 are assigned to naval aviation. IISS, Military Balance, 1988-1989 (London: IISS, 1988), p. 217.

⁸⁹ By comparison, B-1 and Blackjack bombers have a combat radius of about 7,000 km while B-52s have a combat radius about 8,000 kilometers. See U.S. Department of Defense, Soviet Military Power, 1987, p. 36.

targets if operated from Soviet arctic bases and flown subsonically at high altitudes and recovered in a third country, presumably Cuba. With in-flight refueling, for which it was equipped, Backfire was presumed capable of two-way missions. In recent years, its prominence as a modern long-range bomber has been offset somewhat by new deployments of ALCM-equipped Bear H bombers and the even newer Blackjack bomber, both clearly optimized for intercontinental strike missions.

Conceptually, three options for handling Backfire were possible; all had drawbacks. First, the force could have been counted in SALT II's aggregate, either in toto or, as some in the Ford Administration favored, above a "set-aside" figure that might roughly balance the U.S. FB-111 force, also excluded from SALT.⁹⁰ Politically, however, it seemed scarcely believable that the Soviets would cave in on any form of inclusion after having conceded FBS at Vladivostok. Second, Backfire could have been charged against a separate limit. Various "off-budget" formulae were considered in Washington during 1975-76 and raised with Moscow. The basic idea was to deal with Backfire outside the SALT aggregate, where it would not squeeze out other strategic weapons, and to balance it against comparable numbers of U.S. long-range cruise missiles. Not only would this provide some limits on

⁹⁰ See comments by Walter Slocombe in U.S. Congress, The SALT II Treaty, Report of the Senate Committee on Foreign Relations, p. 180.

Backfire, it would legitimize limited cruise missile deployments, something which the Soviets were intent on banning. For precisely this reason, of course, the Soviets were not enthusiastic about the option, though Brezhnev was careful not to reject the idea outright during Kissinger's visit to Moscow in January 1976.⁹¹

A third option was to exclude Backfire from the SALT count provided there was agreement on upgrade-like constraints on its ability to perform in strategic roles. This approach gained favor with the Carter White House and Pentagon civilians after March 1977.⁹² Initially, the most durable constraint in this category was thought to be a ban on the basing of Backfire at air fields in the far north of the Soviet Union. But the Soviets objected to this on sovereignty grounds, and some U.S. experts worried about unwanted reciprocal implications, so the idea was

⁹¹ According to Garthoff, a Backfire/SLCM/FB-111 package was proposed to Brezhnev in a letter from Ford in the Fall of 1975. This proposal, worked out by Kissinger and Schlesinger, provided for a separate ceiling of 300 for each side under which any combination of SLCM and Backfire (for the USSR) or SLCM and FB-111 (for the U.S.) could have been deployed. Brezhnev rejected it. See Detente and Confrontation, p. 451. However, a slightly modified version of this idea, involving a U.S. commitment to limit deployments of SLCM to surface ships, was proposed to Brezhnev during Kissinger's visit to Moscow several months later. According to Hyland, Brezhnev said he would think about it. However, the U.S. plan was withdrawn when the Navy objected. See Hyland, Mortal Rivals, pp. 160-161.

⁹² Although favored by the Carter Administration, the idea was actually first floated by U.S. ambassador U. Alexis Johnson and his team in Geneva. See Johnson, The Right Hand of Power, pp. 614-615.

subsequently dropped. In the end, the best that U.S. negotiators could obtain was Soviet agreement to count Backfire in SALT if it were ever equipped with long-range ALCMs (analogous to the Golf modernization provision); not to give Backfire the capability to operate at intercontinental distances; not to increase its combat radius through in-flight refueling or related measures; and not to exceed its then-current production rate, a figure that Brezhnev fixed at 30 per year, through 1985.⁹³ Harold Brown underscored the production constraint as the most useful of these steps: "The Backfire production restriction means that the Soviets now will not be able to divert Backfires to a strategic role -- where they would add only marginally anyway -- without greatly reducing Soviet capability for the naval and regional missions to which Backfires are normally assigned."⁹⁴ The idea of forcing operational trade-offs through negotiated controls, somewhat akin to the justification given for the "new-types" rule in SALT modernization, did in fact exploit an important dilemma for Soviet breakout choices; but, alas, it was not one to which worst-case analysis was likely to lend much credence.

⁹³ See Backfire statement in U.S. Department of State, SALT II Agreement, p. 58. Carter also made a statement for the record that the United States reserved the right to match Backfire if necessary by building a comparable aircraft.

⁹⁴ U.S. Congress, Military Implications of the Treaty on the Limitation of Strategic Offensive Weapons, Part 1, p. 18.

The treatment of Backfire was deemed inadequate by anti-SALT critics, and U.S. proposals during the 1980s consistently called for its inclusion in the START framework. It remains a sticking point to this day.⁹⁵

Just as Backfire represented the quintessential scope problem with circumventing effects, the converse problem -- unduly constraining the non-strategic applications of strategic systems -- was best illustrated in the area of bomber limitations more generally. Since the mid-1970s, both sides have sought ways to exclude from strategic agreements aircraft having the same basic airframe as strategic (or, in SALT parlance, "heavy") bombers but with applications in reconnaissance, airborne refueling, ASW, and conventional warfare. For example, the newer Soviet Tu-95 Bear H bombers which carry ALCMs have variants which are also used for reconnaissance and ASW; the Soviet Myr-4 Bison bomber has a tanker variant; and portions of the U.S. B-52 fleet have been converted for shorter-range conventional warfare missions. There have also been concerns that one side or the other might use airframe designs of non-strategic aircraft (or even non-military aircraft) as the basis for fielding a fleet of dedicated cruise missile carriers.

⁹⁵ In the talks on conventional forces in Europe (CFE), the USSR agreed to include medium-range bombers, including Backfire, but has resisted including those versions of the bomber which are earmarked for maritime missions on the grounds that the U.S. wishes to exclude its carrier-based aircraft.

Though technically complex, the negotiations on strategic bomber exclusions brought into play a more balanced set of incentives than was possible in the Backfire case, no doubt for the simple reason that this problem genuinely was seen as two-sided in nature and hence both sides had a stake in finding some common ground. SALT II provided the venue for working out definitional wrangles. "Bombers" were defined as aircraft initially constructed or converted for the delivery of bombs and missiles. This deliberately broad formulation encompassed not only carriers of cruise and ballistic missiles as well as gravity weapons, but also airframes designed for other uses (e.g., wide-bodied civilian aircraft) and later shifted to a bomber application, either prior to construction or afterwards through conversion procedures.⁹⁶ The sticking point was the inherent difficulty of attempting to distinguish "heavy" bombers as a sub-class based on any sort of technical criteria (e.g., weight, payload, wing-span, range). Both sides in fact did not even attempt to do so and instead simply identified current types deemed to be heavy bombers. Regarding future types, both agreed to include any aircraft capable of operating in a "manner similar or superior to" those identified as current types, and they charged the SCC

⁹⁶ SALT II's bomber definition actually includes only "initially constructed" aircraft in Article II, para. 3, but treats aircraft converted to bomber roles in Article VIII, para. 1.

with the responsibility of developing some kind of individuating procedure.⁹⁷

Finally, as if to cast the net still wider, both sides agreed to count "mothballed" strategic bombers in SALT II's aggregate. The effect of this was to include large numbers of aircraft, especially older B-52 models on the U.S. side, which were not operational and in some cases were even being cannibalized for spare parts. This provision drew much opprobrium from critics who saw no logic in counting these weapons while excluding Backfire. However, this arrangement was sought deliberately by the United States, for reasons that ran precisely opposite from the Golf class exclusions seen in SALT I. The idea here was to preclude a situation in which the Soviets could exceed the aggregate for bombers by arbitrarily declaring old ones to be "non-operational," and hence exempted, even though they could be brought back into service on short notice. Since Golfs posed no serious risk of circumvention they could be safely excluded and thus disqualified from serving as trade-ins for legal replacements. This situation was quite different. Not only was the circumvention scenario a more realistic one, but there was a tangible benefit for the United States in holding old bombers as trade-ins for modern penetrating bombers or cruise missile carriers. The most sensible choice for U.S. negotiators in this case was clearly inclusion.

⁹⁷ Article II, para. 3b, SALT II Treaty.

In various respects, then, the boundary lines for heavy bombers were widely drawn. Having deliberately erred on the side of inclusion, however, both sides went on to apply the FROD concept as a means to obtain their sought-after exclusions. We noted in the last chapter how FRODs were used to distinguish between ALCM and non-ALCM equipped aircraft within different sublimits of the SALT aggregate; here, the same principle was applied to overall exclusions -- i.e., aircraft with the design characteristics of heavy bombers could only be excluded if they displayed FRODs indicating their inability to operate as heavy bombers. Accordingly, Soviet Bear reconnaissance aircraft based on the Tu-95 bomber design could be excluded because they lacked bomb-bay doors. Or, tanker or transport variants of a future cruise missile carrier could be exempted if they lacked a specialized hatch for releasing ALCMs.⁹⁸ Used in this fashion, FRODs were a practical split-the-difference solution that had eluded both sides in the ABM Treaty negotiations. Applied to LPARs, for example, a possible FROD-like criterion for space-tracking facilities would have been a requirement to assure a high elevation angle for the

⁹⁸ The FROD rule is spelled-out in the first common understanding attached to Article II, para. 3, the SALT II Treaty. With respect to certain existing aircraft, where FROD-like distinctions were not really an option, both sides simply agreed to differentiate on the basis of externally observable differences. For a discussion of the issue, see Vance analysis in U.S. Department of State, SALT II Agreement, p. 13.

radar face so that its early warning capability would be stunted. This was not done, however, and the Krasnoyarsk radar revealed the magnitude of the error.

To be sure, the FROD concept has come in for its share of criticism, at least as applied to aerodynamic systems. Critics attacked the treatment of bombers in SALT II, charging that scope boundaries were too vague and that it was risky to delegate future determinations on inclusion/exclusion to the SCC. Technically-informed analysis has shown that many design attributes normally cited for their utility as FRODs could be altered or obscured fairly quickly.⁹⁹ On the other hand, no one has claimed that bomber-specific FRODs were ever intended to be fail-safe insurance against breakout. Rather, they were justified mainly as serving the lesser goal of being useful accounting tools in drawing principled and verifiable distinctions between variants of the same aircraft. Arguably, had either side really feared bomber breakout in the context of limitations on prompt, accurate ballistic missile weapons, it is very likely that the pressures not to grant FROD-based exclusions for bombers would have been much greater. In fact, however, with one minor exception, FRODs were not a focal point for compliance disputes during the

⁹⁹ See, for example, Dean A. Wilkening, "Monitoring Bombers and Cruise Missiles," in Potter, ed., Verification and Arms Control, pp. 110-111.

1980s.¹⁰⁰

Clearly, the more significant question -- which both sides face in START -- is whether there are limits beyond which FRODs simply cannot be effective even as an accounting tool. The START negotiations have validated the FROD principle and even have sought to extend it further. At the June 1988 Reagan-Gorbachev summit, agreement was reached on the idea of allowing conversions, through agreed procedures, of nuclear-armed heavy bombers to excluded categories of reconnaissance, tanker, and jamming aircraft.¹⁰¹ In addition, mainly at U.S. urging, both sides have sought ways to exclude from START heavy bombers equipped only with non-nuclear ordnance, even though it would appear that such differences (e.g., internal weapons carriage, wiring, etc.) would be too finegrained as FRODs except perhaps on a temporary basis, and then only with extremely intrusive forms of inspection. In SALT, a strategic bomber was included whether or not it actually carried nuclear weapons. Again, if both sides did not see the benefits of operational flexibility as greatly outweighing any risk of

¹⁰⁰ U.S. and Soviet inability to finalize procedures for converting Soviet Bison bombers to tanker aircraft resulted in the United States charging that the Soviets had undercut SALT II commitments by exceeding their current aggregate limit on strategic delivery vehicles. See discussion in Duffy, et al., Compliance and the Future of Arms Control, pp. 41-42.

¹⁰¹ See "Fact Sheet on ALCMs," Text released by U.S. delegation at the Moscow summit, reprinted in the Arms Control Reporter, June 1988, p. 611.D.78.

circumvention, it is hard to imagine that either would be prepared to carry the FROD concept this far.¹⁰²

With respect to cruise missiles -- the other type of aerodynamic weaponry -- scope negotiations have been plagued by asymmetrical and conflicting incentives. Since the mid-1970s, the Soviet Union has sought the inclusion of "long-range" cruise missiles within strategic agreements, most often in the extreme form of zero-level limitations on vehicles above a certain range. (A floor threshold of 600 kilometers, to which both sides agreed after the Vladivostok summit, had the effect of excluding tactical air- and sea-launched cruise missiles on both sides.) There was nothing very mysterious about the motivations underlying the Soviet position: not only have cruise missiles fared poorly relative to fast-flying ballistic missiles in Soviet offensive planning priorities, but in U.S. hands they have been seen as a major complication for Soviet air defense forces. The small size of cruise missile airframes and their zig-zag flight patterns make them extremely difficult to pick up on radar, and their high accuracy gives them great flexibility against a wide array of potential targets. For precisely these reasons, of course, U.S. planners have been loath to forfeit various cruise missile options, especially

¹⁰² Indeed, U.S. representatives reportedly have been skeptical on the utility of FRODs for this kind of differentiation. See Gordon, "The Moscow Summit," Disarmament, p. 131.

given their potential utility in theater warfare, in substituting for high-cost piloted combat aircraft, and in extending the useful life of the U.S. bomber force.

American and Soviet interests were not always this conflicted. In SALT I, cruise missiles were excluded arbitrarily along with aircraft after the May 1971 accord. In the early phases of SALT II, U.S. negotiators raised the idea of banning cruise missiles of "intercontinental range" altogether if the Soviets agreed to accept equal aggregates.¹⁰³ At the time, this was not a very painful offer because Washington had no plans to invest heavily in long-range cruise missiles. Indeed, to give the proposal an aura of plausibility, Kissinger interceded with Pentagon officials in an effort to thwart cancellation of cruise missile development plans, in particular the ALCM program. As a force enhancement to the B-52 fleet, the ALCM was not much beloved in the U.S. Air Force; many regarded it as a competitor for funding with the new B-1 bomber.¹⁰⁴ However, as is well known, Kissinger's ploy succeeded all too well, for he was unable to play this bargaining chip when the Pentagon blocked his proposal to limit sea-launched cruise missiles in return for Backfire. From that point, events conspired to make cruise missile development a high priority for U.S. defense programming. The Carter Administration's

¹⁰³ Johnson, The Right Hand of Power, p. 588.

¹⁰⁴ See Kissinger's account, Years of Upheaval, p. 273.

1977 decision to cancel the B-1 in favor of an expanded ALCM program, the 1979 NATO decision to deploy GLCMs and Pershing IIs in Europe, and, finally, the Reagan Administration's strong support for SLCM in 1981, all underscored the growing importance of the weapon.

In a situation of diametrically opposed interests, any impulse toward compromise in a bargaining situation would almost certainly favor a middle ground position, in effect to include long-range cruise missiles but within fairly permissive limits. Methodologically, however, the development of inclusion/exclusion criteria for cruise missiles has been slow; and split-the-difference solutions have not always been practical. Initially there did not appear to be a viable intermediate point between allowing ALCMs, GLCMs, and SLCMs to run free or comprehensively banning them above a range floor.¹⁰⁵ In the wake of Vladivostok, the Soviets insisted that each ALCM deployed on bombers should be counted against the 2,400 ceiling on strategic delivery vehicles. U.S. officials thought the

¹⁰⁵ The range "floor" initially was set at 600 km (372 miles) at Vladivostok. This had the effect of excluding older Soviet SLCMs, such as the SS-N-12, as well as older ALCMs, which were mainly tactical and anti-ship systems. Comparable U.S. systems, like the air-launched Hound Dog cruise missile and the newer U.S. SLCM, the Harpoon, were also excluded. Ambiguities surrounding the status of the Soviet weapons spurred the interest of skeptics during the U.S. ratification hearings but did not figure prominently in the debate. See U.S. clarifications on Soviet weapons, U.S. Congress, Military Implications of the Treaty on the Limitation of Strategic Offensive Arms (SALT II), Part 2, pp. 498-499.

terms of this inclusion were ludicrous -- effectively equating individual ALCMs with highly-MIRVed ballistic missiles -- and they argued that ALCM was just another type of bomber ordnance, like bombs or short-range attack missiles. Kissinger came up with the idea of putting ALCM-equipped bombers (not the missiles themselves) into the MIRV sublimits and of limiting the range of ALCMs to 2,500 kilometers. The Carter Administration, as noted previously, latched on to this "fractionated bomber" approach to ALCM limits and secured Gromyko's agreement in 1977. Washington, however, changed its mind on the proposed limit on maximum range at the urging of Pentagon officials, who felt that it would be difficult to verify and would pose major constraints on the ability of U.S. bombers to penetrate Soviet air defenses.¹⁰⁶ The Soviets accepted this in return for U.S. concessions on other matters.

