THE U.S.-U.S.S.R. NUCLEAR BALANCE: PRESENT AND FUTURE

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INTRODUCTION

The United States of America has enough nuclear explosives to allot two tons of dynamite to every man, woman, and child on this earth.[1] The Union of Soviet Socialist Republics, it's primary opponent in the world's balance of power, and a nation which has declared that irreconcilable differences exist between itself and every non-socialist country, has developed a similarly horrific arsenal. Both nations have appointed themselves as the protectors of vast spheres of influence and this has been accompanied by a great web of military alliances that have entailed a worldwide armed presence. Often the forces of each side are deployed so closely, they can either bombard one another with propaganda from sound trucks or, on other days, hold up Playboy pin-ups for the enemy to oggle. Since World War II, the United States and the Soviet Union have engaged in an unabated arms race that has produced not only the enormous stockpile of nuclear weapons, but also worldwide communications networks that extend beyond the earth's atmosphere, ultra-sophisticated conventional weaponry, chemicals that produce instant death when minute quantities come in contact with human skin, and methods of delivering a warhead weighing several tons to within several hundred feet of a target, after a flight of over seven-thousand miles at twenty times the speed of sound.[2]

All this would lead the rational thinker to conclude that the U.S. and the Soviets are certainly heading rapidly towards a

rather destructive war, and indeed he would only have to point out the militaristic tendencies of the human race to substantiate his claims. Over the course of written history, some 3400 years, there have been only 234 years without war. Since World War II, armed conflicts have broken out fifty-five times,[3] ample testimony to the fact that mankind still seeks to redress his grievances by the sword.

Yet the United States and the Russians have not gone to war. Despite the hatred of the two systems for each other. Despite the high level of military capabilities and preparedness. Despite the continual tension that has fathered dozens of confrontations which have produced more tensions. The fact remains that neither side has ever hurled even a small fraction of its nuclear forces at its enemy, much less a minor or major attack utilizing conventional forces.

It is the ultimate paradox in the nuclear age where paradoxes are the rule. The two strongest nations in the world arm themselves to the teeth so as not to have a war. Protective devices such as the anti-ballistic missile system (ABM) lesson stability while invulnerable weapons enhance it. Plans to reduce the severity of a nuclear war should one actually occur are viewed as promoting the holocost that we all seek to avoid. Even moves designed to strengthen deterrent sanctions subjecting the attacker to more devastating destruction often have the opposite and end up making the possibility of an atomic war less and less remote.

What it all boils down to is a game between us and them.

Each side is playing with its own set of rules and as such, the contestants have different ideas as to what constitutes an infraction, but as in all games, each is struggling to stay ahead. However, what makes this nuclear weapons game unique is that neither side is willing to make the effort to defeat its opponent and thus bring the game to a conclusion. Each combatant is forced to play but is in the dark about the way to win and the very nature of the games decisive moments. In fact, there is a great deal of doubt as to whether a victory is possible at all.

Franklin D. Roosevelt said that we had nothing to fear but fear itself. Yet today, the game that has taken on international proportions between the Americans and the Soviets has remained peaceful precisely because of fear, fear that the slightest armed confrontation between the two powers could escalate to the point of nuclear devastation for both sides, leaving no one a winner. No doubt the whole world has paid the price of sustaining the atmosphere of supreme danger and for sure one must wonder about the durability of mere mortals under such adverse conditions, however, the fact remains that great powers have never before been so convincingly deterred from plunging themselves and/or a great many other nations into war. It has been said that numerous issues would have led to bloodshed between the Soviets and ourselves in the pre-atomic age.[4] Furthermore, it should be kept in mind that under the shadow of the two nuclear giants, many other countries have either limited their military posture, such as West Germany and Japan, or refrained from using their own nuclear

weapons, even under pressure as is the case with Israel.

It is only natural that man should fear the unknown, and the study of nuclear strategy leads us to an empirical blank. Except for the two small bombs dropped on Japan at the dawn of the atomic age, no fission or fussion devices have ever been detonated out of anger.[5] But man has usually overcome his fear of the unknown and stumbled forward, and the question of why not here remains to be answered.

The difference between man's past willingness to summon the courage to explore the unknown and his present unwillingness to use nuclear weapons can be explained by the tremendous risks involved with the latter. What nuclear weapons have meant to warfare is that even though you may completely destroy your opponent, he may in turn be able to annihilate you despite the fact that he has ceased to function as a civilized society. The key word is 'may'. If the risks were known precisely, one nation or the other could come up with what it felt to be adequate safeguards and subsequently launch an attack, however no one is quite sure, or for that matter, even remotely sure, about the consequences of the use of nuclear weapons and therefore, no one can be sure what risks need to be defended against. It is precisely this grey area that forms the backbone of deterrence and insures that neither the United States not the U.S.S.R. will inaugerate the use of nuclear armaments, either tactical or strategic.

Our fear of fighting an atomic war is compounded by the incredible awesomeness of hardware posessed by the U.S. and the So-

viet Union. A few examples should suffice to show the scale of technological developments. One-half pound of pressure per square inch exceeds the force of a hurricane wind by a factor of two or three and five pounds psi will knock down a house. Yet to withstand an attack from Russian intercontinental ballistic missiles (ICBMs), our Minuteman IIIs have been placed in silos that can bear the force of one-thousand pounds per square inch.[6] Albert Legault and George Lindsey tell us that all the bombs dropped by Allied forces on Germany during the Second World War had the combined power of approximately 1,300,000 tons of TNT, or 1.3 megatons. As of 1974, the total number of nuclear explosives available in the world was equal to fifty-thousand megatons.[7]

Now our rational thinker would be led to believe that under the threat of such profound danger, both sides would not only agree to methods of avoiding war, but also would rest contently one they posessed forces which could deal out a few million casualties to each other. Painfully, as well as obviously, this is far from the case. As for the United States, we don't really trust in deterrence[8] and we don't understand the Russians so we push on with newer and costlier developments, constantly increasing our military might while concurrently feeling that our security is decreasing.[9]

The Soviets are a completely different case because their way of thinking, attuned to the Marxist-Leninist doctrine, is in many ways fundamentally distinct from our own. I will discuss the numerous ramifications of this later on but in general, they have

thought in terms of what might happen if there was a nuclear war while the United States has built its strategy almost exclusively around the prevention of such a war.[10] At the present time, the Soviets are revelling in the fact that they have achieved essential parity with the United States but is is unsure to us, and perhaps to them as well, as to what the implications of parity will be.

The purpose of this paper will be to arrive at some sort of understanding about the real importance of nuclear weapons in the hands of the U.S. and the U.S.S.R., something which has not been done heretofore in as skilled a fashion as is possible. There are a number of reasons for this, some of which are worth looking into because of the impact they have had on the actual policies of the United States.

Many, if not most of the books and articles written about the strategic balance come from the pens of military academicians who are prone to discussing weapons outside of the political framework within which they are to be deployed. According to Uri Ra'anan in testimony given before the Senate Subcommittee on National and International Operations:[11]

> Surely, weapons systems and military power in general cannot, or should not, be evaluated except in relation to the overall political postures that they are meant to serve.

Therefore, I especially intend to look at the likelihood of the various proposed scenarios actually taking place.

Another problem with the literature on nuclear strategy and the nuclear balance between America and the Russians is one which

is hard to avoid in many areas of learning, namely, the author with his own axe to grind provides a distorted view of things when he sets forth his own interpretations or conclusions. The result has been government officials telling one story, frustrated arms limitation negotiators another, and hardware buffs yet a third. Time and time again, alarmist authors would serve warning about the numerous strides which the Soviets have been making of late and contend that we would soon be helpless against a massive attack, all the while totally ignoring the fact that we have 41 near-invulnerable missile submarines which by themselves are capable of destroying a great percentage of Russian society. It can not be ignored, as is so often done, that the United States and the Soviet Union have the power to destroy each other and furthermore, will continue to maintain that capability.[12] This the basis of deterrence and all discussion about the nuclear balance must eminate from this.

I have chosen to enter this debate because I feel I can approach it far more objectively than most. My mind has been and remains open to all arguments and I have been under no pressure to make black and white decisions, a choice which professional writers often seem compelled to make, but one which often does not do justice to all the variables involved.

This study deals specifically with the Soviet Union and the United States. I have touched upon the issues of proliferation, China, and the Third World only where they directly affect the relationship between the two superpowers. While these three

variables will exert more and more influence in the not too distant future, at present, they are subserviant to the strategic considerations which the U.S. and U.S.S.R. attach primary concern to.

Finally, I should mention that I assume the reader to have some basic knowledge of the materials and concepts involved. I will however, stay away from the technical oversophistication that pervaded the literature and bombards one with cold facts, something which I believe contributes to our forgetting that even one nuclear warhead delivered to a major city would be nothing short of a disaster.

FOOTNOTES

1) Morgenthau, Hans, "The Question of Detente", Worldview, March, 1976.

2) Legault, Albert and George Lindsey, The Dynamics of the Nuclear Balance. Ithaca: Cornell University Press, 1974. p. 124.

3) Vasily Emelyanov in Frank Barnaby and Carlo Schaerf(eds.), Disarmament and Arms Control. New York: Gordon and Breach Science Publishers, 1972. p. 41.

4) Morgenthau, op. cit.

5) These bombs had the power of between 13 and 20 kilotons, a kiloton being equivelent to 1,000 tons of TNT. Weapons of this magnitude are today placed in artillary shells.

6) Kahn, Herman, On Thermonuclear War. Princeton: Princeton University Press, 1961. p. 267.

7) Legault and Lindsey, op. cit., p. 34, 38.

8) Feld, B.T., T. Greenwood, G.W. Rathjens, and S. Weinberg, Impact of New Technologies on the Arms Race. Cambridge: MIT Press, 1971. p. 343.

9) ibid., p. 2.

10) Nitze, Paul, "Assuring Strategic Stability in an Era of Detente", Foreign Affairs, January, 1976. p. 212.

11) United States Senate-Nature of the Changing Power Balance: Subcommittee on National Security and International Operations of the Committee on Government Operations. Government Printing Office, 1971.

12) Robert Scalapino in-Kintner, William and Robert Pfaltzgraff Jr. (eds.), SALT-Implications for Arms Control in the 1970s. Pittsburgh: University of Pittsburgh Press, 1973. p. 160.

NUCLEAR WAR-CHANCES AND CONSEQUENCES

There is absolutely no way of knowing if nuclear weapons will ever be used. Those who tell us to scrap our stockpiles because there is no possibility of its being used hold no less groundless assumptions than those who propose that we arm to the hilt to fend off the impending onslaught upon our society. The best we can do in lieu of a crystal ball is to take a look at the crisis behavior of both sides, and in particular, the Soviet Union. Additionally, a brief discussion of the consequences of a nuclear war is called for to place things in perspective.

The physical destruction that would follow the use of nuclear weapons in a war between the United States and the U.S.S.R. has been dealt with in fine detail by a spate of authors, most of whom wrote during the panic-filled Fifties, so only a quick re-hashing is necessary here. Each side could inflict 100 million casualties on its adversary even after absorbing a first strike.[1] If the United States attacked the Soviet Union with one-hundred megaton weapons from the many thousands it has at its disposal, the former could destroy sixty percent of the latters industry and fifteen percent of the population. Four-hundred of these weapons would knock out seventy-five percent of the U.S.S.R.'s industrial capacity and kill thirty percent of the population; the actual casualty rate from fallout and radiation would be double.[2] It should be noted at this point that McGeorge Bundy has claimed that the Russians would be deterred from launching a

nuclear attack if 10 of their major cities and perhaps as little as one or two were destroyed.[3]

If we reverse the tables and look at the results of a Soviet attack upon America, the figures are equally horrifying if not more gruesome because of the concentration of the population in a few large cities. A single 20 megaton device exploded over New York City would kill 6 to 8 million of its residents and another million people in the Greater Metroplitan Area.[4] For that matter, any city with one million inhabitants subjected to the detonation overhead of a megaton bomb or warhead would stand to lose 360,000 people killed and 90,000 more injured according to a United Nations study.[5] Even if the Russians chose to attack only our missile silos and spare the American population, a maximum of twenty-two million people could be expected to die.[6]

This leads us to ask if the living would envy the dead. While several individuals have suggested that an all-out nuclear war between the U.S. and the Soviet Union would render the Northern Hemisphere uninhabitable, this is simply not true.[7] Both nations could survive a nuclear holocost,[8] despite the fact that the ozone layer of the atmosphere would be seriously depleted causing crops to be killed, a change in climate, a drastic increase in skin cancer, and the inducing of intense sunburns after only a few minutes out of doors.[9] In the event that twenty million people were killed, a total economic recovery could be achieved in about 10 years. However, if 80 million died, it would take the survivors fifty years to regain their previous standard of living. It would

take one-hundred years to undue the hell of 160 million Americans dying in an atomic Armageddon.[10]

Yet despite the horror of the actual attack as well as the pain of enduring the secondary effects caused by damage to the environment and the various associated biological deviations, it seems that the survivors would be able to carry on. Says Herman Kahn:[11]

> Despite the widespread belief to the contrary, objective studies indicate that even though the amount of human tragedy would be greatly increased in the postwar world, the increase would not preclude mormal and happy lives for the majority of survivors and their descendants.

This fact notwithstanding, it seems that both the U.S. and Russia would, after a nuclear exchange, have lost their positions of world power, a price neither of them is willing to pay. Even if the damage to one of the superpowers exceeds that of the other(allowing the Soviets to rebuild their society in twenty years while it takes us thirty), any subsequent long-range advantage will have been achieved at intolerable cost.

There are obviously dozens of solid reasons why the use of nuclear weapons would not be in the best interests of the United States or the Soviet Union however I wish to touch on one which has the most ramifications, namely, the question of proliferation. Herman Kahn has argued that once "nukes are used, every nation will try to get their hands on some."[12] Indeed, six countries have already detonated atomic or hydrogen devices and a substantial number of others have the requisite scientific knowledge within reach. It is generally agreed to, by both the U.S. and

the Russians, that the proliferation of nuclear weapons constitutes the greatest threat to world peace as maintained by the bipolar balance of power. Not only will these nations no longer be burdened by the taboo against crossing the nuclear threshold, their unleashing of these weapons against any opponent will provide the easiest way for the two superpowers to slip into a strategic war that they both hope to avoid. Even if one assumes that America and Russia can manage to stay clear of third party wars, the instability that will ensue will be to the detrement of both of us. The fact that powers such as India and France merely possess nuclear capabilities which have never been used has proved destabilizing.

The literature on atomic warfare, in addition to postulating the probability of such a war and its likely physical effects, has also tried to construct meaningful scenarios regarding the course of battle once deterrence has failed. Only recently have the fortune tellers realized that nobody can be sure of what will happen once the nuclear threshold has been crossed and that this very uncertainty is what has kept us alive.

It has been claimed that the first use of "nukes" will be vigourous but that after the initial exchange, there will be an immediate ad hoc cease fire.[13] On the other hand, last year, George Kistiakowsky told the Senate Foreign Relations Committee that:[14]

> ...once a nuclear exchange begins, to convey to the other side convincing information which the other side will accept as to where you will stop, will not be possible and therefore, the other side will necessarily respond and I think

the whole thing will escalate.

Others have stated that once the threshold is crossed, both sides will withhold some of their forces so as to be able to engage in controlled escalation and war-bargaining, however this suggestion is also of dubious validity because the Russians, at least in their writings, have rejected war-bargaining either through controlled use of de-escalation[15] and have instead opted for a policy of launch-on-warning.[16] This means that as soon as the Soviet early warning network detects an attack by the United States, they will launch their retaliatory forces rather than gambling on their missiles and bombers riding out the onslaught.

The U.S. has been deliberately ambiguous about its own intentions, and it has always stopped short of unconditionally ruling out a launch-on-warning policy. For one thing, this type of response is a clear invitation to Armageddon and secondly, it is rather risky because if the other side becomes convinced that it can bypass or destroy our early warning systems, they may be less inhibited about launching an attack. As a corallary of this, if the President believed that our forces were vulnerable and therefore should be launched on warning, he could be prompted to "press the button" too soon.[17]

As it stands now, we have tried to sustain a strategic posture that will enable us to ride out a Soviet first-strike and allow us the option of holding back on our retaliation.[18]

The ability to hold back retaliatory forces that have survived an enemy attack is an extremely important one because as long as

the losing side has escalation options, the winning side or the side that has initiated the hostilities can not push its opponent to desperation.[19] In fact, if we assume that the damage from a first wave of nuclear strikes would be imbalanced among the combatants, then the weaker side might have a better positon from which to bargain. This further paradox of the nuclear age has been described by Richard Rosecrance in his excellent study of strategic deterrence as follows:[20]

> Suffering the greater civilian damage and perhaps also the greater reduction in its land-based missile forces, the weaker side might threaten escalation of the strikes to bring a substantial proportion of the enemy's population under attack. At this later stage, such a threat would be more credible than at the beginning of a conflict. The disadvantaged side, with its back to the wall, could claim that because of the attrition of its own force and the suffering of its population if could no longer guarantee to spare the opposing population.

Thus it would follow that the side better off would cease its hostile actions to preserve its victory and spare its people from a nuclear holocost.

Another reason why we are unsure as to exactly what will happen during a nuclear war is that a whole set of scientific phenomena associated with the use of fission and fussion devices exist that can not be subjected to study. It is presumed that an offense could set of a very high altitude megaton burst which would cause a large and sustained plasma cloud, effectively hiding subsequent missiles from long-range radar.[21] Similarly, it has been reported that communications between missile submarines (SSBNs) and land-based command and control networks would be

jammed by a few large-scale detonations in the ocean.

It is probable that the electromagnetic pulses (EMP) generated by nuclear explosions will have a substantial effect on the conduct of atomic warfare, but as in the above phenomena, how much is unknown. EMP can penetrate launch facilities as well as hardened silos to destroy electronic equipment and completely erase computer memories, even if the supporting structures withstand the blast overpressure.[22] This is associated with another process called fratricide which serves to limit the number of missiles which can be deployed against a single target in succession. According to Rosecrance:[23]

> when a number of incoming warheads are targeted on a relatively dense cluster of ICBM silos, their explosions cause crater debris, shock waves, and nuclear clouds which reduce accuracy and penetration of subsequent warheads.

