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START - THE ROAD TO NUCLEAR STABILITY

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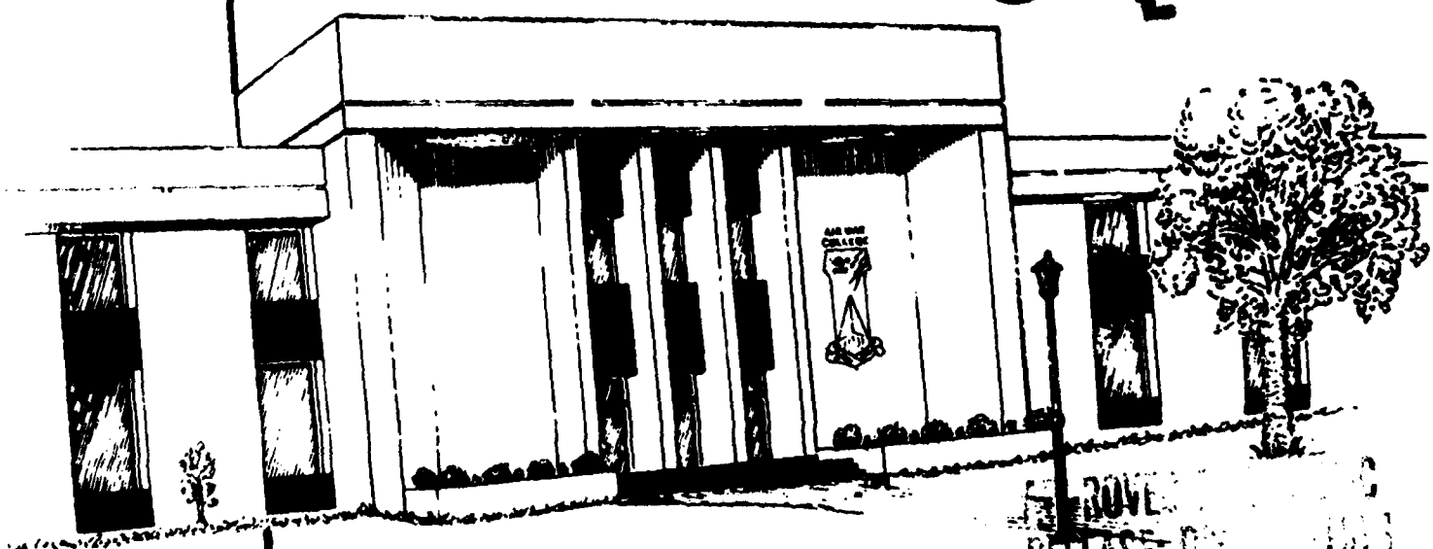

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START -- THE ROAD TO NUCLEAR STABILITY?

by

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A DEFENSE ANALYTICAL STUDY SUBMITTED TO THE FACULTY

IN

FULFILLMENT OF THE CURRICULUM

REQUIREMENT

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EXECUTIVE SUMMARY

TITLE: START--The Road to Nuclear Stability?

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President Reagan committed the United States to reaching a strategic nuclear arms control agreement that would enhance nuclear deterrence stability between the United States and the Soviet Union. By accepting the premise that nuclear stability had eroded over the last decade, the author discusses the various schools of view for enhancing stability and the various factors that affect the stability of nuclear deterrence. This sets the stage for an evaluation of a START Treaty based upon United States Geneva proposals as to whether or not stability is enhanced by using likely START Treaty constrained force structure. In the author's opinion, the proposed START Treaty provisions are generally neutral to general stability, but the same provisions leave openings for both sides to exploit that would erode crisis stability. Included are recommendations for both unilateral U.S. actions and START Treaty proposals that, if adopted, would lead to increased crisis stability.

BIOGRAPHICAL SKETCH

Lieutenant Colonel Barry N. Hansen (BS Chemistry, San Jose State University; Masters of Engineering Management, University of Utah) was commissioned in March 1968 and was first assigned to Hill AFB as a materials engineer. In 1972 he was assigned to Titan II missile duty with the 390th SMW at Davis-Monthan AFB; spending the last two years as the senior evaluator. After a follow-on assignment to the Air Force Technical Applications Center at Patrick AFB as the chief of research and development, he attended the Command and Staff course at the Naval War College in 1980-81. Following his schooling, he was assigned to the Defense Intelligence Agency as the chief of the Nuclear Weapons Branch and served as the chairman of the Director of Central Intelligence's Nuclear Weapons Working Group, and as the DoD representative to the DCI's Joint Atomic Energy Intelligence Committee. Due to his extensive background in nuclear intelligence and monitoring of nuclear arms control agreements, he was selected for an assignment with the Office of the Secretary of Defense where he served as a special assistant for developing arms control verification policy and as an OSD advisor with the INF and START Delegations in Geneva, Switzerland. Colonel Hansen is a graduate of the Air War College, class of 1989.

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CHAPTER I

INTRODUCTION

President Reagan, early in his administration, committed the United States to the objective of reaching nuclear arms control agreements that would enhance the stability of nuclear deterrence through deep, equitable, and verifiable reductions in nuclear forces. The central theme of the Administration's strategic arms reductions talks (START) proposals was that limits on numbers and types of strategic nuclear delivery vehicles (SNDVs) and nuclear warheads, and, at the same time, by channelizing modernization of the remaining forces into less threatening systems would result in greater stability. While the Bush Administration has not yet announced its arms control objectives, the author assumes that its policies will not be significantly different from the Reagan Administration.

Since the end of World War II, the United States has depended upon nuclear weapons to deter both nuclear war and general conventional war. An essential element of a stable deterrence is the perceived balance or imbalance of the strategic force structure of the two superpowers. Many analysts believe that general stability exists when the superpowers possess relative equal nuclear forces so that neither side perceives that it will gain more than lose if it initiates a nuclear exchange. Also, crisis stability requires the opposing nuclear forces be structured so as to

minimize the perception of either side that it must preempt with nuclear weapons during a crisis or confrontation so as to preclude their loss. With the advent of newer nuclear weapon delivery systems, some strategic analysts believe that crisis stability has eroded to the point where in a crisis situation there is an increased possibility of a nuclear exchange between the superpowers. Some also believe that general stability has eroded due to an erosion in the credibility of United State's nuclear forces.[1]

Many strategic analysts view arms control as the vehicle for enhancing the stability of the strategic relationship between the superpowers. This, they believe, is best accomplished if arms control limits the numbers and types of strategic nuclear weapons.[2]

The basic assumption of the Reagan Administration was that the U.S. START Treaty proposals would enhance both general and crisis stability. It is the author's intent in this paper to examine the concept of stability and the factors that contribute to nuclear deterrent stability. The author will propose a hypothetical force structure that could exist under the U.S. START Treaty proposals and evaluate whether stability is enhanced, remains the same, or is degraded when compared to force structures that could exist without a START Treaty. If, in the author's opinion, deterrence stability is not improved, the author will propose unilateral U.S. actions and alternative START proposals that would move the superpowers towards a more stable environment.

CHAPTER II

VIEWS ON DETERRENCE STABILITY

After World War II, the stability has changed as the nuclear arsenals of the two superpowers changed. During the early years, when the United States possessed a overwhelming nuclear capability, the ability of the United States to execute a massive nuclear response to any unacceptable Soviet action was seen as means for maintaining a stable deterrence. At the same time the moral beliefs of the United States, and possibly a degree in uncertainty in successfully executing an attack, kept the United States from attacking the Soviet Union.[1]

Of course, stability is in the eye of the beholder. During the period of overwhelming nuclear capability of the United States, The United States probably viewed the environment as extremely stable since its nuclear superiority and conventional forces in NATO held the Soviet Union in check. The Soviet Union on the other hand may have viewed the situation as anything but stable since they had no capability to deter a nuclear attack upon their homeland and in their view, trusting the U.S. not to attack took a great leap of faith on their part. The Soviet Union, seeing an imbalance in nuclear capabilities, saw no choice but to counter the nuclear capability of the United States.

As the nuclear capability of the Soviet Union approached that of the United States, a rough parity of

nuclear forces developed which, by the 1970s, led to a situation where both parties could inflict nuclear devastation upon the other. Therefore, the U.S. strategy of "massive retaliation" as a means of deterrence came increasingly in question and eventually was deemed bankrupt.