As it turned out, cruise missile range has proved to be a less nettlesome scope problem than payload. In negotiating the terms of inclusion, both sides have had to decide whether the cruise missile definition should be formulated in generic terms -- as any pilotless, aerodynamic vehicle -- or whether it should encompass only weapon-delivery systems, or whether indeed it should be restricted to solely nuclear-armed weapons. The Soviets had no problem excluding

¹⁰⁶ See comments of Gen. David Jones, *ibid.*, Part 1, p. 274; and discussion in Talbott, *Endgame*, pp. 184-185.

unarmed reconnaissance vehicles and target drones (called RPVs, or remotely piloted vehicles), and agreed on a FROD-based exemption for RPVs along with a commitment not to convert them for weapons delivery. However, they insisted on coverage for all long-range "armed" cruise missiles regardless of armament type.

This did not sit well in Washington. There were strong pressures in Congress and NATO to exempt conventionally-armed cruise missiles lest SALT hamper non-nuclear force improvement programs in the alliance. What eventually prompted U.S. officials to relax this demand and to accept essentially a modified split-the-difference solution (i.e., to exclude drones but include conventionally-armed weapons) was a concern that any exemption pegged to armament type might offer the Soviets a way to circumvent ALCM limits by upgrading non-strategic aircraft with convertible long-range cruise missiles.¹⁰⁷ Thus, from the U.S. perspective, the risks of circumvention outweighed the benefits of operational flexibility, at least with ALCMs. The degree of flexibility to be forfeited was very slight in any event, for the Soviets finally agreed to deal with GLCMs and SLCMs in a protocol to SALT II that imposed no limits on U.S. programs after 1981.

NATO's decision to proceed with land-based missile deployment had the effect of sweeping GLCMs out of the

¹⁰⁷ Talbott, ibid., pp. 224-225.

strategic arena and into the INF talks. Even so, as the prospects for reaching agreement on INF increased during the mid-1980s, the scope choices and solutions that emerged were roughly comparable to those in SALT II.¹⁰⁸ Again, both sides agreed to exclude RPVs while including conventionally-armed GLCMs. The fact that INF systems were to be banned entirely made the choice of including conventional GLCMs a focal point for some criticism.¹⁰⁹ In defending its choice, the Reagan Administration stressed that it had no plans to deploy conventionally-armed GLCMs in any event, and that exclusion would have adversely affected the conventional balance and given the Soviets a loophole for maintaining a nuclear GLCM option under the guise of a conventional program.¹¹⁰ To compensate somewhat for this decision, U.S. negotiators sought provisions in START to safeguard the option of deploying conventional or shorter-range nuclear-armed ALCMs for theater use outside the START

¹⁰⁸ With one slight variation: the range "floor" in the INF Treaty is not 600 but 500 kilometers.

¹⁰⁹ See, for example, criticisms of a study group chaired by Frank Gaffney and Richard Perle, "Article-by-Article Review of the INF Treaty," AEI Occasional Papers (Washington, D.C.: American Enterprise Institute, February 1988), p. 2.

¹¹⁰ See comments by Ambassador Max Kampelman in "Administration's comments on Senate Armed Services Report," contained in U.S. Congress, Report of the Senate Foreign Relations Committee, The INF Treaty, 100th Congress, 2nd sess. (Washington, D.C.: U.S. GPO, 1988), p. 510. It is also worth noting that Ambassador Maynard Glitman stated (p. 60) that the United States could distinguish between GLCMs which were drones and those configured for weapons delivery.

agreement.¹¹¹

Undoubtedly, SLCMs have presented the most difficult problems with respect to payload-based scope determinations. Until the Reykjavik summit, when both sides agreed on the need to deal with SLCMs in some fashion, albeit outside the formal structure of START, the United States assiduously had sought to exclude SLCMs from the negotiating scene altogether. The U.S. line of reasoning was that verifiable distinctions between the nuclear and conventional versions of the U.S. Tomahawk SLCM and comparable Soviet systems were not possible but that -- unlike the INF Treaty -- conventional weapons in principle ought not to be addressed in START. From the U.S. perspective, the conventional SLCM option has always been a real one; whereas conventionally-armed ALCMs and GLCMs were never high priorities, most of the U.S. long-range SLCMs already deployed are conventionally-armed, and well over three-fourths of the Navy's total planned buy of 4,000 SLCMs are earmarked for conventional anti-ship and land-attack missions. Correspondingly, the idea of suppressing conventional SLCMs in order to thwart a potential circumvention risk has not hitherto been very persuasive for the United States because current and near-term Soviet

¹¹¹ For example, in START, the United States sought to exclude ALCMs of any type below a range of 1,500 km, rather than the old threshold of 600 km. See Gordon, "The Moscow Summit," p. 130. Subsequently, this range was dropped to 1,000 kilometers.

systems -- the SS-N-21 and the larger SS-NX-24 -- are believed to be nuclear-only weapons.¹¹² For these reasons U.S. officials have sought to deflect any comparisons between the SALT and INF treaty outcomes and possible outcomes for SLCMs in START. During the INF Treaty ratification hearings, then Secretary of Defense Frank Carlucci exhorted Congress to "resist the demands of logic, at least in this stage of negotiations" with respect to SLCM.¹¹³

Yet, it is hard to imagine how serious conflict between the imperative of flexibility, on the one hand, and the concern over treaty circumvention, on the other, can be avoided over the long-term. Under the phase 1 START agreement, the United States has proposed that both sides issue "politically-binding" (i.e., not to be ratified) declarations on projected nuclear SLCM deployments over a five year period. The numbers are to be updated annually; no verification is required. This approach builds a modest degree of transparency into SLCM deployments but represents a deferral of hard choices for the future. Pressures for limits of some form are likely to grow. Open-ended exclusions for nuclear SLCM in the context of deep cuts elsewhere are bound to be seen as a circumvention problem in

¹¹² "U.S. and Soviet SLCM Programs," in Arms Control Today, Vol. 19, No. 3 (April 1989), p. 12.

¹¹³ U.S. Congress, The INF Treaty, p. 70.

its own right, even if R&D on newer generation systems is cut back as a result of unilateral restraint on each side. The USSR sees the current U.S. SLCM program as a surprise attack threat that it cannot fully counter with early-warning systems or anti-submarine measures.¹¹⁴ And in time, with more advanced SLCMs deployed on both sides, strategic planners might regard the SLCM even more seriously than today.

Nevertheless, the terms of SLCM inclusion -- either in START or in a naval nuclear arms control negotiation (which the USSR has proposed in the face of stiff U.S. objection) -- remain difficult to identify. Open-ended inclusion of all SLCMs would almost certainly require offsetting steps to dampen the adverse effects on operational flexibility, probably in the form of very high aggregate ceilings or elaborate schemes for segregating nuclear- and conventionally-armed weapons on different platforms. Clearly, however, very high ceilings would make a mockery of the whole idea of restraint; and any sublimit focused exclusively on nuclear SLCM would raise again all the daunting problems of distinguishing between nuclear and conventionally-armed SLCMs and of precluding covert upgrading through conversions. As for some kind of split-

¹¹⁴ Thus, Shevardnadze said "the easiest way to launch a surprise attack is from the sea." Paul Lewis, "Moscow Urges Sharing of Naval Data," The New York Times, February 13, 1990, p. A10.

the-difference approach, such a regime, even with very intrusive inspections, would not provide much breakout insurance in the presence of unlimited numbers of conventional SLCMs that have any dual-capability at all.¹¹⁵ What is more, if the convertibility option really were only available to the United States, it is hard to see the Soviets accepting such an asymmetrical outcome.

Ultimately, the minimum price for excluding conventional SLCMs from strategic arms reductions may be to ban nuclear SLCM entirely. In a somewhat different context the SS-16 missile was banned as a minimum condition for verifiably excluding SS-20 launch systems from the SALT II ceilings. Such a step would, in effect, concede that nuclear-armed land-attack SLCMs are less uniquely important to U.S. security than the flexibility that conventional SLCMs offer in anti-ship and related naval warfare mission areas, and that a ban would be the surest way of preventing future generations of conventional SLCMs from providing a base for ready convertibility. Even here, though, intrusive forms of verification at airframe production and warhead-mating facilities and ports would probably be required to assure a "clean" (i.e., non-nuclear) logistics flow, and occasional ship-board inspections may be needed to verify

¹¹⁵ This would be the case even if conversion of conventionally-armed SLCMs to nuclear status could not take place on board ships at sea; sea-borne loading of covert stocks could not be ruled out.

the absence of any nuclear SLCMs introduced surreptitiously from covert stocks or production.¹¹⁶

Ironically, operational exigencies may exert a stronger constraining effect on the surreptitious conversion of conventional SLCMs than legally-binding treaty commitments ever could. Most SLCM-specific cheating scenarios overlook the conflicting pressures which weigh upon planners in a situation of deep crisis or war. In a very fundamental sense, dual-capability is a two-edged sword in the maritime domain. To convert large numbers of conventionally-armed SLCMs to nuclear status is by definition to impose penalties on the anti-ship, anti-submarine, and conventional land-attack capabilities of those vessels carrying the weapons. Facing a risk of war at sea, fleet commanders would be loath to replace or convert ordnance which is essential for these primary missions in order to put land targets at risk with nuclear weapons. Armament trade-offs are particularly acute on board attack submarines, which pose the greatest threat of undetected SLCM attack on land targets. None of this is to say that loosely verifiable scope provisions are more acceptable for SLCMs than for other types of weapons. However, the conventional-to-nuclear SLCM "upgrade" threat under most plausible scenarios is

¹¹⁶ For useful discussion, see a Working paper of the Center for International Security and Arms Control, Potential Verification Provisions for Long-Range, Nuclear-Armed Sea Launched Cruise Missiles, Stanford University, July, 1988.

probably overstated due to operational constraints.

SUMMING UP

Scope issues clearly have become more difficult and numerous in the years from SALT to START. In particular, aerodynamic and defensive weapons especially have become lightning rods for disagreement, because of the widening reach of negotiations generally (e.g., INF weapons), because of technological innovation which enables new weapons to reach across traditionally separate mission areas, and because the prospect of major nuclear reductions has heightened incentives to protect non-strategic capability through liberal exclusions. Each of the major scope issues discussed here -- non-ABM defensive weapons, radars, SLBMs, bombers, cruise missiles -- involved quite different problems of individuation. Yet all shared something in common from the bargaining standpoint: they each brought into play one party's desires to suppress real or perceived circumvention options available to the other side at minimum cost to its own flexibility. This probably is a natural impulse in any two-sided bargaining situation.

Even so, rules governing exclusion/inclusion criteria are not immune to the law of symmetrical outcomes: namely, that to preclude circumvention by one's negotiating partner one must accept constraints on one's own freedom of action; and, conversely, to maintain operational flexibility one

must be willing to cede a corresponding degree of flexibility to the other side. Both sides understood the structure of these trade-offs in a general sense; and each was forced to undertake cost/benefit calculations in assigning values to these competing priorities. In retrospect, one can see that the degree of conflict or compatibility between each side's net assessment influenced, for better or worse, the bargaining outcomes in a major way.

In cases where preference orderings generally were compatible, the outcomes were both predictable and achievable. FROD-based exemptions for heavy bombers, for example, were a logical consequence of the facts that both employed such aircraft for non-strategic missions, both wanted the flexibility to continue to do so, and both seemed to give greater weight to the benefits of this flexibility than to plausible circumvention risks. Likewise, a split-the-difference outcome for large radar stations reflected compatible preferences. Each side had great incentive to improve its own early-warning, space-tracking, and NTM systems and at the same time to suppress the other side's ability to construct ABM battle management radars. Here, the circumvention risks were greater but were thought to be manageable in the context of locational and other constraints.

By the same token, in cases where one party's desire for flexibility offered no real payoff to the other party or

-- even worse -- carried with it serious circumvention implications, bargaining incentives then were no longer congruent. The SAM upgrade taboos in the ABM Treaty and the treatment of Backfire in the SALT II Treaty were inherently hard to negotiate in large part because it was clearly the Soviet Union at which those constraints were directed. The Soviets had little incentive to cede flexibility because they faced no circumvention risk in failing to do so; the United States was not going to field thousands of SAMs and was not prepared to negotiate limits on its FBS in any event. The same kind of calculation has been seen on the U.S. side with SLCMs. The inclusion of conventionally-armed SLCMs in strategic controls has been anathema to the United States given its growing reliance upon SLCMs for non-nuclear anti-ship and power projection capability. In its view, the benefits of including SLCMs (which some argue are substantial) thus far have paled in comparison to the tangible, immediate burdens on flexibility.¹¹⁷ Overall, the consequence of asymmetrical incentives has not been to preclude agreed outcomes but to trigger attempts at complex bargaining compromises involving trade-offs in other areas (for example, including ALCMs in SALT II and START, as the

¹¹⁷ Such a perception is not immutable. There are those who regard the Soviet land-attack SLCM threat as potentially a very serious one. See discussion in Rose E. Gottemoeller, "Finding Solutions to SLCM Arms Control Problems," International Security, Vol. 13, No. 3 (Winter 1988/89), pp. 177-179; and in the same issue, Theodore Postol, "Banning Nuclear SLCMs," pp. 193-198.

Soviets demanded, but within a framework of heavy bomber limitations substantially on U.S. terms).

From the compliance standpoint, some scope rules did work smoothly. The exclusions granted to short-range SLBMs were on the whole sensible and produced the sought-after effects. The use of FRODs for distinguishing among types of bombers to date has worked without serious problems. But other rules crafted to enforce a given outcome were not necessarily adequate to the task. As illustrated by the radar controversies, certain exemptions built into the ABM Treaty were vague and prone to overbroad interpretations. The rules governing "testing in an ABM mode" required much greater refinement and clarification to be effective with respect to traditional SAM systems, not to mention exotic technologies that present ongoing challenges. And even when the direct effects of a particular scope choice were understood, in some cases they triggered unwelcome compensating steps by one side or the other to offset a loss of flexibility.¹¹⁸

¹¹⁸ The treatment of variable-range SS-11s in SALT I is a prime example. As coverage of European and Asian targets provided by SS-11s was gradually reduced as a consequence of their being traded-in for newer, dedicated ICBMs, the Soviets sought to recoup these targets by fielding a new system that would not fall into SALT quotas. The SS-20 fit this requirement. Although it was hardly an unprecedented development, given that medium range SS-4s and SS-5s had performed this mission prior to the SS-11, the SALT I outcome did contribute to the SS-20 decision. For two different views, see comments of Perle and Garthoff, in U.S. Congress, Senate Committee on Appropriations, Hearings on Department of Defense Appropriations, Fiscal Year 1984, 98th Congress, 1st sess. (Washington, D.C.: U.S. GPO, 1983), pp.

On the other hand, when compliance problems occurred, the results were sometimes salutary. The III-X command and control silos set an important standard of proof for claiming exclusions. Negotiating a common definition of "testing in an ABM mode" along with notification procedures helped to clarify permitted activity. Even the Krasnoyarsk radar issue, though now defused on the basis of a Soviet admission of culpability, has created pressure to address radar problems in a more systematic way.

In terms of methodology, the patterns of continuity and change observed in inclusion, exclusion, and split-the-difference choices have varied according to the type of criteria employed. With respect to offensive forces, scope choices pegged to a range criterion have been carried over with modest innovation in the areas of land-based ballistic missiles and long-range cruise missiles.¹¹⁹ The INF Treaty will have a positive buttressing effect on strategic missile agreements by eliminating the SS-20 and follow-on systems which fall just beneath the range "floor." There also has been a high degree of carry-over in SLBM limitations, where choices have been pegged both to platform type (i.e.,

275, 341-342.

¹¹⁹ For ICBMs, that floor is 5,500 km, and for cruise missiles, it has been 600 km pending an upward adjustment in START to 1,000 kilometers. Note that use of a range "ceiling" to differentiate between limited and banned systems -- as proposed by the United States in the late 1970s -- never caught on.

nuclear-powered) and the time of deployment (i.e., "modern" in the sense that the initial flight-test occurred after 1965). START is not likely to depart substantially from these definitional precedents. As for criteria pegged to payload-type, the choice of defining cruise missiles as "weapon delivery" systems -- in effect, excluding RPVs and including conventionally-armed weapons -- was carried over from ALCMs in SALT to GLCMs in the INF Treaty. Finally, although the rather anomalous approach of pegging bomber inclusion/exclusion to specified types of "baseline" aircraft (e.g., the B-1, Tu-95, etc.) may well be carried-over for lack of a better alternative, the practice of granting FROD-based exemptions to aircraft may become harder to sustain as bomber forces become more stealthy and begin to carry a much larger proportion of each side's strategic offensive striking power.

On the defensive side the balance between continuity and change has yet to be determined because the regime essentially has been static since 1972. It is clear that the ABM Treaty's scope rules are under increasing technological and political pressures. In the wake of controversies over early-warning radars, the split-the-difference approach based on locational criteria which characterized LPAR limitations might still be sustained; but mission-specific exemptions for space-tracking, etc., will need to be clarified to avoid abuses in the future, and more direct

forms of limitation are also possible. It may be difficult to sustain qualified exclusions for ATBMs, SAMs, and ASATs if new sensing technologies make future generations of these non-ABM systems more inherently ABM-capable without dedicated testing, or if continuation of exclusions offer a way to circumvent the central prohibitions by testing exotic ABMs under the guise of ASATs or other systems. Just what kind of alternate criteria might be employed to clarify and strengthen the scope of the ABM Treaty remains unclear, especially when both sides cannot agree on what kinds of ABM limitations, if any, will further mutual security.