Additionally, fratricide, if it did deflect subsequent missiles by high winds or cause their heat shields to burn maturely, might simply disable their warheads so they could not explode.[24] Of course, this process will also work to the detrement of the country being attacked because these same dynamics would pprevent any of the besieged missiles from being launched, something referred to as the pin-down effect.

As I mentioned at the beginning of this chapter, the least inconclusive method of discerning the chances of nuclear war is to study crisis behavior because it is assumed that such a conflict will eminate from a great heightening of tensions rather than out

of the blue, a prospect which will be discussed later on.

Because crises will tend not to be exacerbated if supported by precedence and observable thresholds,[25] it can be said that the present balance is stable in a crisis-stability sense.[26] Even though one side or the other may be perceived as posessing a strategic advantage, assurance and morale are more likely to be the guiding forces behind a nations crisis behavior, not military superiority.[27] It is confidence that allows one nation involved in a crisis to threaten irrational punishment to an adversary that, while it could lead to one's own destruction, it necessary to prevent the outbreak of war.[28] By virtue of the fact that these threats are naturally ambiguous with regard to timing, substance, and so forth, it is easier for one or both countries to back off from a "risk of war" rather than a certain threat, and thus avoid crisis escalation.[29]

It is in a crisis situation that the issue of force vulnerability achieves the most prominance. If a nation feels that a certain portion of its offensive weaponry is susceptable to being destroyed if the enemy launches an attack, its confidence will be seriously eroded and the likelihood of its making a rash move that could ignite the tension into war is greatly increased.[30] In other words, if the risks of not striking are very high, the vulnerable nation will not be deterred, even with substantial deterrent sanctions.[31] Clearly, a pre-emptory attack prompted by the seeming imminence of an all-out war, whether motivated out of weakness or strength is not the wisest course of action. We must

always favor our hopes that a holocost can somehow be averted because both the Soviet Union and the United States have so much megatonnage, that a pre-emptory attack with the purpose of reducing the subsequent damage to oneself could still not prevent awesome destruction to both sides.[32]

Before moving on to a discussion of the crisis behavior of the United States and the U.S.S.R., one more paradox should be pointed out. That is, the incentives to reduce tensions may be more than outweighed by other considerations, namely, that the nation which makes the friendly moves towards conciliation is likely to get a bad bargain that will weaken him and thus endanger the overall balance. Thus, Herman Kahn states that a nation conceeding enough to substantially ease a crisis may find itself backed into a rigid or desperate position.[33] This has many implications for arms control that will be discussed later.

The question of risk-taking propensities and crisis behavior of the two superpowers is one which has baffled students of international affairs since World War II, particularly with regard to the Soviet Union with its penchant for secrecy and seemingly contradictory foreign policies. In the post-War period, it has been the Soviets who have continually tested and probed our cohesion and determination,[34] actions which seem consistant with their belief in taking the initiative. Therefore if we accept, as I shall, that the risks which lead to crisis which in turn lead to armed conflicts are more likely to eminate from Russia

than from the U.S., a strong emphasis on the formers behavior is called for. The actions of the United States will be tied in throughout the discussion so that a complete picture should emerge.

While we normally attribute less rationality to the Soviets regime, studies have shown that they have been just as cautious as us in crisis behavior.[35] And if one makes the distinction between a crisis risk and a war risk, which the Russians do,[36] it can be seen that even their risk-taking has followed a distinct and rational pattern. Jan Triska and David Finley, in their Soviet Foreign Policy, did an in-depth survey of all Russian military and diplomatic moves since the Second World War and they discovered that inspite of common beliefs to the contrary, the Communists had only taken low risks, and in general, had acted in a cautious, deliberate, and rational manner.[37] They reported that:[38]

> The stronger the other party in crisis, the greater the geographical distance from the U.S.S.R., and the greater the stakes involved, the more cautious the Soviet crisis response.

Triska and Finley have stated, as have others, that the Russians will challenge tough but that they will always cease their manipulation and withdraw from the competition when the risks of war become evident.[39]

While the Soviet Union may share the trait of rationality with the United States, it goes without saying that their process of risk-taking and crisis behavior is very different from our own[40] and it may be that the real reasons for their taking and

accepting risks may not appear at all in the Russian literature.[41] However, Hannes Adomeit has authored a thorough study of Soviet behavior for the International Institute of Strategic Studies and has suggested that:[42]

> In Soviet perceptions, the use of force and the acceptance of risk in this process are subject primarily to criteria of expediency, not legitimacy or morality. If Soviet military power can 'objectively' serve to further Soviet state interests, and thus, by definition, strengthen world socialism, the acceptance of risk is considered <u>a priori</u> as 'just'.

The Soviet view of world affairs has their relationship with the United States continually operating in a hostile environment and therefore risk-taking is built into the Communist system, bridled only by external forces.[43] However, the way in which the Soviets perceive these external forces, such as the United States has acted to restrain their daring. In particular, the Russians have placed a great deal of faith in science as a means towards obtaining power, and thus, they have had to respect both the technological achievements of the U.S. as well as it's economic strength.[44] Thus, it should be kept in mind that although the Soviets like to take the initiative and freely engage in activities that we could consider risky, these are by no means automatic as their failure to respond to our mining of North Vietnamese harbors testifies to.[46] While the U.S.S.R. has proven to be extremely opportunistic, their risk-taking and crisis behavior can not be interpreted as bringing us closer to the perils of a world war.

The question remains as to how the United States should act

so that it can counter the Soviets and do so in a way that will keep confrontations low-keyed. Past experiences in Berlin and Cuba tell us that "only by the calm deployment of unacceptable risks" can we force the Soviets to back down in a way that will guard against crisis escalation.[47] Some people have argued that in the event of a serious crisis that had reached war-risk proportions, bombers could be sent on overflights as a warning[48] but this could be judged dangerous for two reasons. First, if it was shot down by Soviet air defenses, this would undoubtedly be viewed as provocative by the Americans and the situation would only be exacerbated. Secondly, given the Russian emphasis on defense of the homeland, any incursion during a time of crisis would be escalatory.[49]

While any discussion of what constitutes calm yet unacceptable risks to the Soviet Union is obviously contingent to a large extent upon the particular circumstances of the crisis, it can be said (and I shall elaborate on this in the chapter on future deterrence), that any moves on our part must, through a credible chain, lead back to our strategic forces. In other words, the Soviets must be made to believe that no matter how small our response to their challenges, if they chose to stand up to us rather than yield at the sight of our displeasure, we could eventually resort to a nuclear attack.

In the past few years, it has been generally agreed that the U.S.S.R. has achieved virtual strategic parity with the United States, a situation presumably, that could alter the nature of

Soviet risk-taking and thus force a change in our policy of dealing with these initiatives. Triska and Finley reported back in 1968 that:[50]

> the greater the Soviet weapons-military parity with the West, the lower the Soviet perception of risk in actual East-West conflicts.

Adomeit, writing in 1973, was unable to substantiate this, claiming that there has been no correlation between increased Soviet military might and her risk-taking propensities, but that in fact, there had been no real test for this proposition.[51] Continuing his analysis, he addressed himself to the foreign policy experts who had declared that the newfound Russian power would make them less, and not more inclined to take risks. He writes:[52]

> ...the political implications of military parity are not altogether clear, nor are the dirctions of future Soviet-American relations. The analysis of the significance of the Soviet naval expansion and the strengthing of the military-strategic and conventional potential of the Soviet Union proved inconclusive, and while the tendency of the present Soviet leaders to create, exploit, and manipulate risks of crisis has declined, it has existed in the past, even in conditions of military-strategic inferiority. The argument advanced on that basis-that parity will now make them more secure, 'more reasonable', and <u>a priori</u> less inclined to take risks-is not entirely convincing.

Adomeit concludes that the Soviets are now engaged in a process of learning from their own past mistakes which have often been counter-productive as well as from the U.S. mistakes in Southeast Asia, and that because of this, they would rather avoid military confrontations altogether and shape the milieu without manipulation of the risks of war.[53] While this would make it tougher for the Russians to show strength in the future, they may

more than make up for this by a weakening of U.S. resolve that would accompany our perceptions of such a situation as detente.

In concluding this chapter on the chances of nuclear war, I wish to point out what many observers feel to be the most probable avenue to an atomic holocost: human error or accident. While it is useless to speculate on what kind of unforeseen circumstances beyond the control of the United States and the Soviet Union could lead us to a nuclear conflict, a tenuous situation involving the commander of a Polaris submarine who is experiencing an unexplained communications blackout is not difficult to imagine. This one man, if he perceives the need to launch his missiles, could lead us all down the road to destruction.[54] George Kistiakowsky, before the United States Senate Foreign Relations Committee, termed the danger of our slipping into a nuclear holocost via the "back door" as "quite significant".[55]

America and the U.S.S.R., realizing the profound importance of containing human as well as mechanical error, signed a treaty in 1971 to reduce the chances of accidental war. Among the provisions of this agreement is a pledge by both signatories to notify each other immediately of any accidental launches or detonations.[56]

The improved communications between the two superpowers during times of crisis should also help to reduce the chances of either the U.S. or the Soviet Union becoming involved in an all-out war subsequent to the use of atomic weapons by a third party.

It has been suggested that Communist China, in an attempt to force a confrontation between the two superpowers might launch a catalytic attack, the scenario of which has the Chinese firing an SLBM (submarine-launched ballistic missile) towards the Soviet Union from a position just offshore of the United States. This is unlikely because available tracking and detection methods would recognize the nationality of the attacker, however other scenarios involving Third World powers or even bands of terrorists become more and more real as the nuclear club becomes less and less exclusive.[57]

To summarize, the chances of our becoming involved in a nuclear war with the Soviet Union remain a great unknown which, serves the cause of deterrence. Neither the U.S. nor the Communists has been inclined to provoke serious crises that clearly run the risk of escalating into war because the uncertainties of such international tension are no less feared by the superpowers than the uncertainties of a war itself. While some may argue that "danger clarifies a man's thinking",[58] it is widely recognized that crisis characteristics include an accelerated pace of events, difficulties of coordination and control, dangers of misperception, and inaccurate communication, and that even a working out of the "rules of the game" by Washington and Moscow is unlikely to harness the unexpected hazards of a real war.[59]

Whether the Soviet achievement of parity, or as some see it, superiority, will affect a change on their thinking is not now known and in any event, they have done very poorly in post-World

War II crises and such factors as asymmetrical interests, commitments, and levels of resolve should continue to determine the outcome of crises, not superiority.[60]

FOOTNOTES

1) Foster, William, "Prospects for Arms Control", Foreign Affairs, April, 1969. p. 413.

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UNITED STATES NUCLEAR CAPABILITIES AND PERCEPTIONS

Since the end of the Second World War, the people of the United States have believed that our posession of nuclear weapons has served as a deterrent against the use of these devices by the Union of Soviet Socialist Republics. In this chapter, I wish to examine the nature of current American strategic thought regarding the furtherance of this deterrence and compliment the discussion with a relatively brief rundown of our hardware capabilities which are designed to enable us to implement the doctrine. The latter information will serve as a basis for the last chapters analysis of future alternatives.

Secretary of Defense Donald H. Rumsfeld sets forth the four basic objectives of the strategic nuclear forces in the annual Defense Department Report for Fiscal Year 1977. They are as follows:[1]

> -- To have a well-protected, second-strike force to deter attacks on our cities and people, at all times;
>
> -- To provide a capability for more controlled and measured responses, to deter less than all-out attacks;
>
> -- To ensure essential equivalence with the USSR, both now and in the future, so that there can be no misunderstandings or lack of appre=ciation of the strategic nuclear balance;
>
> --To maintain stability in the strategic nuclear competition, forsaking the option of a disarming first-strike capability and seeking to achieve equitable arms control agreements where possible.

Rumsfeld states that the present force structure is adequate and that:[2]

> (e)ven after a well-coordinated surprise attack, the U.S. could retaliate with enough power to destroy its enemy as a modern, functioning society,

but he warns that the balance is rapidly shifting away from our favor to the point where we "soon" may not enjoy this capability.

In painting a picture that reflects the predominate Pentagon view that our current defense posture is secure but that in light of massive Soviet efforts to achieve parity and possibly superiority, we are obligated to move vigorously to maintain a stable balance, the Secretary contrasts our considerable advantage over the Russians in some areas with a few serious deficiencies in others. Of primary importance is the knowledge that we are a number of years ahead in nuclear weapons technology but that existing weapons systems are lacking in spare parts, are months behind schedule for being overhauled, and in some cases, are entirely obsolete.[3] The apparant brittleness of our forces is borne out by the fact that stocks depleted by the 1973 Mideast airlift will not be replaced unti 1981.[4]

The four basic objectives of our strategic nuclear forces as expounded by Rumsfeld point to the two predominate doctrines which provide the backbone for all military thought ragarding deterrence, the Nixon Doctrine, which Gerald Ford has left unchanged, and the Schlesinger Doctrine which continues despite the departure of its namesake and intense scrutiny from the Congress.

The Nixon Doctrine propounds neither parity nor superiority but rather, sufficiency. As interpreted by Jerome Kahan, it entails

six main objectives:[5]

> --maintain an effective strategic retaliatory capability to deter a surprise attack by any nation against the U.S.;
>
> --preserve stability by reducing the vulnerability of U.S. strategic forces and thereby minimize Soviet incentive to strike first;
>
> --prevent the Soviets from being able to inflict considerably more damage to America's population and industry than we could inflict on them;
>
> --defend the United States against small-scale attacks and accidental launches;
>
> --develop flexible options permitting U.S. forces to be used in controlled and limited ways;
>
> --insure overall numerical balance doesn't become disadvantageous to us.

Perhaps the most important implication of all this is the apparant rejection of the launch-on-warning policy, which as I mentioned earlier, is highly destabilizing.[6]

The Schlesinger Doctrine, announced in the Winter of 1974, is designed to strengthen deterrence by increasing the credibility of the ties between our opposition of any Soviet military initiatives and our deployment of nuclear weapons. Former Secretary of Defense James Schlesinger, acting out of a belief that our military posture left us in a position of either having to respond to the Russians with a full-scale attack or with nothing at all, argued for flexibility that entailed retargeting some of our Minuteman ICBMs away from population centers and missile silos. This flexibility, which essentially requires no new hardware,[7] will enable the United States to make limited counter-force strikes against the Soviets in the event that they try to overrun Europe. While our assured-destruction forces were held back to prevent

the Russians from attacking our cities,[8] these limited strikes, it is claimed, would reaffirm our commitment to the Europeans as well as prevent the war from escalating to uncontrollable levels.[9] In order for nuclear bombs and missiles to affect a de-escalation, we would have to deploy them in such a way so as to assure the Russians that our actions were limited and designed to end hostilities, not achieve a victory. However, these strikes would have to disrupt enemy forces and introduce a pause in military activities during which time all possible diplomatic initiatives could be exploited.[10]

Mr. Schlesinger and his supporters from both inside and outside government have noted that because the current credibility of a full-scale retaliatory strike on Soviet cities is very low, the new doctrine of limited response improves deterrence and leaves open the possibility of U.S. first use anywhere in the world.[11] Yet the critics remain staunchly unconvinced and they vociferously assert that not only have we had flexible targeting for many years,[12] but that serious problems have been associated with this option all along. According to a recent study of the effect a U.S. limited counter-force strike might have on Soviet plans to grap Europe:[13]

> ...a higher probability of a limited negative payoff may be more than overbalanced by the small probability of a very advantageous positive payoff, leaving a potential aggressor with a net positive expectation.

If, for example, the U.S.S.R. was not made to see the evil of its ways after the first American limited counter-force strike against

targets such as dams and railway networks and they continued their offensive, we would still have our backs to the wall. It would be foolish to think that once the Soviet Union had taken the monumental political gamble of attacking Europe that she would be deterred by the imposition of some limited internal damage. Rather than stopping, the Russians would be more likely to press on and perhaps demonstrate their own resolve through a series of limited attacks on the United States. Even if they opted to direct all their military efforts at conquering Europe and did not conduct reprisal raids, America would be in a position of having to again inflict limited damage on the Soviets, with an increased degree of uncertainty as to the coercive power of such a move, or, it could increase the scope of the attack and risk escalation that could bring on great destruction to the cities and industry of both sides. The decision would no doubt take some time and while we debated, the Russians could continue their advance, grab sizable chunks of Europe, and then declare a cease-fire.

At this point in the scenario, the United States must accept the fait accompli because any further attacks whose purpose is to force the Soviets to withdraw will surely invite costs to our homeland that override any possible gains in keeping Europe aligned with the West.

In seeking the correct strategy, if indeed one exists, it should be realized that in no practical manner can the American strategic nuclear forces be linked with the defense of Europe. The belief that this link may exist, and that a Soviet assault

on our troops will trigger massive retaliation, is most certainly on the forefront of their minds and for that reason, no great change in the European status quo can be anticipated. But if deterrence fails, we will have to rely on our theatre nuclear and conventional forces.

A primary failing of the Schlesinger Doctrine is that it forgets the great importance of resolve in conflict resolution. The Soviet decision to take Europe will obviously reflect massive doses of determination on their part, to which a U.S. show of force vis a vis a limited attack will simply not be equal. And a mustering of sufficient resolve on our part, requiring us to wrought a sizable amount of destruction on the enemy, will be too likely to prove escalatory. We can not and should not be willing to lose New York to save Paris.

It has been argued by Schlesinger that limited nuclear strikes would be necessary to effectively counteract a Russian show of resolve in a scenario that had them making some limited counter-force attacks on us while simultaneously marching on Europe.[14] In my view, any coercive tactics by the Soviets designed to minimize our involvement in the tactical defense of our NATO allies by striking the United States could not possibly bbe seriously considered by the Kremlin. The Communists will not dare to sweep across the European continent unless they detect a drastic diminishing of our resolve to the point that we would be more interested in preserving ourselves than risking a strategic nuclear exchange that might turn the flow of battle in our favor. In

other words, the Soviets, before attacking, will presumably anticipate that we shall accept a defeat of our tactical forces. Thus, a Soviet strategic attack, however limited, would, for them, dangerously expand the theatre of war and possibly invite a strengthening of American resolve, clearly a counter-productive move.