"Massive retaliation" was replaced by the U.S. concept of "mutual assured destruction" (MAD) and the U.S. strategy of "flexible response."[2] The premise of this concept is since both sides possess sufficient strategic nuclear capability, both would feel secure and free from attack by the other. Further, both parties would perceive that a "bolt out of the blue" first strike would not destroy enough of the other's nuclear forces so as to leave it vulnerable.[3]

However, the advent of newer technologies and weapon system delivery capabilities since the mid-1970s has, in many observer's minds, eroded stability to the point that in a crises or confrontation the superpowers will be faced with a "use or lose your strategic nuclear forces" situation. This results from the development of multiple independently-targetable reentry vehicles (MIRVs) and the increased accuracy of the newer ICBMs and SLBMs.[4]

Also, as a result of increasing accuracy of the ICBMs and SLBMs, there is a trend toward warheads with smaller nuclear yields which the United States expresses as a desire to limit collateral damage. The rationale is that the Soviet Union would perceive a greater will on the part of the United

States to use these smaller yield weapons vice the earlier high-yield low-accuracy weapons. This then will increase the credibility and deterrence value of the United State's nuclear forces. However, many arms control experts argue that the trend toward low-yield, high-accuracy, MIRVd nuclear weapons lowers the threshold for their use and, therefore, these types of weapons are destabilizing. They believe that stability has eroded to the point where an accident, equipment malfunction, or miscalculation by the political leaders during a crisis could lead to a nuclear exchange.[4]

Also, "detente" took its toll on the modernization of the United State's land-based nuclear forces. As a result of a desire for better understandings between the superpowers, the United State allowed its nuclear forces to age. However, the Soviet Union was not so constrained and embarked upon a build up of new and more accurate nuclear delivery vehicles. The ageing of the United State's retaliatory nuclear capability brought into question the credibility of its existing force structure as a deterrent to Soviet aims.[5]

Many believe that Soviet development and deployment of large numbers of prompt hard target kill nuclear weapon delivery systems places the United States in a position where it must decide in a short period of time whether or not to use its nuclear forces. As a result of this trend, both superpowers have deployed, and are continuing to deploy, nuclear delivery systems which many observers believe lead to increased pressure on the nuclear trigger. Fallout from

this environment has lead to a debate on "launch on warning" and "launch under attack" as a nuclear response by the United States. Acceptance of such responses is seen by many as potentially destabilizing. This debate was expressed during the 1980 Presidential campaign as the existence of a "window of vulnerability" of the United State's nuclear forces.[7]

In the final analysis, many strategic thinkers believe that the cornerstone of the United State's doctrine of nuclear deterrence--the possession of a credible second-strike (retaliatory) nuclear delivery capability--has eroded to the point where a miscalculation on the Soviet Union's part as to the will of the United States could prove fatal to mankind.[8]

It is difficult to prove that the advent of "more threatening" nuclear delivery systems has indeed reduced deterrence stability, for the concept of deterrence and stability is nebulous and difficult to define. While there is no doubt that highly accurate ballistic missiles can successfully attack individual missile silos, it does not necessarily follow that a party's fixed ICBM force is indeed vulnerable. Many believe that it is improbable for a nation to be willing to stake its national survival upon the success of a highly complicated attack to disarm the other side just because it possesses a capability to threaten the other side's fixed ICBMs.[9] However, as improbable as a disarming attack seems, any attempt to deride the "window of vulnerability" argument ignores the fact that in the

stability equation the perception of a threat is just as important as the reality of the threat.

The role of nuclear forces and arms control as they both relate to stability can be at cross purposes with each other. Both Parties view any threat to their nuclear forces as destabilizing and look to arms control to reduce the threat posed by the other's forces. However, at the same time both Parties wish to increase their forces in order hold the other's forces at risk which they believe will deter the other side by introducing uncertainty as to the success of an attack. This paradox must be taken into account during the formulation of arms control policies.

For the purpose of this paper, the author assumes that deterrence is indeed less stable than what it could be and, for the purposes of this paper, defines stability when:

> "neither side perceives that it must preempt with nuclear weapons in a crisis nor believes that it can gain more than it loses by initiating an attack with nuclear weapons"

To evaluate if specific initiatives--arms control or otherwise--lead to a greater degree of general or crisis stability, the factors that influence stability must be understood.

CHAPTER III

VIEWS ON ENHANCING STABILITY

The above definition does not allow for determination of the relative level of deterrence stability in a given environment and with a given force structure. Therefore, we must move beyond definitions and look at the factors that influence stability and those means of enhancing it.

The Reagan Administration's View

During his political campaign, President Reagan argued that the stability of U.S. deterrence--especially a deterrence that relied upon fixed land-based ICBMs--had eroded due to Soviet deployments of modern, hard-target kill ICBMs, Soviet deployments of numbers of strategic delivery vehicles far in excess of that required for their defense, and U.S. neglect in maintaining a modern force. As a result, the Reagan administration committed the U.S. to modernizing its nuclear forces while pursuing arms control in order to enhance stability.

In the context of arms control, President Reagan called for arms control agreements which would lead to deep reductions in nuclear forces. Further, these reductions must be both equitable between the parties and verifiable. The central themes of the arms control objectives of the Reagan administration--and presumably the Bush administration--for enhancing stability are:

- a significant reduction in total numbers of delivery vehicles and nuclear warheads,
- a reduction in the most threatening and destabilizing delivery vehicles; i.e. hard-target kill ICBMs,
- a channelization of strategic force modernization towards less threatening systems; i.e., reduced reliance upon ICBMs and greater reliance upon "slow flyers",
- a reduction in strategic force asymmetries leading to equality of forces, and
- a verification regime that leads to a greater openness of Soviet and U.S. societies toward each other, a greater knowledge of each other's strategic force structure, a confidence in compliance with treaty provisions, and an increased transparency in both parties activities and intentions.'

During the summit in Reykjavik, Iceland between President Reagan and General Secretary Gorbachev, the U.S. agreed in principle to the abolition of all ballistic missiles leading to total reliance upon "slow flyers" such as bombers and cruise missiles. However, this near agreement was torpedoed by Soviet insistence that the U.S. give up the Strategic Defense Initiative (SDI); something that President Reagan refused to do.[4]

The SDI program cannot be ignored as a potential contributor to stability; especially since the Soviets have made limitations to SDI an issue of arms control. The President's objective for SDI is to transition from an offensive based deterrence to a deterrence based upon defensive principles. This, in the Reagan Administration's opinion, will lead to a more stable relationship between the two superpowers, replacing the unstable one that exists today where each threaten the other with destruction.

The Soviet View

The Soviet's view on strengthening stability involves movement away from an offensive strategy toward a defensive one. They believe that the continued development of military hardware and deployment of modernized forces will not provide stability even if the overall balance is maintained. Along with this belief, they also appear to accept a position similar to the U.S. that calls for reductions in offensive weapons in general and elimination of those seen as most destabilizing. In detailing their positions, they express a concept of "reasonable sufficiency" which calls for a minimum nuclear force level that would be necessary to deter attack.

In particular, the Soviets approach to enhancing strategic stability involves:

- significant reductions in strategic offensive arms,
- elimination of the most threatening nuclear delivery systems; i.e., elimination of heavy bombers and SLBMs and a movement away from MIRVd

ICBMs and toward single warhead, mobile ICBMs,

- no SDI,
- a verification regime that leads to a greater openness of Soviet and U.S. societies toward each other, a greater knowledge of each other's strategic force structure, a greater confidence in compliance with treaty provisions, and an increased transparency in their activities and intentions.[4]

The Scowcroft Commission

The Scowcroft Commission was established by President Reagan to review U.S. strategic modernization programs, to examine the future of U.S. ICBM forces, and to recommend basing alternatives for future U.S. ICBM deployments. During the course of this study, the Commission recognized that the contribution that arms control could make to enhancing deterrence and stability would have to be considered.

While the Scowcroft Commission didn't make specific recommendations regarding arms control proposals, numerical limits, or the pace and scope of reductions, it is apparent that the Commission believed that the following elements would contribute to deterrence and stability. They are:

- arms control agreements must not preclude modernization of strategic forces for modernization is necessary for maintaining the credibility of a party's strategic forces,
- arms control agreements can channelize strategic modernization so that there is the incentive to

move toward more stable (read less threatening) and survivable strategic delivery systems--in this case the Commission was referring to single warhead, mobile ICBMs,

- arms control agreements can provide for reductions and limitations in strategic forces, but couch these reductions and limitations, not in terms of launchers, but in terms of equal levels of warheads and roughly equivalent total nuclear yield,
- arms control agreements must have counting rules to attribute warheads and nuclear yields to delivery systems.[5]

Outside of the arms control recommendations, the Commission recommended that the United States deploy the prompt, hard-target kill MX missile to improve deterrence. The rationale for this judgement was that the U.S. must have a comparable system to the Soviet SS-18 so as to reduce any Soviet temptation to attempt a disarming strike against the U.S. ICBM force. Without such a capability, the Commission believed that strategic stability would continue to remain low.[6]

Other Views

While not expressed in as great a detail as the above viewpoints, there has been a variety of writings on the issue of stability and how best to enhance it.