In the final analysis there are no perfect solutions in reconciling the conflicting imperatives of flexibility and circumvention control. One can see in the progression of diplomacy discussed here the emergence of two operative principles for scope rule methodology. The first principle is to err on the side of inclusion unless sought-after exclusions could be verifiably justified by the side making the claim. Thus, we have seen growing reliance on FROD-like requirements in a range of cases, from heavy bombers, to command and control silos, to variable-range ballistic missiles. The second principle is that exclusions usually are not open-ended but come with "strings attached." The provisions on testing in an ABM mode, the SS-16 ban, and the collateral limits on Backfire and on older SLBMs all exemplify this principle in different ways.

Neither principle assures that the rules will be perfectly crafted or applied intelligently; both simply illustrate the natural impulse to hedge bets when facing tough choices on how narrowly or widely to cast the net of agreed limitations.

THE EMERGING VERIFICATION REGIME

Treaty verification -- historically a vexatious issue in Soviet-American negotiations -- has become a dramatic symbol of progress in recent years. Under the banner of glasnost, U.S. and Soviet personnel have observed each other's military maneuvers, witnessed the elimination of INF missiles, inspected dozens of missile support and basing facilities, and visited areas of compliance concern, such as the radar station at Krasnoyarsk. In various policy pronouncements Soviet officials have proclaimed verification as a genuine concern of their own. No longer reflexively rejecting U.S. proposals, they now advocate intrusive forms of inspection on the basis of strict reciprocity and chide the United States for proceeding cautiously.¹ Indeed, it is often hard to discern from their statements what kinds of monitoring the Soviets would actually exclude.

While the full implications of glasnost remain to be seen, changes which have already occurred are opening up new bargaining options at a time when on-site inspections appear more central than ever to successful verification practices.

¹ A Soviet commentator quipped: "Now that our country is advocating verification with the utmost clarity and is going much further than the West in this most important issue, the West disowns verification." See "U.S. Response to Verification 'More Than Reserved,'" Moscow Domestic Service, printed in Foreign Broadcast Information Service, Daily Report: Soviet Union, August 17, 1987, p. AA3.

Prior to Gorbachev, efforts to negotiate rules governing verification endured a cycle of hope and disappointment. Steps which were correctly heralded as accomplishments at earlier stages proved very difficult to apply in practice; and progress was more a product of marginal adjustments rather than of dramatic breakthroughs. Since 1985, however, the startling degree of progress achieved cannot be accounted for by normal negotiating dynamics. Old assumptions regarding Soviet attitudes -- that they would never accept intrusive inspections or negotiate verification prior to actually reaching agreements -- have been tossed out the window. This does not mean that all bargaining behavior has been superseded by the fact of wholesale Soviet concessions; disagreements persist, and the USSR has not yet achieved the degree of openness in military matters that characterizes the American situation. At the same time, the core constraints on bargaining have changed dramatically -- they are no longer simply generalized concerns about American "spying" or Soviet "cheating," but rather a host of practical obstacles to achieving trouble-free cooperative procedures that really do boost confidence in the verification of complex agreements.

It is axiomatic that verification requirements shape and constrain the range of plausible negotiating options. We have seen numerous examples since the early 1970s. SALT II's rules on ICBM modernization were whittled down to

performance parameters that were verifiable using data collected by remote sensors; conventional GLCMs were swept into the INF Treaty essentially because U.S. planners could not differentiate between nuclear and conventional variants; and the term "production" was deliberately omitted from the ABM Treaty because production-specific limits were not verifiable with any degree of confidence. Yet beyond shaping particular agreements, verification is a bargaining issue in its own right. There is a whole category of rules which speaks exclusively to verification and compliance. It was argued in Chapter 4 that while the development of NTMs reduced the Soviet-American knowledge gap and provided a strong inducement to productive bargaining, the mere fact of NTMs did not prevent verification from complicating the negotiating process. What these issues are and how rule-making evolved to deal with them are the questions to be addressed below.

VERIFICATION AND RULE-MAKING

Traditionally, data collection activities in support of verification have injected two pivotal considerations into the negotiating process. The first concerns the nature of safeguards granted to data collection activity legitimized by agreement. Quite obviously, not all information collected through intelligence methods is required for treaty verification. One can easily imagine categories of data that

are "essential," or "nice to have," or "unnecessary" for verification purposes. The problem has been to find a practical way to make such delineations for safeguarding purposes. In the past, the Soviets criticized the United States for putting an overly broad construction on verification requirements in order to improve its espionage capabilities. U.S. policymakers, in turn, criticized the Soviets for being unwilling to acknowledge the essential legitimacy of verification in the pursuit of agreements.² The shift toward reliance on NTM collection in the early 1970s did not defuse this issue. Rather, it merely led both

² Compounding this problem, in the U.S. view, has been the longstanding emphasis in Soviet military doctrine accorded to maskirovka, or deception and concealment practices (i.e., camouflage, dummy targets, feints, diversionary actions, etc.) which are designed to "mislead the enemy with regard to the presence and disposition of troops, military objectives...combat readiness and activities, and also the plans of command." See Notra Trulock III, "The Role of Deception in Soviet Military Planning," in Dailey and Parker, eds., Soviet Strategic Deception, p. 279. Quite apart from this doctrinal emphasis, specific types of strategic systems rely on high levels of concealment in their normal operational pattern. Soviet mobile ballistic missile units operate with high levels of tactical concealment because location uncertainty and stealth are critical to their survival as reserve forces in wartime. Reportedly, the movement of these mobile units in the field is restricted during periods of time when reconnaissance satellites would be passing overhead. William J. Broad, "U.S. Designs Spy Satellites to be More Secret Than Ever," The New York Times, November 3, 1987, p. C1. The Soviets are not alone in figuring out ways to avoid satellite detection. The United States also has developed operational patterns for naval and land forces aimed at avoiding or defeating detection by Soviet satellite reconnaissance in wartime. For discussion, see Paul B. Stares, Space and National Security (Washington, D.C.: Brookings, 1987), pp. 112, 133-136.

sides into some tortured line-drawing exercises -- on the one hand, to declare as legitimate certain forms of data collection, and on the other hand, to preserve the right of each side to thwart unauthorized collection of data for non-treaty purposes. As discussed below, this task proved difficult.

The second consideration raised by data collection activity has centered on the issue of compliance problem-solving, specifically the requirement for a process aimed at preempting or resolving disagreements on data ambiguities or on what the data (ambiguous or not) indicate about the behavior of one party or the other. Such a process is conceptually quite distinct from the purely unilateral question of how to respond to treaty violations which are deliberate and which continue despite protest. Both sides have recognized an intermediate area where a structured dialogue is useful in preventing minor disputes and disagreements from getting out of hand. While disagreeing at times over the requisite tools for this process, both sides have engaged in rule-making -- mainly, it should be stressed, at U.S. urging -- aimed at developing regular procedures for bilateral data-exchange and consultation.

In the following sections I examine the evolution of rule-making methodology in these areas. I then turn to consider the implications of the trend toward intrusive inspection techniques represented in INF- and START-era

agreements.

Data Collection Safeguards

Even before the SALT I negotiations had made any real progress on substance, the outlines of a deal on verification had already fallen into place. The Soviet government, as noted in Chapter 4, had begun to see NTMs as a fact of life in superpower relations and entered the talks voicing an explicit preference to tailor SALT and ABM provisions to "national means" of verification. The United States had already reached essentially the same conclusion, although it did not concede the possibility of selected forms of on-site inspection (OSI) for problem-solving purposes until later on in the talks.³ Without much fanfare, agreement was reached on language specifying that each party should use "national technical means of verification at its disposal," along with the Soviet-sponsored caveat that NTMs be used "in a manner consistent with generally recognized principles of international law."⁴ This obligation embodied the core principle for verification: that arms agreements impose a requirement to permit the unimpeded collection of information on treaty-limited forces (even those not dismantled but remaining after reductions) in order to

³ In SALT I OSI was euphemistically called "selective direct observation" (SDO), see Smith, Doubletalk, p. 134.

⁴ The ABM Treaty, Art. XIII, para. 1; and the SALT I Interim Agreement, Art. V, para. 1.

confirm claims of compliance. The NTM formulation has proved quite durable and was carried-over into SALT II and adopted by the Reagan Administration with minor modifications for the INF Treaty. The phase 1 START agreement is not likely to change the formulation much.

Given the inextricable links between verification and intelligence functions, it is noteworthy that the NTM formulation has been quite impervious to the seemingly immutable trend toward ever greater specificity in most aspects of treaty drafting. Indeed, in a kind of conspiracy of silence, each side has deliberately avoided pressing the other for disclosure of its NTM capabilities or for specific enumeration of collection practices that would run afoul of international law. Over the years, the American position has been that it was not prepared to itemize NTM systems for the Soviets, and that partial disclosure would only call attention to systems not included and remove them from any protection afforded by agreements. U.S. officials generally have eschewed any definition of NTMs more specific than "technical information collections systems" used for verification which "operate outside from the national territory of the other side."⁵ There also has been a strong

⁵ See comments of then Secretary of Defense Harold Brown, U.S. Congress, The SALT II Treaty, Part 2, pp. 279-280. Even the existence of photo-reconnaissance satellites was not officially acknowledged by the United States until 1978. See Remarks by President Jimmy Carter at the Kennedy Space Center, October 1, 1978, Weekly Compilation of Presidential Documents, Vol. 14, No. 40 (October 9, 1978), p. 1686. For an overview of U.S. NTMs,

desire in Washington to tiptoe around the politically sensitive issue of intelligence facilities based in third countries (e.g., China, Cuba, Turkey), since disclosure of these in negotiated agreements would imply a form of endorsement which would be awkward for both sides -- especially Moscow -- and probably very controversial in the affected countries.⁶

From outward appearances the USSR has seemed quite content to live with the ambiguities surrounding NTMs. There is evidence to suggest the Soviets were fearful that disclosures would inflame resentments among third world countries toward superpower surveillance without their consent.⁷ Although in counter-intelligence terms the Soviets would have benefited from excluding as legitimate any NTM system which the Americans were not willing to reveal, it is doubtful they were prepared to make reciprocal disclosures. Moreover, as NTM operators themselves, the Soviets well understood that there is no inherent way to disentangle the intelligence and verification functions of these systems.

see Jeffrey T. Richelson, The U.S. Intelligence Community (Cambridge, Mass.: Ballinger, 1985), and David Hafemeister, "Advances In Verification Technology," Bulletin of the Atomic Scientists, (January 1985), pp. 35-40.

⁶ Brown, Ibid.

⁷ See Stuart A. Cohen, "The Evolution of Soviet Views on SALT Verification: Implications for the Future," in William Potter, ed., Verification and SALT: The Challenge of Strategic Deception (Boulder: Westview, 1980), p. 54.

Couching their endorsement of NTMs in a general, oblique way helped them to finesse the awkward fact that they were consenting to militarily-significant reconnaissance of their territory and departing from their historic opposition to the idea that verification rights should legitimize such practices.⁸ In this regard the pointed reference in treaty language to "generally recognized principles of international law" made it quite clear that certain monitoring techniques would still be off limits as tools for treaty verification. International law recognizes the right of a state to forbid intrusions into its national territory, including overflights by reconnaissance aircraft or eavesdropping by submarines from within territorial waters.⁹

In fending off pressures from the Congress for further clarification, U.S. officials have claimed that both sides in fact do have a good working definition of the systems and practices which encompass NTMs. Reportedly, the Soviets have acknowledged NTM "architecture" in its broad contours, including not only reconnaissance satellites, but also ships, aircraft, ground-based radars, and intelligence stations based in third countries.¹⁰ The absence of counterindicative evidence tends to back up such claims.

⁸ Author's interview with Gerard Smith, July, 15, 1983.

⁹ George Bunn, "Open Skies for Missile Killers?," Arms Control Today, Vol. 17, No. 4 (May 1987), pp. 15-16.

¹⁰ See summary of Brown's remarks, U.S. Congress, The SALT II Treaty, p. 195.

Arguably, any number of unhappy events could have put the presumptive accord in jeopardy. One party or the other could have attempted to justify direct interference with a data collection system on the grounds that it was not covered by agreement, or that information regarding a specific compliance issue was impermissibly collected. So far as is publicly known, however, justifications of this kind have not been used in compliance disputes. In the meantime, the Soviets have opened up markedly in their willingness to consider initiatives on the peaceful uses of remote reconnaissance.

Apart from firming-up a legal base for treaty-related technical collection (even while not disclosing its exact nature), the familiar construction of the verification rule has included certain immunities for NTM systems operating in accordance with agreements. In SALT I the Soviets accepted a U.S. proposal that both sides not "interfere with" systems engaged in legitimate monitoring. Since neither the forms nor the purposes of legitimate interference were specified in agreed treaty language, this prohibition has a broad scope: any effort to actively defeat a remote sensing system -- destruction, jamming, "blinding" with lasers, etc. -- would be covered; and any activity with interfering effects, whether or not its purpose was malign, would also be barred. The only operative constraint on the non-interference pledge is the scope of the treaty itself. Outside the ambit of a

treaty, both sides implicitly reserve the right to counter systems deemed to be acting in a hostile manner, including non-reconnaissance systems (e.g., direct broadcast satellites, space-based weapons) as well as remote-sensing systems engaged in non-verification data gathering activity.

Again, however, the presumptive boundary line between legitimate and illicit NTM reconnaissance has not been tested to date in any significant way. A U.S. photo-reconnaissance satellite over the Soviet Union was temporarily blinded in 1975, but this was later determined to have been caused by the explosive rupture of a natural gas pipeline, not a ground-based laser attack.¹¹ There have also been reports of Soviet efforts to jam U.S. space- and airborne systems engaged in collecting data on Soviet radar signatures and other activities; but bilateral tensions over such practices have never slipped over into treaty-related disputes in any major way.¹² While the absence of direct interference may be more indicative of fears of retaliation than devotion to the rule of law, this is not of course unique to verification; in a fundamental sense, all of arms

¹¹ U.S. Department of State, Compliance with SALT I Agreements, pp. 5-6.

¹² In 1984, Assistant Secretary of Defense Richard Perle noted in statements to Congress that the Soviets had engaged in activities "which might be characterized as interfering with" NTMs, but stated only that the U.S. government was studying whether these would constitute violations. None was ever charged. See U.S. Congress, Soviet Treaty Violations, p. 40.

control is underwritten by fears of reciprocal noncompliance. The important point here is that deterrence and legal principles have worked together to establish a basic norm against routine interference with NTM in peacetime. Meanwhile, the basic rule of non-interference has been carried-over into successive agreements from SALT to START.

Fencing-in Concealment

The other route to defeating verification -- through concealment -- has been more nettlesome. It was one thing to give NTMs a free ride; they were already operational in any event. But for years Soviet negotiators showed no interest in giving equal scope to guarantees against concealment. In SALT I, they objected in particular to a U.S. proposal banning covered facilities for submarine construction, and expressed a general concern that the United States would exploit an unqualified ban on concealment to challenge long-standing construction and basing practices on the excuse that NTM observation was somehow being curtailed. U.S. negotiators at the time stated that then-current Soviet practices did not impede verification of the SALT I and ABM agreements and could be expressly exempted. The concealment provision would therefore apply only to future alterations. With this "grandfather" clause in place the Soviets went along. As it turned out, however, the final agreed language

specifically forbade "deliberate" acts of concealment which "impede" verification, not a broader category of activities that might have incidental concealing effects.¹³

Soon after SALT I and the ABM Treaty came into force, irritations began to flare up regarding implementation of the non-concealment provisions. As noted in Chapter 3, the Soviets objected to U.S. installation of prefabricated aluminum shelters over ICBM launch silos undergoing renovation, charging deliberate concealment, and U.S. officials complained about a heightening pattern of concealment activities at Soviet ship yards, test ranges, and other areas, which threatened to impede verification. In each of these cases the issue of intentionality was contested. U.S. officials defended the shelters, insisting that their purpose was not to conceal but to provide environmental protection for workers. It was illegitimate, they reasoned, for the Soviet Union to allege any concealing effects when the activity had other aims and did not really reduce in any significant way Soviet knowledge of which

¹³ For background, see letter to Senator John Glenn from J. Brian Atwood, Assistant Secretary of State for Congressional Relations, in U.S. Congress, Senate Committee on Foreign Relations, The SALT II Treaty, Part 5 (Washington, D.C.: U.S. GPO, 1979), p. 300. The treaty language exempting existing practices in the ABM Treaty, Art. XII, para. 3, provides that: "this obligation (against deliberate concealment) shall not require changes in current construction, assembly, conversion, or overhaul practices."

missiles were in which silos.¹⁴ While this was not an unreasonable position, it prompted the Soviets to respond in a tit-for-tat manner. When the U.S. side registered complaints concerning the covering over of submarine construction areas, Soviet officials claimed that these actions were dictated by weather and other considerations entirely unrelated to concealment. The proper baseline for measuring changes in construction and related practices that might impede verification was also contested. Washington argued that the Soviets were altering the preexisting baseline in unacceptable ways by stepping up activities with concealing effects; similarly, the Soviets took note of the fact that the offending U.S. silo shelters were much larger than those constructed for similar tasks in the 1960s.¹⁵

Generally, concealment remained a bone of contention throughout the 1970s. The Soviet activities cited by the United States for their treaty-relevant concealing effects did not expand to the point where verification became impossible, but neither did they taper off. The United

¹⁴ According to Duffy, et al., the Soviets may have had difficulty monitoring the flow of materials entering or leaving the silo area because of the shelters. The Soviets complained that the problem of differentiating between MIRVed and unMIRVed versions of Minuteman missiles was already difficult with NTMs, and that the shelters exacerbated the problem. See Duffy, Compliance and the Future of Arms Control, p. 50.