Finally, the Schlesinger Doctrine fails to confront one of the major dilemmas that has plagued those who have sought to justify the use of nuclear weapons. Because of the tremendous destructive power of even the smallest kiloton atomic devices, with their untold traumatic side effects, no one is in a position to define what constitutes "limited". Mr. Schlesinger himself has said that the limited attacks he envisions would result in between fifteen and twenty-five thousand casualties,[15] figures which very conceivably could place us in a hostile and war-like posture as seen through the eyes of the Kremlin and necessitating a vicious retaliation. Besides, it is no mean feat to convince the enemy in wartime that the missiles raining down on him are designed to end the fighting.

If anything, this discussion of the Schlesinger Doctrine has highlighted the many uncertainties that go hand in hand with the posssion of nuclear weapons by the United States and the Soviet Union and make it virtually assured that security in Europe will not be endangered. I will expound on this more fully in subsequent chapters.

For now though, I would like to turn to a survey of the current military posture of the United States and examine the

hardware in our arsenal that gives substance to our strategy. Our offensive forces are basically divided into three separate weapons systems, the Triad, consisting of bombers, fixed ICBMs, and submrine-launched ballistic missiles. As currently deployed, the Triad mutually reinforces itself and insures that in the event of two of the components being destroyed, the third will still be able to inflict unacceptable damage on the U.S.S.R.

The strategic bomber force is the oldest of the three weapons systems that make up the Triad, yet it is the most expensive to maintain.[16] The aircraft which provides the backbone of this component is the Boeing B-52, a plane which can carry between four and six hydrogen bombs of up to 24 megatons as well as 2 megaton-range missiles.[17] On most missions, only one megaton bombs will be used so that six short range attack missiles (SRAM) with nuclear capability can be added to suppress air defenses.[18] Thirty percent of the b-52s are kept on continual ground alert which will enable them to take off and escape from the immediate areas of their bases upon warning of Soviet missile launchings,[19] and recently, the Strategic Air Command has been deploying them at inland airfields to avoid the possible threat of depressed-trajectory SLBMs.[20]

Current plans call for strike aircraft to penetrate Soviet airspace at very low altitudes to avoid radar detection, attack either preprogrammed positions or targets of opportunity, and then continue on to friendly bases located around the enemies perimeter.[21] Whether the B-52 will be able to accomplish its missions against

the thick Russian air defenses can not be known for sure however most sources estimate that roughly fifty percent of the attacking force will get through.[22] Sixty percent of our initial inventory is likly to be destroyed in a Soviet first strike,[23] but the chances of penetration by the remaining aircraft are not expected to be greatly diminished because the latest enemy interceptors such as the Mig-25 Foxbat still lack sufficient technology to shoot down low-flying planes.[24]

In addition to the B-52s, the U.S. maintains almost 600 aircraft in Europe, both land and sea-based, that are capable of hitting Western Russia and the Ukraine with bombs of up to one megaton in yield.[25]

Despite the fact that these planes will be useful well into the 1980s and capable of destroying hard targets if equipped with laser or television guided bombs, the U.S. has been developing a new generation intercontinental bomber called the B-1.[26] This plane, which former Secretary of Defense James Schlesinger called the most cost-effective force program for the 1980s,[27] will carry almost twice as much payload as its predecessor[28] and carry a pricetag far in excess of 20 billion dollars if the Air Force gets the 244 it wants.[29] The B-1 will offset any Soviet air defense improvements but recently discovered design deficiencies reducing the bombers speed from a planned Mach 2.2 to Mach 1.6 have serious implications for its ability to escape its home bases significantly faster than the B-52.[30] Congress has given firm support for the program and a production decision is expected later this year.[31]

The importance of the manned bomber as a retaliatory weapon has been greatly diminished by the intercontinental ballistic missiles introduced during the 1960s. Deployed in both fixed land positions and submarines, these warheads have been viewed as having a far better chance of penetrating Soviet defenses and it is only within the last few years that the fixed missiles vulnerability to pre-emptive attack has raised serious questions about their efficacy. It can be said that despite any doubts current planners have about the land-based silo ICBM, these weapons will continue to serve an essential function in the Triad for the greater part of the next decade.

The United States now has 1054 ICBMs; 54 Titan IIs with single 5-10 megaton warheads, 450 Minuteman IIs with 1-2 megaton warheads, and 550 Minuteman IIIs that carry three 170 kiloton warheads, each in its own independantly-targetable re-entry vehicle (MIRV).[32] Of the three, the latter is the most modern and the most important and therefore is worthy of description in some detail.

The Minuteman III, which is still in production,[33] costs 4.5 million dollars without its warhead but it remains the cheapest part of the Triad to operate.[34] It has a circular error probability (CEP)[35] of 1300 feet which gives it a single-shot kill capability of only 44% against a silo reinforced to withstand 300 psi overpressure[36] however the MK 12A re-entry vehicle now being placed on Minuteman III will significantly enhance performance. Incorporating the world's most advanced fuses and guidance systems,

the Mk 12A with a standard payload of three MIRVed 340 kiloton warheads will have a CEP of less than 700 feet which should give it the consistent ability to destroy hardened targets.[37]

Although the Minuteman III has been in service for over five years, superior American technology, which is significantly ahead of Russian efforts in such areas as missile guidance, blast effect, and re-entry vehicles, has enable our ICBMs to stay in the same league with the latest Russian developments.[38] For example, the new Soviet ICBMs introduced during the last two years do not carry decoys, equipment we deployed in the mid-Sixties.[39] In addition, the Command Data Buffer System that will be completed by 1977 will allow us to remotely retarget a Minuteman to any one of at least 8 different targets in 36 minutes and allow the reprogramming of the entire force in under ten hours.[40] Finally, the United States is now sending up a series of navigational satellites that presumably will be used for mid-course missile guidance that could give us accuracy which can not be equalled for years to come by the Soviets.[41]

Our Minuteman are deployed in 6 large areas 250 feet underground[42] in silos that can withstand 1000 psi and shiled against EMP.[43] However, it has been acknowledged by most scholars that American ICBMs will definitely become vulnerable to a Soviet first strike if they allocate enough missiles to the task and improve accuracy and MIRV technology.[44]

Former Secretary of Defense Clark Clifford stated in 1969 that if one anticipated the highest projected Soviet threat and

the worst defensive circumstances, a U.S. second strike would still destroy more than 40% of the Russian population and 75% of the industry.[45] Yet it stands to reason that as our ICBMs become more and more vulnerable, the military will become all the more nervous about its retaliatory abilities. In the thirty minutes warning time that we will have after a Soviet missile launch,[46] the Joint Chiefs of Staff, unconvinced that a sufficient number of Minutemans could ride out the attack, could convince an unsure President to fire our missiles, thus sending the nation to an uncertain fate.

As less that 25% of our deterrent resides in fixed ICBMs,[47] the United States may decide to scrap these missiles altogether or perhaps go to a system of land-mobility.

The final third of the U.S. strategic Triad is the fleet of 41 Polaris and Poseidon missile-firing nuclear submarines, each carrying sixteen SLBMs. The older Polaris boats, first tested in 1960, have subsequently been MIRVed so that each tube contains three, 200 kiloton warheads, while the newer Poseidon has 10 reentry vehicles per missile yielding fifty kilotons apiece.[48] With a CEP of not much less than $\frac{1}{2}$ mile,[49] our current SLBMs are incapable of destroying large numbers of Soviet ICBMs and therefore they do not pose a serious first-strike threat.[50]

Roughly two-thirds of our SSBNs are on patrol at any one time,[51] which means that this segment of the Triad alone is capable of killing thirty percent of the Soviet population and knocking out 75% of it's industry in a countervalue attack,[52] assuming only

routine attrition due to equipment failure. Whether the Russians could detect and destroy any of our sea-based missile deterrent and thereby affect some damage-limitation is a matter of conjecture. Like all other calculations about the losses to be incurred during a nuclear war, we really have no idea as to how vulnerable our subs are to Soviet ASW (anti-submarine warfare),[53] however the U.S. Navy has claimed that none of its Polaris boats have ever been tracked, or even detected while on station.[54]

While it may very well be that both the American and Russian missile submarines are, for all intents and purposes, invulnerable from an enemy first-strike,[55] the communications systems that link them to land-based decision makers are not and herein lies the catch to what would otherwise be the safest and therefore the most stable deterrent force. Because of waters inability to sustain radio transmissions, submarines must position themselves at relatively shallow depths in order to receive commands.[56] This makes the force more susceptible to improved Soviet ASW and furthermore, these signals are transmitted by massive electronics networks which can not be hardened and which can be destroyed in a number of different ways. A modified EC-130 called Tacama is now being put into service over the Atlantic and Pacific Oceans which will serve as a backup command and control relay station however it does not have the capacity to handle the large amounts of detailed targeting information which may be required.[57]

At present, United States SSBNs are generally superior to their Russian counterparts. They are much quieter and are more

quickly overhauled,[58] but it has been decided to develop an entirely new underwater deterrent system so that we will have the option of reducing the more vulnerable land-based forces. Costing more that 30 billion dollars for an initial batch of ten, the new system, called Trident, will consist of newly designed SLBMs as well as the submarines themselves.[59] The Trident SSBN, which could be incorporated into the Navy sometime in 1979,[60] will be almost as long as two football fields, have a weight of 18,700 tons, and carry 24 missile tubes.[61] When initially deployed, these tubes will carry Trident I SLBMs with a range of 4,000 nautical miles and a CEP of less than 1500 feet;[62] these missiles will also be backfitted in ten of the thirty-one Poweidon boats.[63] Sometime during the 1980s, the Trident II SLBM, which will take full advantage of the Trident sub's enlarged missile tubes, will enter service carrying 14, 150 kiloton warheads that could be launched from U.S. territorial waters.[64]

Obviously, the United States has other offensive systems besides the Triad that figure prominantly in the nuclear balance with the U.S.S.R. however before discussing these, I would like to take a quick look at our primary defensive systems.

The SALT I Treaty of 1972 put strict limits on active missile defense systems. Under the provisions of that bilateral pact, we spent 4 billion dollars on a single site at Grand Forks, North Dakota to protect against a Chinese attack and limited Soviet strikes.[65] The Safeguard anti-missile system became operational late last year,[66] however, at the time of this writing, it appears

that the entire project, with the exception of the sophisticated radar, will be phased out, leaving our Minuteman deterrent force protected only by their super-hardened silos.[67]

Through another series of de-activations of obsolete ordinance, the United States now has zero surface-to-air missiles (SAMs),[68] and the modest Soviet bomber threat will instead be countered by several hundred interceptors whose primary purpose is peace-time patrol of American airspace. This weakened anti-aircraft posture has been recognized by both the Army and Congress which has recently voted funds for large-scale deployment of the SAM-D, an advanced missile that is now proceeding at an exceptional pace through its testing schedule.[69] When in service, the SAM-D will defend against any current or projected Russian bomber threat, even when attacks are made at extremely low altitudes over irregular terrain.[70]

Our ASW capabilities have never been hampered and thus it is accepted by most observers that we are far superior to the Soviets in this regard,[71] having better technology as well as far more helicopters, aircraft, and frigates assigned to the job.[72] The U.S. Navy expects to continually track Russian SSBNs and destroy them immediately at the outset of a war,[73] however, according to the respected Stockholm International Peace Research Institute, we could localize <u>most</u> enemy subs but only under "extremely favorable" conditions.[74]

The above weapons systems, ABM, SAMs, and ASW, all constitute active defenses. More often than not, however, they are brought

into play by so-called passive defenses, such as radar and other early warning devices. Most notable among our strategic early warning systems are the three satellites which orbit in such a way so as to be able to remain above a fixed point on the earth. By continually monitering Soviet launching sites, we will know immediately when an attack has been inaugerated.[75] Defenses against surprise SLBM firings are still thin but newly developed phased array radars should fill in all the gaps before 1980.[76]

At the present time, the United States is engaged in a number of projects that will provide early warning against manned attacks and cruise missiles, should the Soviets develop them. Three massive radar sites, each looking in a different direction, are now being built that will give us the ability to look over the horizon by bouncing signals off the upper atmosphere.[77] The drawback of this system is that it is not as accurate or discriminatory as conventional radar and in northern areas, it will be subject to ionospheric disturbances.[78] Ballistic missile early warning systems are similarly limited and they can not predict impact points to better than 200 square miles.[79]

It is likely that the Airborne Warning and Control System (AWACS), now being given deployment funding by Congress, will serve as the most reliable and invulnerable early warning complex. Essentially an electronics-stuffed Boeing 707 or 747, AWACS will be able to detect aircraft flying a few feet above the ground and double as a mobile command center if ground facilities are destroyed.[80]

This study of the offensive and defensive forces that would be employed by the United States in the event of a war with the Soviet Union has revealed that we are militarily strong and that in some key areas, we are ahead of our opponents. The arsenal contains some 100,000 nuclear weapons[81] and we are building three more every day.[82] We have a virtual monopoly of forward based systems.[83] The Triad has given us diversity that complicates defenses and counterforce strikes and guards against technical breakthroughs.[84] And we maintain a "considerable superiority" in counterforce capabilities that will continue even if no new programs are initiated.[85]

That we are militarily strong can not be denied but scores of analy=ists embroiled in the current fierce debate concerning United States defense posture claim that we can not be satisfied with the state of essential equivalence vis a vis the U.S.S.R. If one studies the overall strategic balance desregarding the many areas where one side of the other is ahead, one sees that the Communists have caught up to the United States and are moving at a pace which makes them <u>appear</u> to be gaining a limited degree of superiority. In a world where the perception is the reality, superiority for either side, though strategically meaningless, could have serious implications.

It has been suggested that the United States has grown blase to the idea of strategic superiority because we were unable to use it when we had it.[86] Plus, there is a widely accepted belief that a Soviet advantage in the arms race will encourage them to

engage in limited aggression or support wars of national liberation;[87] and some extremists warn that even more rash actions could be expected.

On the other hand, academicians have been arguing that we must extricate ourselves from the numbers game and realize that as long as we are able to inflict unacceptable damage on the Soviet Union, deterrence will prevail.

Current feelings among U.S. decision-makers tend toward the belief that deterrence is not a substitute for defense, and a great deal of alarm has been expressed about the trend which saw defense spending drop 29% from 1968 to 1974, measured in constant 1974 dollars.[88] A recent Congressional resolution, the Jackson Amendment, has mandated that the United States remain equal in overall potential military effectiveness with the Soviet Union[89] and the latest defense budget provided most or all of the funds requested by the Armed Forces for major projects such as the B-1, Trident, and AWACS.[90]

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SOVIET NUCLEAR CAPABILITIES AND PERCEPTIONS

Very bluntly, we have no provable theories on what makes the Union of Soviet Socialist Republics tick.[1] While some experts have deduced the overall priorities of Russian policy formulation, Gallagher and Spielmann in their Soviet Decision-Making for Defense, advise us in the West that our analytic attempts are doomed to failure. They write:[2]

> Soviet policy should be interpreted as the product of men whose actions are affected not only by the routines of bureaucratic organization, the play of institutional interests, the constraints of technology, and the logic of strategy, but also, and at least equally importantly, by the peculiar demands imposed on them by the unique political environment in which they operate. There is, thus, a large and irreducible area of human choice involved in the process by which the Soviet Union selects weapons systems and force postures that is not susceptible to the predictive tools of Western analysis.

There is a fairly broad consensus that Marxist-Leninist ideology has played a large role in Soviet thinking about the use of nuclear weapons and a brief study of these beliefs is essential to placing Russian global intentions in perspective.

The widely held view that the Soviet Union wishes to forecibly take over the world using all the means at it's disposal simply does not square with the teachings of Lenin. Russian author A.S. Milovidov has recently published a book in which he states that:[3]

> Experience has convincingly confirmed the correctness of Lenin's thesis that (quoting Lenin) 'peace...will advance the cause to an infinitely greater extent than war...'

While it is made very clear that the Soviet Union is intent upon

spreading socialism to every nation on earth, Milovidov also establishes that[4]

> ...Communists consider defense of socialist conquests and the prevention of a nuclear war to be the most vital task of the present day.

It can not be emphasized enough that Russia seeks to avoid a general nuclear holocost as much as we do.[5] However, as Leninists, they believe that Communism exists in a hostile world and that wars will disappear only after the total destruction of rival systems.[6] Therefore, the U.S.S.R. remains a lot less confident that deterrence can be maintained, the reason for their trying to develop war-winning capabilities.

According to Marxist-Leninist doctrine, in a great war, the Soviet Union will emerge victorious, which is defined as self-survival and the destruction of capitalism. In such a conflict, which is not taken to be inevitable,[7] it is expected that the proletariat will revolt around the world and join forces against the "imperialists".[8] The Russians assume in all their literature that the final struggle, a general nuclear war, will be started by the West, and indeed they are prevented themselves from inaugerating hostilities by the Leninist ideology which preaches that wars can be initiated only if one is sure of winning and, gains outweigh the costs.[9]

At present, Lenin is exhaustively quoted in almost every Soviet military publication, however the precise nature of his influence can not be ascertained, nor can we judge the importance socialist doctrine will have in the future. We are equally unsure

as to which direction Communist Party ideology will push Soviet military objectives. Paul Nitze wrote in Foreign Affairs that if the Russians gained a strategic advantage, their ideology would have them exploit it,[10] however Philip Mosely told Henry Jackson's Government Operations Subcommittee that a superior position would make them more cautious. In Mosely's words:[11]

> From the Soviet point of view, the danger of war increases as communism increases its strength and expands the areas it rules. In other words, the greatest danger of war, in view of Soviet ideology, arises as their power expands and as their capacity to exert power increases. So, from their point of view, the growth of their power, the fact that no one would attack them today, that they have a secure deterrent of their own and could destroy any other country in the world today, this does not give them the sense of relaxing. It makes them feel the next stage is the most dangerous one and that they must have the maximum power organized and ready to use at that time.