Modernize U.S. Forces

This school of belief has that stability has eroded

due to a lack of emphasis by the United States in modernizing its nuclear forces and due to the fact that the Soviet Union was pressing ahead with its modernization and deployment programs. This school believes that arms control can enhance stability only on the margin, and arms reductions, if taken too far, can be destabilizing unless there are limitations placed upon such factors as technology and types of delivery systems. They believe that the road to stability lies in restoring the credibility of U.S. nuclear forces through the modernization of those forces; especially the deployment of hard target kill ballistic missiles. In a way they have a similar viewpoint as the Scowcroft Commission, but they downplay the contribution that arms control can play in enhancing stability.[7]

Nonoffensive Defense

This school of belief holds that stability has eroded primarily because the superpowers have embarked upon strategic deployments that emphasize counterforce or warfighting capabilities. It is their view that previous and possible future arms control agreements will do little more than lead to the dismantlement of obsolete weapon systems and encourage the a greater dependence on counterforce weapons. Therefore, this school would make the movement away from counterforce weapons a major objective of arms control. They would propose:

- a freeze on deployment of new systems,
- a reduction in current strategic forces,

- improved verification procedures, and
- encouragement to replace MIRVd hard target kill ballistic missiles with single warhead systems.[9]

Elimination of Ballistic Missiles

This school of belief would eliminate all ICBMs and possibly SLBMs in order to enhance stability. They believe that strategic forces containing ballistic missiles are destabilizing and that both superpowers should work toward deployments of strategic forces that are dependent upon "slow flyers"; i.e., heavy bombers and cruise missiles.
Some believe that arms control agreements should be the vehicle for achieving this force structure, while others believe that arms control agreements are not necessary, for unilateral action on the part of the United States to abolish ballistic missiles will suffice. The elimination of ICBMs from the U.S. inventory would deprive a large part of the Soviet ICBM force for its raison d'etre. They reason that in the absence of U.S. ICBMs the Soviets would realize that their ICBM force served little purpose in limiting damage to the Soviet homeland since ICBMs are not a useful counterforce weapon against SLBMs and bombers. The Soviets, faced with a crisis situation, could not then preempt against the nonexistent U.S. ICBM force. Therefore, they would have no reason to maintain their own ICBMs and would voluntarily give them up.[10] Strange as it may seem, the abolition of ballistic missiles was almost agreed to by President Reagan and the Soviet Union at the summit in Reykjavik, Iceland

whether Congress would ratify such an agreement is problematical. Only the issue of SDI prevented agreement. While the elimination of ballistic missiles remained a long-term goal of the Reagan administration, it is still to be seen if this remains a goal under the Bush Administration.10

Strategic Defense

President Reagan, in a March 1983 address to the Nation, set forth his vision of deterrence based not on offensive weapons, but on strategic defenses. His view was that a greater degree of stability would exist between the United States and the Soviet Union if both nations no longer relied upon the threat to destroy each other.''

This view has been taken up by other strategic thinkers in varying degrees. In the simplest form, strategic defense would be coupled with arms reductions in order to protect the remaining forces; thereby, maintaining uncertainty in the potential attacker's mind as to the effectiveness of his attack. Since at least a portion of the strategic forces would be protected, the attacker would see no benefit to attempting a disarming attack and the defender no longer would need to preempt or launch on warning to avoid loosing all his forces.''

CHAPTER IV

FACTORS THAT AFFECT STABILITY

Before this paper addresses the question of whether or not stability is enhanced by the U.S. arms control proposals, the factors that affect stability will be examined from the perspective of both today's and the future's environment. Further, this chapter will examine some of the various concepts that have been put forth for overcoming the destabilizing effects of the identified factors.

Technology and Force Deployment Factors

Technology

The first factor, and probably the most important, that affects stability is the incorporation into weapon systems those technologies that are seen as destabilizing by many arms control analysts. For instance, the development of highly-accurate missile guidance systems and the capability to independently target reentry vehicles leads to an environment where both parties may believe that they must decide quickly whether to use their strategic forces or risk loosing them to attack by prompt hard-target kill ballistic missiles. Future technologies such as maneuvering reentry vehicles (MARVs), earth penetrators (EP), and depressed trajectories, all of which raise concerns over reduced warning time and disarming or decapitating strikes, only further tighten the finger on the nuclear trigger. This capability to place each other's land-based ICBMs, command

and control facilities, and national leadership facilities at risk further erodes stability by introducing the need for strategies dealing with preemptive attack, launch-on-warning, and launch-under-attack.[1]

The best approach to solving limiting the destabilizing effects of technology is an open debate. One school of thought would have the United States deploy similar technologies so as to match Soviet deployment of weapon technologies.[2] Another view would use arms control agreements to control development and deployment of new weapons technologies so that neither party could achieve a significant advantage over the other. At the other end of the spectrum, others would use arms control to ban development of newer, more threatening technologies and require the eventual retirement of the MIRVd, prompt hard-target kill ballistic missiles.[3]

Strategic Force Deployments

The second factor is the relative strategic balance between the two parties in terms of both absolute numbers and types of weapon systems. Many strategic analysts note that the Soviet Union didn't stop deployment of nuclear delivery vehicles when it achieved nuclear parity with the United States. Harold Brown voiced his concern when he stated: "when we build they build, when we stop they continued to build." Also, some of the current imbalance is a legacy of the SALT I agreement which allowed the Soviets to possess a greater number of delivery systems apparently as a counter to

U.S. advantages in MIRVd ballistic missiles and ballistic missile accuracy.

As can be seen in table 1, there is an imbalance in numbers of strategic nuclear delivery vehicles (SNDVs) and warheads--especially hard target kill--between the United States and the Soviet Union. In the 1970s, the imbalance permitted by the unratified SALT II Treaty was not seen by many as much of a danger since it was assumed that a SALT III Treaty would correct the imbalance. It must be pointed out that this view was not accepted by all and was made a focal point of the Reagan campaign. Further, as the Soviet Union continued to modernize its forces within the SALT numerical limit, the United States feared a risk-taking Soviet leadership might be tempted to blackmail the United States. Besides the imbalance in numbers of SNDVs and warheads, the throw-weight of Soviet ballistic missiles exceeded the United States' capability. Many arms control analysts believed that the large imbalance in throw-weight could allow the Soviets to deploy large numbers of RVs on their most accurate systems; i.e., the SS-18.[4]

On the other side, the Soviets are no doubt concerned about future U.S. actions; such as, the decision to be no longer bound by the SALT II limits, the modernization of its ballistic missile and bomber forces, and future deployments of "stealth" weapon systems and cruise missiles.

It is the view of many arms control policy makers that stability can be enhanced through arms control

Table 1 U.S. and Soviet Force Structures[a]

Type and Name	Launchers	Warheads
UNITED STATES		
ICBMs:		
Minuteman II	450	450
Minuteman III	500	1,500
Peacekeeper	50	500
Subtotal	1,000	2,450
SLBMs:		
Poseidon	256	2,560
Trident I	384	3,072
Subtotal	640	5,632
Bombers:		
B-1B	97	97
B-52G/H(ALCM)	140	1,400
B-52G	123	123
Subtotal	360	1,620
Grand Total	2,000	9,702
SOVIET UNION		
ICBMs:		
SS-11	420	420
SS-13	60	60
SS-17	138	552
SS-18	308	3,080
SS-19	350	2,100
SS-24	10	100
SS-25	100	100
Subtotal	1,386	6,412
SLBMs:		
SS-N-6	256	256
SS-N-8	286	286
SS-N-17	12	12
SS-N-18	224	1,568
SS-N-20	100	1,000
SS-N-23	64	256
Subtotal	942	3,378
Bombers:		
Tu-95	90	90
Tu-95(ALCM)	70	560
Subtotal	160	650
Grand Total	2,488	10,440

a. Ballistic missile warhead counts are the numbers agreed upon between the U.S. and the Soviet Union at the Washington Summit.

b. Bomber weapons are counted as "one" for the entire gravity bomb and SRAM loadout, while ALCM count is 12 for B-52s equipped for ALCMs and 8 for Tu-95s equipped for ALCMs.

agreements that set lower, equal limits on the total deployed numbers of strategic nuclear delivery vehicles and nuclear warheads. Further, the use of sublimits applied against various weapon system classes can be used to restructure nuclear forces leading toward a more stable environment.[6]

Bilateral Factors

Mistrust, hatred, secrecy, and misunderstandings between people and nations create unstable relationships. Overcoming these aspects of U.S. and Soviet relations is a difficult task. Foremost among these factors is the degree of trust between both parties--trust that neither party is attempting to gain an advantage over the other. This lack of trust has, in recent years, manifested itself over the issue of compliance with arms control agreements. Another factor that breeds mistrust is a lack of specific knowledge of each others strategic nuclear and conventional force structure. If one party has to guess at the intent of the other, the tendency is almost always to assume the worst case and structure its nuclear forces accordingly. This then becomes a vicious circle, with each side attempting to best the other.