¹⁵ The shelters increased in size from 300-700 square feet to about 2,700 square feet. U.S. Department of State, Compliance with SALT I Agreements, p. 4.

States voluntarily reduced the size of its ICBM environmental shelters in 1977, but this did not soften Soviet opposition to them appreciably. Increasingly, concealment-related compliance matters were channeled into the ongoing SALT negotiations for resolution. Some new treaty language resulted: both sides agreed that shelters which impeded verification would be banned under SALT II; the modalities of deliberate concealment were spelled-out in more detail; and the SCC was given expanded authority to discuss unintentional acts of concealment with impeding effects. But these were minor adjustments and ameliorated the situation only marginally. Moreover, in the area of missile flight-testing, SALT II was generating new burdens of its own.

By 1977, both sides had begun work on qualitative controls on ICBMs. As part of this effort, the United States sought explicit agreement with the Soviets to extend SALT I's non-concealment rules to the flight-testing of ballistic missiles. This was a logical step, for the Soviets had defended some of their concealment measures (e.g., covering ICBM test launchers) on the grounds that testing was not covered under SALT I. Still, a number of awkward problems arose. Because little was publicly known about U.S. telemetry collection techniques at the time, the United States adamantly opposed specifying data requirements precisely lest these assets be compromised. Meanwhile, the

Soviets had no enthusiasm for the idea of legitimizing by treaty what they suspected to be an extensive eavesdropping campaign aimed at their most important class of strategic weapon. To make matters worse they had already begun encrypting portions of their telemetry broadcasts in 1974, in effect concealing that information from American NTM operators.

When the issue was first broached, the Soviets flatly denied that test data were essential for the verification of limits on new types of ICBMs; data collection in this area, they argued, was espionage pure and simple. After much U.S. pressure, they finally budged on the idea of telemetry collection in principle but with the proviso that they not be required to alter existing test practices. This, however, was unacceptable to the U.S. side because Soviet encryption techniques already were hampering the verification of provisions then under negotiation. How much it was hampering data collection was something that U.S. negotiators were not authorized to disclose, for security reasons. Nor, in light of SALT's limited scope, could they plausibly assert that all telemetry data were required for verification; to do so would simply have lent unwanted credence to the long-standing Soviet argument that the United States was using

verification as a subterfuge for intelligence gathering.¹⁶ In the end, after much wrangling, a complex set of compromises was worked out: both sides agreed to a general obligation not to use deliberate concealment associated with test practices (thus extending verification to the testing stage of weapons acquisition), and both agreed on a cumbersome split-the-difference formulation that acknowledged a right to encrypt -- as the Soviets demanded -- except when it impeded verification.¹⁷ However, the treaty gave no precise meaning to the term "impede" and was silent on the specific kinds of telemetric data (i.e., on fuel consumption, engine temperature, booster velocity, simulated RV releases, etc.) required for verifying the ballistic missile parameters controlled by SALT II, such as throwweight and warhead fractionation.

This outcome presented an opportune target for criticism. Some argued that the treaty's formal sanction of encryption, in effect removing the taboo, was unwise in

¹⁶ As it was, U.S. Air Force officials wanted to retain the option of encrypting portions of MX flight-test data, and strongly opposed a blanket ban on telemetry encryption.

¹⁷ The relevant SALT II language provides that: "Each party is free to use various methods of transmitting telemetric information during testing, including its encryption, except that, in accordance with the provisions of paragraph 3 or Article XV of the Treaty, neither Party shall engage in deliberate denial of telemetric information, such as through the use of telemetry encryption, whenever such denial impedes verification of compliance with the provisions of this Treaty."

precedential terms, while others asserted that the provisions gave too much leeway to the Soviet Union to decide for itself what data were necessary for verification.¹⁸ Standing alone, such criticisms had merit. Ideally, the treaty should have sought to relate data requirements to specific controls. Again, however, in the bargaining context of 1978-79, U.S. options were sharply constrained. The U.S. government was not prepared to advocate a total encryption ban or to specify data requirements in any direct way. Officials in Washington were under no illusions that the problem had been definitively settled. Their expectation was that the job of establishing a precise compliance standard would have to await further interactions in the SCC. There, both sides would work through the issue in an iterative fashion, aiming to define a general baseline of permitted encryption on the basis of successive Soviet and U.S. flight tests without having to discuss particular data requirements in each case. In retrospect this strategy almost certainly represented the most reasonable -- or, more aptly, the least worst -- option available given the sensitive disclosure issues involved; but it was premised upon a fully functioning agreement and aggressive implementation discussions in the SCC, neither of which materialized.

¹⁸ See, e.g., Perle, "What is Adequate Verification?," p. 63.

During the early Reagan years any pretense of a common approach on verification quickly fell apart. With SALT II only being observed informally by the United States, the Soviets had few qualms about pressing the gray areas of the verification provisions to the maximum extent possible. They stepped up their encryption practices during flight-testing of their SS-N-20 SLBM, the SS-24 and SS-25 ICBMs, and other systems. Some U.S. officials characterized this expanded effort as "nearly total."¹⁹ In response to U.S. complaints, the Soviets did not deny what they were doing but argued that the precise nature of the data denial was still not sufficient to impede verification or to undercut the informal SALT adherence regime. In a matter-of-fact way, they invited the United States to take a step which they knew quite well it was loath to take -- to specify which channels of telemetry should be broadcast unencoded. This stand-off effectively froze the situation until, as seen below, political relations began to improve after 1985.

Compliance Management:
Data-Exchange and Consultative Procedures

Controversial though it was, the concealment problem was not the only challenge facing verification-related diplomacy in the pre-glasnost era. The architects of SALT-era agreements also attempted to set up an

¹⁹ Weinberger, "Responding to Soviet Violations," p. 7.

infrastructure of procedures for relating unilateral judgments on verification to a process of compliance management. Initially, the purposes and effects of such rules were not self-evident. There was no commonly understood requirement for any kind of cooperative action other than to make sure that NTMs could do their job effectively. Perceptions did begin to change, both during the SALT I negotiations and subsequently, in part as a result of compliance disputes. Even then, however, it was mainly the United States which took the diplomatic initiative; progress on cooperative action depended on how quickly the Soviets could be brought along.

Data-exchange represented an important aspect of cooperation, though not one that both sides agreed on, even in principle, early on. Throughout the SALT I negotiations and well into SALT II the Soviet side adamantly opposed providing any information on the size or disposition of its strategic forces. Soviet negotiators stated that NTMs sufficed for verification purposes and that any disclosures on their part were completely unnecessary. Their general attitude was that arms negotiations imposed no obligation on them to assist U.S. intelligence by confirming the accuracy of its estimates, and that it was illegitimate for the United States to exploit the talks for that purpose. So powerful was the Soviet internal requirement to avoid data disclosures that it forced them into some silly situations,

for example, using U.S. numbers when force levels were discussed and even referring to Soviet weapons by their Western code names (e.g., Bear bombers, SS-9 missiles). If such behavior seems absurd by today's standards, it reflected the awkward facts that American diplomats of that era were more familiar with the details of Soviet weaponry than were many of their Soviet counterparts, and that the kind of information being discussed was highly classified inside the USSR. Aware of this situation, the U.S. side did not press the Soviets on their lack of candor, and indeed accepted it tacitly as the cost of doing business with them. The Soviets, after all, had taken the singularly important step of accepting NTMs; anything else paled in comparison to that.

As it turned out, however, the idea of relying solely on U.S. data did not go over well in the U.S. Congress. Senator Jackson was highly critical, citing the lack of declared figures as an egregious omission. He asked Secretary Laird: "How are you going to enforce, by our own verification means, a number of 1618 [the Soviet ICBM total] if you cannot point to any written document which says that the Russians have agreed to that number?" Repeated assurances by Laird and others that there was no misunderstanding with the Soviets on deployed force levels only spurred Jackson on: "Suppose they come back and say, 'You think you have discovered silos constructed after July

1 [the freeze date]. But those silos were under construction prior to July 1. Where is your evidence?'²⁰

Subsequent events during 1975-76 showed that Jackson's criticisms were not misplaced. Misunderstandings could have been avoided if the Soviets had been willing to offer clarifications. Some of the Soviet ICBM silos included in U.S. totals, as noted earlier, turned out to be the III-X launch control silos; and the ABM test range at Kamchatka, whose existence was neither confirmed nor denied by the Soviets in 1972, was nonetheless later asserted by them to be "already there" when the agreement was signed. Although neither of these matters posed substantial compliance problems, it irritated many in Washington to think that the Soviets had stood by in silence in the face of U.S. data which they knew contained inaccuracies. Such behavior plainly contradicted the cooperative spirit which many Americans thought SALT was supposed to exemplify.

Consequently, by the mid-1970s, substantial pressures were building up on the American side for some form of data-exchange in SALT II. It was especially important for domestic political reasons to remove the glaring one-sided reliance on U.S.-supplied data that had led to the cat-and-mouse game in SALT I. Substantively, there was a clearer need both to preclude genuine misunderstandings in

²⁰ U.S. Congress, Military Implications of the Treaty on the Limitations of Anti-Ballistic Missiles, pp. 206-207.

counting as well as to remove tempting opportunities to juggle the figures to one's own advantage. Seen this way, data-exchange thus was really more of a tool for compliance management than for verification per se. National verification was no less paramount because of data-exchange; it was still necessary to authenticate any information received through an exchange.

In spite of all this the Soviets remained hostile to any formal data-exchange until the advanced stages of SALT II. They treated the issue as little more than an annoying symptom of American litigiousness. Evidently, only flat-out political pressure applied by various U.S. congressmen during meetings with the Geneva delegations began to soften Soviet opposition.²¹ In 1978, the USSR floated an offer to release data in exchange for U.S. concessions on other issues. The U.S. side objected; it had no intention of conceding points on substance in return for legitimate verification needs. The Soviets then began to release information in small doses, first on the numbers of their heavy bombers, then ICBMs and, later on, MIRVed ICBMs. While haggling over the details the Soviets also agreed to an obligation to update periodically the information once the agreement came into force; and they declared the number of

²¹ The Soviets almost certainly took notice when a moderate pro-SALT Republican Senator, Charles Mathias, told Soviet negotiators that there was "no way" the Senate would vote for the SALT II Treaty without a data-base. See Talbott, Endgame, p. 96.

MIRVs on each type of strategic missile, in accordance with the fractionation freeze, identifying missile types with their own code-names for the first time. This unc customary display of openness stopped at the point of disclosing any data on missile performance which could have helped to clarify the effects of limits on new types and heavy ICBMs.²² Nonetheless, the achievement of a quantitative data base for SALT II was a highly consequential first step, for it signified not merely a new technique in compliance management but an important corollary to the data-collection principle -- specifically, that in addition to NTM monitoring there should be an agreed point of comparison, or a "baseline" count, against which to make determinations of compliance. This was a precursor to the dramatic cooperative steps that have been taken in recent years.²³

In contrast to data exchange, the evolution of rules

²² Under SALT II, the Soviets acknowledged the SS-19 as the largest Soviet light ICBM, thus establishing it as the dividing line between light and heavy missiles, but would not confirm or refute U.S. estimates of the SS-19's launchweight or throwweight. U.S. officials argued that bilateral agreement on absolute values for performance parameters was not really necessary since the treaty only restricted changes in those parameters. See U.S. Congress, The SALT II Treaty, Part 6, p. 553. While this was true in a strict monitoring sense -- i.e., the United States could measure change without a clear knowledge of the precise value -- this was a weak argument in terms of compliance management, for an agreed baseline was still necessary in order for one party or the other to mount a challenge that some sort of change had occurred.

²³ Former Ambassador Ralph Earle II makes this argument in greater detail in "The INF Treaty is not Really so Novel," The Washington Post, December 5, 1987, p. A25.

governing consultative diplomacy prior to 1985 followed a different path: from initial agreement, to disputes, to stalemate. Initially, the bargaining focused on establishing a permanent consultative mechanism -- the SCC -- whose charter was spelled out in the ABM Treaty and the interim accord on offensive weapons. Under the agreements reached, both sides gave their representatives in the SCC authority to discuss compliance issues and ambiguous situations bearing on treaty obligations; to provide data on a voluntary basis as either party considered necessary to assure compliance; to consider questions involving unintended interference with NTMs; to discuss changes in the "strategic situation" which have a bearing on agreements; to elaborate procedures for dismantling of weapons; and to consider ways to increase the viability of existing agreements as well as further measures aimed at limiting strategic arms.²⁴ Bilateral agreement on these functions was reached quite readily, generally on the basis of American proposals. In only one area -- alas, on the provision of data -- was there any real difference of view. The U.S. side sought a broad obligation to provide data pursuant to a particular request, but in the face of Soviet objections eventually agreed to the less binding formulation that such

²⁴ The ABM Treaty, Article XIII, para. 1.

data could be provided "on a voluntary basis."²⁵

Subsequently, both sides worked out a set of implementing regulations, specifying that the SCC would convene at least twice a year and that its deliberations would not be disclosed publicly except by mutual consent.²⁶

Although the SCC was acclaimed by both sides as a significant achievement of SALT I, neither had entered the talks with any specific design in mind for a consultative mechanism. Ambassador Gerard Smith has observed that the SCC emerged as a "creature of dynamism at lower levels" in the SALT delegations.²⁷ What surprised some was the broad scope of the SCC charter which went well beyond its declared aim "to promote the objectives and the implementation" of the SALT I and the ABM agreements. The Soviets appeared very keen on having a permanent body which would symbolize a continuous dialogue between the superpowers. Empowering the SCC to consider new types of strategic arms limitations and to discuss strategic trends relevant to agreements clearly accorded with this conception. U.S. negotiators tended to view the SCC as a non-polemical channel for experts to tackle the technical minutiae of treaty implementation, like

²⁵ Author's interview with Sidney Graybeal, July 11, 1983.

²⁶ U.S. Arms Control and Disarmament Agency, "A Concise History of the Standing Consultative Commission (SCC)," June 30, 1980, pp. 1-2 (mimeo).

²⁷ Author's interview with Gerard Smith, July 15, 1983.

weapons dismantling, which might either bog down more free-wheeling negotiations at higher levels or be glossed over to the detriment of both sides.²⁸ While this U.S. view suggested a somewhat different emphasis in SCC operations, it was not inconsistent with the idea of giving the institution a broad purview. To the contrary, the U.S. side thought it was very beneficial to develop a close, compatible linkage between the political symbolism and technical requirements of arms control diplomacy. Conceivably, the SCC could play both roles.

During the 1970s SCC representatives performed several important tasks, all in accordance with the charter, without much acrimony or fanfare. As noted previously, the SCC was a useful venue for the negotiation of dismantling procedures for SALT I and the ABM Treaty. A number of sensitive compliance matters were discussed in a non-confrontational way. In some of these cases the discussions were followed by a cessation or adjustment of activities of one side or the other; in other cases data were exchanged to clarify contentions or allay concerns. Not all such discussions led to a meeting of the minds or to more than perfunctory explanation and response. Yet compared to other negotiating fora, the Soviets were more forthcoming in the SCC in providing data to support specific contentions, for instance

²⁸ Author's interview with Sidney Graybeal, July 11, 1983.

on the purpose of their III-X launch control silos. Finally, although the SCC was not used to negotiate new limitations, its delegates were reasonably successful in elaborating agreed interpretations of practices like "testing in an ABM mode," which had not been fully defined in existing agreements.

Under SALT II, it was agreed that U.S. and Soviet SCC representatives would be given authority to negotiate FROD-like criteria for heavy bombers, to update the newly created data-base, and to look into concealment where the deliberateness of the activity in question was not fully established. This expansion of the SCC's jurisdiction, reflecting its growing reputation as a useful venue for problem-solving and technical consultation, never materialized once it was clear that SALT II would not be formally implemented. The failure of SALT II marked a downturn in the fortunes of the SCC. Quiet, sequestered deliberations soon gave way to acrimonious charges and countercharges of treaty violations. To a degree, the SCC's reputation was tarnished because it was the place where such matters were supposed to be discussed, and neither side was prepared to agree on how to deal with the issues on the agenda. But some argued that the SCC mechanism was not merely an innocent bystander; it inherently was a part of the problem. Several facets of the SCC's design heightened its vulnerability to the criticism of being "fatally

flawed."