This caution and the high state of preparedness that accompanies it are reflected in the Soviet view of its strategic nuclear relationship with the United States. Gallagher and Spielmann claim that professional Russian analyists now fully understand our military doctrines,[12] and it is known that large numbers of American nuclear treatises, including Taylor's Uncertain Trumpet and Kissinger's Nuclear Weapons and Foreign Policy have achieved wide distribution among the ruling circles in translated, mildly altered editions.[13] Yet the U.S.S.R.'s massive military buildup of the past decade is assumed to have been formulated with no precise formula for Soviet-American relations[14] and the former still refuses to believe in our good will, contending that we would destroy them if given the chance.[15]

Before looking at Soviet nuclear strategy, I wish to shed a few insights into their thinking on an actual atomic war-how it will come about and what form it will take.

The Russians believe that a nuclear conflict would begin with a surprise attack of evolve out of a limited one.[16] Once started, such a war would be an all-out fight to the finish involving mass armies deployed throughout the world prepared to engage in protracted hostilities that bore no relation to conventional battles of the past.[17] If follows that the Soviets place a premium on getting off the first strike because they feel that the side which takes the initiative, especially in a surprise attack, could very well insure that the outcome of the war is favorable,[18] even against a superior enemy.[19]

If the U.S.S.R. does exercise its penchant for taking the initiative and resorts to the use of strategic nuclear weapons, either after U.S. first use in Europe or in the heat of a crisis in which an American launch seems imminent, she will seek to simultaneously destroy military targets and our economic base.[20] In the event that the United States commences strategic strikes, most indications point to a Soviet launch-on-warning with the similar objective of wiping out enemy forces-in-being as well as eliminating all military and industrial potential.[21]

While the idea of the Soviet Union believing it can fight and win a general nuclear war seems preposterous to American forms of common sense, we must remember that the Communists are

much less afraid of thinking about the unthinkable and that, as John Erickson has poonted out in a study for the Royal United Services Institute for Defence Studies, there is a body of evidence which shows that a first strike has been considered.[22] The full implications of this will be examined in a later chapter however it may be that such an extreme stance by the Russians regarding nuclear warfare is a strong reinforcement to deterrence. Furthermore, the Soviet doctrine of being able to fight an atomic battle to the finish once deterrence has failed should give pause to supporters of the Schlesinger Doctrine and others who trust that the Russians, with their large and inaccurate warheads, will adhere to damage-limitation and no-city or no-escalation policies.[23]

Michael MccGwire has succinctly summarized Soviet nuclear strategy as follows:[24]

> ---a high value is placed on reducing the amount of damage inflicted on the Soviet Union, in protecting the center of government and in preserving the population.
>
> ---Western Europe assumes a crucial importance as an alternative economic base on which to rebuild society.
>
> ---a high value is placed on destroying the West's war-fighting potential as well as her existing forces.

These national objectives generate the following military requirements:

> ---destroy Western strategic nuclear delivery systems at the outbreak of war in order to reduce the amount of damage inflicted on Russia and to deny the West the option of holding back strategic missiles, which could be used to influence the subsequent course of the war and to destroy Europe as an economic base.

---provide sufficient active and passive protection to the locus of central government to ensure its ability to function at an acceptable level. To provide more widespread passive protection so as to ensure the survival of an adequate proportion of the population, and a skelatal frameword of national government.

---develop a concept of operations for the seizure of Europe at the outbreak of war, which will spare Europe's industrial and agricultural capacity to the greatest practicable extent.

---destroy the West's war-making capacity, both the forces in being and its war potential.

For the remainder of this chapter, I will dwell on the effect of these Russian beliefs and objectives on a stable nuclear balance between the superpowers, then move on to adapt these to a Soviet perspective on detente, and finally touch upon their military hardware and the great stockpiling of the last decade.

Implicit in MccGwire's outline is a rejection by the U.S.S.R. of the American policy of mutual assured destruction (MAD), a policy which insures that any major strategic exchange between the superpowers will result in totally unacceptable damage to both sides. The Soviets want to survive a nuclear holocost and they assert that a peace based on the terror of MAD can only perpetuate the threat of war.[25]

It is obvious that the Russian emphasis on defense is regarded as destabilizing by the United States which believes that deterrence is best served through the mutual vulnerability of both sides. Yet the former nation has refused to compromise its strategic doctrines or eschew certain types of weapons that we believe increase the chances of nuclear war. For example, initial deployments of Soviet ICBMs were all soft-sited even though this indi-

cated a first-strike intention to America.[26]

Recent debates about detente have brought the question of the superpowers affecting each others strategic stances to a head. As has become clear, the objectives of both sides in promoting detente have been very different and in the case of the United States, incorrect perceptions have more recently led to serious disillusionment that could result in increased, not decreased tensions. A report released by the Defense Intelligence Agency in the Pentagon, that strongly contributed to the firing of James Schlesinger, demonstrated that the Soviets view detente[27]

> ...as a strategy for achieving broader U.S.S.R. strategic objectives and tactical aims without causing sufficient concern to galvanize serious counteraction by the West...

The main points of the study were as follows:

> ---Soviet...objectives...include the breakup of Western alliances, eviction of the American military presence from Europe and achievement of Soviet military dominance there.
>
> ---detente has become possible, the Soviets believe, because the West has been forced to recognize the changing correlation of forces and is therefore accomodating to rising Soviet power.
>
> ---A major tenet of Soviet detente policy is to avoid strategic nuclear war. At the same time, they seek to neutralize those areas of power competition where superior U.S. technology puts the U.S.S.R. at a disadvantage.
>
> ---the U.S.S.R. expects the West to act with prudence in any crisis that could lead to a superpower confrontation, while the Soviets are prepared to exploit crises in pursuit of their objectives to the limits of U.S. reaction, if necessary, by threatening military intervention.
>
> ---Soviet detente policy can change...Moscow will compromise on detente of discard the policy and adopt an alternative course (if these options appear sufficiently attractive).

Detente, therefore, does not constitute a fundamental change in Soviet policy as some Americans had claimed, but merely represents a bolstering of peaceful co-existance which means no hot wars.[28] Marchall Shulman clearly warned Congress in 1975 that:[29]

> (t)here should be no misunderstanding that the Soviet political strategy of peaceful co-existance does not imply that the Soviet Union renounces its ultimate commitment to the further advancement of communism, or that the Soviet Union will not take advantage of opportunities that present themselves for an increase of Soviet influence, it does, however, signify a lower tension policy and a reliance upon longer term developments to validate Soviet aspirations.

Additionally, we should not expect that the spirit of detente will mean any lessoning of the arms race. Whether coincidentally or otherwise, the international stature of the Union of Soviet Socialist Republics has risen with their military power beginning in the late nineteen-sixties and continuing at the present time.[30]

The Soviets believe that size and numbers are power and their present military posture reflects this.[31] In the last few years, they have spent between $30 billion and $45 billion to develop and deploy an advanced series of ICBMs that give them a current three-to-one advantage in missile throw-weight.[32] The new SS-18, can carry a 50 megaton warhead as compared to the Minuteman's 1 megaton,[33] and it has been said that 100 megaton warheads are available.[34] In an alternate configuration, the SS-18 carries eight MIRVs and this combined with a CEP of one-half nautical mile[35] gives it the ability to destroy "any known fixed target" in the words of the Chairman of the Joint Chiefs of Staff, George Brown.[36]

To compliment the SS-18, the Soviets, in 1975, put the SS-17 and the six-MIRV SS-19 into service in newly designed 450 psi silos.[37] These silos, for which the United States has no equivalent, utilize the cold-launch or "pop-up" technique that thrusts the missile above ground before its engines ignite, thus allowing for greater throw-weights and permitting silos to be reused.[38] A companion ICBM, the SS-16, which may or may not be operational, is believed to be land-mobile.[39]

The backbone of the Soviet Rocket Force remains the 270 SS-9s carrying three, 5 megaton warheads or a single 25 megaton warhead.[40] These are deployed in groups of 6 that are often located near cities, a fact which casts serious doubts upon American intentions oflimiting damage to the enemy population.[41] Furthermore, the SS-9 with a relatively inaccurate guidance system that gives it only marginal hard-target capability and an obvious potential for oblitering nearby non-military targets, exemplifies the Soviets rejection of damage-limitation theory.

As of mid-1975, the Russians had the edge on the United States in numbers of ICBMs with 1618, however because of extensive MIRVing, we had more warheads to deliver with a greater degree of accuracy.[42] Approximately 700 medium and intermediate range ballistic missiles (M & IRBMs) are also maintained, most aimed at Europe or China.[43]

Roughly 85% of Soviet throw-weight resides in fixed ICBMs,[44] which explains why the Russains are unwilling to plan on their missiles riding out a U.S. first strike. However, recent strides in SLBMs could change this as the sea-based forces become a power-

ful deterrent force in their own right.

Until the early nineteen-seventies, the Soviets primary SLBM, the SS-N-6, could only count on destroying soft targets within a relatively short distance of the coast because of range, yield, and accuracy limitations.[45] Now, these older missiles have been given smaller unguided multiple re-entry vehicles (MRV)[46] while impressive new submarines and and SLBMs take over the primary targeting assignments. Being turned out at a rate exceeding seven per year is an advanced Delta-class boat[47] that the Defense Department says "has become a difficult vessel to locate and track..."[48] This SSBN is deployed with 16 missile tubes, each carrying an SS-N-8 which has a range of over 4,000 nautical miles and thus is capable of hitting targets in the United States from Soviet territorial waters.[49]

By 1977, the year in which theinterim SALT agreement expires, the Russians will have reached the 62 boat limit and will be producing replacements or supplemental SSBNs at a faster pace than either the Trident, which won't put to sea until 1979, and then only at the rate of three every two years, or United States attack submarines.[50] With a current inventory of 800 launchers in 60 nuclear subs, the Soviet fleet is adequately counterd by American forces however, the future balance could be unstable if the latter believes its sea-based missiles are needed for war-fighting as well as deterrence.[51]

A further Russian initiative which may be destabilizing is the basing of cruise missile submarines in Cuba. Such vessels,

based in the Western Hemisphere in apparant violation of U.S.-Soviet understandings, carry up to 8 high-kiloton warheads and pose a severe threat to the massive industrial complexes of the Eastern seaboard.[52]

The sea-based nuclear forces of the U.S.S.R. are indeed formidable and the ambitious construction programs of recent years have undoubtedly eroded the substantial American lead in this area. However, as has been the case with other examples of vast Russian build-ups, increased size and numbers have not directly translated into increased power. It is most obvious that despite numerous Soviet advances, they are still deterred-they are unable to capitalize on numerical gains. Even if one imagines that deterrence is doomed to failure, as all worst-case planners naturally do, the new generation of SLBMs will still be relatively ineffective against hardened land-based missile silos which means that surviving retaliatory forces can continue to credibly threaten Soviet society. Furthermore, geography and superior American technology insures that the Russian SSBN fleet remains partly susceptible to ASW.[53]

While the Soviet SLBMs can admittedly cause some danger to the United States, their manned bombers, for all intents and purposes, can not. Former Secretary of Defense James Schlesinger made this clear in his Fiscal Year 1976 report to Congress when he stated that "no significant long-range bomber threat to the U.S. now exists".[54] Since those words were spoken, the U.S.S.R. has built more than fifty Backfire supersonic aircraft,[55] however

these planes seem to present more of a menace to arms control negotiators than to the security of the United States which is now preparing a modernized network of air defenses. The precise role of the Backfire, as well as the thousand or so other bombers which the Russians have,[56] will be evaluated in the chapter dealing with future nuclear strategy.

Soviet defenses also reflect the "numbers and size" mentality and as is the case with much of her offensive weaponry, technical deficiencies make for vulnerability against Western hardware which if often five to ten years ahead.

Protection against U.S. missiles consists of the world's only ABM system, a 64-launcher complex protecting Moscow that, although it packs multi-megaton warheads, is generally considered ineffective by Western analyists.[57] In December of 1975, Aviation Week and Space Technology, the standard reference source on many military issues, reported that the Soviets were using lasers to blind our warning and reconnaissance satellites, an activity, which if not controlled by international agreement, could spark a minor revolution in strategic thinking. The Defense Department denied the report but it has become known that the Russians are interfering with other American surveillance techniques legitimized by the SALT agreements.[58] Obviously, we will be prevented from firing our missiles at the Soviet Union if we have no idea where to target them.

The Russian ASW effort is weak. They have no effective capabilities for open ocean ASW,[59] and in fact, despite their highly

publicized expanding worldwide naval presence, MccGwire believes that all Soviet ocean-going forces are far from being able to fully disccharge their war-related tasks.[60] They have 38 nuclear and 160 conventional attack submarines[61] however the newest V-class which has a speed advantage over all U.S.vessels is still incapable of following Polaris.[62]

The U.S.S.R. is defended against bomber attack by several thousand interceptors and 12,000 SAM missiles,[63] these being controlled from over 5000 early warning and ground control radar sites.[64] Yet this system, which is the most massive the world has ever seen, does not promise to achieve a high degree of success. Large over-the-horizon radars are being constructed,[65] new aircraft with updated electronics and ordinance are being deployed,[66] as are mobile SAMs with a minimum effective altitude of 150 feet against fast aircraft,[67] but this is simply not enough. The Soviet Union retains major weaknesses in low-altitude defense bombers such as the B-1 which is chock full of ECM (electronic counter measures) that has gone unmatched. The technology needed to develop the necessary radar such as AWACS is unavailable which means that Russia will be equally vulnerable to cruise missiles and SRAMs.[68] It has been suggested that when and if the United States eliminates manned bombers and cruise missiles, the Soviets will convert their ineffective SAM sites to more effective ABM systems in violation of the SALT treaty. Again due to technological constraints, it is very unlikely that this will occur.[69]

Although absolutely nobody of proof exists to substantiate

the claim, the best Soviet method of damage-limitation is probably their civil defense system. They spend $1 billion per year on this and at least in the public literature, they are confident that it will succeed in protecting enough of the government structure and people to run it against any attack.[70] Besides a vast network of public shelters, the civil defense program gives special inducements to servicemen to settle in remote areas.[71] And between 1966 and 1970, the government located 60% of new industry in cities or less than 100,000 people.[72] Perhaps the civil defense system more than any otherweapon or doctrine indicates the seriousness with which the Russians treat the possibility of a nuclear holocost.

The tremendous buildup of Soviet forces, both offensive and defensive, has led many observers to believe that the Communists are seeking to attain a first-strike capability. Indeed, the statistics are impressive; in 1974 alone, $103 billion was spent on nuclear weapons,[73] and each year, over one-third of the nations resources are consumed by the military.[74] According to Paul Nitze, the Soviets have bought themselves enough strength so that:[75]

> (b)y 1977, after a Soviet-initiated counter-force strike against the U.S. to which the U.S. responded with a counter-force strike, the Soviet Union would have remaining forces sufficient to destroy Chinese and European NATO nuclear capability, attack U.S. population and conventional military targets, and still have a remaining force throw-weight in excess of that of the United States.

This opinion is echoed by Defense Secretary Rumsfeld in his 1977 Report.[76]

All in all, those who claim that the U.S.S.R. is seeking to surpass and eventually destroy the United States forget that the former nation will use force only in extreme circumstances with no alternative and with little risk.[77] Each superpower will continue to be deterred from attacking the other because the risks of destroying oneself along with ones opponent can never be adequately deduced. Therefore, it is necessary to look elsewhere for the raison d'etre of the Russian armaments program.

Some of the reasons have already been elaborated-to be able to defend the Soviet Union and defeat any opponent who attacks, to maintain parity with the United States with its superior technology and so forth. The Russians has hoped that increased military strength would give them more power in Europe,[78] an effect which is not particularly evident. Clearly however, the U.S. was humbled into giving them more diplomatic maneuverability.[79]

Ultimately, one must remember that the Soviets have no conceptual limits on weapons deployment.[80] The proof of their believing that "more equals better" is amply demonstrated by observing that after World War II, they planned to build 1200 submarines, and in fact were turning out 80 per year until Khrushchev saw the light.[81]

At the 1974 Summit, a top Soviet officer stated that his nation's ICBMs had a CEP of $\frac{1}{4}$ mile, and not $\frac{1}{2}$ mile as was usually assumed in the West.[82] This would fulfill the "worst-case" theories of Pentagon strategists and enable the Russians to destroy most, but not all, of our fixed, land-based missiles. Nonetheless, I

stress that beyond a shadow of a doubt, the bomber and SLBM thirds of the U.S. Triad, as well as the surviving missiles, will constitute sufficient risk, as defined by the Soviets in their strategic doctrine, to deter them from launching a first-strike, assuming of course that they harbor such an intention at all.

To conclude, I reiterate what every major piece of Soviet military literature bluntly states: a strong nuclear posture is necessary to defend the homeland from hostile foes who wish to destroy her if possible.[83] They believe that atomic weapons are central to all phases of its military power[84] and that because of the great destructive power of new conventional explosives, the transition to "nukes" will be fairly easy.[85] The chance that their use will be called for is remote but in the hostile environment which surrounds a socialist state, maximum preparedness is mandatory.

FOOTNOTES

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70) Nitze, op. cit., p. 212.

71) Sokolovskiy, op. cit., p. 304.

72) Goure et. al., op. cit., p. 124.

73) Binder, David, "U.S. and Soviets Closer to Pact on Atomic Blasting", New York Times, March 3, 1976.

74) Erickson, op. cit., p. 51.

75) Nitze, op. cit., p. 226.

76) FY1977 Defense Report, op. cit., p. 61.

77) Pipes, Richard, "Some Operational Principles of Soviet Foreign Policy"-Power Balance Hearings,op. cit., p. 6.

78) Erickson, op. cit., p. 51.

79) Wolfe, op. cit., p. 30.