Compliance and Trust

In an attempt to cut this endless circle of mistrust, weapons building, and more mistrust, President Reagan called for increased mutual transparency in nuclear forces and for more openness in the two countries societies. This, it is believed, will allow both to better "read" each others

intent, thereby preventing accidents and misunderstandings.

While trust is an essential element of creating a stable environment between two cultures, trust by itself can be meaningless. President Reagan made this clear in his "trust but verify" approach to arms control. From an arms control perspective, there are a number of provisions that are useful in enhancing trust. They are: (1) verification of agreements and measures for responding to noncompliance, (2) confidence building measures, and (3) openness in societies and governments leading to greater movement toward risk avoidance by national leadership.

Verification is many times seen as the panacea of insuring compliance with arms control treaty provisions. This assertion may be overblown for the effectiveness of verification will depend upon the willingness of the parties to accept verification measures that can be extremely intrusive. If they accept intrusive measures, verification can play an important role in enhancing stability. One must only look to the INF Treaty to obtain an idea as to the various inspections and counting rules that may be a part of a future START Treaty. Verification provides confirmation of force levels, destruction of strategic weapons, and access to previously denied information on delivery systems and warheads. Therefore, effective verification of arms control agreements is essential for confirming compliance and building trust.

However, no verification regime can be watertight. What must be avoided is a false sense of security that can result from unquestioning acceptance of arms control verification that will be, without a doubt, less than perfect. Putting undue faith in verification as a means of insuring compliance can lead to mistrust between the Parties for there will always be differing interpretations of arms control provisions, and when questions arise the natural tendency is always to assume the other is violating the Treaty. This was demonstrated in the SALT II disagreement over "new types" of ballistic missiles such as the SS-25.

What must be clear to both parties is that there will be sanctions imposed for unacceptable behavior. This can take the form of "response in kind" to noncompliance, a response in another area to neutralize the advantage gained by noncompliance, or more drastic steps such as total abrogation of the Treaty. This right of a party to inflict a penalty can be an important tool in insuring compliance.

Confidence building measures can reduce the potential for misunderstandings and accidents that can lead to war. Agreements on nuclear risk reduction centers, hotlines, and notification of missile tests or military exercises are examples. Also, agreements for the interchange of ideas, social and educational interactions, and meetings between top and midlevel military and political leadership can contribute to a greater openness, better understandings, and break down barriers of mistrust.

Force Transparency

Knowledge of the opponents forces have always been one of the greatest sought after secrets since armies first took the field. Keeping knowledge of your own forces secret from the opponent has been just as important. While your opponent's uncertainty in your force level has always been seen as a means of providing a deterrent to attack, secrecy can lead to miscalculations or accidents. In today's open society, the United States has few secrets from the Soviets as to its strategic force levels.[7] However, because of a history of almost paranoid Soviet secrecy, it is feared that the Soviets may choose to misread U.S. intent or believe that it is all a smoke screen and that the U.S. really has nefarious designs to do the Soviet Union in. President Reagan has called for more openness in Soviet and U.S. military force structure as a means of alleviating uncertainty and fear. Two means of accomplishing this are: (1) exchanges of data on strategic forces, and (2) cooperative measures.

Data exchanges reduce a party's uncertainties in its knowledge of the strategic forces facing it. Both side are less likely to overreact in crisis situations if they possess a better understanding of each other's forces. However, the level of detail that should be in a data exchange is open to controversy. Some believe that the exchange should be limited to a minimum, giving only that necessary for treaty compliance. Others take the position that the U.S. being an

open society where much detail of its strategic force structure and capabilities are known has little to lose to the Soviets and much to gain by opening up the secret Soviet society.

Whichever view is accepted, the contribution that data exchanges by themselves can make are minimal without some way of confirming the exchanged data. This goes back to the issue of developing trust between the two Parties with verification measures providing this needed confirmation. Cooperative measures between the Parties also provides for force transparency and trust. Such measures as no encryption of telemetry, no use of concealment to impede verification, and periodic open displays of strategic forces for inspection by national technical means (NTM) all contribute to reducing uncertainties.

Unilateral Factors

Unilateral actions on the part of one party or the other can affect stability either positively or negatively. In many instances, unilateral actions may seem as stabilizing from one point of view, but destabilizing from the other party's point of view. A classic example of this is the extensive buildup of nuclear forces by the Soviet Union in the 1970s which far exceeded what the United States believed was necessary for defense.

With this in mind, there are a number of options available which, if exercised, will affect stability. These options are: (1) enhancing the credibility of forces,

(2) enhancing the perception of a willingness to use forces if provoked, and (3) introducing uncertainty in the opponent's mind as to the success of a first strike attack.

One of the most important is the credibility of strategic forces. Many believe that the credibility of the capability of the United State's nuclear forces eroded in the eyes of the Soviets due to neglect during the 1970s. This neglect also brought the danger that the Soviet Union might perceive that the United States is questioning its will to use its nuclear forces. From the perspective of deterrence and stability, it is not necessarily what the facts are, but how the Soviet and U.S. leadership perceive the environment. If U.S. capability and will has indeed declined, the possibility that the Soviet Union might be willing to seek a substantial advantage in an area of great or vital interest to the U.S. is seen as an increasing threat[8]

This issue came to the forefront in the early 1980s and led to discussions about U.S. strategic superiority and "margin of safety" needed to deter the Soviet Union. While a return to the conditions of the 1950s are probably not achievable, the United States has embarked upon a strategic modernization program to address the credibility question. Therefore, many believe that it is essential that arms control agreements allow modernization of strategic forces if for no other reason than to maintain the perception of credibility of nuclear forces and the will to use them.[9]

Besides maintaining the credibility of nuclear forces and demonstrating the will to use them, maintaining the belief that a first strike attack will be unsuccessful in achieving a party's aims is also important. Various proposals have been put forward for the purpose of enhancing the uncertainty of successfully executing such an attack. They are: (1) the use of strategic defenses, (2) deployment of nuclear forces in survivable modes, and (3) survivable command, control, and communications capabilities.

Strategic defenses, such as President Reagan's SDI program, are designed to accomplish a number of missions. Initially, SDI was to defend the United States against a full scale nuclear attack, thereby making the existence of nuclear forces meaningless. President Reagan believed that the United States and the Soviet Union could move from an offensive strategy to a defensive one. He reasoned that this could only result in a more stable relationship between the two countries. Whether or not such an ideal system can be developed is open to debate; but, even if the eventual answer is no, strategic defenses can still contribute toward enhancing stability.

A strategic defense that is less than perfect can introduce uncertainties into the strategic targeteer's mind as to the effectiveness of any disarming or decapitating attack. It is true that strategic defenses can be defeated, but to do so will require a party to expend more warheads to destroy the opponents forces than would be the case absent

SDI. This unfavorable exchange ratio, especially if arms control limits the size of nuclear forces, can limit serious consideration of a disarming attack. Therefore, SDI can reduce concerns about "use or lose" strategies.[10]

Not to be overlooked is the contribution that deployment of nuclear forces in a survivable mode can make. Survivable deployments, like strategic defenses, introduce uncertainties into the strategic targeteer's mind as to the effectiveness of a disarming attack. Mobile basing of ICBMs has received much discussion especially after the Scowcroft Commission's report on the value of mobile ICBMs. It was argued that it would require such a large number of warheads to attack mobile ICBMs to be prohibitive and, therefore, an attacker would not attempt a first strike. On the flip side of this argument is the fact that there are serious concerns in verifying the mobile missile numerical limits of an arms control agreement.