Without question, a key ingredient in the SCC's operational routine -- the confidentiality rule -- hampered efforts within the United States to maintain political and public confidence in its effectiveness. The fact that the imperatives of confidentiality and public confidence would conflict in such a direct way was not fully appreciated at the time the SCC was created. Indeed, a degree of compatibility had been presumed. American negotiators had strongly favored the idea of keeping SCC deliberations confidential as a way to promote frank discussions and to avoid kneejerk Soviet reactions when serious compliance issues were raised by the United States. If a degree of privacy could help SCC operations, they reasoned, it would necessarily promote confidence that agreements were operating as expected -- or so it seemed. Yet the way it turned out in practice was quite different. The privacy requirement not only impeded efforts to publicize the successful aspects of SCC work, it was portrayed by critics as a tool by which American policymakers could shield themselves from the political consequences of failing to close loopholes in agreements or to react more forcefully to alleged Soviet transgressions. Although it greatly exaggerated the actual situation, the "cover up" criticism gained a veneer of plausibility for two related reasons.

First, the process of working intelligence judgments through the network of checks and balances within the U.S. executive branch proved frustratingly slow. In cases where the data were sparse or fell below a widely accepted evidentiary standard, U.S. moves in the SCC were delayed for a period of time until there was consensus on how to proceed and how much to reveal to the Soviets. Predictably, the critics branded this caution as a form of complacency that only encouraged the Soviets to test U.S. resolve. Second, there were decisions taken on several occasions by White House officials during the Nixon-Ford years to withhold the circulation of sensitive intelligence relevant to Soviet compliance from normal government channels. Ostensibly intended to prevent unauthorized leaks, this practice ultimately was self-defeating. Not only did it vastly complicate routine intelligence reporting within the government, it inspired enormous controversy and a lasting legacy of suspicion once it became known.²⁹

Overall, the SCC experience through the mid-1980s illustrated the intrinsic difficulties of attempting to decouple compliance management practices from the larger political context. While some privacy facilitated productive interaction, keeping the "products" of SCC discussions

²⁹ A criticism of this practice was included in testimony by former U.S. intelligence official Ray S. Cline, to the U.S. House of Representatives, Select Committee on Intelligence, December 17, 1975 (mimeo).

secret encouraged suspicions.³⁰ While some degree of caution was essential to protect sources and to avoid needless challenges, too much of it incurred charges of delays and cover-ups.

Perhaps the larger issue in compliance management is the question of cooperation versus confrontation, of carrots versus sticks. Depending on circumstances, both approaches clearly have a place. But mechanisms like the SCC operate only in the cooperative mode. Because they can impose no sanction against, say, a failure to clarify ambiguous behavior or the stonewalling of legitimate concerns, mechanisms like the SCC offer few tangible benefits unless each party is committed to affirmative action in support of a treaty regime. Thus, while the SCC was well suited to engage in implementing rules and clarifying ambiguities, as was the case in the 1970s, it had nothing special to contribute in resolving the major compliance problems that dominated the dialogue in the 1980s. Indeed, as a matter of tactics, it has probably been more efficacious not to try to shelter ongoing negotiations from compliance issues, but rather to use these negotiations as a vehicle for problem-solving, especially when the resolution of outstanding issues has become a prerequisite to new

³⁰ Some useful suggestions for disclosing the products of SCC work have been made by Graybeal and Krepon, "Making Better Use of the Standing Consultative Commission," pp. 197-198.

agreements in any event.

This experience goes some way toward explaining why consultative mechanisms have been downplayed in recent years. Under the INF Treaty, a new special verification commission (SVC) was created, quite separate from the SCC, and given a comparatively narrow mandate -- to resolve compliance questions and to agree on additional measures to improve agreements. Perhaps to avoid parallels to the SCC, the United States was disinclined to give the SVC broad authority to negotiate implementing procedures or to consider changes in the strategic situation bearing on obligations, and it has taken the view that under INF and START many of the implementing provisions should be worked out as part of the formal negotiation, not delegated to a consultative body after the fact.³¹

THE SIGNIFICANCE OF GLASNOST

As the foregoing suggests, verification rule-making prior to the mid-1980s did not live up to its promise. If measured by commitments hammered out at the bargaining table

³¹ In fact, however, while the INF Treaty did include unprecedented detail in its rules governing weapons dismantling, etc., both sides nevertheless found it necessary to delegate a substantial number of technical issues to a post-treaty negotiation, which eventually resulted in a massive memorandum of understanding (MOU) on verification issues. Some of those issues, such as the instrumentation for the portal monitoring systems, proved very contentious. Some might argue that pressures to reach final agreement on the MOU would have been greater had it been negotiated prior to actually signing the INF agreement.

and the greater provision of data in consultative channels, there was a gradual relaxation in Soviet opposition to intelligence collection for arms control purposes. On the other hand, however, NTM monitoring in general was becoming more costly and difficult in the face of Soviet concealment efforts, a portion of which either stepped over treaty-drawn lines (e.g., encryption) or were justified on the narrowest possible construction of verification rights. The U.S. decision not to ratify SALT II, whatever its other merits, forfeited any opportunity to press the USSR on strict compliance and to give prompt effect to SALT II's statement of principles calling for negotiation of cooperative measures to enhance the effectiveness of NTMs under follow-on agreements. It is against this background that we should evaluate the significance of Soviet-American negotiations since the rise of Gorbachev and the onset of glasnost policies.

Anatomy of a Breakthrough

By the early 1980s both sides had recognized that future arms agreements would require not only firmer NTM commitments but additional cooperative measures to improve data-collection. SALT II had foreshadowed this trend; and a combination of pressures from both sides to expand the scope of agreements to include INF forces, aircraft, sea-launched cruise missiles, and possibly non-deployed weapons,

virtually assured it. The contentious issue was how to balance prospective approaches against past ones. American statements consistently stressed the need for intrusive alternatives to NTMs, and that acceptance of such measures would be an important litmus test of Soviet sincerity in arms reductions. Then ACDA director Eugene Rostow spoke of: "new and creative ideas...that go beyond NTM. Maybe on-site inspections; maybe television cameras. There may be challenge inspections...to go and inspect the plant at such-and-such a place."³² The Soviets, however, stuck closely to the SALT II formulation on cooperative measures -- whose aim was to contribute to NTMs, not to substitute for them -- and spoke only vaguely of "other forms" of inspection.³³ The true dimensions of these differences were never fully probed at the time, given that both sides were totally at odds over the structure of INF and START agreements.

Throughout the early 1980s Soviet spokesmen made frequent reference to a number of guidelines or "basic principles" when discussing the verification question. Four of these were cited most often: that verification should not

³² U.S. Congress, House Committee on Foreign Affairs, Review of Administration Initiatives on Strategic, Theater, and Conventional Arms Control, 97th Congress, 1st sess., (Washington, D.C.: U.S. GPO, 1982), p. 9.

³³ Interview with President Leonid Brezhnev, Der Spiegel, November 2, 1981 reprinted in Survival, Vol. XXIV, No. 1 (January/February 1982), p. 37.

prejudice the sovereign rights of states or permit interference in their internal affairs; that the scope and forms of verification should be commensurate with the character and scope of agreements; that the elaboration of verification provisions is only possible after an agreement on the scope of the substantive prohibition has been mapped out; and that international forms of verification like a multilateral satellite agency, etc., should be limited.³⁴ None of these principles absolutely precluded any form of on-site monitoring or other cooperative measure. Hence, if START or INF were to impose production controls on missiles, OSI might flow logically from the proportionality principle (i.e., that verification be commensurate with an agreement). Nonetheless, the clear implication of the Soviet approach was to explicitly underscore that OSI was something to be considered only in the context of specific needs, not to be agreed upon a priori. And the primacy of NTM was invariably stressed.

Within the first year or so after Gorbachev's elevation to leadership in March 1985, even before the glasnost campaign was fully promulgated, Soviet statements underwent a marked restructuring. The usual limiting guidelines on verification were downplayed; new alternatives were

³⁴ The most complete exposition of these principles was presented by Soviet Ambassador Viktor Israelyan at the Conference (formerly committee) on Disarmament in Geneva. See Document CD/PV.119, Committee on Disarmament, March 31, 1981, pp. 16-17.

stressed; and international means were given a new status. In his proposal for a phased elimination of nuclear weapons by the year 2000, Gorbachev spoke of verification by "national technical means, on-site inspections, and any other additional verification measures."³⁵ A few days later, foreign minister Eduard Shevardnadze stated that the Soviet Union was prepared to agree to "any forms" of verification and that bilateral problems on this issue were "non-existent now."³⁶ The most detailed statement came from deputy defense minister Shabanov several weeks later: "The experience of...existing strategic arms accords...confirms the indisputable priority of national technical means of verification. The potential of these means is constantly increasing. At the same time the Soviet Union is flexible on this question.... [Other] measures may be adopted up to and including on-site inspection. The only important thing is that those measures should not serve as a tool for interfering in states' internal affairs and should not damage either side."³⁷ In other words, verification was not

³⁵ "Excerpts from the Soviet Leader's Statement on Arms Control Proposals," The New York Times, January 17, 1986, p. A8.

³⁶ Cited in Stuart Goldman, Paul E. Gallis, and Jeanette M. Voas, Verifying Arms Control Agreements: A Soviet View, Congressional Research Service (CRS Report No. 87-316F), April 10, 1987, pp. 22-23.

³⁷ V. Shabanov, "A Most Important Element in the Disarmament Process," Izvestiya, March 24, 1986, reprinted in Foreign Broadcast Information Service, Daily Report: Soviet Union, April 1, 1986, p. AA9.

to be open-ended, and measures with interfering or damaging effects would still be opposed. But the shift toward flexibility was unmistakable.

While explicit references to inspection were not unprecedented for the Soviets, the evolution of views marked by these statements and expanded in subsequent commentary did contain a truly novel element: a desire to make cooperation on treaty verification the hallmark of a new spirit of openness in strategic relations between the superpowers and in international affairs more generally. In previous negotiations, Soviet willingness to accept verification proposals typically had been offered in a stingy, begrudging way -- not to meet their own verification needs or even to improve mutual confidence, but often simply to pacify unreasonable U.S. anxieties "in the interests of achieving agreement."³⁸ Under Gorbachev's direction, however, Soviet statements were beginning to attribute intrinsic value to verification, heralding it in surprisingly Western terms as a way to lessen suspicion, to enhance stability, and to create an atmosphere conducive to harmonious relations.³⁹ Remarkably, this change enabled the

³⁸ This has been a commonplace formulation in Soviet test ban policy, see Warren Heckrotte, "A Soviet View of Verification," Bulletin of the Atomic Scientists, October 1986, p. 14.

³⁹ For a thorough discussion, see William C. Potter with Leonid Belyaev and Mark Lay, "The Evolution of Soviet Attitudes Toward On-site Inspection," in Lewis A. Dunn with Amy E. Gordon, eds., Arms Control Verification and the New Role of On-Site Inspection (Lexington, Ma.: Lexington Books,

Soviet Union to seize the political high ground on verification for the very first time, not only to shed the burdens associated with old habits of naysaying but to force the United States to ponder the reciprocal implications of its own monitoring demands and thus to shift the onus of cautious hesitation to the U.S. side. Viewed in this light, verification glasnost-style was far more a function of diplomatic than security imperatives in the way it projected major political payoffs in return for manageable costs in secrecy and (counter)intelligence terms. It is very hard to imagine this kind of calculation ever working its way through the Soviet bureaucracy -- or indeed, any bureaucracy -- without direct pressure from above.

The post-Reykjavik INF negotiations provided the first opportunity to test the new Soviet rhetoric. The draft INF agreement was then structured around a ban on intermediate-range weapons in Europe with low residual forces stationed elsewhere. In March 1987, the United States tabled its long awaited verification protocol, the main elements of which included data-exchanges and NTM safeguards not unlike those in SALT II, a ban on concealment measures with impeding effects, including all telemetry encryption, and a requirement to declare areas and facilities associated with treaty-limited systems and not to locate such systems outside those areas. A variety of on-site inspection

1990), pp. 185-206.

measures were also proposed, including inspections on short notice at both declared facilities and "other areas in the event of compliance concerns" (or, in arms control parlance, "suspect site" inspections).⁴⁰

While not responding directly, the Soviets accepted these proposals as a basis for negotiation and, within a few weeks, sought to up the ante. In April, Gorbachev told Shultz: "We shall be demanding verification and inspection everywhere: on the sites of missiles' dismantling...at ranges and military bases, including those in third countries, at depots and plants, whether private or state owned."⁴¹ Foreshadowing some of these points, Soviet negotiators in Geneva had already talked about "ordering our factories to open their doors" on the expectation that the Americans should do the same.⁴² The idea of granting extensive access rights inside production plants and basing facilities on allied territory on short notice plainly made Washington and allied capitals uneasy, and Soviet commentary delighted in the spectacle of U.S. efforts to limit the reach of inspections. Such commentary conveniently omitted any mention of the point that in some areas the Soviets had

⁴⁰ U.S. Department of State, Statement of the U.S. INF Delegation, March 12, 1987 (press release).

⁴¹ Cited in Michael Krepon, "High Stakes in INF Verification," Bulletin of the Atomic Scientists, June 1987, p. 15.

⁴² Cited in Goldman, et al., Verifying Arms Control Agreements, pp. 99-100.

left out provisions that U.S. negotiators regarded as essential.⁴³ Ultimately, though, the negotiations were greatly simplified by Soviet agreement on extending the INF ban to systems located anywhere outside Europe -- a step which the United States had advocated in part on verification grounds -- and also on banning shorter-range missiles. With no requirement to monitor residual force levels and no reason to retain the basing infrastructure, the last remaining challenges to an INF agreement were pushed aside.⁴⁴

Given the momentum of these events, the Reagan-Gorbachev summit of December 1987 was certain to mark a major watershed in rule-making for verification. Under the INF Treaty both sides unveiled a new regime of on-site data-collection techniques, notifications, data-exchanges, and cooperative measures designed to enhance data-collection through NTM. But both sides also went further than expected by announcing the basic elements of a verification regime for a phase 1 START agreement which contemplated even more extensive arrangements than those adopted under the INF ban. Since 1987, negotiations on verification in START have

⁴³ For example, the initial Soviet proposal apparently omitted any mention of baseline inspections, see remarks by U.S. Ambassador Maynard Glitman in U.S. Congress, The INF Treaty, Part 1, p. 115.

⁴⁴ The United States dropped requirements for unencrypted telemetry broadcast, for suspect-site inspections, and for continuous monitoring of repair and storage facilities.

concentrated on fleshing out these basic elements.

The main features of these two regimes are set out in Table 7-1. The common areas are three-fold. First, there is an obligation to set up a comprehensive data-exchange on the number and location of treaty-limited items (e.g., launchers, missiles, launch canisters, etc.) and their associated facilities, and on the technical characteristics of the systems. Second, there are cooperative measures to enhance the observation of various activities by NTMs (specifically satellites), some of them at a time and location chosen by the inspecting party. Third, there is a set of on-site data-collection procedures to be used at declared locations to verify the "baseline count" provided by the data-exchange; to confirm the elimination of treaty-limited items; to verify the "close-out" of facilities slated for elimination; to verify, on short notice, the numbers of treaty-limited items subsequent to the baseline count; and to detect or to count such items as they pass through designated "portals" at certain key facilities, such as production sites.

Several areas of divergence between INF and START are also evident. The verification coverage is broader under START, reflecting not only the greater diversity of forces involved but also the fact that START data-collection must be good enough to verify compliance with non-zero limits. Specifically, START imposes some monitoring requirements

Table 7-1

VERIFICATION PROVISIONS: APPLICATION TO INF & START

	INF TREATY	START TREATY
Type of Measure:		
Declarations, Data Exchange	MOBs**; production, support, and repair facilities; numbers and locations of missiles, launch equipment, technical performance data	MOBs; ICBM deployment areas; bomber bases; submarine ports; production, final assembly, repair, storage sites; missile inventories, mobile missiles
Baseline Inspections	all the above categories	all the above categories
Elimination Inspections	weapons, equipment at designated elimination sites	weapons, equipment at elimination sites, scope to be determined
Close-out Inspections	MOBs; missile support facilities, except production	scope to be determined as of 12/89
Short-notice Inspections, declared areas	all facilities in data-exchange except production, elimination sites; all former sites (even if used for non-treaty systems)	all facilities in data-exchange, including sites for residual forces and formerly declared sites; numbers of warheads on ballistic missiles
Short-notice Inspections, suspect sites	none	areas where covert production, storage or repair of systems may be occurring; precise scope to be determined
Continuous Portal Monitoring	former SS-20 and current SS-25 final assembly facility; former Pershing production plant; and future final assembly site for missiles outwardly similar to INF	ICBM production, final assembly, storage depot-level repair facilities; additional scope criteria to be determined as of 12/89
Cooperative Measures for NTM	open display of road mobile ICBMs at selected sites, six times per year, 1 site per request, for 3 years	telemetry encryption ban; open display of treaty-limited items at MOBs, bomber bases, sub ports, upon request

* As agreed at the 1987 Washington summit and reaffirmed subsequently. ** Missile Operating Base

Sources: U.S.-Soviet Summit Statement, December 10, 1987 (mimeo); U.S. Congress, Senate Foreign Relations Committee, The INF Treaty, p. 134; The New York Times, June 2, 1988, p. A17; James Blackwill, Meridian corporation, presentation on INF/START verification, May 2, 1988.

that are not paralleled in INF: to collect flight-test telemetry on designated ballistic missiles; to verify limits on certain types of non-deployed ballistic missiles, held in reserve, which could be used in breakout scenarios; and to check that missiles which are being tested or repaired at designated sites are "legal" missiles (i.e., duly declared and counted), not part of some covert stockpile. Finally, the scope of OSIs is broader in START. The most notable OSI feature under START may be the verification of warhead numbers on deployed ballistic missiles. Using agreed techniques, both sides will have the right to check individual ballistic missile loadings to establish the accuracy of the warhead declarations and to monitor subsequent compliance on a short-notice basis. There will also be a qualified right to a number of short-notice inspections at suspect sites, again, subject to agreed procedures.⁴⁵

Having inherited these general guidelines from its predecessor, the Bush Administration in June 1989 proposed that a number of "verification and stability" measures be negotiated and implemented prior to completing a START

⁴⁵ The formulation on suspect site inspections agreed to at the Washington summit was quite broad. "The right to implement, in accordance with agreed procedures, short-notice inspections at locations where either side considers covert deployment, production, storage or repair of strategic offensive arms could be occurring." See "Joint Communique Lays Out Talking Points," Congressional Quarterly Weekly Report, December 12, 1987, p. 3065.

agreement. U.S. officials argued, in the face of criticism that they were seeking to stretch out negotiations, that the resulting START accord would be much easier to implement if both sides could first "work out the bugs" associated with untested verification procedures.⁴⁶ The Soviets accepted this approach in principle in September, and made some proposals of their own on how to proceed.⁴⁷ During the next five months, both sides conducted a joint demonstration on "tagging" technologies for non-deployed missiles; they also agreed to trial inspections at bomber bases aimed at distinguishing ALCM from non-ALCM carrying bombers, and finalized a demonstration of each sides' ideas for

⁴⁶ "Ambassador Richard Burt on the State of START," Arms Control Today, Vol. 20, No. 1 (February 1990), p. 7.