80) Goure et. al., op. cit., p. 12.

81) MccGwire et. al, op. cit., p. 433.

82) Wolfe, op. cit., p. 71.

83) Lomov, N.A.,(ed.) Scientific-Technical Progress and the Revolution in Military Affairs(A Soviet View). Government Printing Office, 1974, p. 3.

84) Goure et. al., op. cit., p. ix.

85) ibid., p. 104.

TACTICAL NUCLEAR WAR AND THE SITUATION IN EUROPE

Across a broad frontier in Central Europe, the United States and the Soviet Union face each other with a vast array of military equipment that includes thousands of tactical nuclear weapons(TNW). The situation is tense, with both supowers regarding their opponents as hostile and inclined to attack.

These circumstances, involving two great nations poised at each others throats, but on foreign soil, are precisely those which could most easily foster a nuclear conflict between the U.S. and Russia. Somehow, the use of atomic weapons which are significantly less powerful than those contained in missile warheads, and which are not directly destined to annihilate ones own citizens, have been easier to justify. Basically, the theorists have reasoned that even if the nuclear threshold is crossed at the tactical level, escalation of hostilities to all-out strategic exchanges between the combatants, or the so-called "unthinkable", will continue to be deterred.

This type of thinking is dubiously optimistic, and in the present chapter I hope to show that not only do unknown variables deter America and the U.S.S.R. from using any kind of nuclear device, but that no military alteration of the European status quo can reasonably be expected. The discussion will center first on the capabilities, strategies and perceptions of and in theatre nuclear warfare of the two sides and them move on to the likelihood of a Soviet attack and the problems of constructing an ade-

quate NATO defense posture.

The Soviet Union is fully capable of launching a massive battlefield nuclear offensive in Europe.[1] Besides the well-known mechanized armies, she has 3500 tactical nukes which does not include the several hundred MRBMs that are based in Russian territory.[2] These weapons have large yields and poor accuracy and are mostly deployed atop small surface-to-surface missiles.[3]

In the event that a war breaks out between NATO and the Warsaw Pact, it is probable that the Soviet tactical nuclear arsenal will be utlilized. Although the Russians no longer believe in the inevitability of a European war becoming nuclear, they do consider such escalation is highly likely,[4] and thus, in the words of Donald Rumsfeld,[5]

> (t)heir TNFs (tactical nuclear forces) appear to remain an integral part of their warfighting capabilities.

American analyists have written of the Soviet military posture as indicating a strong first-strike potential against NATO forces, however, Communist literature asserts that if will be the Western alliance which initially crosses the nuclear threshold.[6] A.A. Sidorenko, in his book <u>The Offensive</u>, states that NATO will rely on "massed employment of nuclear weapons",[7] and that rather than accept defeat, it will escalate during the most critical situations. In the event that we do use tactical nukes, the Soviets feel that they will be forced to do likewise.[8]

Regardless of which side begins a war in Europe, it can be

assumed that, at least for the Russians, nuclear weapons will play an important role in the subsequent fighting. According to Sokolovskiy's Soviet Military Strategy, the military "bible", tactical nuclear weapons give better results than conventional means of destruction and can be used to solve problems of every scale.[9] Says Sidorenko:[10]

> ...nuclear weapons will become the chief means of defeating the enemy...

And Goure, Kohler, and Harvey add that[11]

> ...Soviet military theory, doctrine, strategy, war planning, force structure and organization, instruction and training programs, battle exercises, resource allocations, research and development programs and activities, civil defense efforts, indoctrination programs for the troops and for the population, war readiness measures, and so on are all keyed to and dominated by the nuclear weapons factor.

Although the Soviets are probably sincere in their belief that NATO will inaugerate nuclear attacks, it should be noted that they realize the importance of a first strike to their own cause and would like to be able to take the initiative in crossing the threshold if the West begins a conventional war.[12] Given the superior NATO mobilization resources, the Russians are well aware that they can not engage in protracted hostilities. In the Far East, where the Red Army is similarly incapable of waging a war of attrition with the Chinese, Moscow has made it clear that it will launch a nuclear first-strike, a policy which may also apply to Europe.[13]

The U.S.S.R. has never said that it would restrict the use of force to take the Continent with a minimim of damage,[14] however

most American strategists have assumed that preserving a solid economic base on which to rebuild is a top Soviet priority.[15] This means that they would have to launch a pre-emptive attack and wipe out all NATO forces so that we would have nothing to withhold for a deferred strike. The location of every single American tactical nuke is well known to both sides and therefore a successful first strike is a theoretical possibility.[16]

Further support for the assumption that the Soviet Union will not hesitate to use tactical nuclear weapons in Europe comes from the fact that they believe such devices raise troop morale and correspondingly lowers it for the enemy.[17] Sidorenko has said that the side with the highest morale will win,[18] something which speaks for the sustenance of U.S. resolve as a requirement for stability.

Alain Enthoven expresses the feelings of the American government when he states that[19]

> (a) free and independent Western Europe, aligned with the United States, is vital for our national security and well-being.

Although our actual force levels assigned to NATO are bound to rise and fall with the mood of Congress, the U.S. commitment to safeguarding the nations of Western Europe is unlikely to diminish. Thus, even though American lives would have to be sacrificed to insure the survival of Frenchmen or Germans, our armed presence aimed at deterring the Warsaw Pact must be taken seriously.

The 7000 tactical nuclear weapons stockpiled in Europe, worth some $2 billion,[20] serve three military functions-linking NATO

defenses to the U.S. strategic deterrent, preventing Soviet use of such weapons, and providing for a sound defense against a Pact all-out conventional attack.[21] As I have already mentioned, the first function would not work if put to the test, however its very nature insures enough uncertainty in Russian minds to preclude their probing the link.[22] The second function plays on the fear that any nuclear exchange will escalate to an all-out strategic encounter, and the third represents the American belief that we should trade off between Communist hordes and our technology.[23]

Just how NATO will use tactical nuclear weapons is not clear. Stanley Hoffman told a Senate Foreign Relations Subcommittee that no doctrine had even been developed,[24] but a less pessimistic Wolfgang Heisenberg, in an Adelphi Paper, has written that[25]

> ...the present theatre nuclear forces are the product far more of pragmatic considerations within the military bureaucracies than of an agreed, coherent strategic doctrine.

In the short run, this indecisiveness will add considerable risk to any Soviet armed initiatives because the Pact will have to fear a NATO pushing of the panic button that could bring on a holocost, rather than our cooly putting thought-out contingency plans into operation. However if deterrence fails, the dangers of a doctrinal void become obvious-lacking confidence, we might not use tactical nukes at all and lose the war, or, we might go to the opposite extreme and destroy Europe and maybe ourselves by using them all.

Having no doctrine to speak of should not be confused with

one that is outwardly ambiguous as to how it will be implemented. General Brown of the Joint Chiefs of Staff says that[26]

> NATO will deliberately escalate to whatever extent is necessary to turn back aggression.

This conspicuous lack of particulars prevents the Russians from evaluating the risks of an attack on Western Europe and thus is beneficial, however it is mandatory for NATO commanders to have secretly worked out prudent reactions to every possible scenario.

Heisenberg has speculated that the United States will use TNW on a scale that exceeds a mere demonstration of resolve and that is less than a full-scale military effort. Initial attacks, against military targets, would hopefull delay the enemy offensive and signal a willingness to escalate if necessary.[27] There is no doubt that the U.S., as in the strategic arena, has a supreme interest in damage-limitation, a policy which makes sense for we have realized that, unlike Vietnam, we can not save Europe by destroying it.[28] With this objective in mind, we have deployed thousands of so-called "mini-nukes" which have a blast effect only a fraction that of the Hiroshima bomb. In addition, NATO has de-activated earlier delivery systems that were either inaccurate or of too high a yield. This policy of damage-limitation has gone so far that most American tactical nuclear bombs can now be instantly adjusted by the flick of a switch to low or high blast power.[29]

As is evident from the previous discussion, both superpowers

are heavily armed and claiming that they will not hesitate to use nuclear weapons to defend their European interests. Nevertheless, if one peels away the nationalistic rhetoric which spews forth freely from all parties concerned, the bare set of facts that is revealed points to the conclusion that these arsenals will remain undisturbed.

In setting forth the reasons for the above statement, I do not wish the arguments to become one-sided in the sense of there being solely a "Russia as the potential aggressor" perspective. We must keep in mind that the Soviet Union believes the U.S. will be the likely initiator of hostilities, nuclear or conventional,[30] and that, we have no right to demand the Communists interpret our military preparations as ruling our an attack.[31]

Getting to the heart of the problem, one sees that the Soviets could have only two possible reasons for attacking Western Europe. These are: to establish an economic and social base for the future development of socialism or the U.S.S.R. itself, and to gain some other advantage that would still outweigh the costs of a general nuclear war that might very well ensue.[32] The attack would take one of the following forms: an all-out conventional attack, an all-out tactical nuclear attack, a limited conventional attack in pursuit of more limited objectives than establishing Soviet hegemony over the whole continent, an all-out conventional attack supporte by selected use of atomic weapons, and an all-out attack occuring simultaneously with a massive strategic offensive against the United States of America.

The premise that the U.S.S.R. will attack Western Europe to gain new political and economic strength does not wash in light of the fact (which I will subsequently elaborate on) that a total military conquest is not possible. And of course an attack motivated by the hopes of benefits outweighing the risks of damage to the Soviet homeland has already been dismissed in an earlier chapter as being against common sense and Marxist theory. Even in the political arena, there are constraints which prevent the U.S.S.R. from waging a war in Europe. For one thing, an attack westward would run the risk of uniting Germany and the Soviets cringe at the thought.[33] They are equally afraid of agitating the West for fear that the Chinese, sensing a diversion, will attack in the East and possibly embroil the country in a two-front war. Finally, it just may be that the Soviets ultimately want a neutral Europe and one which is free of a U.S. military presence, but not necessarily under Communist domination.[34]

In dealing with the military alternatives open to the Soviets should they wish to alter the European status quo, it can be seen that a number of sound reason can be presented to show the infeasibility of each.

An all-out conventional war would not cause excessive damage[35] so a full blown Warwaw Pact attack, sans nuclear weapons, seems the logical method of action. But we must remember that they seek a lightning-quick defeat of NATO forces so as to avoid a war of attrition, just as much as they seek to limit the destruction. With a purely conventional Soviet attack, these two objec-

tives conflict because the West has it's hands on superior equipment that will allow it to defeat, or at the least, stall any offensive not supported by nuclear weapons. Furthermore, because of our ambiguous policy statements, the Russians can not be absolutely guaranteed that we will not resort to our tactical atomic arsenal. This is also true for the French who have said that they will use nukes in response to any Soviet attack that threatened her.[36]

In 1974, Paul Warnke told a Senate subcommittee that a limited Pact attack to achieve limited objectives was more likely than a massive conventional attack,[37] however the deterrence factors mentioned in the previous paragraph still seem to be operative here. If the Soviets launch a surprise offensive and then call a quick cease-fire before we can respond, they involve themselves in a number of serious problems that would certainly outweigh the gains in capturing a few key industrial centers or military outposts. For example, the United States might no longer be willing to honor its unwritten agreement to keep our of the affairs of Eastern Europe. And of course, I have already mentioned the threat posed by China if the attentions of the Soviets are diverted.

A third possible Russian method of attack is the unrestrained use of tactical nuclear weapons in support of massive penetrations by mechanized ground forces. Assuming that they had decided to forego any attempts at damage-limitation, this would be the preferred option to be employed immediately after a NATO-inaugerated armed conflict, or for a surprise pre-emptive strike.

The problems associated with an all-out nuclear attack on Europe are numerous. Because the U.S. is superior in overall tactical nuclear capability,[38] virtually our entire force structure will have to be destroyed at the outset to prevent us from effectively striking back. Given the alert status of various NATO defenses and a host of other factors, this can not be reasonably expected.[39] Even if an all-out offensive attains success, Jeffrey Record of the Brookings Institute has stated that[40]

> ...a pre-emptive Soviet nuclear strike of the magnitude necessary to deprive NATO's forward-deployed air forces of an effective tactical nuclear second-strike capacity would run an extremely grave risk of sparking a major nuclear conflict perhaps involving the use of strategic weapons by the United States.

Finally, if we assume the Russians accept the risk of crossing the nuclear threshold, and then assume that they destroy all our European forces, the United States can still call up reinforcements. These could either be naval forces operating from the Atlantic and Mediterranean, tactical aircraft operating from remaining bases in Europe and Britian, or even Strategic Air Command bombers flying round-trips from the United States.

The fourth form of attack, one which was primarily conventional but which employed limited nuclear strikes, combines the drawbacks of both. Inherent in this type of attack is the risk of escalation, the possibility of an extended war involving selected atomic strikes by both sides, and the sparing of a certain number of American bases and aircraft which will eventually be brought into play. This obviously makes no sense militarily

and there is no evidence that the Russians have contemplated such a strategy.

The final possible scenario, involving simultaneous full-scale attacks on the United States and Europe, can be easily discounted in light of the reasons for the maintainence of deterrence which have been discussed throughout this paper. Conceivably, if through some fantastic set of circumstances, the U.S.S.R. achieves the ability to destroy the vast majority of American strategic and tactical nuclear forces in a pre-emptive strike while limiting damage to herself, she could implement a worldwide plan of this kind, however, this is currently too fantastic to seriously consider.

In the near future, the Warsaw Pact is not going to attack NATO and conversely, NATO will stay away from a military engagement with the Warsaw Pact. Yet a tactical nuclear war remains a possibility because of unforeseeable accidents and thus it is necessary for the United States to further policies of deterrence through a sound war-fighting capability and the veiled threat linking the use of tactical nukes on behalf of Europe's defense to our strategic forces.

In all probability the accidental firing of a nuclear-tipped missile or the straying of aircraft over crucial enemy positions or confusion-ridden border skirmishes will not lead us down the road to war. Communication links between Moscow and Washington will activated, cool heads will prevail, and the immediate crisis

will be alleviated. However, no one really knows this will happen, especially if the nuclear threshold is accidentally crossed, and therefore it will be necessary for the United States to retain a strong defense posture in case the Soviets somehow feel threatened enough to become aggressive.

A complete spelling out of the hardware needed to enable us to adequately defend Western Europe against any kind of Pact attack would be extremely lengthy and not entirely germaine to this paper. Therefore, I wish to expound only the guiding principles which help to formulate the overall strategies and that eventually dictate equipment needs.

The current debate about American involvement in NATO's defense of Western Europe is split down the middle between those who believe we have the capacity to meet a Soviet conventional attack using only conventional forces of our own,[41] and those who believe our posture is somehow deficient.[42] In general, the former group presents more cogent arguments however the pessimists have succeeded in bringing to light a number of deficiencies in NATO doctrine and war-fighting capabilities that stand to be corrected.

There is some evidence that points to a dangerous vulnerability of our tactical nuclear forces to early capture and pre-emptive strikes.[43] Only one example of this is the Atomic Demolition Munitions (ADM), nuclear devices exploded in forward areas to slow or channel an enemies advance. ADM, to be buried in the ground and then detonated by remote control to form an "instant Maginot Line", make no sense because not only will they have to

be used on Allied soil, their explosion will be mandatory to avoid their falling into Soviet hands.[44]

Two general problems are raised by this example. First, realizing that vulnerability is destabilizing in a crisis because it invites pre-emptive attacks and thus also puts a premium on premature use, we must ascertain the necessary force structure corrections. And secondly, we must ask the inter-related question: What should we do to keep tactical nukes under the strictest controls and out of situations where we are deprived of any options to use conventional forces?

Most military strategists have persuasively argued that NATO could best deter or defeat an attack on Western Europe by a combination of strong conventional war-fighting strength backed up by invulnerable tactical nuclear forces. The United States is now adding planes and men to Central Europe as well as building hundreds of aircraft shelters in an attempt to beef up our non-nuclear capabilities,[45] however it seems that more fundamental revisions are in order.

Wolfgang Heisenberg has proposed some interesting restructuring plans in a recent study for the International Institute for Strategic Studies based in London.[46] After disproving the oft-held theory that TNW, and not modern conventional armaments could offset Soviet superiority in numbers of tanks, manpower, and so on,[47] he sets forth a Crisis Stability Model for the ideal European defense. This would involve the removal of most tactical nuclear weapons from the Continent once an adequate conventional posture

had been achieved. A few land-based missiles would remain in areas removed from the front line of defense however these would be supported by several hundred Poseidon-launched MIRVs aimed at Europe.[48] Alain Enthoven has supported this in his own writings, claiming that we have an excess of such warheads, they having originally been developed to overcome the Soviet ABM system.[49]

Heisenberg admits that his Crisis Stability Model does involve slight war-fighting limitations however he claims that this would not be significant if a strategy of escalation was followed.[50] By this he means that we will deploy TNW as a means of restoring deterrence; this would be in keeping with a policy of what Benjamin Lambeth calls[51]

> ...maximizing the adversary's fear that, in seeking limited objectives at his opponents expense, he might subject himself to ultimate losses from massive retaliation or uncontrolled crisis escalation, either of whose consequences would be out of all proportion to the original values sought.

While I have previously said that using nuclear weapons to restore deterrence is to be avoided, Heisenberg's suggestions play on the uncertainty of a link between the defense of Europe and U.S. strategic nukes and therefore do more for deterrence than they do to hurt our military posture in the event of a failure by our conventional forces.

To be sure, the Crisis Stability Model has it's disadvantages. On one hand, there is the problem of communicating with submarines which I have already discussed[52] in detail elsewhere. And on the other hand, the Russians would have no way of knowing if the SLBMs were tactical or strategic.[53] These differences however assume

some highly unlikely contingencies. A Pact effort of the necessary intensity to disrupt submarine communications with land-based command centers would be one which could greatly enhance the chances of escalation. As for the second drawback of the Crisis Stability Model, this expects us to imagine a situation where both the conventional forces and the land-based missiles had somehow failed, probably from a pre-emptive strike. Given these circumstances, the Soviets would proabably have made very substantial advances in Europe and thus would be willing to declare a cease-fire to protect their gains as well as the safety of the U.S.S.R. itself. As for the problem of identifying a missile as tactical or strategic, the use of depressed-trajectory SLBMs might alleviate any confusion.