However, mobility is not the only means of increasing the survivability of land based ICBMs. Multiple protective shelters (the "shell game"), closely spaced basing (CSB or dense pack), and superhardening of silos have been proposed at different times.[11]

Finally, enhancing the survivability of a nations command, control, and communications network has been proposed in order to introduce a greater uncertainty of successfully executing a decapitating attack.[12]

CHAPTER V

U.S. START TREATY PROPOSALS

Through arms control negotiations that lead to arms reductions, the United States seeks to attain a stable strategic balance at the lowest possible levels of military force. Thus the United States hopes to reduce the risk of conflict, ensure peace, and strengthen security. This is the basic goal set forth by the Reagan Administration of which the START Treaty is one element.[1] To this end, the United States tabled at the Geneva Negotiations a number of arms reduction initiatives, some of which the Soviet have agreed to in whole, in part, or in principle. These are:

- General Approach: 50 percent reduction to equal levels in strategic arms, carried out in a phased manner over seven years from the date the treaty comes into force.

- SNDVs: 1,600 ceiling on the number of strategic nuclear delivery vehicles; including ICBMs, SLBMs, and heavy bombers.

- Warheads: 6,000 warhead ceiling, to include ICBM and SLBM warheads and long-range ALCMs, and with each heavy bomber equipped for gravity bombs and SRAMs counting as one warhead.

- Warhead Sublimits: Sublimits within the 6,000 warhead limit of 4,900 total ICBM and SLBM warheads, 3,300 ICBM warheads, and 1540 warheads on heavy ICBMs.

- Heavy ICBMs: A limit of 154 heavy ICBMs of the SS-18 type.

- Throw-Weight: A 50 percent reduction to the higher of either the Soviet Union's or United States' throw-weight level.

- Mobile ICBMs: Banned.

- Heavy Bombers: Each bomber counts as one SNDV. Each bomber equipped for gravity bombs and SRAMs would count as one warhead in the 6,000 ceiling. Each long-range ALCM attributed to each type heavy bomber would count as one warhead in the 6,000 ceiling.

- SLCMs: SLCM limits shall not involve counting long-range, nuclear-armed SLCMs within the 6,000 warhead and 1,600 SNDV ceilings. The sides shall reach a mutual agreement regarding SLCM limits and verification of these limits.

- Verification of Compliance: Building upon the provisions of the INF Treaty, the measures upon which the START Treaty can be verified will, at a minimum, include:

-- a data exchange,

-- on-site inspection of the elimination of strategic systems,

-- continuous on-site monitoring of critical production and support facilities,

-- short-notice inspections of declared facilities,

-- suspect-site inspections at locations where a side may suspect cheating is occurring,

-- provisions prohibiting the use of concealment or other activities which impede verification by NTM, and

-- measures designed to enhance observation of activities related to reduction and limitation of strategic arms by NTM.

From the perspective of the Reagan Administration, a START Treaty based upon these elements would meet its objectives of a stable nuclear deterrence posture at lower levels of military force.

First, the proposal for equal levels of strategic arms; i.e., the reductions to 1600 SNDVs and 6000 warheads, puts both superpowers on an equal footing. This, the Reagan Administration believed, enhances general stability by removing the possibility that either side could perceive that it could initiate a first strike and still be left with sufficient force levels to deter retaliation.

Second, the 50 percent reductions to the 1600 and 6000 numerical limits would reduce the total nuclear armaments to a level that would still provide effective deterrence. Reducing nuclear arms from a level that was seen as excessive would be a positive contribution to furthering relations between the two countries. Who could argue with the elimination of weapons that served no purpose other than to make the "rubble bounce." Also, some within the

Administration believed that the remaining strategic forces would have a greater credibility as the older, less capable systems were retired.

Third, the warhead sublimits of 4900, 3300, and 1540 would provide the incentive for the parties to move toward less threatening strategic force structures. Especially in the case of the Soviets, the sublimits would force retirement of a large portion of their destabilizing ICBM force and greater dependence on less vulnerable, more stabilizing SLBM and bomber forces. Of course, from the Soviet view, this was seen as a one sided deal which would necessitate a massive restructuring of their forces and a sacrifice of a large investment in their ICBMs while at the same time requiring little sacrifice on the part of the United States.

Forth, the 50 percent reduction of ballistic missile throw-weight was proposed as a means of reducing the breakout potential of the Soviet ballistic missile forces. It is held that changes in Soviet RV technology could allow them to replace older, heavier RVs with a greater number of smaller, lighter RVs. For example, the United States fears that the Soviet Union could breakout of the treaty warhead limits by replacing the 10 RVs on the SS-18 with 20 or more newer RVs.

Fifth, the U.S. ban on mobile missiles arises from the belief that the destabilizing aspects of unverifiability of mobiles far outweigh their stabilizing attributes. While the Reagan Administration accepted the findings of the Scowcroft Commission on mobiles, it also held the view that

the reload capability of mobile missile launchers, lack of verifiable way to prohibit reloads, and the fact that mobiles are by nature a hidden force make the effective verification of any mobile limit next to impossible. Because of these attributes, the Reagan Administration believed that mobile missiles were more destabilizing than stabilizing when considered in the context of a small arms control constrained strategic force structure and, therefore, should be banned.

Sixth, while there is no agreement on the approach to counting heavy bomber armaments, the U.S. approach is to discount ALCMs. Gravity bombs and SRAMs are discounted so that no matter how many a bomber can carry, the loadout is counted as only one warhead. Discounts for ALCMs, however, are not to be as deep as for gravity bombs and SRAMs; e.g., a B-52 equipped for ALCMs would be counted as 10 warheads instead of the up to 20 it could actually carry. The rationale of this approach is twofold. First, this would give incentive for moving away from more threatening ballistic missiles to "slow flyers" such as penetrating bombers and ALCMs. Second, the United States does not believe that gravity bombs, SRAMs, and ALCMs should be counted in a manner that equates them to ballistic missile warheads. While the Soviets have agreed to the counting rule for gravity bombs and SRAMs, they wish to use an "as equipped" rule for attributing ALCMs to heavy bombers equipped for ALCMs rather than discounting them.

Seventh, SLCMs are to be treated separate from the 1600 and 6000 numerical limits. The agreement reached during the December 1987 summit on SLCMs commits the parties to finding a mutually acceptable solution which will establish ceilings on nuclear-armed SLCMs outside the other numerical constraints of the START Treaty. The United States would prefer to keep SLCMs totally outside the START Treaty since any constraint on nuclear-armed SLCMs will probably spill over onto conventionally-armed SLCMs. This is due to the fact that there is no easy way to verify if a SLCM contains a conventional warhead or a nuclear warhead. Further, due to the open nature of the United States' society, any agreement to control nuclear-armed SLCMs would only constrain the United States while allowing the secretive Soviet Union to deploy an unconstrained nuclear-armed SLCM force masked as a conventional force.

CHAPTER VI

A START TREATY FORCE STRUCTURE

Table 2 displays a hypothetical force structure that could exist after completion of the phased reductions of a START Treaty based upon the arms control proposals of the United States. However, the author wishes to avoid focusing upon the exact nature of the force structure, for any number of hypothetical force structures could be derived that would be in compliance with the START Treaty proposals.

The author is proposing this force structure based on the assumption that it would be the easiest and cheapest to deploy since it eliminates the oldest systems, leaves the more modern systems, and does not require development of systems not already existing within both parties' strategic forces. The author also assumes that the U.S. force structure would be a result of the refusal of the Congress to fund new ballistic missiles and bombers. This would leave the United States with no option but to structure its forces around already existing systems. The reverse is true in the case of the Soviet Union. The Soviets appear willing to fund deployments of new systems as replacements for older, less capable systems. This is born out by the lack of any apparent slow-down of Soviet deployments of newer strategic weapon systems even while General Secretary Gorbachev talks arms control.

Table 2. Hypothetical START Force Structure

Type and Name	Launchers	Warheads
UNITED STATES		
ICBMs:		
Minuteman III	148	444
Peacekeeper	100	1,000
Subtotal	248	1,444
SLBMs:		
Trident I/II	432	3,456
Subtotal	432	3,456
Bombers:		
B-52H(ALCM)	100	1,000
B-1	97	97
B-2	3	3
Subtotal	200	1,100
Grand Total	880	6,000
SOVIET UNION		
ICBMs:		
SS-18	154	1,540
SS-24(silo)	150	1,500
SS-25(silo)	260	260
Subtotal	564	3,300
SLBMs:		
SS-N-20	100	1,000
SS-N-23	144	576
Subtotal	244	1,576
Bombers:		
Tu-95	74	74
Tu-95(ALCM)	100	1,000
Blackjack	50	50
Subtotal	224	1,124
Grand Total	1,032	6,000

a. Ballistic missile warhead counts are the numbers agreed upon between the U.S. and the Soviet Union at the Washington Summit.

b. Bomber weapons are counted as "one" for the entire gravity bomb and SRAM loadout, while ALCM count is 10 for B-52s and Tu-95s equipped for ALCMs.