⁴⁷ The initial U.S. package of verification and stability measures included: reciprocal establishment of perimeter and portal monitoring of certain ballistic missile production facilities; an exchange of data on nuclear forces falling within START; cessation of ballistic missile telemetry encryption; practice inspections to verify numbers of warheads; technical exchanges on "tagging" technologies and practices; discussions on the problem of SLBMs with short times of flight (or "depressed trajectories"); and implementation of a scheme for notifying strategic exercises. In accepting this general approach, the Soviets departed from their long-standing principle that verification arrangements could only be elaborated once the substantive provisions have been mapped out; in practice, however, this departure is not quite so radical, for they have been careful to proceed only on those measures, like ballistic missile inspections, which related to treaty provisions that are already agreed. Progress on verification measures relating to substantive issues that are still outstanding has been appreciably slower.

inspecting warheads on ballistic missiles.⁴⁸ Apart from these steps, they also agreed to advanced notification of one strategic exercise per year involving strategic bombers, as a confidence-building measure.⁴⁹ The expectation was that these and other initiatives would be worked out by the June 1990 Washington summit.

Assessing Cooperative Verification Measures

Taken as a whole, these cooperative measures signify a major enlargement in the scope of rule-making in support of verification and compliance problem-solving. That they exist at all is a testament to a convergence of U.S. and Soviet interests in making verification the centerpiece of progress in nuclear arms reduction. Just as the Soviet stance on verification could not have changed without the top-down imposition of a wholly new set of cost-benefit calculations,

⁴⁸ U.S. ACDA, "Nuclear and Space Talks: U.S. and Soviet Proposals," Issues Brief, January 22, 1990, p. 2 (mimeo).

⁴⁹ Evidently, agreement on this CBM was the result of earlier negotiations, and reflected a long-standing Soviet preference to include bombers in strategic exercise notifications. At the June 1988 summit, both sides agreed to notify each other of ballistic missile launches. Under this plan, notification is now provided no less than twenty-four hours in advance on the planned date, launch area, and area of impact for any launch of a strategic ballistic missile. During discussions at the June 1988 summit, the Soviets insisted for a while that the arrangement also include the notification of massed bomber flights, but finally dropped this idea in return for a U.S. commitment to study the further measures. See Arms Control Today, Vol. 18, No. 6 (July/August 1988), pp. 20-21.

so it is highly implausible that such a detailed set of treaty provisions could have emerged in business-as-usual bargaining between the Soviet and American security establishments without direct intervention by the political leaderships of both sides.

From the methodological standpoint, however, it is important to ask how much "value-added" these new provisions offer to verification and compliance management over and above existing capabilities. Value-added is an essential calculation because, unlike the decision to legitimize NTM monitoring, which was essentially a passive act (i.e., to accept what already existed), intrusive measures require affirmative implementing steps by parties who have little previous experience in such matters. Thus, whatever value is assigned to various OSI measures must be weighed against any offsets due to new operational routines which may be costly and complex, and which present some prospect for misunderstanding or abuse.

Clearly, one important rationale behind some of these measures is to put on a firmer footing past practices that have not worked as well as expected. Rules to assist NTM monitoring fall into this category. Notwithstanding the public attention given to novel forms of OSI, the greatest contribution to verification under INF and START may be provided by NTM-assisting measures. Under the INF Treaty the prohibition against concealment has been decisively expanded

to encompass any acts which impede verification, not simply those assessed as being "deliberate."⁵⁰ Now that effect rather than intention is the recognized yardstick for measuring the compliant aspects of concealment, the legal basis for challenging concealing activity is much increased. In addition, the undifferentiated exemption formerly given to "current" construction, assembly, conversion, and overhaul practices has been sharply pared back and refocused to apply only to those practices occurring within a missile deployment area that are associated with normal training, maintenance, and field operations.⁵¹ The clear intention here is to strike a better balance between verification needs in general and the survivability requirements of mobile systems by attempting to isolate concealment to areas where it has the most clearly legitimate uses.

The full carry-over effect of these provisions into the START process remains to be seen. Because the INF Treaty calls for the complete elimination of systems, all weapons and supporting infrastructure within its scope are eventually expendable. Not so in START. Logically, it would be harder to apply anti-concealment measures with equal

⁵⁰ The INF Treaty, Art. XII, para. 2b.

⁵¹ Ibid. It is worth noting that the use of environmental shelters "to protect missiles and launchers" is explicitly allowed under this provision, an apparent reversal of the specific provision in SALT II barring the use of shelters over ICBM silo launchers that impede verification.

effectiveness to non-zero agreements, where the incentives to deny data during the R&D, testing and assembly phases of the weapons life-cycle would be greater. Nonetheless, by mid-1988, both sides had stated that a phase 1 START agreement would include a broad-based ban on concealment.⁵² Both also agreed (see Table 7-1) in principle to "full access to all telemetric information broadcast during missile flight."⁵³ From outward appearances, this formulation suggests that both sides agreed to drop the tortured effort to define permissible forms of encryption which created so much tension in SALT II.⁵⁴

The other set of NTM-enhancing measures which have relevance in START are those that provide for the open display of certain ballistic missiles in their deployment mode. As noted in Table 7-1, each side under the INF Treaty has the right over three years to designate a time and place

⁵² See statement from the Moscow summit of June, 1988. "Joint Document: 'Realistic Approach' to Reducing Nuclear Risk," The New York Times, June 2, 1988, p. A17.

⁵³ Ibid.

⁵⁴ In fact, however, tendencies to seek exemptions were still in evidence. Both sides spent much time in late 1989 and early 1990 bargaining over whether the "full access" rule would cover data on warhead performance in testing, as well as data generated during tests but collected by means other than direct broadcasts from missile test vehicles (e.g., flight-data recorders). See Michael R. Gordon, "U.S. May Revise Its Position on Concealing Missile Data," The New York Times, January 13, 1990, p. A8. It was reported that workable arrangements were agreed at the Baker-Shevardnadze meetings in Moscow in early February. See "Joint Soviet-American Statement," TASS (trans.), February 10, 1990 (mimeo), p. 2.

for such displays, subject to a quota and a requirement that the display procedure be performed at only one location at a time. The timeline for this procedure is extremely compressed to enhance its value as a deterrent to cheating. Upon receiving a request, a party must within 6 hours remove all its road-mobile ICBMs and launchers at a given base from garages, open the roofs of garaging structures to confirm removal, and leave its systems in the open for satellite observation for up to 12 hours after the initial request. Although these provisions are framed in neutral terms, the United States currently has no road mobile ICBM; the real purpose of those provisions, therefore, is to confirm the absence of covert Soviet SS-20 deployments among road-mobile SS-25 ICBM regiments. While this procedure will result in better data-collection on SS-25 regiments, the actual monitoring task is the detection of prohibited INF missiles and launchers rather than counting per se. By contrast, in START, where both sides have already agreed in principle to the same open display concept, systems counting will be the specific task.

The idea of assisting NTMs through affirmative behavior was seen over a decade ago as a logical step for the SALT process. In the INF context, however, this particular display measure was quite significant because it focused on an element of force posture -- road-mobile ICBM regiments -- which is not covered by the treaty. Consequently, the effect

of this provision is to reinforce the legitimacy of gathering information on non-restricted forces which pose some risk of serving as a base or infrastructure for covert prohibited capability. Prior to the INF Treaty, the Soviets were always extremely reluctant to acknowledge in any formal way that such intelligence gathering had any justification for treaty verification purposes and, as seen in the SAM upgrade case, often dismissed such demands as fishing expeditions for intelligence purposes. Thus, to acknowledge it as justified in this case through the vehicle of a cooperative measure signifies a relaxation of their previous stance.

Overall, the value-added of these NTM-assisting measures is likely to prove substantial. If properly implemented in the years ahead, the broader anti-concealment obligations and the telemetry encryption ban will help build a greater degree of transparency into weapons development and flight-testing than now exists. Open display of weapons should generally improve confidence in monitoring of deployed forces in a way that would not appear to impinge unduly upon operational flexibility or survivability criteria; and the costs of these procedures would appear to be modest because they are not overly complex and mainly involve prompt notification and strict adherence to short timelines. Moreover, the application of these measures in the INF context has a high carry-over potential for START.

Finally, as a singular gesture toward greater openness, the INF data exchange is a positive expansion of SALT II principles, covering as it does several thousand treaty-limited items (TLIs), their locations, and certain physical characteristics, such as the length, diameter, and weight of missile boosters and launchers.

The Value of On-Site Inspections

With respect to on-site inspection techniques, value-added calculations are more complex. The justification usually given for OSI measures is that they can collect data on TLIs whose small size, multipurpose uses, or mobility render monitoring through NTMs very difficult or impossible. In so doing, it is argued, on-site measures can both increase general confidence that treaty provisions are being implemented and heighten the costs and risks associated with using declared facilities (or even undeclared facilities, in the case of suspect site inspections) to hide illegal forces. In the INF/START context the requirements for such measures are a function of the range of items subject to limitation -- missile stages and canisters, mobile launchers, and support equipment. NTM systems are clearly insufficient for high-confidence counting of declared missiles located inside storage facilities, for monitoring the departure or arrival of missiles or launchers at key locations, or for confirming the elimination of declared

weapons and their components.

In these cases, OSIs are highly valuable. Without them, verification judgments on these activities necessarily would be vague and highly inferential. Still, it is important to exercise care in generalizing about OSIs. Their contributions are best understood as a solution to special needs. Moreover, the utility of all these measures is qualified in one fundamental way: they provide little confidence in detecting what is not declared (i.e., inadvertently or deliberately omitted from the data-exchange). With OSIs, the existing knowledge base defined by the data exchange becomes clearer. (We can know, for example, that weapons being eliminated are the real ones, not mock-ups.) Ultimately, however, there is no alternative to NTMs in detecting indications of covert basing, production, or storage outside agreed areas. NTM data can act as a helpful cue for OSIs; indeed, without them inspectors would not know where to look or what to look for. This detecting function is easier for NTM to perform under the conditions of zero-threshold limits, which is the primary reason why the United States advocated a complete ban in the INF case.

What about the drawbacks? One clear burden is the complexity and financial cost which inspections have injected into the verification process. Consider, for example, how the baseline, close-out, and short-notice

inspections are carried out under the INF Treaty.⁵⁵

Both sides have set up points of entry (POEs), which are designated airport facilities equipped to handle the arrival and departure of the other side's inspectors. Lists of inspecting and support personnel have been screened in advance. When a party makes a decision to inspect, it charges its inspection against an agreed quota.⁵⁶

Notification of the arrival of an inspecting team at the POE must be given at least 16 hours in advance. Upon arrival, items of inspecting equipment (e.g., cameras, radiation detectors, measuring devices), whose specifications have been agreed in advance, are subject to examination by escort personnel in the presence of the inspectors. If storage is required, such items must be kept in a secure dual-key facility so that neither escorts nor inspectors have sole access to inspecting equipment. The inspecting team then has a time window of between 4 and 24 hours to announce the site it wishes to inspect. Once the announcement is made the

⁵⁵ U.S. Congress, The INF Treaty, Report of the Senate Foreign Relations Committee, article-by-article analysis of the treaty, pp. 156-164.

⁵⁶ Whereas the number of close-out and baseline inspections is determined by the number of sites, short-notice inspections are charged against a quota of 20 annually over the first three years, 15 annually for the next five, and 10 annually for a successive five years. After that, short-notice inspections are no longer permitted. The rationale for their eventual phasing-out is that they become less necessary as the military effectiveness of any covert weapons fades without the ability to test over time.

inspected party has one hour to implement movement restrictions at the declared site, so that missiles, etc., may not be removed, and up to nine hours to transport the inspecting team to the site. There, after a pre-inspection briefing, inspectors have a specified period of time (24 hours, with some wiggle room, in the case of short-notice inspections) to conduct the inspection, which may include internal observation of any structures deemed large enough to house treaty-limited items. Escorts are always present. Cameras may be operated only by escorts at the direction of the inspecting side, and both sides get copies of the photographs. There are procedures to govern the inspection of shrouded objects large enough to be treaty-limited items. Once the work is completed, a post-inspection report must be prepared on site by the inspecting team and provided to the escorts for review within two hours after the report is completed. To the fullest extent possible any ambiguities are to be resolved and noted in the report. The inspecting team then must return promptly to the POE through which it came, and leave the country within 24 hours.

As this example illustrates, there is nothing very impromptu about these inspections. The time phasing, equipment specifications and security, site location, and the modalities of inspection, transport, reporting, and other matters are all subject to agreement in advance. In spite of all this finegrained detail -- or perhaps, in part,

because of it -- procedures have run fairly smoothly thus far under the INF Treaty. Ninety-six Soviet and 244 U.S. inspections were carried out, including a full quota of 20 apiece on a short-notice basis, within the first year of the INF Treaty's operation.⁵⁷ These inspections have been characterized as successful because they revealed no major discrepancies in the data provided under the treaty. In the absence of major procedural problems thus far, the major costs incurred have been mainly financial, manpower, and operational. On the U.S. side, inspection requirements have stressed military airlift capability to an unprecedented degree in peacetime, and the overall annual costs incurred by INF inspections may run to about \$100 million annually for some years.⁵⁸

Given this experience, the extra benefits of suspect site inspections are hard to measure. In general, a rule to allow short-notice inspections of multipurpose or otherwise undeclared facilities could be a useful tool for compliance management. Armed with such a procedure, a party could act upon circumstantial evidence from other sources (presumably

⁵⁷ U.S. On-Site Inspection Agency, "First Year of On-Site Inspections," Fact Sheet, May 31, 1989 (mimeo).

⁵⁸ One American official involved in managing the inspections observed that the U.S. Military Airlift Command (MAC) in the first several months of the INF Treaty was operating on a scale normally associated with a full-scale nuclear alert. Cost figures cited in Lewis A. Dunn, with Amy E. Gordon, On-Site Inspection for Arms Control Verification: Pitfalls and Promise, CNSN Paper, Vol. 1, No. 2 (May 1989), p. 37.

NTMs) of covert activity in a prompt fashion. Perhaps equally important, a party under suspicion might have a strong stake in proving itself innocent, and could find such a procedure helpful in allowing the other side to clarify ambiguities that might otherwise have a corrosive effect on confidence. The main value of suspect site inspections, however, is not really improved detection of violations. It seems very unlikely that such a procedure would ever expose a "smoking gun" violation. Barring some slip-up, a party under suspicion would almost certainly have planned in advance to cover up offending activity prior to allowing inspectors on-site. Indeed, from the data-collection standpoint, the only real value of such inspections is to know that nothing illegal is going on at the precise place and time when inspectors are present. What happens prior to or after the visit is not generally knowable except through NTM monitoring.⁵⁹

Rather than monitoring, then, it would appear that the putative value of suspect site inspections is chiefly deterrence of cheating. Deterrence, of course, is a fundamentally non-empirical concept. One can never fully prove whether it works or not. But with suspect site OSIs lurking in the background, a party arguably would be more

⁵⁹ An exception would be the use of seals at certain deactivated facilities, so that inspectors returning to the same facility at a later date could have confidence that no activity had taken place in the intervening time.

reluctant to engage in certain types of large-scale covert activities which could not be covered up without delaying the arrival of inspectors and thus violating a treaty's verification procedures. The relevant question, however, is whether appropriate procedures can be devised which protect each party's interests.

Concretely, it is logical that each side will want suspect site inspections to satisfy three criteria. The first is timely access to any site where concerns may arise. Clearly, the inspecting party wants to minimize the elapsed time between the transmittal of a request or notification and the arrival of its inspecting team. Based on procedures now in place for baseline, close-out, and short-notice inspections at declared and former INF facilities, it is not implausible to imagine that inspectors already at a point of entry could be dispatched to a target site within a 7-9 hour period from the moment they notify their hosts of their intended destination.⁶⁰ The imposition of restrictions on certain traffic into and out of a suspect site, if coordinated with NTM observation, could make quick cover-ups more difficult prior to the arrival of inspectors.