If we theorize even further and envision a situation where the use of tactical nuclear weapons did not cause the Soviets to relent, then it would be apparant that they had called our bluff on the link between TNW and U.S. strategic forces. In this event, we would have to accept our losses and give up Europe. Of course, this reasoning borders on the absurd and I bring up this particular scenario only to press home the point that the Crisis Stability Model proposed by Heisenberg neither guarantees a NATO military victory nor commits us to a general nuclear war.

I now turn to the second major problem facing NATO today: What should we do to keep tactical nukes under the strictest controls and out of situations where we are deprieved of any options to use conventional forces? Before beginning the dis-

cussion, I remind the reader that my underlying assumption is that any war in Europe will come about accidentally.

Of the 7000 tactical nukes currently stockpiled under the jurisdiction of the United States for NATO use, many are artillary shells and small mobile missiles destined for distribution to scattered ground forces when a war breaks out. The prospect of these armaments being sent out the the field, though they could theoretically be needed for defense, is an extremely dangerous one because in conditions of heated battle, it is more than likely that low-level commanders will authorize their use.[54] Such a lowering of the nuclear threshold, which goes beyond any semblence of Presidential control, speaks forcefully for a reduction of the number of nukes deployed in Europe as well as against the building of so-called "mini-nukes".

The traditional reasons for the deployment of so many small nuclear weapons have all been discounted. The fallacy of the 'Communist hordes traded for American technology" theory has already been put aside in these pages and the other widely used argument that TNW saves money, is also untrue. British, German, and U.S. studies have shown that for a variety of reasons, conventional weapons are far more cost-effective and actually require the support of fewer troops.[55] If 6000 of these tactical nukes are removed, a figure which has been widely used, not only will we save $321 million per year,[56] we will increase our security by insuring that no low-level commander can order the breaking of the nuclear threshold if he thinks the fighting is going against

him.

The shoring up of our battlefield capabilities after the removal of the TNW can easily be accomplished through the deployment of a new generation of smart weapons, namely, laser and television guided bombs. This hardware, because of its accuracy, falls within the same price range as unguided weapons, and a substantial arsenal, which is currently beyond the technological reach of the Soviet Union, should give us a war-winning capability without resort to TNW. Additional developments such as a tank with armor that will withstand any known anti-tank gun or missile, due to enter service in 1980, reinforces this belief.[57]

The new precision-guided munitions are so efficient, that if they were to be equipped with large conventional warheads, they could probably have the same military impact as mini-nukes. These mini-nukes, which have already been partially incorporated into the NATO forces, are sub-kiloton devices with low yield and low radiotion effect.[58] The rationale for these weapons has been that they will be unlikely to spark an escalation of hostilities, however, whether large or small tactical nukes are used, they still constitute a firebreak.[59] Furthermore, not only do mini-nukes blur the very distinct boundary between atomic and conventional ordinance, an undue reliance upon the former in our war-fighting posture could easily lead us to use them prematurely when the latter could still suffice to turn back aggression.[60]

Perhaps the best argument against a dependence on tactical nuclear weapons is the unsureness that we can bring ourselves

to use them. Given the close proximity of many military installations to large cities, up to 100 million could be killed in a limited tactical nuclear war.[61] Even a "successful" defense of Europe would not be worth such a cost. The basic factor on our minds however is the undiscountable fear that there will be no stopping point between a limited and all-out war.[62] Not only does no one know how to fight a tactical nuclear war,[63] a variety of Presidential inhibitions could prevent him from pushing the button. Philip Dyer has studied this problem and pronounced that tactical nukes will never be used because their will never be enough support from the public or sufficient troop jeapardy to warrant a gample that could conceivably destroy the two strongest civilizations on earth.[64] On the former point, he is supported by a 1969 Time-Louis Harris Poll which showed that only 17% of the American people would use nukes in the defense of Canada and an even smaller 8% would risk it for West Germany.[65] Citing a tendency for the President to make minimal decisions that will stir up the least antagonism Dyer claims that resisting by conventional means will be the only possible consensual decision. He concludes by asking the following question. Compared to what use of force would the use of tactical nuclear weapons be the less fearful alternative?[66]

As former Deputy Secretary of Defense David Packard puts it:[67]

> With the present nuclear balance the United States would not use its nuclear forces against the Soviet Union short of a dire threat to the survival of the United States.

FOOTNOTES

1) Military Balance 1975-1976, op. cit., p. 101.
2) Erickson, op. cit., p. 69.
3) FY1977 Defense Report, op. cit., p. 101.
4) Record, Jeffrey, Sizing Up the Soviet Army. Washington: Brookings Institute, 1975. p. 38.
5) FY1977 Defense Report, op. cit., p. 102.
6) Heisenberg, op. cit., p. 15.
7) Sidorenko, op. cit., pp. 51, 174.
8) Ullman, Richard, "No First Use of Nuclear Weapons", Foreign Affairs, July, 1972. p. 671.
9) Sokolovskiy, op. cit., p. 192.
10) Sidorenko, op. cit., p. 222.
11) Goure et. al, op. cit., p. ix.
12) FY1977 Defense Report, op. cit., p. 101.
13) Goure et. al., op. cit., p. 20.
14) MccGwrire et. al., op. cit., p. 131.
15) ibid., pp. 492, 500.
16) Stanley Hoffman-Nuclear Weapons Hearings, op. cit., p. 41.
17) Sidorenko, op. cit., p. 2.
18) ibid., p. 64.
19) Enthoven, op. cit., p. 513.
20) James Schlesinger-Nuclear Weapons Hearings, op. cit., pp. 163, 200.
21) Canby, op. cit., p. 5.
22) Heisenberg, op. cit., p. 5.
23) Ullman, op. cit., p. 670.
24) Nuclear Weapons Hearings, op. cit., p. 50.
25) Heisenberg, op. cit., p. 3.
26) FY1977 Military Posture, op. cit., p. 8.
27) Heisenberg, op. cit., p. 13.
28) Morton Halperin-Nuclear Weapons Hearings, op. cit., p. 38.

29) Record, U.S. Nuclear Weapons in Europe, op. cit., p. 20.

30) Sidorenko, op. cit., p. 222.

31) Walter Laquer-Hearings before the Permanent Subcommittee on Investigations of the Committee on Government Operations, April 17, 1973. (hereafter called Investigations Subcommittee Hearings).

32) MccGwire et. al, op. cit., p. 491.

33) Rosecrance, Strategic Deterrence Reconsidered, op. cit., p. 25.

34) Eugene Rostow-Power Balance Hearings, op. cit., p. 15.

35) Canby, op. cit., p. 7.

36) Record, U.S. Nuclear Weapons in Europe, op. cit., p. 34.

37) Nuclear Weapons Hearings, p. 57.

38) FY1977 Defense Posture, op. cit., p. 71.

39) James Schlesinger-Nuclear Weapons Hearings, op. cit., p. 207.

40) Record, U.S. Nuclear Weapons in Europe, op. cit., p. 52.

41) Lawrence, Richard and Jeffrey Record, U.S. Force Structure in NATO. Washington: Brookings Institute, 1974, p. 94; Drew Middelton, "U.S. Tightening Up Cooperation of Its Air and Ground Forces in West Germany", New York Times, December 22, 1975; FY1976 Defense Report, op. cit., p. 18; Enthoven, op. cit., p. 516.

42) Graf von Kielmonsegg, Former Commander-in-Chief, Allied Forces Central Europe, quoted in Hunt, Kenneth, The Alliance and Europe: Part II: Defence with Fewer Men. London: IISS, 1973, p. 3; Lomov, op. cit., p. 252; Dyer, Philip, "Will Tactical Nuclear Weapons Ever Be Used?", Political Science Quarterly, June, 1973, p. 222; Taylor, op. cit., p. 588; Lord Gladwyn, "The Defense of Western Europe", Foreign Affairs, April, 1973, p. 589.

43) Stanley Hoffman-Nuclear Weapons Hearings, op. cit., p. 24; Record, U.S. Nuclear Weapons in Europe, op. cit., p. 50.

44) Enthoven, op. cit., p. 527.

45) FY1977 Defense Report, op. cit., pp. 117, 191.

46) Heisenberg, Wolfgang, The Alliance and Europe: Part 1: Crisis Stability in Europe and Theatre Nuclear Weapons, Adephi Paper #96. London: IISS, 1973.

47) ibid., p. 9.

48) ibid., p. 20.

49) Enthoven, op. cit., p. 526.

50) Heisenberg, op. cit., p. 21.

51) Lambeth, op. cit., p. 229.
52) Heisenberg, op. cit., p. 20.
53) ibid., p. 22.
54) Record, U.S. Nuclear Forces in Europe, op. cit., p. 54.
55) Heisenberg, op. cit.,p. 1.
56) Record, U.S. Nuclear Forces in Europe, op. cit., p. 55.
57) Record, Sizing Up the Soviet Army, Op. cit., p. 26.
58) Hunt, op. cit., p. 16.
59) Heisenberg, op. cit. p. 7.
60) Paul Warnke-Nuclear Weapons Hearings, op. cit., p. 54.
61) Enthoven, op. cit., p. 525.
62) ibid., p. 524.
63) ibid., p. 525.
64) Dyer, op. cit., p. 229.
65) Rosecrance, Strategic Deterrence Reconsidered,op. cit., p
66) Dyer, op. cit., p. 226.
67) Hunt, op. cit., p. 42[illegible]

Lambeth, op. cit., p. 229.
Heisenberg, op. cit., p. 20.
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Enthoven, op. cit., p. 525.
ibid., p. 524.
ibid., p. 525.
Dyer, op. cit., p. 229.
Rosecrance, Strategic Deterrence Reconsidered, op. cit., p. 19.
Dyer, op. cit., p. 226.
Hunt, op. cit., p. 4[illegible]

NEW TECHNOLOGIES AND THE STRATEGIC BALANCE

In the atomic age, advanced technology has often had a negligible influence on the overall nuclear balance between the United States and the Union of Soviet Socialist Republics. While the latter has continually conceeded scientific superiority to the West, she has still managed to effectively translate lesser and even archaic equipment into an adequate deterrent force. In fact, it would take an extaordinary technological advantage by one side to give it a chance at emerging victorious from a strategic exchange.

Why them is it essential for any discussion of possible future Soviet-American nuclear rellationships to examine the scientific products of tomorrow? For one thing, defense planners are constantly coming up with worst-case analyses that predict major technological breakthroughs of enough significance so as to convince the enemy that he can launch an assured destruction attack while limiting damage to himself. And secondly, new developments in weapons systems could have a drastic effect on crisis stability, either because of vulnerability or because they appear to signal first-strike intentions. I wish only to present an overvies of impending technology as it relates to the two factors stated above.

At present, both superpowers do not foresee any major technological breakthroughs that will upset the strategic balance to an appreciable extent.[1] Although no information on Soviet per-

ceptions is available, American scientists have concluded that there will be no new revolutionary discoveries in radar jamming,[2] nuclear weapons technology,[3] or anti-submarine warfare.[4] It is perhaps this last belief, that there will be no way to simultaneously destroy an entire SSBN force, which most reassures the continuation of deterrence.

As for the great ICBM accuracy race that has been waged with vigor for the past fifteen years, we are nearing the end of the line where, in another fifteen years, Nature will step in and declare a truce. There is simply a physical limit to CEP improvement, the accepted figure being 30 feet without some sort of terminal guidance.[5]

In the last few years, much has been said about the potential revolutionizing effects of lasers on the science of warfare, and indeed, both the United States and the Soviet Union have undertaken extensive laser programs, however at the present time, no solid predictions can be made.[6] The speculated military possibilities of these devices run the gamut of war-fighting as we now know it and at some future date, one can not discount the chance that a nation might construct an impregnable defense. Any real fears though, are premature because difficulties relating to wieldiness, practicality, and cost now appear to be insurmountable.[7]

The Soviets believe that an adequate defense must be kept up to date with fundamentally new weapons, even, as has already been mentioned, if these weapons appear destabilizing to the other side.[8]

Thus it follows that the Russians have attached great importance to technology, and particularly to achieving parity with the West. At present, they greatly lag in this vital area, a fact which was demonstrated when the Israelis evaluated their latest equipment captured from the Egyptians and discovered that tubes, and not transistors were being utilized.[9] However, on the horizon, the Soviets have a number of defense programs that will either equal or exceed U.S. capabilities.

The continual Russian interest in modern ICBMs has paid off handsomely in the last few years but a number of further advances are still to be expected as the results of their ambitious MIRV program become available. A multiple warhead system for the SS-N-8 SLBM will be deployed before the end of the decade[10] as will a similarly configured mobile IRBM.[11]

Looking ahead to the 1980's, we can expect the Soviets to introduce follow-up ICBMs to supplant or even replace those introduced in 1974 and 1975.[12] These missiles will have a CEP of one-tenth mile and be able to deliver several one-megaton warheads or 25-fifty kiloton warheads, giving them a 95% kill probability against 3500 psi silos.[13] The total number of land and sea-based MIRVs will be approximately 7,000,[14] a force sufficient in size and effectiveness to jeapardize the American fixed ICBM deterrent. The implications of this will be reviewed in the concluding chapter.

Other notable scientific endeavors that have been discussed or tested by the Soviets include devices to neutralize U.S. mili-

tary spacecraft while in orbit,[15] satellites able to destroy ICBMs, and a missile protection system which operates by discharging high speed asphalt particles above silos.[16] These first two programs, if made operational, could be successfully countered by saturation and the third has been declared infeasible by American analyists.

The project Americans are banking on for the future is a fourth dimension to the Triad: a projectile called a cruise missile which uses aerodynamic lift and propulsion and for the most part, remains within the earth's atmosphere.[17] The cruise missile, which has already been flown in an air-launched version (ALCM),[18] can be deployed from naval vessels, submerged submarines, mobile ground launchers, and aircraft.[19] It is subsonic, capable of long-range, relatively cheap, extremely accurate, and virtually invulnerable to radar detection because of its tiny cross-section and low operating ceiling.[20] These are outstanding credentials to be sure, however the cruise missile has sparked a debate which has involved the Armed Forces and Congress as well as the entire negotiating position of the United States at SALT talks.

Proponants of the cruise missile have stressed the aforementioned qualities of the weapon as reason enough for its incorporation into the United States deterrent force. They add that defending against it, after it has been launched from a plane flying outside Soviet territory and carrying as many as 100,[21] would be a tremendous expense.[22] Finally, those who support the cruise missile say that it will raise the nuclear threshold

by virtue of the fact that given its potential accuracy, it can replace tactical and even strategic atomic warheads with conventional ones.[23] For example, a terminally-guided non-nuclear ALCM could, with a penetrator warhead, attack herdened silos and command posts.[24]

Opponents of these weapons cite various other projects such as the B-70 and the YF-12A which similarly were outstanding pieces of military equipment but which simply did not provide enough of an increment over forces already in existance. In short, it is claimed that the cruise missile will be susceptible to manned interceptors and SAMs, that it has unnecessarily complicated the SALT talks, and that it will not raise the nuclear threshold.[25] On this last point, doubt is cast upon the belief that the substitution of large nukes by small nukes or even conventional explosives will set limits on the scope of the conflict because the Russians will have no idea as to the nature of the warheads coming at them.

The United States now has a 6 to 8 year lead in cruise missile technology[26] however our first models are not likely to be deployed before the mid-1980's.[27] The effect of such deployment will be discussed along with the impact of new Russian ICBMs in the next chapter. I should not here that advocates and opponents of the cruise missile agree that international restrictions will be impossible, both for tactical and strategic modes because range, payload, and numbers could not be monitered.[28]

The director of the Department of Defense Advanced Research Pro-

jects Agency has recently reported to Congress that he[29]

> cannot recall a period in the past decade when so many technological breakthroughs with potential major impact on national security were on the horizon.

George Heilmeier cited the examples of lasers, new types of geosynchronous satellites to detect aircraft as well as missiles, new manufacturing techniques for making jet engines, and others but he did not elaborate on exactly what impact they would have. It is likely that he overstated his case however the United States does have numerous promising projects in the works that are worth running down.

Self-Initiated Attack Missile(SIAM)-A missile which could be prepositioned and then left unattended, launching itself when it detected an appropriated enemy aircraft. Most major componants are already being produced for other weapons.[30]

688-class Nuclear Attack Submarine-Already funded by Congress to be purchased at the rate of five every two years. Will be the world's fastest submarine with Russian SSBNs as likely targets.[31]

Extremely Low Frequency (ELF) Communications Program-A communications network devised to enable us to transmit data to deeply submerged subramines. Will be vulnerable so its contributions to American security will proably only last through the first stages of a war. ELF will be complimented by 14 electronics-filled EC-130s called Tacomo, however these aircraft will have more limited capabilities.[32]

Sea-Based or Airborne Antiballistic Missile Interception System (SABMIS or ABMIS)- Former configuration would employ ships

equipped with sophisticated radar and missiles close to an adversaries coast. ICBMs would be intercepted before their terminal phase. ABMIS would be more effective against SLBMs and could also be used to defend other countries.[33]

Multiple Launch-Point System-It has been proposed that we spend 1.5 billion dollars per year for the next eight to ten years to build thousands of hardened silos within which our ICBMs would be randomly deployed. If the Russians also decided to build one, or if they opted to place more dependence on their SLBMs, they would have to sacrifice much of their current throw-weight advantage.[34]

Attack Assessment System (AAS)-Now being deveolped, AAS will give the President a minute report on theextent of nuclear damage to the United States.[35]

Trident II-This advance SLBM will take full advantage of the Trident submarine's missile launchers and will also be equipped with a high accuracy maneuvering re-entry vehicle (MARV) which has already been successfully tested.[36] The Trident system will not be endangered by any expected Soviet ASW threat and will have the ability to destroy hard-sited ICBMs.[37] To enter the fleet in 1987.[38]

MX-A completely new ICBM which will replace Minuteman beginning in 1983.[39] To be deployed from existing silos, in a mobile cofiguration, or perhaps in an air-dropped mode,[40] the MX will be MARVed and carry up to 14 warheads.[41] A hard-target kill capability is assured by its terminal guidance as well as its ability to

utilize information on mid-course correction provided by a series of 24 geosysnchronous satellites, soon to be placed in orbit.[42]

Other projects being discussed or implemented include improvements to the orbital warning system that will make it more reliable and less vulnerable to Soviet killer satellites,[43] miniature destroy-by-impact interceptors which neutralize enemy spacecraft,[44] radar that is unaffected by cloud cover,[45] and a B-52 modernization refit that will extend its service life by fifteen years.[46]

In sum, it should be realized that many of these ideas now in the embryonic or drawing board stage will never actually materialize for reasons of cost, practicality, or possibly because of treaty limitations. However it is fair to say that the ever increasing vulnerability of the fixed land-based missile will force the United States and the Soviet Union to direct much of their technological efforts towards producing new submarines and ASW equipment.