United State's Force Structure

The author assumes that approximately 18-20 Trident submarines would be deployed so as to have a survivable force at sea at any one time. This, therefore, dictates the ICBM level that can exist within the 4900 warhead limit. The author assumes that the Peacekeeper force would be augmented by an additional 50 missiles deployed in silos in order to give the United States a credible land-based, hard-target kill capability. The remaining ICBMs would be made up of the more capable Minuteman III missiles vice Minuteman II missiles. No Midgetman missiles (SICBM) would be deployed. The heavy bomber force would consist of B-52s equipped for ALCMs, B-1s in a penetrating bomber role carrying only gravity bombs and SRAMs, and the few B-2s resulting from the development program. Extensive B-2 deployments would not be made due to the cost of the system.

Of interest is the fact that the limiting factor is not the 1600 SNDV number. The 6000 warhead limit is reached long before the 1600 SNDV is reached.

Soviet Union's Force Structure

The author assumes that the Soviet Union's strategic forces would be built around its ICBM forces. This decision to deploy 3300 ICBM warheads would then allow only 1600 SLBM warheads. The ICBM force would be made up of 154 treaty allowed modernized SS-18s. The remaining ICBMs would consist of the silo-based SS-24 (replacing the less capable SS-19), and silo-based SS-25 (replacing the SS-11, SS-13, and SS-17).

The SLBM force would consist of Typhoon submarines equipped with the SS-N-20 and Delta IV submarines equipped with the SS-N-23. The Soviets would retire all other Soviet SSB and SSBN submarines. Similarly, as in the United States' case, the 6000 warhead limit was reached before the 1600 SNDV limit.

CHAPTER VII

THE TREATY AND STABILITY

At the outset of this paper the author assumed that strategic stability between the United States and the Soviet Union has eroded. Drawing upon the factors that affect stability and the conditions that define when stability is maximized, the author believes that a START Treaty must result in:

- equable force structures,
- reduced levels of threatening systems,
- increased uncertainty in successfully executing a first strike,
- increased confidence in detecting any cheating by the other party, and
- reduced uncertainty in understanding the intent of the other party.

While the above are a good checklist for evaluating the objective factors of a treaty's contribution to stability, the subjective nature of each parties perspective of how the resulting force structure affects stability is just as important. Therefore, a judgement as to whether or not an arms control treaty enhances stability enhancements will always contain subjective as well as objective elements.

General Stability

General stability exists best in an environment of trust, openness, and strategic balance where neither side

believes that it can gain the advantage by striking first. A first strike may become attractive if the force structure imbalance between the two parties is such that one may perceive that it can destroy a sufficient percentage of the other's forces while at the same time retain sufficient forces so as to deter retaliation by the defender. Therefore, the ideal force structure permitted by the treaty should be able to withstand a first strike and provide a surviving retaliatory force capable of inflicting unacceptable damage upon the attacker.

Turning to table 2, the force structures that could exist under the START Treaty are equable in respect to total number of SNDVs and warheads. In general, an argument can be made that this balanced force structure is more stabilizing than the imbalance that exists today. However, when the structure of these forces is examined one imbalance is noticeable. Using the author's hypothetical force structure, the ratio of Soviet hard-target kill warheads to U.S. land-based ICBMs is over 6:1. What the ratio points out is that a treaty that only numerically constrains a force structure can result in a force structure that is more vulnerable since the complexity of attacking fewer targets is significantly reduced. An argument can be made that the Soviet Union could perceive an advantage over the United States and lead the Soviet Union to believing it could attack at will.

Henry Kissinger wrote in an article published in the Washington Post that the most logical START constrained

United States ICBM force structure would be extremely vulnerable to a Soviet first strike. In his analysis, he described how the ratio of Soviet prompt hard-target kill ICBMs (SS-18) warheads to U.S. ICBM launchers would increase from about 3:1 to 4:1. What Dr. Kissinger didn't consider in his analysis was the fact that the Soviets would probably deploy the SS-24 and SS-25 as replacements for the older ICBMs. There is no reason to believe that these systems could not be modernized over time into prompt, hard-target kill ICBMs. This could be particularly destabilizing since the Soviets could attempt a "bolt out of the blue" attack against the U.S. ICBM force, the in port SSBN force, and the nonalert heavy bomber force.

The Reagan Administration and the Air Force apparently believed there was a significant risk to today's force structure when they made an issue of the "window of vulnerability" question. However, the Reagan Administration, in response to Dr. Kissinger's article, argued that the Soviets would be deterred from attempting this type of attack because of the survivability of the other elements of the Triad. If this is so, the argument about a "window of vulnerability" takes on more of a political tone than an identified threat to U.S. security.

What such arguments forget is that a Soviet decision to attack under these conditions is, hopefully, the result of rationale thought. What is the probability that the Soviets would be willing to risk the existence of their country on

the role of the dice? Probably very low; but this will be debated by many trying to prove their respective points of view about the strengths or weaknesses of the START Treaty.

Turning now to issue of both parties' trust in the other complying with the Treaty's provisions and the contribution the START verification proposals make towards furthering compliance. President Reagan and General Secretary Gorbachev, in their Washington Summit communique, said that the START verification regime would build upon the INF Treaty. Besides inspections at declared facilities, the START Treaty will probably also include inspections to confirm ICBM and heavy bomber warhead counts to confirm what has previously been declared in the data exchange and other notifications required by the Treaty. In the important area of "suspect site" inspections to deter covert cheating, the original U.S. proposal of "anywhere, anytime" inspections will probably not survive. While the Soviet view is not clear on the degree of freedom they would allow, portions of the United States Government--the intelligence community and weapons development community--have strenuously objected to suspect site inspections unless there is the right of U.S. refusal.

Therefore, there is little hope of a START verification regime that totally meets the Reagan Administration's definition of "effective verification." However, the author does not necessarily accept that a somewhat less than perfect verification regime will be fatal

to the START Treaty's ability to enhance general stability. While some will argue that the United States will be left with a verification regime that confirms that cheating is not taking place at locations where the Soviets declare they will not cheat, the author believes that the Treaty will close out the cheap and easy routes for the Soviet to cheat.

However, this is ignoring a central contribution that verification makes to the arms control process. The verification process will involve a degree of sustained cooperation between the United States and the Soviet Union. Facilities and geographic regions not previously accessible to each other will be open to inspection. Information will be exchanged and there will be better and more notifications made that will defuse misunderstandings before they occur. This openness will reduce Soviet secrecy and will provide the vehicle for both parties to engage in cooperation instead of competition. In the final analysis, this verification regime will provide the tool for understanding and trust.

The issue of stability cannot be viewed from only the viewpoint of the United States. Knowing how the Soviets would perceive stability under the proposed START constraints is pure conjecture. However, there are some general observations that can be made. The Soviets undoubtedly will view the U.S. force structure as a destabilizing move from the status-quo. Current U.S. forces pose little threat to the Soviets from prompt, hard-target kill ballistic missiles; i.e., 500 MX warheads going against almost 1400 ICBMs--hardly

a disarming attack threat. However, the U.S. START constrained force would pit 1000 MX warheads and 3,456 Trident II warheads against approximately 600 Soviet ICBMs. Without a doubt, this would be unsettling to the Soviets.

As unsettling as this may appear, the threat to both parties would be more balanced than is the case in today's environment even though the hard-target kill capability is increased. In evaluating a START Treaty's contribution to general stability, one must look at the entire force structure and not just one element of it. Both parties' strategic forces consist of a Triad of strategic forces. This introduces a high degree of uncertainty in one party's capability to successfully attack all elements of the other's forces. The synergistic effect of the United States' and Soviet Union's strategic Triad forces and the fact that these forces are more numerically balanced under a START Treaty--albeit more modern--outweigh the fact that one element may appear to be more vulnerable. Therefore, in the author's opinion, general stability is enhanced by a START Treaty that is based upon the United States' proposals.

Crisis Stability

Most strategic analysts believe that nuclear war, if it is to occur, will occur because of a misunderstanding or accident during a period of crisis between the superpowers. Therefore, arms control should not just reduce the total number of nuclear weapons, but, more importantly, reduce the incentive for either party to preempt in times of crisis.

While general stability requires rational national leaders that understand that there is little to gain and much to lose from a nuclear exchange, the improving nature of prompt hard-target kill weapons that threaten a party's nuclear forces leaves little time for any rational decision making.