The second criterion is assurance of equipment security

⁶⁰ This time frame may only apply to those target areas served by a designated point of entry. Under the INF Treaty, the United States and the Soviet Union have two POEs apiece, each serving the eastern and western portions of their respective continental territories. Inspectors are required to use the POE closest to their intended destination.

and data integrity. Both sides have a stake in this. While the inspecting party needs to assure itself that sensing equipment or the data collected cannot be spoofed into showing false evidence of compliance, the inspected party wants to be sure that the equipment will not provide false evidence of violations. Here, too, INF Treaty procedures -- providing as they do for escort personnel, pre-inspection examination of equipment, secure storage, and on-site validation of inspection reports -- would seem applicable to a suspect site situation.

Finally, there must be safeguards against the improper use of inspections for harassing or intelligence gathering purposes. It stands to reason that neither side would want to be held hostage to unreasonable inspections which appear inspired more by an interest in collecting military secrets and proprietary information than in verifying compliance. On this point, however, the INF Treaty has little useful guidance to offer. Its ultimate safeguard on the improper use of short-notice inspections is to restrict them to declared facilities.

The abuse potential of suspect site inspections, and thus the need for safeguards, has long been a matter of much speculation and debate, even in the Gorbachev era. Within the United States one school of thought holds that the incentives for the Soviets to improperly use inspections have been greatly overstated. A group of congressmen argued:

"The USSR is unlikely to issue flagrantly irresponsible or frequent challenges because the U.S. would retaliate along similar lines, and the closed Soviet society, with its well-kept secrets, has far more to lose than we do. It is conceivable that such a tactic might be used in rare cases if the advantages were very great, however."⁶¹ Yet a contrasting viewpoint holds that fears of U.S. retaliation might not actually deter the Soviets very much in most cases. Since the USSR operates from a much better relative knowledge base, it may be better able to target inspections to achieve maximum intelligence value and thus would come out ahead in any tit-for-tat exchange. Moreover, the much larger size of the Soviet Union relative to the United States, as CIA director William Webster has argued, may be like competing on an "uneven playing field" in a situation of "total reciprocal inspections."⁶²

Waged at this level of generality, it is doubtful whether the debate over the risks of suspect site inspections is very relevant to practical policy choices. Notwithstanding public gestures toward greater openness, each side has long recognized the dangers to itself of

⁶¹ See dissenting views of Representatives Hyde, et. al., in U.S. Congress, Report by the Permanent Select Committee on Intelligence of the House of Representatives, Intelligence Support to Arms Control, 100th Congress, 1st sess. (Washington, D.C.: U.S. GPO, 1987), p. 57.

⁶² David Ottaway, "CIA Warns of Arms Verification Scheme," The Washington Post, April 7, 1989, p. A9.

open-ended "anywhere/anytime" inspections, and both have sought to impose some scope-like limitations. Throughout 1989, the publicly stated Soviet position was that suspect site inspections would apply at "installations or sites where one side could suspect the other of secretly deploying, manufacturing, or storing or repairing mobile ICBM or their launchers," including "any train" to establish that it did not contain railroad mobile ICBMs.⁶³ While this covers a range of useful locations, it would presumably exclude others like airbases or ports with no explicit connection to the mobile ICBM infrastructure or normal deployments. The U.S. formulation is much narrower in comparison, including only sites where solid rocket motors (the key for ICBM mobility) could be produced. However, the U.S. position also would allow inspections elsewhere with a right of refusal.⁶⁴

Clearly, without a right of refusal, there is a real problem in formulating exclusions which might be granted to various facilities. To characterize exclusions in generic terms is conceptually hard and raises the risk of sparking debate over whether a particular facility meets the specified criteria. On the other hand, to develop a

⁶³ Letter to the editor by Col. Gen. Nikolai Chervov, The Washington Post, April 6, 1989, p. A22.

⁶⁴ See U.S. ACDA, Fact Sheet, January 22, 1990, p. 2; see also Michael Gordon, "Reagan Approves Limited Inspection of Weapons Sites," The New York Times, October 26, 1988, pp. A1, A12.

comprehensive list of restricted locations would require one side or the other to draw unwanted attention to certain R&D and intelligence facilities which have been too sensitive in the past even to acknowledge. Presumably this is the kind of problem that the United States would want to finesse through a right of refusal.

The financial costs associated with thwarting the abuse of inspections also has been a major consideration. Under open-ended inspection rules, an enormous number of defense production, intelligence and R&D facilities in the START context would have to certify that they could protect technologies and information not needed for verification. Such costs, which in the United States already have run into the millions of dollars for the small scale inspections under the INF Treaty, would ultimately be borne by the governments involved.⁶⁵

Ultimately, unqualified inspection rights at unspecified locations is simply not a real option for either side, even if the USSR were to become a more democratic society in the next decade. The antagonism between the

⁶⁵ In the United States, defense contractors have expressed concern over a possible loss of competitiveness arising from operational disruptions associated with inspections and from the perception (or the fact) that sensitive technologies might be compromised, which would inhibit the Department of Defense from contracting with specific companies. For some discussion, see Lewis A. Dunn with Amy Gordon, "Striking a Balance: Toward an On-Site Inspection Strategy," in Dunn and Gordon, eds., Arms Control Verification, pp. 245-247.

timely access and the safeguarding criteria appear fundamental in the sense that one cannot fully optimize for one without defeating the other. With a right of refusal a suspect site inspection procedure could still be used to build confidence and clarify ambiguities. But its value-added to deterrence would then depend mainly on how damaging a potential violator might view the suspicions arising from a refusal to grant an inspection. It would be ironic indeed if a reasonable refusal ended up generating the kind of suspicions that verification procedures were supposed to allay.

SUMMING UP

Since the breakthroughs inspired by glasnost, it has been fashionable to characterize Soviet-American rule-making on verification as having come full circle: from the focus on on-site inspections in the 1960s, to NTM data-collection in the 1970s, and back again to the on-site inspection techniques now emerging under the INF and START agreements. A cyclical interpretation, however, belies a secular progression in rule-making methodology over this period which encompasses but is not limited to the recent shift toward on-site inspections.

The 1970s was the decade in which most of the basic treaty principles for verification were established. The most basic of all of these was that agreements legitimize

the unimpeded collection of data on treaty-limited forces. The safeguarding of remote sensing systems and the non-concealment provisions of successive agreements flow directly from this principle. A second principle is that the characteristics of forces (e.g., numbers, etc.) subject to limitation must be expressly agreed through the vehicle of a data exchange. SALT II's data base was the first step in this direction. A third and related principle, as seen in the last chapter, is that differentiations between classes of systems must be based on observable differences; otherwise, systems that look alike are counted alike. A fourth principle is that compliance management requires that a party facing legitimate questions about its behavior must supply proof of its compliance, or else alter its behavior, to allay the concerns of the other party.

Throughout the SALT era, the paramount problem was not with basic principles, but rather that implementation of them lagged way behind reasonable expectations of progress. Recurring tensions over concealment -- most, though not wholly, Soviet practices -- and other problems provided grist for compliance disputes. True, there were some modest adjustments, such as the provision of data under SALT II. Yet, until Gorbachev, the Soviets found it hard to reconcile their willingness to accept NTM monitoring as a basis for verification with their traditional opposition to any intelligence gathering, especially if justified on the

grounds of a potential circumvention problem. There also appeared to be very few internal checks on overzealous secrecy and reflexive opposition to meeting American demands amidst the tensions of the late 1970s and early 1980s. As a consequence, compliance problem-solving languished during this period.

Against this background, Gorbachev's pursuit of glasnost in superpower relations has been a singular event in two decades of verification diplomacy, one which provides opportunities to apply past principles with new methods. The old Soviet practice of using verification as a bargaining chip to obtain U.S. concessions on substance has been curtailed. Gorbachev has jettisoned a generation of Soviet rhetoric by explicitly acknowledging the right of parties under agreements to monitor residual forces.⁶⁶ Indeed, as noted earlier, this is not "diplomacy" in the normal sense

⁶⁶ Gorbachev stated: "The appropriate verification measures, including on-site inspections, must encompass the missiles and launchers remaining after the reductions, including those on combat duty and at other facilities: testing grounds, manufacturing works, training centers.... This is necessary in order to be absolutely certain that the agreement is really being observed all the way." Speech in Prague of April 10, 1987, reprinted in News and Views From the U.S.S.R., Soviet Embassy, Information Department, Washington, D.C., April 13, 1987. Although SALT verification had proceeded on the same principle applying NTMs, the Soviets had never actually acknowledged a specific right to monitor residual forces. U.S. attempts to formalize a bilateral understanding on this point in the 1960s during the disarmament discussions had been rejected by the Soviets as espionage. See R.M. Timerbayev, Control of Arms Limitation and Disarmament (Moscow: International Relations Publishing House, 1983), p. 20.

of bargaining, for the degree of common ground achieved since 1985 could hardly have come about through the incremental give-and-take of negotiations. In virtually every major issue area -- concealment, encryption, inspections -- the Soviet Union has moved to adopt previous U.S. positions as their own and even to push somewhat farther.

Although glasnost has been a boon for verification rule-making, the suddenness of the sea-change in Soviet attitudes also has generated some unsettling effects for the bargaining relationship. In a very short span of time, a new array of tools for on-site monitoring has come into existence well before their operational consequences for verification have fully been assessed. Since coming into operation in 1988 under the INF Treaty, some of these measures, in particular the baseline inspections, continuous monitoring of missile production, and the on-site observation of weapons elimination, have provided new and hitherto unavailable windows into important aspects of Soviet production and deployment activity. Though expensive, they have improved confidence in the implementation of the INF Treaty.

Other measures, such as suspect site inspections, have yet to be fully developed, and their costs in terms of resources, procedural complexity, and lingering uncertainties will not be fully known for some years.

However, assuming a continued basic willingness to work out problems cooperatively, both sides may be within reach of a new stage in verification: one where the outer frontiers of the possible are defined less by the historic Soviet penchant for secrecy than by the operational and cost burdens that are inherent in the monitoring tools available.

FINAL CONSIDERATIONS

The United States and the Soviet Union have progressed a long way in their strategic arms diplomacy since 1972. The first phase of arms reductions under START is about to begin. Public attention has begun to focus on what kinds of further cuts might follow. Political change and upheaval inside the USSR may alternately accelerate or brake ongoing negotiations, depending on the success of Gorbachev's reform program and the durability of his leadership or that of his successors. If the initial START reductions are successfully implemented, both sides will have begun to remove excess capacity from their respective strategic ballistic missile arsenals. That, almost certainly, is the easy part. START II negotiations will wrestle with more fractious issues, such as the deMIRVing of land- and perhaps sea-based missiles; qualitative controls on new weapons; sea-launched cruise missiles; more stringent counting rules for bombers; strategic defenses; and the proper relationship between declining superpower force levels and those of third parties. By any measure, this is a difficult and challenging agenda. A lot of business remains unfinished.

Whatever the precise form of new agreements in the START era and beyond, they will bear the markings of certain cumulative effects, not simply from the Reagan-Gorbachev era

of negotiations, but from the strategic bargaining process as it has emerged since the early 1970s. To be sure, enormous changes have occurred during this period. Political leaderships on both sides have come and gone; bilateral relations have oscillated between harmony and deep tension; and U.S. and Soviet strategic force postures have grown more complex and technologically sophisticated. Amid such dramatic changes, it is easy to lose sight of the underlying continuities in the negotiating process. The factors of time and experience have ushered in important, identifiable refinements in bargaining behavior and its output. A degree of mutual learning has taken place. Indeed, in examining the record presented in the preceding chapters, one could hardly conclude otherwise.

When Soviet and American negotiators began negotiations that led to the ABM Treaty and the Interim Agreement on Offensive Weapons, they were drawing upon essentially a clean slate.¹ It was a rare moment in contemporary history. Prior to that time, controlling strategic forces had not been a high priority on either side's agenda. In the wake of the initial SALT agreements, however, every negotiation thereafter became a follow-on negotiation. At every subsequent stage, each side sought to come to terms with the consequences of preceding agreements in a new and different

¹ With one slight exception: the Limited Test Ban Treaty of 1963 did provide the basis for the withdrawal clause used subsequently in the SALT and ABM treaties.

context. The overall process itself generated an imperative to move on as the result of prior output. This momentum produced somewhat contradictory tendencies: on the one hand, a heightening of disagreements over issues left unresolved; but on the other hand, an attenuation of sharp discontinuities in the bargaining process which might otherwise have occurred had either side tried to terminate or to alter radically the dialogue.

In the political realm, one can hardly miss the quality of ambivalence that these competing tendencies have produced. Although at times policymakers on both sides disavowed the perceived shortcomings of past accords or bargaining approaches, the centrifugal force exerted by the process inhibited major departures in actual government policy. President Carter, for example, disavowed the Vladivostok guidelines in 1977 only to embrace them in modified form later on. President Reagan disavowed SALT II in 1981 only to observe it informally for 6 years thereafter. Early in START, Reagan Administration officials assiduously refused to include U.S. bomber and ALCM capabilities as carrots to induce Soviet reductions in ballistic missiles; yet they changed course in 1986-88 and adopted a bargaining approach more characteristic of earlier U.S. administrations. Also, despite the Reagan Administration's efforts to reinterpret the ABM Treaty, U.S. policy on the testing of non-fixed exotic defensive weapons

was stayed by a skeptical Congress.

On the Soviet side, the idea of modest cuts in force levels which Soviet officials had scoffed at in 1977 became part of their START proposals during the early 1980s. Soviet negotiators walked out of the INF and START negotiations in 1983 only to return eighteen months later. And the Soviets finally disavowed the Krasnoyarsk radar in 1989, jettisoning with it an ominous justification for large radar installations that would have only further undermined the ABM treaty regime. In these and other instances, one side or the other perceived that significant penalties would attach to sustained deviations from established behavior.

In the realm of bargaining methodology, the same kind of ambivalence has been broadly visible. While the particular unsettled issues of one negotiation -- heavy ICBMs, MIRVs, cruise missiles, concealment practices, etc. -- predictably became focal points for disagreement in the next phase, the development of rules for dealing with such problems generally took the form of extensions or modifications of existing practices. If these rules operated according to expectations, they developed a certain staying power, sometimes beyond their usefulness. Correspondingly, if the rules proved inadequate, or became embroiled in compliance problems, they were expanded, adjusted, or, in a few cases, thrown out entirely. Even so, radical departures in methodology were rare, and those which seemed possible at

various points -- for example, expansion of the scope of SALT to include FBS in 1974 or 1986, or adoption of throwweight as a primary unit of account in the early 1980s -- generally failed to materialize. Where new rules were created -- such as warhead counting, or sublimits on particular weapons, or collateral limits on throwweight -- they were tacked on to a pre-existing framework.

In preceding chapters we have seen how pressures alternately favoring continuity and change have played out within the various rule-making areas which define the substantive contours of agreement. With regard to framework rules, the issue of restricting ballistic missile force concentrations has dominated all others. This is in part because the United States consistently has sought to attach penalties to highly-MIRVed ICBMs -- the Soviets' comparative advantage -- through sublimits on ICBMs, limitations on freedom to mix, fractionation caps, and, finally in START, the direct counting of RVs. The rules adopted for all of these purposes represent an element of continuity with the use of innovative adaptations (e.g., class counting rules for ICBMs) to meet particular problems. Force concentration rules also have served as a surrogate of sorts for qualitative restraints, like the silo-size restrictions and the new-types rules, which failed to achieve their expected results and were modified or dropped in later stages.

With regard to scope issues, the dominant concern has been how to maintain operational flexibility while expanding the reach of negotiated controls to cover aerodynamic systems and multi-mission weapons with inherent strategic potential. As we saw in Chapter 6, the response to this problem has been a consistent two-pronged emphasis in rule-making methodology since the 1970s: to condition exclusion choices upon some form of "strings attached" guarantee (e.g., testing restrictions) to prohibit upgrading; and to negotiate individuating procedures for exempting long-range aircraft and other weapons with legitimate non-strategic or non-weapons uses. Long-range cruise missiles, however, may defy such treatment, requiring hard choices by both sides on inclusion rules which forfeit certain non-strategic missions in the greater interests of bilateral restraint.

Finally, with regard to verification rules, the main problem has been to define the extent of permissible data collection, which was jointly acknowledged in SALT I, and to fence-in concealment to reasonable levels. Here, there has been considerable innovation since the mid-1980s, as seen in Chapter 7, mainly because the Soviet Union under Gorbachev has developed a strong political stake in openness and verification. Reflecting the change in Soviet attitudes, the main innovation in the rules has been to build greater transparency into treaty-limited activities (e.g., with

on-site monitoring, a telemetry encryption ban, etc.) and to recast the concealment provisions to cover a broader range of potentially troublesome activity.

BARGAINING DYNAMICS IN PERSPECTIVE

With major new agreements on the horizon, it might be tempting to interpret the progression of rule-making in all these areas as the product of some inherent strategic logic. Alas, it has not been so. The evolution of rules has been shaped throughout by a pattern of self-interested bargaining, which in turn has forced both sides into recurring choices over time.