As far as offensive developments are concerned, a big push is likely in the area of depressed-trajectory SLBMs, missiles which, when fired close to shore, can give as little as five minutes warning time.[47] Existing systems lend themselves to easy modification to a low-trajectory mode however the utility of such a move is still open to question.[48] Without MARV, such SLBMs would pose a distinct danger only to bombers, unhardened command and control facilities, and coastal industrial centers, but nonetheless, qualitative improvements could subsequently be made to

produce a very credible first-strike threat.

Despite the fact that ocean-wide ASW will remain elusive far into the foreseeable future, the superpowers will naturally begin to feel an increasing sense of vulnerability to the SSBNs as more and more empasis is place on sea-based deterrent forces. Suspicion, however unwarranted, is an inevitable product of the rivalry between the United States and the U.S.S.R. and it is only reasonable to expect a continuous arms race, focused on oceanic strategy and propelled by sizable technological efforts.

FOOTNOTES

1) Goure et. al., op. cit., p. 5.
2) Feld, et. al., op. cit., p. 227.
3) ibid., p. 133.
4) Tsipis et. al., op. cit., p. 9.
5) SIPRI, Offensive Missiles, op. cit., p. 28; Feld et. al., op. cit., p. 81.
6) Klass, Phillip, "Current Systems Still More Cost-Effective", Aviation Week and Space Technology, September 8, 1975.
7) Feld et. al., op. cit., p. 151.
8) Goure et. al., op. cit., p. 15.
9) SIPRI, Offensive Missiles, op. cit., p. 24.
10) Aviation Week and Space Technology, October 20, 1975. p. 18.
11) Aviation Week and Space Technology, December 15, 1975, p. 19; FY1977 Defense Report, op. cit., p. 4.
12) FY1977 Defense Report, op. cit., p. 67.
13) Erickson, op. cit., p. 45; Aviation Week and Space Technology, July 7, 1975. (Letter to the Editor from Congressman Robert Leggett).
14) Aviation Week and Space Technology, November 10, 1975, p. 13.
15) Aviation Week and Space Technology, February 23, 1976, p. 20.
16) Erickson, op. cit., p. 48.
17) United States Arms Control and Disarmament Agency, SALT Lexicon. Government Printing Office.
18) Aviation Week and Space Technology, March 15, 1976, p. 26.
19) Burt, op. cit., p. 11.
20) Keatley, Robert, "The Case for Another SALT Agreement", Wall Street Journal, March 4, 1976.
21) FY1976 Defense Report, op. cit., p. 34; Burt, op. cit., p. 12.
22) FY1976 Defense Report, op. cit., p. 39.
23) Burt, op. cit., p. 12.
24) ibid., p. 15.
26) Keatley, op. cit.
25) ibid., p. 13.

27) Burt, op. cit., p. 10.
28) Rowen, op. cit., p. 51.
29) Klass, op. cit., p. 12.
30) ibid., p. 13.
31) Military Balance 1975-1976, op. cit., p. 5.
32) FY1977 Defense Report, op. cit., pp. 97, 232.
35) Strategic Survey 1974, op cit., p. 49.
33) Legault and Lindsey, op. cit., p. 93.
34) Nitze, op. cit., pp. 229-230.
36) Aviation Week and Space Technology, October 13, 1975, p. 17.
37) Kahan, op. cit., p. 212.
38) Aviation Week and Space Technology, October 20, 1975, .
39) Aviation Week and Space Technology, October 13, 1975, p. 17.
40) FY1976 Defense Report, op. cit., p. 28.
41) Aviation Week and Space Technology, October 13, 1975, p. 17.
42) Strategic Survey 1974, op. cit., p. 47; Wolfe, op. cit., p. 57.
43) Aviation Week and Space Technology, February 23, 1976, p. 26; AW&ST, August 4, 1975, p. 41.
44) Aviation Week and Space Technology, August 11, 1975, p. 13.
45) Greenwood, Ted, Reconnaissance, Surveillance and Arms Control. London: IISS, 1972.
46) Aviation Week and Space Technology, February 23, 1976, p. 47.
47) Kahan, op. cit., p. 216; FY1976 Defense Report, op. cit., p. 34.
48) Tsipis, et. al., op. cit., p. 49.

FUTURE MAINTENANCE OF THE STRATEGIC BALANCE

By now, this paper should have made clear that strategic arms are useful only for mutual deterrence. According to Benjamin Lambeth:[1]

> The United States and the Soviet Union have long since reached a plateau in their strategic relationship. Until military technology can devise a truly effective and credible means of neutralizing an adversary's deterrent force, the persistance of residual second-strike capabilities in the posession of each superpower, the continued uncertainty to both regarding the probability of success a first strike would have, and the continued unwillingness of either to place its society's livelihood on the scale in an attempt to find out, will all tend to preserve stability as a 'systemic' characteristic of the East-West nuclear balance.

Even if one side did manage to acquire a first-strike capability in which it was highly confident, the prospect of an enemy launch-on-warning would continue to further deterrence.

In the last twenty-five years, many military thinkers have convinced themselves that the intensity of the rivalry between the Soviet Union and the United States will somehow override the logic behind deterrence, leading us to a nuclear confrontation. This notion must be totally dismissed and I again emphasize that the hope of avoiding any use of atomic weapons and averting crises which could lead to war is one which is fervently held by both sides and in fact, this hope is the predominate force behind socialist and capitalist doctrine.

Chances are, the passage of time will promote deterrence even further. With every passing day, the unwritten ban against the use of nuclear weapons gains real and symbolic strength, making

the employment of these devices more unfamiliar, tentative, and dangerous.[2] Questions about the length of a nuclear war, escalation, and the efficacy of a first-strike become more and more formidable as they continue unanswered. We can not completely deny that the U.S. and the Soviet Union will ever enter into an armed conflict. The fact is, nuclear weapons do exist and therefore they are susceptible to being used by a madman or by a panic-stricken head of state who feels compelled to respond to either an accidental use by the other side or a deliberate use by a third party allied with the other side.

Like the military strategists, the leadership of each superpower has often been blinded to the real dictates of the strategic balance. That this has resulted from the inevitable tension and hostility accompanying the arms race is understandable however the atmosphere is now condusive to change. The next section deals with the possibility of the U.S. and the U.S.S.R. translating their newly acquired comprehensions of the nuclear weapon into some meaningful restraints on the technological treadmill.

The basic purposes of arms control negotiations are: to lesson the likelihood of a nuclear war by providing for deterrence at a lower level of armaments, to demonstrate to nations of the world that national security is best protected by limitations and restraint, to divert resources for domestic needs, and to reduce insecurity and tensions.[3] In addition, the dialogue itself and the exchange of information is important to a mutual under-

standing of each negotiators position, even if no agreements are reached.[4]

That the Americans and the Russians want and need arms control is indisputable however the precise meaning of talks between the two has remained rather obscure. The United States, with some notable exceptions, has succumbed to the temptation to build any weapons system that the scientists tell us is possible, a philosophy which stemmed from a fear that the Soviets would not restrain themsleves, even if we did.[5] This has put us in a situation where[6]

> we see systems that could have been ommitted, delayed, or acquired in smaller quantities without endangering the strategic balance; but we do not seem to lack systems we now need.

Arms control talks negates this tendency to uninhibitedly purchase military equipment by providing for bilateral limitations. The widespread disenchantment regarding American negotiations with the Soviets does not come from the "if it can be made, it will be made" school, but rather, from those who feel we are bargaining on a unilateral basis instead of a bilateral one.

The recent spirit of detente has resulted in obsdrvers concluding that Russian participation in SALT is indicative of a true slowing of the arms race, a genuine effort on the part of the Kremlin for rapproachment with the West, and a host of other things. This has led to a constant dilemma in evaluating Soviet actions which are clearly not in line with such hopeful reasoning. For example, The New York Times, in reporting the annual parade

held on the anniversary of the Socialist Revolution, stated that U.S. intelligence officials had been unable to determine if the absence of ICBMs in the largely military procession reflected Russian feelings of relaxed international tensions or a plea by Moscow's mayor to spare the city's brittle cobblestones.[7]

The Soviet Union does want both qualitative and quantitative arms controls and they have said so in no uncertain terms,[8] often asking for no less than a complete ban on nuclear devices.[9] What prevents her objectives from seeing the light of day is her belief, stemming from the Marxist doctrine, that the West is naturally hostile and seeking to undermine socialist societies. In other words, the Soviets regard all bridge-building as deliberate capitalist provocations,[10] and therefore, as I have spelled out in an earlier discussion of detente, they seek arms limitations talks as a forum in which to gain an advantage over the enemy. As the Russians view things, the U.S. wants a peaceful dialogue with them because of a combination of Communist strength and a crisis in the NATO alliance.[11]

With this in mind, one might well ask if arms control can serve as a viable means of stabilizing deterrence. In answering this question, it would be most helpful if we began with a look at what the SALT talks and other forms of East-West dialogue can clearly not do. Negotiations will never put an end to the arms race because, for one thing, it is impossible to place limitations on research and development (R&D), and furthermore, neither side can be compelled to forgo a major weapons system that it

feels it must have. It can also be said that in no way will a series of arms limitations promote detente, a fact evidenced by Soviet military initiatives in Angola and their development of Backfire and five new ICBMs occuring simultaneously with SALT.[12]

Strangely enough, the negotiating process often has a negative affect on nuclear stability. A nation may develop new systems solely for use as bargaining chips.[13] New systems may also be generated after comparisons of the rival force postures produces unwarranted concern as to ones vulnerability. Arms negotiations also tend to place undue stress on improbable scenarios like a first-strike instead of the more likely ones such as accidents.[14] Finally, these talks can often bog down in less than crucial details, something which detracts from an understanding of why one was motivated to bargain in the first place.

Is, then, arms control a necessity for both superpowers? The answer I believe is 'yes'. A strong case is made by the past agreements ratified by the U.S. and the U.S.S.R.-a banning of nuclear weapons from the seabed(1971), a banning of nuclear weapons from Antarctica(1959), a banning of nuclear weapons from outer space, celestial bodies, and the moon(1967),[15] the atmospheric test-ban treaty(1963), and a prohibition against placing atomic devices in Latin America(1968).[16] These prove the feasibility of constructing arms restraints palatable to both sides.

Recently, skepticism about the utility of arms treaties for the United States has been aired because of apparant Soviet violations of the SALT-1 and Vladivostok agreements. These abrogations,

made partially in response to Chinese military pressure, have not been total and certainly not of sufficient magnitude to affect the overall strategic balance.[17] I would argue that unless we enter into a treaty that sustains the very essence of deterrence, something we should never do because it migh lessen stability, the benefits of compliance would far outweigh the disadvantages of partial abrogation. The Soviet Union has traditionally honored its agreements[18] and they have very strong reasons for wanting to maintain an atmosphere in which they can draw concessions from the United States. Assuming that the Russians decide for some reason to make treaties and then break them, the short term effect will for the most part be fruitless because the United States would have sufficient time to counter.[19] The long term effects would be equally counter-productive as the latter nation no longer would feel inclined to enter into agreements that gave superior benefits or even bilateral concessions to the former.

Mere believeing in the merits of seeking arms contrd must be backed up by a well-reasoned negotiating strategy, something which the United States, to its great disfavor, has not had. American dilemmas about whether to bargain from strength, and, what actions should be accomplished on a unilateral rather than a bilateral basis, have not only hindered our efforts against the highly prepared Russians, but actually have proven counter-productive to our goal of reducing tensions. Both the SALT-1 and Vladivostok agreements were losely worded and technically deficient which forced the United States to attach non-binding

unilateral interperative statements to the original legal texts. These of course have been thoroughly disregarded by the Russians who claim our interpretations are faulty and not related to the actual treaty. Thus, the United States, having fallen into the old trap of converting mere honorable intentions into hard facts and then extrapolating this optimistic logic to Kremlin policy-makers, now feels disillusioned with the entire spirit of detente and is boosting the military even further.

The problem of whether the United States should negotiate with the U.S.S.R. in a tough manner and from a position of strength, or be willing to make large concessions to place some limits on the enemy, is of great importance. There is a general concensus that we were able to ratify the ABM accord because of vastly superior American technology which the Russians felt compelled to negate, although it meant their giving up a potentially vast defensive system, something they traditionally value.[20] Yet there is a question as to the validity of this example being converted into a firm negotiating principle.

At the initial SALT talks, we bargained with no defined sense of what we were after and therefore we were unable to assert ourselves properly. An agreement did emerge, and the Soviets were subjected to a set of guidelines, however our inability to deal firmly with specifics enabled the Russians to wield the power and demand concessions, a fact which left us with a codification of U.S. throw-weight inferiority. Henry Rowen has said that[21]

there is a big difference between disparities which flow

> from unilateral decisions which can be changed on the basis of new technology or changed circumstances and our accepting in principle an unequal position intended to exist for a long period of time.

We must be able to stand up to the Russians in arms control bargaining however how this should be done is a matter of increasing speculation. The previously mentioned Defense Intelligence Agency detente report advised that the U.S.[22]

> need not hesitate to demand a clearly comparable price for every concession the U.S. or West is prepared to make.

This opinion stemmed for the finding that detente has served the Soviets well and therefore they are not prepared to lightly jettison this policy.

If we accept the belief that the United States should be equally compensated for all it gives up, we must further examine how this is to be done.

The first rationale would have us promote bilateral arms control by matching the Soviets step for step or if possible, surpassing them. In the later case, U.S. superiority would be used in much the same way as it was during the ABM negotiations. The more moderate view of maintaining essential parity with the Russians is based on the hope that the Communists, thwarted in their attempts to tip the strategic balance in their favor, will rationally want to reduce force levels. The logic is sound but the concessions drawn from the Soviet Union may be offset by the rigorous demands this strategy places on the United States. In the long run, our armed forces will be made up of weapons systems devised as bargaining chips rather than equipment that is necessary

for deterrence, the most cost-effective, and so on. There are two reasons for this. First, on occasions where the Russians are not convinced by our show of strength, we will be stuck with equipment we really don't need. And secondly, past experience tells us that once defense programs progress to the deployment stage, a great number of factors combine to make cancellation exceedingly difficult.[23]

Attempts to gain bargaining leverage through the creation of strong forces-in-being will not best serve the interests of arms control. Arriving at a similar conclusion, Ted Greenwood and Michael Nacht have written in Foreign Affairs that[24]

> ...linking American weapons development directly to Soviet behavior...is needlessly constraining future policy choices while simultaneously running the risk of building Soviet overconfidence in their ability to control American procurement decisions.

The solution then, is arms control through a strategy that relies on our potential strength being just as persuasive to the technology-awed Russians as actual strength. In other words, by taking new weapons systems through the initial stages of development but then stopping them short of advanced testing and deployment, we will have bargaining chips that could affect the enemy but are not binding on ourselves.

In some cases, arms control agreements may be reached before either side can begin research and development, as was the case with the Sea-Bed and Outer Space treaties. In other instances, each country may be proceeding rapidly with a particular weapons system in anticipation of its being deployed which will make it

tougher for agreements to be reached. In this situation, the United States should maintain an aggressive R&D program while unilaterally declaring that the fruits of this process will not be made operational if the Soviets exercise similar restraints. If our lead is not followed, we will be left with two options. If we decide after all that U.S. deployment would not add to the stability of deterrence, we could simply put a halt to all pre-production activities, something which would not affect force levels already in existance. On the other hand, if the weapons system is indeed necessary, we can put it into operation in sufficient quantities to restore the balance and prove to the Soviets that their added expenses have been futile.

Finally, there may be circumstances where the Russians decide to add destabilizing improvements to forces already in existance, forces which at the time, are basically equalled by the United States. Again, this calls for unilateral action by the latter which is conditional upon its being reciprocated at a later date. If an equal number of forces on each side is assumed to be the strongest contribution to stability, then a freeze on present levels or armaments should be called for. In other words, the U.S. would eschew any improvements to its current hardware if the Soviets promised to do the same. The latters failure to comply would be a signal to the United States to counter the Communists moves in a way that would give us the upper hand in a revised status quo. While the gaining of superiority might be unnecessary militarily as well as a detrement to crisis stability, the overall

balance would not be so profoundly affected so as to threaten a failure of deterrence, and the Soviets would be taught a lesson in counter-productivity that would make the chances for arms control a lot easier in the future.

An obvious prerequisite for unilateral arms limitations and reductions is a very strong R&D posture by the United States. Technology itself is inherently neutral and depending upon the use to which it is put, it can either exacerbate the arms race or provide for a strengthening of deterrence. America has a substantial scientific advantage over the Soviet Union, and manipulated properly, it can be our ultimate bargaining chip in seeking a slowing down of the arms race. The Russians have never officially stated that they would reciprocate if we reduced our defenses;[25] however, Dr. Zhores Medvedev, a deported scientist, told the Senate Foreign Relations Committee last year that U.S. initiatives in this direction would be followed.[26]

In trying to harness the arms race, negotiators should keep in mind that adherence to treaty provisions must for the most part be easily verifiable to both sides. This is why the prime opportunities for arms control almost always come before a weapons system has been deployed by either side; new technology must be tested and this process is observable from enemy satellites and listening posts. MIRVs are a classical example of destabilizing equipment becoming operational in numbers which are impossible to ascertain by surveillance.