The proposed START Treaty, far from reducing the most threatening weapon systems, actually will allow both parties to continue to deploy greater numbers of improved prompt, hard-target kill ICBMs far in excess of the numbers deployed today. One only has to look at table 2 to realize that in a crisis situation, where the fingers would already be tight on the nuclear trigger, the array of MIRVd ICBMs can do little but enhance the "use or lose" attitude. An accident, misinterpretation of surveillance sensors, or poor judgement could be catastrophic.

Of interest, the weapon systems that have only a marginal impact on general stability have a significant impact on crisis stability; e.g., MIRVs, MARVs, stealth weapons, etc. The U.S. proposed START Treaty does little to control or limit development new and more threatening weapon system technologies.

In particular, a START Treaty based upon the United States' proposals would not limit the testing and deployment of strategic MARVs, earth penetrating nuclear weapons, "stealth" weapons, and depressed trajectory ballistic missiles, all of which either negate weapon system

survivability or reduce tactical warning time. MARV technology allow weapons to be delivered with greater accuracy and therefore greater effect against hardened targets. Further, it is conceivable that MARVs of the future could be use to ferret out and target movable targets; e.g., mobile C³ facilities. Also, MARVs of the future could be so accurate that nonnuclear kill weapons may be possible. How this nonnuclear kill weapon would be controlled by a nuclear arms control treaty is unknown at this time, but could be potentially destabilizing if they were deployed in large numbers. Earth penetrating nuclear weapons when coupled with MARV delivery systems also pose a significant threat to hardened launchers, C³ and leadership facilities.

Stealth technology could potentially transform weapon systems that are normally seen as more stabilizing; i.e., cruise missiles and bombers, into first strike systems. At a minimum, stealth technologies could reduce warning time or hinder attack assessment, thereby leading to uncertainties in intent of the other Party or miscalculation of whether an attack is underway.

Conclusions

Reflecting upon the above discussions and given the postulated force structure, the author believes that a START Treaty structured around the United States' proposals would enhance general stability from what exists today. General stability under today's force imbalance is probably perceived as high and START would contribute toward maintaining this

high level of general stability in the future because of a better force balance and increased trust between the parties. Admittedly this is a subjective view of the author. However, the fact that there would be a trend toward more threatening weapon systems facing fewer deployed weapon systems is a dangerous trend. Before deeper cuts in force levels are proposed, both sides must address the continued existence of MIRVd, hard-target kill ballistic missiles and other weapon technologies and their effect on general stability. Some strategic thinkers caution against a "bean count" approach to determining the effect on stability; however, it is the bean count that influences perceptions of the threat and perceptions are everything to the question of stability.[1]

On the other hand, the author believes that a START Treaty structured around the United States' proposals would not enhance crisis stability. Further, in the future the START Treaty would actually allow development and deployment of strategic forces that would further erode the current level of crisis stability. Of interest, is the apparent fact that those factors that have little impact on general stability--assuming the both forces are numerically equal and have equivalent capabilities--can have a negative impact crisis stability. This means that general stability can be high while at the same time crisis stability can be low.

CHAPTER VIII

RECOMMENDATIONS

Admittedly the conclusions reached in the preceding chapter rested upon the author's hypothetical force structure and a degree of subjective analysis. However, the author believes that the U.S. proposed START Treaty gives little incentive for force structure changes that may be more stabilizing. Also, if past history is any example, resource limitations and the desire to maximize a party's warfighting capability will have the tendency to limit consideration by both parties of stabilizing force structures.

There are a number of initiatives that the United States can take in order to enhance crisis stability. Some of these can be taken unilaterally while others will require the United States to table new START Treaty initiatives.

Unilateral Initiatives

A party can take unilateral actions to change its own force structure in an attempt to partially negate the destabilizing effect of other party's threatening weapon systems. However, there is no guarantee that the other party will respond by moving toward less threatening forces as some arms control analysts seem to believe. Instead there is the risk that the other party may view the unilateral action in a different light and respond with its own force structure changes precipitating a new cycle of the arms race. Therefore, it is essential that any unilateral action be

considered from the perception of the other party. With this in mind, the author recommends a number of unilateral U.S. initiatives that he believes can contribute toward the enhancement of crisis stability.

Force Structure Alternatives

A major concern evident in the author's hypothetical force structure is that both parties' ICBM forces are vulnerable to attack by hard-target kill, MIRVd ICBMs--Dr. Kissinger's ratio argument. This is because one MIRVd missile can attack more that one target; e.g., the SS-18 could take out five Peacekeeper silos (2 on 1 targeting) or in other terms, for every 10 Soviet warheads expended, 50 U.S. warheads could be destroyed. One way to counter this imbalance would be to increase the number of U.S. targets the Soviets would have to target. Another would be to lower the strategic value of each target.

Two options are proposed. The first would retire the 148 Minuteman IIIs and replace them with 444 silo based Midgetman missiles or de-MIRVd Minutemen III. These 444 ballistic missiles would be deployed in 444 Minuteman III silos. The second option would deploy the 148 Minuteman IIIs in 450 Minuteman III silos by rotating them among the silos in a shell game similar to the MPS deployment concept of the late 1970s. An alternative would be to retire all Minuteman III missiles and rotate 144 Peacekeeper missiles among the 550 Minuteman III silos. Both options would maintain the 1,444 ICBM warhead deployment.

The first option and the alternative to the second option would have an added benefit in that the new Midgetman ICBM and MX ICBM are more capable systems warhead for warhead when compared to Minuteman III. The second option may be cheaper for the United States to deploy than the silo-based Midgetman missiles since development of a new missile is not required. However, the second option may require negotiation of a verification regime for insuring that the sides are not exceeding the number of SNDVs allowed by the Treaty. The United States proposed such a verification regime for the MPS deployment which would allow the Soviets to use NTM to confirm numbers of deployed ballistic missiles.

All alternatives would have a two-fold effect on enhancing crisis stability. First, it would require the Soviets to expend a greater number of MIRVd ballistic missiles during an attack on the land-based U.S. ICBMs, thereby reducing the number of weapon systems available to attack other U.S. targets. Second, it would increase the complexity of the Soviet attack and introduce uncertainties in their mind as to the success of executing an attack. Such deployment options reduce the perception that the ICBM force of the United States is vulnerable and, therefore, contribute to enhancing crisis stability.

Strategic Defense

The author proposes deploying a limited strategic defense to protect high value ICBM forces. Strategic defenses introduce complexity into executing an attack and

uncertainty in achieving a successful attack. Moreover, to achieve this objective the author does not believe that strategic defenses be totally leak proof, nor must a nation deploy strategic defenses capable of defense of its national territory if the goal is to introduce uncertainty into the strategic equation.

Therefore, the author recommends that the United States deploy strategic defenses around one of the ICBM deployment areas; preferably around the Peacekeeper ICBM deployment area. This can be accomplished in compliance with the ABM Treaty deployment since strategic defenses at Cavalier AFS, N.D. are allowed by the Treaty. This would protect at least 50 Peacekeeper ICBMs--the author also recommends that the U.S. move the 50 at F.E. Warren AFB to the protected area.

Many strategic analysts have derided such defensive concepts in the past; arguing that the Soviets would simply flood the defenses. The author does not argue that such an attack is impossible. However, in an arms control environment that constrains numbers of warheads, such an attack is costly in numbers of warheads. Further, in the MPS options--Peacekeeper or Minuteman III deployed in Minuteman III silos--the defensive system would only need to protect those silos containing missiles and would disregard warheads targeted against empty silos. Strategic defenses would increase the complexity of a Soviet disarming attack and would introduce uncertainties in their mind as to the success

of executing such an attack. Also the existence of strategic defenses could increase the decision and reaction time available to the United States.

Responses to Soviet Violations

During the START Treaty ratification process, the United States must make clear to the Soviets the range of possible responses if the Soviets were to violate the agreement. These responses would be similar to the safeguard provisions of the Limited Test Ban Treaty which provide direction to the Administration and the necessary funds to maintain a capability to respond in kind to any Soviet violation. However, this level of consensus for other arms control treaties has not existed--other than infrequent expressions of public and Congressional concern over Soviet actions. Instead, most debate has been over the interpretation of whether or not intelligence information confirms a Soviet violation.

Therefore, the author recommends that the Administration must, when it sends the Treaty to the Senate, include provisions for responding to any Soviet violation and seek agreement from Congress to these provisions prior to ratification. These provisions could give advance Congressional consent for the Administration to respond appropriately; e.g., partial or total withdrawal from the Treaty, if the Administration finds the Soviets in violation. Another option would be for the U.S. to keep "warm" missile

and bomber production lines so as to shorten U.S. response time if the Soviet were to breakout from the Treaty limits.