Certainly the choice of equality over other plausible negotiating goals should be understood in this context. During the 1970s and early 1980s we saw consistently a tendency toward very rigid formulations of equality, not only in terms of numbers within various categories of weapons, but in rights, obligations, and in the number of concessions necessary in order to reach agreement. Whenever either side faced a choice of basic objectives, equality usually won out, even when other goals, such as lower force levels or strategic stability, might have been more desirable from the standpoint of achieving arms control's oft-cited goals of reducing the risks of war and the costs of preparing for it.

Thus, Presidents Ford and Brezhnev chose to pursue equal aggregate launcher limits at Vladivostok even though this choice resulted in high ceilings for both sides and precluded any approach aimed at balancing inequalities. In a similar vein, the Carter Administration insisted on the right to test and deploy the MX with a 10 warhead package as a match for the SS-18, even though it effectively precluded any possibility of holding newer Soviet ballistic missiles to numbers of warheads less than that figure. It is also true that inequalities which were probably acceptable in the context of overall strategic relations tended to become less tolerable in the context of formal agreement. The Soviets showed little interest in defending ICBMs with strategic defenses but insisted on a right to do so during the negotiations on permitted deployment areas. And, at Vladivostok, when Kissinger ceded de jure inequality in heavy ICBMs in return for getting the Soviets to drop insistence on compensation for U.S. FBS, he was harshly criticized for having traded away an option that the Pentagon never planned to exploit.

Other patterns of choice also can be traced to bargaining dynamics. When both sides appeared serious about achieving agreements, each tended to gravitate toward units of account that were ceteris paribus the easiest to negotiate. Strategic launchers met this criterion in SALT I and II because they could be counted with NTM-derived data,

because differentials in numbers were small relative to other measures, and because they did not entail any extensive force restructuring on either side. Warheads failed to meet the negotiability criterion in SALT I but became more negotiable in the early 1980s, as RV numbers on each side more nearly equalized and as both sides became more comfortable with the idea of determining force loadings on individual delivery systems with standardized counting and attribution rules. Moreover, by the late 1970s, the MIRVing phenomenon was undermining the relevance of launcher limits in any event; warheads had to be counted in some fashion. Missile throwweight was the least attractive option from the negotiability standpoint, but has now become incorporated indirectly into the START framework as a consequence of changing strategic conditions which increasingly have given both sides a clear interest in such limits.² Meanwhile, strategic launchers have been retained as a unit of account although the arms control rationale for doing so is less than compelling. This is an apt illustration of the inertial effects of the process.

Perhaps the clearest illustration of recurring choices in successive negotiations concerns the issue of flexibility versus forbearance. Whenever the two sides perceived a

² To improve the survivability of their reserve forces, each side seems interested in constraining the barrage attack potential of the other. In addition, the trend on the U.S. side toward larger throwweight SLBMs may be a particular source of concern for the Soviet Union.

direct trade-off between retaining options for themselves versus restricting options of the other side, both have tended to choose flexibility. In SALT I, both sides placed more value in acquiring MIRV than in cashing-in that capability in a parallel fashion. The Soviet leadership under Brezhnev could have zeroed-out the MX missile by accepting the Carter Administration's invitation to negotiate deep cuts in 1977, but it was not prepared to sacrifice its own force structure. Subsequently, when the Soviets counterproposed a ban on new ICBM types as part of a modified Vladivostok framework, the Carter Administration insisted on going forward with the MX even though it knew the Soviets would thereby gain a comparable degree of flexibility; and it also insisted on a 10 RV package for a new U.S. type -- the MX -- even though it might have been possible to hold the Soviet new type -- the SS-24 -- to less than that number. Finally, the United States held out for the right to encrypt at least a portion of missile telemetry rather than to press for a complete ban.

In this respect, the ABM Treaty is an interesting exception which nevertheless tends to prove the rule. Both sides elected mutual forbearance in this case because neither placed much value in its own ABM option at the time while each worried that the other side's efforts might complicate its offensive targeting plans and accelerate pressures for competitive deployments.

In a two-sided bargaining situation, the tendency to preserve a free hand at the cost of forfeiting restraints on the other side will shape rule-making in certain ways. The prospects for radical steps are narrowed. The options to be banned generally are those which neither side really intended to pursue anyway. The force levels to be balanced are generally "topped up" rather than bargained down. And the limits tend to be those which are congruent with existing procurement plans, perhaps with minor adjustment at the margin.

In this sense, a START I agreement may represent a move away from the normal dynamics of bargaining; the Soviet Union is making substantial cuts in its heavy missiles without getting much in return from the United States. At the same time, how dramatic a departure START really is remains to be seen. For SALT and START both share one important trait: in each case, both sides have coordinated their choices on numerical ceilings and counting rules in ways that soften inconvenient programmatic constraints. In SALT II, for example, the Soviets were penalized by having to count their single-RV SS-18s along with their MIRVed SS-18s against the MIRV subceiling; the United States insisted on this for verification reasons. But the subceiling on MIRVed missiles was set fairly high so as to soften the overvaluing effects of the MIRV counting

rules.³ Correspondingly, in START, the warhead counting rules are deliberately designed to understate the potential value of highly fractionated delivery platforms (e.g, bombers and submarines) so as to soften the constraining effect of low ceilings on overall force structure. The discounts given through such counting procedures will enable both sides to keep more SLBMs at sea than would be the case if SALT counting rules were used. Thus, in this mix of interconnected ceilings and counting rules, we see a common tendency to preserve flexibility under quite different conditions of control.

Much the same can be said for the manner in which both sides have pursued interactive adjustments between framework and scope rules more generally. In instances where one side or the other wanted to broaden the scope of a particular agreement -- to include SLBMs in the SALT I freeze, to include bombers in SALT II, or to include ALCMs in the warhead limit under START -- the quid offered by the side wanting such inclusions generally took the form of high subceilings or permissive counting rules. The only obvious deviation from this pattern was the inclusion of Soviet short-range missiles in the INF ban. In this case, however,

³ The sequence of proposals and counterproposals on the MIRV sublimit in the 1977-78 time frame leaves the clear impression that the Soviets saw a connection between a high MIRV sublimit and their concession to count their single-RV systems within it. See U.S. Congress, The SALT II Treaty, Part 5, p. 280.

Gorbachev saw a distinctive advantage in mutual forbearance: he actively sought to include shorter-range missiles in this ban without compensation, both to preclude the United States from retaining a right to match these systems and to foster the trend favoring the eventual denuclearization of Europe.

While the imperatives of equality, negotiability, and flexibility have shaped bargaining behavior in certain ways, other recurring choices can be traced to the intrinsic difficulties of controlling weapons capability through controls on qualitative performance. The Vladivostok accord, SALT II, and START all bear witness to an enduring tendency to attempt to address technical innovation through quantitative thresholds and force concentration rules rather than through constraints on innovation or hardware development. Thus, from SALT I through Vladivostok, Kissinger sought to forestall Soviet MIRV capability through low subceilings on MIRVed missiles rather than limits on the fractionation of individual missiles or other qualitative measures; Carter managed to add further sublimits on MIRVed ICBM and on ALCM-equipped bombers; and START continues this trend with a combination of launcher and warhead ceilings. The result of this process, as we have seen, has been an increasingly complex framework of ceilings and subceilings coupled with limits on the freedom to mix forces which is biased against highly-MIRVed missiles. However, even under START, the key ceilings have never been set low enough to

provide a unique solution to the land-based missile vulnerability problem posed by the combination of MIRV technology and Soviet throwweight potential; at best, such sublimits have been a partial solution to be used in concert with unilateral steps, such as deploying mobile missiles.

It is also instructive to note that when restraining effects on qualitative innovation were sought, the consistent pattern was one of choosing indirect rather than direct forms of restraint. SALT I attempted silo-size restrictions as a way to limit MIRV capability. SALT II's new-types provisions applied constraints on certain ICBM dimensions and weights rather than on engine thrust, acceleration, guidance accuracy, or other measures of performance. Indeed, with the notable exceptions of fractionation limits in SALT II, which barred certain test simulations, and the radar power restrictions in the ABM Treaty -- each of which was extremely difficult to negotiate -- both sides to date have abjured direct controls on systems performance in strategic arms negotiations. This reluctance has been due in part to a natural disinclination on both sides to intrude into systems R&D in areas where technical uncertainties were great.⁴ Thus, the USSR

⁴ Even where technical uncertainties have been less burdensome, such as in the R&D on new missile types, there has been a reluctance to prematurely freeze designs. SALT II's new-types provisions attempted to balance this concern against the desire for controls with a complex set of guidelines to allow for minor adjustments to designs during flight-testing.

initially resisted negotiating specifications on permitted silo defenses in the ABM Treaty on the grounds that Soviet planners had not yet designed such a system; and the Pentagon successfully lobbied for exclusion of RV parameters from the new-types criteria in SALT II because of reluctance to constrict new technologies for MaRVs. Verification concerns have also weighed heavily in favor of the indirect approach, mainly because the Soviets, until recently, were painfully slow in giving the Americans any kind of claim to collect data on systems performance.

As these examples indicate, bargaining incentives can act to narrow the range of negotiating options and lead to suboptimal results. Yet it is not always the case that the competitive aspect of bargaining will inevitably produce this outcome. On the contrary, from 1986 to 1989, the Soviet-American bargaining dynamic mainly was one in which each side tried to outbid the other. This tendency had the effect of broadening options, and it reflected a curious convergence of interest between Gorbachev and Reagan in prodding their respective bureaucracies into action on ways to agree to deep reductions. Thus, suddenly, it became possible to contemplate highly one-sided cuts in order to reach parity, to balance off-setting asymmetries, and to adopt on-site inspections and other techniques which simply had not been real options a decade earlier.

Even in this new situation, however, some old patterns have reasserted themselves. Since the breakthroughs of the Reagan-Gorbachev summits, the progress in START has mainly come about through the deferral of hard issues, such as the fate of strategic defensive limitations, and through accord on permissible counting rules to soften the magnitude and the effects of the cuts, at least in the first phase of START.

COMPLIANCE BEHAVIOR AND RULE DEVELOPMENT

Throughout the period from SALT to START, we have seen numerous examples of the pressures and tensions that compliance disagreements have created for on-going bargaining. As we saw in Chapter 3, however, compliance is a far more complex issue than a simple litmus test of whether one side or the other has cheated in some significant (or insignificant) way. Indeed, the deeper significance of compliance problems is to be found in their relationship to rule-making activity over time. Not only has compliance served as a rough barometer of the effectiveness of particular treaty provisions, but compliance problems have acted as a catalyst in the evolution of bargaining methodology more generally. The kinds of general refinements which such problems have prompted are five-fold.

First, the amount of precision and complexity built into treaty obligations has grown enormously. This trend is

seen not only in the development of a more elaborate treaty lexicon, which can itself require lengthy descriptions of terms that do not lend themselves to self-definition (e.g., "missile support facility," missile "transits," etc.), but also in the more precise characterization of core activities like "testing in an ABM mode" which are set-up as criteria for delineating permissible from prohibited conduct. A common problem underlying many of the issues that plagued arms control during this period -- including the SS-19 development, SA-5 testing, telemetry encryption, and SDI testing -- was the tendency of one side or the other to fill in the blanks of a treaty with its own self-validating interpretations of what was permitted. In contemporary rule-making, the scope for unilateral interpretation has been narrowed.⁵

Second, the degree of data exchanged in connection with treaty implementation has increased substantially, reflecting a slow but steady change in Soviet attitudes over the past two decades. It has now become standard practice to reach agreement on the "baseline" of weapons, facilities, and activities to be subject to treaty limitations prior to the imposition of those limitations. This trend is a direct result of disputes over ABM test ranges and the general

⁵ As noted earlier, however, there are some unusual exceptions where the absence of explicit definitions has worked fairly well, as in the use of the term "national technical means of verification."

unwillingness of the USSR to confirm its force levels in the early 1970s. The requirement for full disclosure of such information is no longer seen as superfluous; rather, it is a precondition for agreement.

Third, both sides have refined their approach to verification safeguards, in particular to those pertaining to non-concealment. Since the SALT II agreement, the trend has been to disconnect the issue of intention from the question of whether concealing activity is objectionable. Thus, under the INF Treaty, concealing activity no longer need be demonstrably "deliberate" in order to be subject to challenge. Furthermore, the range of exceptions to the non-concealment requirement has been pared way back to cover only those activities associated with the maintenance and operation of systems in their deployment mode; and, even here, such exemptions are offset somewhat by the greater use of negotiated requirements to display items for observation by NTMs. Through such adjustments, both sides have moved toward striking a better balance between verification rights and the legitimate uses of concealment.

Fourth, the methodology for scope choices has evolved toward the use of objective criteria tied to systems capability, based mainly on the application of functionally-related distinguishing characteristics. The commonsense proposition that choices should err on the side of inclusion in the absence of FROD-like characteristics was

tested early on in the SALT era (i.e., in the III-X silo case) but was not consistently applied. Now, however, the drawbacks of granting exclusions on the basis of mission criteria (e.g., that a radar is for space-tracking, not early-warning) are widely recognized, and the need for agreement on objective measures of capability more clearly understood.

Fifth, compliance disagreements have lowered expectations regarding the capacity of formal rule-making to restrict the modernization of strategic forces. As discussed in Chapter 5, techniques that were tried during the SALT era, such as the "new-types" rules, generally failed to achieve their sought-after effects, in no small part because there was never a common view on what the desired effects were supposed to be. In a period of strategic force reductions, the leaderships on both sides may have more latitude to constrain qualitative improvement through coordinated unilateral initiatives, and in this context to develop selected measures like flight-test restrictions and limited data-exchanges on R&D practices in order to enhance confidence. More than likely, however, strategic arms diplomacy will continue down its present path of using warhead counting and force concentration rules as a way to limit overall destructive capacity and to shape incentives favoring the demIRVing of land-based weapons. If both sides can do this, they will have gone a long way toward

addressing precisely the kind of instabilities that qualitative controls were meant to deal with in the first place.

These five trends are indicative of the general directions in which compliance issues have steered the rule-making process. It would be short-sighted to argue that these trends define the outer boundaries of the kinds of adjustments that are possible, or that adjustments even within these areas noted have run their course. If, as many expect, the START era does codify a process of mutual reductions, both sides will have to learn to live with far more regulation and greater transparency in their R&D, acquisition, and deployment activities than would have seemed possible a decade ago. In a situation of adapting to new procedures, future frictions over compliance, and future adjustments to contain these frictions, are inevitable.

THE QUESTION OF RELEVANCE

What kind of role will strategic arms control diplomacy play in the 1990s and beyond? It is possible, though by no means certain, that the United States and the Soviet Union may someday reach a stage at which the reasons for being adversaries no longer exist. They are not at that stage yet. Already, however, deterrence as we have known it is declining in its importance as an ingredient for stability in day-to-day relations, not only in Europe but in the

central strategic sphere.

The diminution of military threats, of course, is not the same thing as a stable peace. It is very hard to imagine any future circumstances in which both sides would not retain strategic capability in some form; and until both can achieve a strategic arms balance that is mutually acceptable, the incentives to engage in strategic arms diplomacy are bound to continue. The bargaining dialogue that has become institutionalized over the past two decades lacks any historical precedent in terms of the length and intensity of the diplomacy or in the number of arms control rules agreed. Yet it is not, and probably can never be, a dialogue without struggle or disagreement.

E.H. Carr understood this problem well. Politics, he once wrote, plays out in a never-ending clash between ideals and institutions. Once a vision of international order "crystallizes into concrete political form," it becomes "tainted with self-interest" and "a tool of vested interests" in its institutional manifestation, and thus is subject to attack in the name of a new ideal.⁶ Arms diplomacy is not immune to this tension. In its ideal form, it has always stood for the proposition that states should cooperate in reducing the costs and risks of competition when the penalties of unwanted conflict are very great. But

⁶ E.H. Carr, The Twenty Years' Crisis, 1919-1939 (New York: Harper and Row, 2nd ed., 1964), pp. 93-94.

as an institution, arms diplomacy has been at best a blurry reflection of the ideal. Rule-making has turned out to be an incremental, conservative process; and political leaders on both sides have proved far more adept in proclaiming new goals for the dialogue -- to achieve parity at high levels, to reduce by 50 percent, to cap first-strike potential, and so forth -- than negotiators have been in developing effective methods to achieve these goals. For this reason, the process has been attacked routinely by idealists and realists alike for failing to live up to expectations or to keep up with political change. Such criticisms no doubt will persist for a long time to come. What they cannot call into question, however, is the overwhelming impulse that, for better or worse, compels leaders on each side to try to influence the other's strategic force planning decisions through explicit bargaining. Not to engage in such bargaining is to ignore the political essence of what is admittedly a highly stylized, bureaucratic process of give-and-take.

Thus, in the final analysis, the hardest question that both countries face is whether they can soften the inherent tensions between the ideal and the institutional aspects of their strategic arms diplomacy through creative adaptations -- that is, to produce innovative techniques for managing the relationship which, if not perfect, are at least less imperfect over time. If past experience is any guide, one

might reasonably conclude that constructive innovation is possible, given a healthy dose of convergent self-interest on the part of both sides to keep the dialogue going.

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