There are currently two areas in particular where the United States and the Soviet Union must come to an agreement if we are to avoid a drastic reshuffling of strategic deterrent forces. These are MARV and submarine vulnerability.

At the present time, only the United States has the requisite technology to build MARVs, and initial testing is being conducted on a limited basis, however, it must be assumed that the Russians will acquire the necessary skills as well and at some point in the future, be able to threaten us just as we will be able to threaten them. The implications of these warheads on nuclear stability is enormous because, if allowed to become operational, they will guarantee the immediate obselesence of every fixed target, soft-sited, in the hardest of silos, or even embedded in rock. SLBMs would have the ability to destroy ICBMs as would mobile and air-launched missiles, a dim prospect because these offensive systems as they currently exist or as they are conceived, conribute to deterrence by virtue of their inherent lack of pinpoint accuracy.[27]

Both the Soviet Union and the United States have the means to compensate for the elimination of fixed ICBMs by moving to place their deterrent forces aboard submarines and mobile missiles, however this is not wholly desirable. The command and control link between government officials and submarines or mobile missile unit military personnel is drastically more weak than that of silo-based forces. Thus, the effect on crisis stability of each superpower believing in the vulnerability of its communications system can be readily observed. A policy of launch-on-warning

would be mandated and the worst-case analyists could paint a scenario like this: a surprise salvo of MARVed depressed-trajectory SLBMs destroys the entire American communications network, rendering us incapable of communicating with our sea-based deterrent, mobile missile units, or our early warning satellites. Moments later, the Soviets launch an attack on our mobile missiles and remaining fixed missiles with their MARVed ICBMs. They have been keeping careful tabs on the location of the mobile forces through their recon satellites so they are able to re-target their missiles to hone right in on ours. The U.S. is left with no land-based strike weapons (the bombers having been destroyed by the initial SLBMs) and without any way of communicating with the sub force. The Russians then proceed to attack Western Europe with a wide range of conventional, tactical and strategic nuclear forces, destroying half of it but taking full control by parachuting in thousands of troops. She then warns the United States that when communications are restored, any SLBM attack on the Soviet Union will result in the destruction of American cities.

This scenario is ridiculous for a number of reasons. To name just one, there can be no iron clad guarantee that <u>all</u> the communication links and <u>all</u> the bombers and <u>all</u> the mobile missiles will be destroyed. But a nuclear holocost isnot something to be taken lightly-it can mean the end of everything we hold dear to us-and even though deterrence will almost certainly be maintained with or without MARVs, we should not allow ourselves to be placed in a situation where peace is sutained at barely minimal levels.

Although high levels of deterrence are theoretically unnecessary, if we can doubly or triply insure that the risks of using nuclear weapons remain great, this extra protection must be considered worthwhile.

Whether or not the U.S. and Russia deny themsleves the use of maneuvering re-entry vehicles, increasingly accurate MIRVs will continue to make fixed ICBMs more and more vulnerable to a first strike. As this occurs, increasing numbers of deterrent forces will put to sea where the offense has a distinct advantage over the defense. Nevertheless, it will only be a matter of time before some ASW advances are achieved and strategists begin to worry about submarmine vulnerability, producing a new wave of uneasiness and arms building.

To avoid this problem which is always recurring because no one is ever really confident in deterrence, it has been proposed that sections of the ocean be designated as sanctuaries, available to the military forces of one but not both of the superpowers.[28] This would allow SSBNs to cruise freely without fear of ASW and provide for an assured second-strike capability no weaker than the ship-to-shore command and control link. Unlawful incursions by one side into the others sanctuaries could be easily detected so there is reason to believe that this type of agreement would not be abrogated. Because of the need for precise definitions of boundaries, including the geographical dimensions, and the airspace above it, a submarine sanctuary agreement does not lend itself to a unilateral declaration by the United States. There

has been nothing written in public to suggest that this topic has ever been discussed by America and the U.S.S.R.

At this point, we should be able to draw some conclusions as to the future force posture that will draw the United States and the Soviet Union farthest away from any temptation to use nuclear weapons. This concluding section contains my recommendations on how the former can direct itself and the Russians towards a stable peace. I repeat once more that all odds favor the unbroken continuance of deterrence and that my proposals are merely designed to overwhelmingly convince ourselves and our enemy of this fact.

The American strategic Triad has served us well in the past however it is now in need of revamping. SLBMs are rapidly becoming the greatest single hedge against a pre-emptive attack and thus should be retained however I propose that we gradually phase out the manned bomber fleet, scrap the cruise missile program, and reduce our dependence on fixed ICBMs by making the MX available in either a land-mobile or silo-based mode.

My stance on the sea-based deterrent needs no elaboration. As long as we continually update the communications link between submarines and land, the U.S. will place a great deal of trust in the SSBN, trust which leads to confidence which in turn precludes our doing anything rash during a crisis. Furthermore, although the possibility is remote, any breakthroughs in ASW will be easily detected and thus subject to neutralization or abolishment by treaty.

It is always hard for a branch of the Armed Forces to give up a sentimental favorite, the battleship being a case in point, however the strategic balance and weapons technology have evdoved to a degree which eliminates any need for manned bombers. Current justification for the B-52 and the forthcoming B-1 centers around three factors: marked Soviet fear of these weapons which is evidenced by their massive defenses and their behavior at the SALT talks;[29] the reinforcement aircraft give to the missile threat;[30] and the need for an alternative to missiles should the Soviets violate the ABM treaty.[31] These are valid considerations however it is evident that the danger of Soviet existing and potential counteractions more than outweigh the planes contribution to the United States deterrent force.

It follows that the Russians are going to do everythin possible to eliminate the source of their fear, and so far, this has manifested itself in the collossal air-defense network protecting the U.S.S.R. It also follows that if the United States goes ahead with a new system, the B-1, which is designed to penetrate enemy airspace with greater effectiveness, the Soviet Union will meet the increased threat with new systems of her own. These may take the form of stronger homeland defenses, but then again, because of the acknowledged U.S. lead in electronic counter-measure technology, she may look for more success in finding ways to destroy the bombers before they leave the ground. This means that the B-1 will serve as an invitation to the Soviets to develop depressed-trajectory missiles or other methods of attacking the

United States, a prospect we surely wish to avoid.

The argument that missiles and bombers reinforce each other in the Triad is harder to discount. If a Soviet strike was designed to simultaneously destroy the two, advance warning of the Communist ICBM launch would enable our bombers to take off and avoid destruction from SLBMs. And if Russian ICBMs and SLBMs were fired simultaneously, our missiles will have time to take flight. Furthermore, it is said that missiles will clear the way for subsequent bomber attacks on targets not initially destroyed.

Why then phase out this portion of the U.S. offensive forces? There are several reasons. An American military posture that only includes missiles significantly reduces the threat from Russian SLBMs which are not able to destroy hard targets. Moreover, the elimination of bombers will still leave the Soviets with the massive problem of simultaneously destroying our ICBMs and our fleet of Poseidon and Trident submarines, provided of course that we have already opted not to ride out the attack and to launch-on-warning.

It is calculated that twenty percent of the land and sea-based missiles of either side will fail to complete their mission due to guidance system failures, the inability of the warhead to explode, or the initial incapacitation of the rocket engines.[32] When the effect of fratricide is tacked on, it is clear beyond a shadow of a doubt that a Soviet firs-strike will fall short of knocking out all, or even close to all of our fixed ICBMs. The same holds true for our communications links with the SSBNs.

Just as a Russian use of MARVs would not render them immune from the problems associated with less than 100% weapons reliability, a Soviet decision to abrogate the provisions of the SALT-1 accord and deploy an ABM system would not give them a remote chance of intercepting all our missiles. On this basis, any presumption that we need bombers as a hedge against a Soviet ABM threat is inherently faulty. First of all, a Soviet decision to break the treaty would sabatoge their efforts to harness American nuclear capabilities as the latter would no longer be willing to enter into any agreements. Secondly, Soviet ABM deployment on a scale necessary to defend the entire country will provide strong incentive to the United States to do likewise, something the Russians do not want because of our technological lead in this area. Finally, it is believed that both the Galosh and Safeguard ABM systems are largely ineffective and therefore incapable of preventing large scale damage.[33] Even worst-case analyists conceiving of a reliable anti-missile defense would also be forced to admit that such a system is subject to saturation by increased numbers of U.S. launchers.

In eliminating manned bombers from the force structure, we should be aware that this move might be used to gain concessions from the Soviet Union. Rather than publicly announcing our plans to retire the B-52s and cancel the B-1 project, the United States could attempt to negotiate a link between these actions and limits on the Backfire, or preferably, depressed-trajectory SLBMs. Although we will eventually scrap our bombers whether or not the

Soviets reciprocate, it is worth a try at curbing the arms race.

If the U.S. can keep its intentions secret, it would be in a strong position to make the proposed demands. With certain modifications, the B-52s have a potential service life of fifteen more years. As for the B-1, a number of prototypes are now flying however a firm production decision is yet to be made. Should the project be cancelled and subsequently the U.S. felt a great need for bombers, it could be resurrected, and in a far shorter time than it would take the Soviets to build a nation-wide ABM system.

The land-based missile segment of the American strategic offensive Triad, while on the whole more vulnerable than our sea-based forces, is the most essential contributing factor to deterrence because it promises practically unthinkable destruction from large and accurate megaton devices. This is not to imply that bombers and SLBMs are incapable of inflicting enough damage to support deterrence. It is just that the existance of single pieces of hardware that can kill millions of people has been more influential in convincing both sides that deterrence is real than its less potent counterparts in the Triad.

I have already pointed out that land-based missiles are becoming more and more vulnerable, just as I have mentioned that the limits of this vulnerability will further the maintenance of deterrence. However, I believe that changes in our missile deployment are necessary.

In keeping with the notion that deterrence should be doubly or triplely insured, the United States must make an effort to eliminate some of the 1054 fixed ICBMs and replace them with missiles which are land-mobile. At present, we do not know a great deal about mobile ICBMs, however indications are that they will be invulnerable to all but very advanced cruise missiles and bombers on armed reconnaissance flights, both of which can be adequately countered.

The ability of mobile missiles to ride out an attack will obviously give the President an opportunity to delay a retaliatory second-strike, thus avoiding a strategy of launch-on-warning. Furthermore, these weapons, in allowing us to decrease the number of fixed ICBMs, would enable the Soviets to reduce their throw-weight because they would have fewer targets to hit. Lastly, it can be marginally argued that a move to less accurate land-mobile missiles will assure the enemy that we have no first-strike intentions.

There are drawbacks to this system but they are not of great importance. The biggest gripe about mobile ICBMs is that deployment by both sides will cause another missile gap due to the difficulty in ascertaining the size of such forces.[34] The validity of this is open to question for two reasons. For one thing, modern methods of satellite surveillance should give each side an approximate idea of how many ICBMs are being carted around the enemies territory. And secondly, if both superpowers acquire land-mobile missiles, numbers will not matter because under any circumstances

they both will maintain an assured second-strike capability. Additionally, mobile ICBMs may be hampered by a less than secure command and control link with Washington as well as an inability to travel near population centers. While the use of these weapons will be less subject to Presidential direction than fixed forces, they will be more trustworthy than submarines; the latter problem can be avoided by a program of warhead safeguarding similar to the one used in Europe as well as by careful selection of dispersal routes.

No matter how effective the land-mobile missile will be, the U.S. should not replace more than half of the silo-based forces. Not only are the ICBMs we now operate the most securely linked portion of the Triad to command and control, they constitute our greatest hard-target kill threat. Such attributes can not be completely discarded.

In a way, the Russians have given us a mandate to deploy mobile ICBMs by virtue of their decision to develop these weapons themselves.[35] Unless both sides have them, the added meaning they lend to deterrence is lost-a fact which may be an invitation for some sort of agreement requiring a certain percentage of each nation's ICBM force to be operated in a mobile mode.

In completing the discussion on suggested U.S. force postures that will hopefully provide strategic stability in the future, it is necessary to pass judgement on the cruise missile, a weapon now in the advanced R&D stage. The relative merits of these

miniature warheads have already been reviewed and I should add that the aforementioned manned bomber proposals do not preclude a completely independent evaluation of the cruise missile.

At no point now or in the foreseeable future will the United States have a need for the cruise missile. The penetration capabilities of ICBMs and SLBMs are assured and the improved accuracy which the ALCM offers can easily be built into existing forces, even without MARV.[36] In addition, the Soviets can be expected to come up with suitable defensive measures by 1985, rendering the cruise missile obsolete unless used in great numbers.

This last point addresses itself to the assertion made by some that the ALCM will raise the nuclear threshold. If they are launched on a massive scale, the Russians could not help but recognize the U.S. in a hostile manner. Even assuming that a few of these weapons, with conventional warheads, are directed at the U.S.S.R. before they can update their air defenses, we can not expect the Soviets to act calmly when they discover their hardened silos being destroyed. An attack of this kind, whether using nuclear or non-nuclear explosives, is simply too risky.

Would the Soviet Union go to war if we used one or two cruise missiles to destroy an important military target with a conventional warhead? We can not say for sure. It is imaginable that Pentagon strategists believe the answer is "no" and that this weapons would prove ideal for demonstrating American resolve in a crisis. I ask though: With a constant threat of a Russian launch-on-warning, what possible circumstances would require of an armed projectile

into the airspace of the Soviet Union?

Naturally, I have not covered close to all of the strategies and weapons which make up the nuclear balance. Any complete discussion would have to cover alert rates, command, control, communications, attack warnings, survivability, systems reliability, range, accuracy, and penetration capabilities.[37] Yet these factors may be beyond discussion. The risks of trying to fully evaluate them-and guessing wrongly-are simply too great. There are more than enough unknowns about every aspect of nuclear conflict to insure that deterrence is never deliberately broken by the United States or the Soviet Union.

What both superpowers need to understand is not the likely scenarios of a nuclear war and the best preparations for it; this, they can never do. Rather, we need to acquire a broader vision of the full implications eminating from the diplomatic and military maneuvering which each side engages in. This will help us to wrap deterrence in more identifiable, and thus persuasive, clothes.

The imminent vulnerability of hardened missile silos is going to force major alterations to the force structures of both sides. While these changes are being made, motivated as always by fear, the dangers of an accident provoking a nuclear war will be enhanced. Therefore, the time is as ripe as ever for dialogue between the United States and the Soviet Union. We must come to understand that cruise missiles and Backfire bombers are ulti-

mately inconsequential to maintaining deterrence, and hardly worthy of debate. The real issued must be brought out of obscurity, although I admit that the prospects of the superpowers doing this now seem rather dim.

Whether or not the Soviets care to deal with the substantive issues of deterrence is a matter of conjecture because no one in the West, and possibly no one in the Kremlin, knows for sure what goals they seek, both in the long and short run. As for the United States, we will have to understand that the Russians are motivated to arm themselves as much because of China as because of us. Therefore we must be tolerant if their defensive needs differ from our own. Furthermore, we must keep in mind that the U.S.S.R. can not possibly regard us in the same non-belligerent light as we see ourselves. Since World War II, the United States has introduced every major weapons system except the ABM.[38]

In the history of civilization, it is estimated that the total amount of ammunition expended has been 10 megatons.[39] Today, one missile or bomb contains five times that much. The knowledge of preventing their use is as important an issue as the world will ever face.

FOOTNOTES

1) Lambeth, op. cit., p. 228.

2) Kahn, On Escalation, op. cit., p. 127.

3) Kintner, William and Robert Pfalttzgraff, "The Strategic Arms Limitation Agreements of 1972: Implications for International Security", in Kintner and Pfaltxgraff, op. cit., p. 398.

4) Morgenthau, op. cit.

5) Feld et. al., op. cit., p. 320.

6) ibid., p. 312.

7) Shipler, op. cit.

8) Brezhnev, Leonid, On the Policy of the Soviet Union and the International Situation. Garden City: Doubleday, 1973. p. 229.

9) Sokolovskiy, op. cit., p. xlv.

10) Walter Laquer-Investigations Subcommittee Hearings, op. cit., p. 3.

11) ibid., p. 5.

12) Aviation Week and Space Technology, August 4, 1975, p. 12.

13) Tsipis et. al., op. cit., p. 141.

14) ibid., p. 142.

15) USACDA, SALT Lexicon, op. cit., p.

16) USACDA, Arms Control and Disarmament Agreements, pp. 33, 56.

17) Aviation Week and Space Technology, October 13, 1975, p. 13.

18) Triska and Finley, op. cit., p. 421.

19) Kahan, op. cit., p. 287.

20) Goure et. al., op. cit, p. 17; Rowen, op. cit., p. 53.

21) Rowen, op. cit., p. 54.

22) Aviation Week and Space Technology, November 10, 1975, p. 13.

23) Kahan, op. cit., p. 301.

24) Greenwood, Ted and Michael Nacht, "The New Nuclear Debate: Sense or Nonsense?", Foreign Affairs, July, 1974, p. 778.

25) Goure et. al., op. cit., p. 77.

26) Detente Hearings, op. cit., p. 444.

27) Tsipis et. al., op. cit. p. 43.

28) Feld et. al., op. cit., p. 368; Kahan, op. cit., p. 315; Tsipis et al., op. cit., p. 116

29) Lambeth, op. cit., p. 226.

30) Kahan, op. cit., p. 216.

31) ibid., p. 333.

32) Tsipis et. al., op. cit., p. 43.

33) Matlock, Jack, "U.S. Soviet Relations in the 1970s", Survey, Spring, 1973, p. 138.

34) Kahan, op. cit., p. 311.

35) FY1977 Military Posture, op. cit. p. 34.

36) Burt, op. cit., p. 12.

38) George Kistiakowsky-Detente Hearings, op. cit., p. 188.

37) FY1977 Military Posture, op. cit. p. 41.

39) Lomov, op. cit., p. 41.

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