START Treaty Initiatives

The author believes that there are a number of missing elements in the START Treaty proposals whose inclusion can enhance crisis stability. These initiatives drawn upon previously discussed stability influencing factors and elements.

Force Structure Initiatives

The author recommends the following initiatives for consideration:

- the banning of the SS-18 and MX ICBM,
- no new MIRVd systems allowed to be deployed,
- the gradual phaseout of the remaining MIRVd ICBMs and SLBMs over about a 20 year period of time,
- for each MIRV warhead retired, each side will be permitted to raise its SNDV limit by an equal number, and
- permit mobile, single warhead ICBMs.

Foremost among the force structure elements that adversely effect crisis stability is the continued existence of MIRVd ballistic missiles which the author believes must be eliminated. If MIRVd ballistic missiles were phased out, each side would be left with a force structure less stressing to crisis stability since neither side would be in a position to achieve multiple kills of the opponents forces with one ballistic missile. Instead, the reverse would probably be true for a party may have to allocate two ballistic missiles

to kill one of the opponent's. While these single warhead missiles would still be capable of prompt, hard-target kill, the increased number of targets and the added complexity created by an expanded target base significantly reduce the capability of a party to conduct a disarming attack. Therefore, neither party will be faced with the "use or lose" pressure.

This move toward reliance on single warhead ballistic missiles will require the dropping of the 1600 SNDV limit of the START Treaty, or at least allowing it to float. As can be seen from the force structure tables, there is no way to de-MIRV both party's strategic forces without exceeding the 1600 limit. In actuality, it is the authors opinion, SNDV numbers do little toward enhancing stability. What is important is controlling the warheads which pose the actual threat. It matters little if the 4900 ballistic missile warheads are deployed on about 1200 SNDVs or 4900 SNDVs. The real reason to control SNDVs was the existence of MIRVs which could be deployed on any ballistic missile. Also, since the cost associated with deploying 4900 ballistic missiles would be significant, there would be incentives for a party to deploy more warheads on heavy bombers which are viewed as more stabilizing.

Turning to the issue of mobile ballistic missiles, the author recommends that they be permitted rather that banned. Their existence adds complexity and uncertainty to the opponent's targeting problem and the survivability of

mobiles reduces the "use or lose" pressure. The difficulty in verifying mobiles has been the reason for the United States to call for their banning. In the authors opinion, the unverifiability of mobile missiles has been taken to an extreme. The lack of absolute verification of mobiles should not be the reason to write off the contribution they can make to the survivability of a party's strategic forces and the increased uncertainty associated with an attack on mobiles.

Technology Related Initiatives

The author recommends that the START Treaty should ban some of the destabilizing technologies that have not been deployed by either party. In particular, MARVs and ballistic missile earth penetrator warheads should be banned. The eventual deployment of these technologies will only serve to further erode crisis stability.

Verification Initiatives

Verification of these provisions will be difficult. Therefore, the author proposes a number of cooperative measures that would enhance the capability to ensure that both parties are observing the Treaty limitations. These measures are:

- agreement on ballistic missile test ranges where ICBMs and SLBM may be tested,

- the warhead impact areas must be accessible to the other party for monitoring with surface-based equipment, and

- each side will be allowed to base monitoring radars at the impact areas.

Conclusions

In short, no deployment scheme can totally eliminate the Soviet ability to destroy significant numbers of U.S. ICBMs. However, the unilateral initiatives discussed above can introduce significant uncertainties into the Soviet targeteer's mind as to the success of a first strike, thereby reducing incentives for attacking. Further, the and START Treaty initiatives would reduce the "use or lose" pressures upon both parties.

However, all of the above proposals are more costly to enact than the baseline force structure proposed by the author. This goes against the belief of many arms control analysts that arms control should save money since arms levels are being cut. If the objective of arms control is increasing the deterrence value of U.S. and Soviet strategic forces and, thereby, increasing both general and crisis stabi[illegible], then cost are secondary to achieving these objectives.

CHAPTER XI

CONCLUSIONS

The proposed START Treaty will have a different impact upon general stability and crisis stability. This is because the decision to attack during a period of low tensions is a political decision taken after weighing the pros and cons of the attack. Therefore, general stability is influenced more by the relative balance in force structure and whether a country perceived that it could attack and avoid the consequences; whereas, crisis stability is influenced more by the threat posed by the capabilities of an opposing force structure and less by the consequences of initiating the attack. It is the threat posed by the other's force structure that drives a country to preempt in a crisis if it believes that this would be the only way to avoid complete devastation of his homeland and loss of its capability to retaliate.

Warfighters plan for worst case scenarios and in the process design and deploy strategic forces to meet this threat within the limits of available resources. However, forces designed for warfighting can be at odds with the goal of fostering better relations and greater security since the forces necessary to fight the worst case scenario may not be the best to maximize strategic stability. This is the dichotomy of the current strategic equation between the two countries which has led to an endless circle of the nuclear

arms race.

The author is of the opinion that the U.S. proposals for a START Treaty would maintain the current state of general stability that exists between the two superpowers. Initiatives that improve force balance, understanding, confidence, and trust have a positive influence. However, the lack of effective controls on the more threatening systems may push general stability in the negative direction in the future, especially if force levels are reduced even further than the current 50 percent reduction. In summary, the author believes that both parties will be left with near equal force structures where neither would be led to believe that it could gain an advantage over the other by executing or threatening to execute a nuclear attack.

However, those factors that have little impact on the level of general stability have a significant impact on crisis stability. In particular, the combination of a numerically reduced force structure (fewer targets) and the absence of controls on deployments of more prompt, hard-target kill ballistic missiles (higher ratio of these weapons to targets) can only be viewed as creating an environment where the use or lose perception is strengthened. Moreover, the lack of controls on future technologies that could be more stressing and threatening to the other's forces could do little toward loosening the finger on the nuclear trigger. In short, whereas the proposed START Treaty provisions are essentially neutral to general stability, the same provisions

leave openings for both sides to exploit.

It is the author's opinion that the temptation to exploit these openings--past experience leads one to believe that they will be exploited--will further erode crisis stability in the future. Some arms control analysts will probably argue that these short comings can be overcome and START should not be sacrificed on the perception that it is "fatally flawed." They may argue that the United States can unilaterally adjust its force structure so as to pose the least threatening capability and encourage the Soviets to do likewise. This may be possible in today's political environment, but the author believes that an attempt must be made to rectify the most glaring omissions from the START Treaty proposals. A signed arms control agreement backed by international law that closes these loopholes is much preferred to an under-the-counter handshake agreement between the parties not to violate the "intent" as well as the letter of the Treaty.

The author proposes a number of recommendations to improve the level of strategic stability between the United States and the Soviet Union. Some can be accomplished unilaterally by the United States; whereas, others will require the tabling of Treaty initiatives in Geneva. There will be resistance to many of these recommendations from those arguing that the proposals are costly for the United States, or that tabling the proposals in Geneva might upset all of what has been accomplished to date. It is the

author's opinion that if the objective of an arms control agreement is enhancing stability, then cost factors and the belief that the current START negotiations cannot be significantly changed should take a back seat to achieving this objective.

Moreover, the United States must refrain from viewing arms control as the "maidens prayer" for eliminating the risk of nuclear war. Arms control can provide the catalyst, but we must go beyond arms control treaties to lower the risk of nuclear war. This will require development of better relationships and trust between the two nations, and U.S. initiatives to move the Soviet leadership away from risk taking and towards risk avoidance. Therefore, it is essential that the National Leadership not fall into the trap of making arms control an end unto itself. To do so is dangerous to the survival of the United States and its allies.

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GLOSSARY

ABM	Antiballistic Missile
ALCM	Air-Launched Cruise Missile
EP	Earth Penetrator
ICBM	Intercontinental Ballistic Missile
INF	Intermediate-Range Ballistic Missile
MAD	Mutual Assured Destruction
MARV	Maneuvering Reentry Vehicle
MIRV	Multiple Independently Targetable Reentry Vehicle
MPS	Multiple Protective Shelter
MX	Missile Experimental (referred to as Peacekeeper)
NTM	National Technical Means
RV	Reentry Vehicle
SALT	Strategic Arms Limitation Treaty or Strategic Arms Limitations Talks
SDI	Strategic Defense Initiative
SICBM	Small ICBM (referred to as Midgetman)
SLBM	Submarine-Launched Ballistic Missile
SLCM	Submarine-Launched Cruise Missile or Surface-Launched Cruise Missile
SNDV	Strategic Nuclear Delivery Vehicle
SRAM	Short-Range Attack Missile
SSBN	Ballistic Missile Submarine, Nuclear Powered
START	Strategic Arms Reduction Talks