

US-USSR RELATIONS AND THE NUCLEAR STRATEGIC FACTOR 1945-1984

US-SOVIET RELATIONS AND THE NUCLEAR STRATEGIC FACTOR 1945-1984:  
CRISIS MANAGEMENT AND CONFRONTING THE NUCLEAR DILEMMA

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## ABSTRACT

This thesis explores the often-troubled relationship between the US and USSR during the period 1945-1984. Interjected into this relationship has been a juggernaut-like nuclear strategic arms race that seemingly defies control and potentially threatens the destruction of the entire world. It has, in effect, created a mutual hostage relationship which neither superpower seems capable of resolving.

Also, to be examined are the effects that possession of such nuclear weapons by the superpowers has had on the reordering of the post World War II world. Each, it will be pointed out, had its own messianic goals and negative stereotype images of the other which were characterized by high levels of fear, mistrust and misperceptions. Both superpowers have come to regard nuclear weapons not only as instruments of unimaginable mass destructive capabilities; but also as political-psychological weapons, whose threatened use alone, often-times, is sufficient to achieve certain political goals. Moreover efforts at achieving significant nuclear strategic arms control have, to date, been relatively ineffective. In the absence of such agreements, crisis management principles continue to be stressed in order to avoid any destabilizing superpower confrontation. Time, however, is running out. The US and the USSR must choose to accept mutual co-existence and significant nuclear strategic arms control or face the danger of worldwide nuclear annihilation.

A political solution is deemed to be the only way out of this grave problem. Potentially, complex computers and telecommunications networks threaten to usurp control over their nuclear deterrents. The study argues that absolute control must remain in the hands of the respective national political leaders.

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## INTRODUCTION

The central focus of this thesis will be on United States-Soviet Union relations during the period 1945-1984, and the nuclear strategic arms race that has become an integral part of them since 1949. More specifically, the paper will attempt to determine if the nuclear dilemma, each finds itself a part of, can be resolved. One of the key realities of the nuclear age has been that once the secrets of nuclear energy had been uncovered that they no longer could become unlearned. However, despite this fact, the fate of mankind has become dependent on the superpowers finding a solution to their mutual nuclear hostage relationship. Put succinctly, both superpowers quickly must acquire the political will to negotiate an end to the nuclear arms race and to reduce the levels of such weapons to more manageable levels and to agree to mutual coexistence; or face the very real threat of a nuclear holocaust, which could result in the extinction of civilization as we know it. It will be argued, that to be resolved successfully it is of critical importance for both the US and the USSR to achieve a suitable negotiating environment which will enable them to step back from the brink of mutual nuclear annihilation and to work towards a mutual policy of constructive, peaceful coexistence.

Since the term "superpower" is used extensively throughout the study it is necessary to properly define it as well as explain how it

applies to both the US and the USSR. The term "superpower, in essence, connotes a special status accorded to a few specific states within the international community. In the case of the post-1945 period both the US and the USSR were referred to as the two superpowers. In many respects such a designation reflects the capabilities possessed by a particular nation. Also, it can be looked upon as an ascribed status i.e. the fact that the USSR and the US possess such status is ultimately due to the fact that the rest of the world community perceives of them as such. <sup>1</sup> Author Hedley Bull provides a conceptualization of "great power" which more clearly defines the term "superpower." He refers to a great power (superpower) as:

...one that is recognized by other states to have a certain status in the international hierarchy. Such a state is entitled to have a voice in the resolution of issues that are not its immediate concern; It is expected to take a leading part in the affairs of the international system as a whole; it is, in other words, not merely the depository of a certain degree of armed strength but the bearer of certain rights and duties.

2

US-Soviet post-World War II relations reflected much of their respective historical developments and their respective messianic views towards how the world should be reshaped. In 1945, the US, alone, most clearly epitomized Hedley Bull's definition of a "great power" (superpower). The USSR could only claim superpower status in a military context. While the US economy, military (including sole possession of the A-Bomb), and society as a whole truly had the ability for global projection; the Soviet economy was crushed by the war and far less internationalized. Also, Soviet society was extremely

secluded by choice. Its military potential was formidable but geographical conditions and adverse demographic trends inhibited its ability to project its ideas abroad globally like the US was capable of doing. As Chris Jonsson points out: "Developments in the international system tend to reinforce these differences. As the games of interdependence assume greater significance in world politics,<sup>3</sup> Soviet inferiority vis-a-vis the United States becomes accentuated." As the paper chronicles the significant events in Soviet-US relations during the period 1945-1984 three significant aspects of Soviet foreign policy appear to stand out above all the rest.

- 1) The pursuit of its quest for international recognition and acceptance as a true superpower.
- 2) The Soviet's propensity to emulate the US' capability of projecting its power and influence throughout the rest of the world.
- 3) Recognizing that superpower status engenders certain attitudes towards the rest of the world, the Soviets view other countries simply as pieces on the Soviet-American chessboard to be influenced, manipulated or controlled according to the age-old international concept of "spheres of influence."<sup>4</sup>

Many US-Soviet confrontations (Cuba) developed as a result of disagreement over one superpower attempting to involve itself in the affairs of a country deemed by the other superpower to be within its sphere of influence. In reality, both superpowers were involved in the

global struggle for power and influence. The situation was clearly amplified by Leonid Brezhnev's remarks to President Nixon at a summit meeting in June 1973. Brezhnev pointed out to Nixon that:

We know that as far as power and influence are concerned, the only two nations that really matter are the Soviet Union and the United States. Anything that we decide between us other nations in the world will have to follow even though they may disagree with it.

5

↑  
Bipolar

Both superpowers contributed to the confrontational nature of their (bilateral) relationship. While the US projected the image of the defender of liberal democratic values and supporter of all freedom loving nations, the USSR supported all anti-imperialist forces, regardless of whether they conformed to the socialist model or not.

The ideological confrontation has been overshadowed in recent years by a nuclear arms race between the US and the USSR, which has reached unparalleled proportions. The study focuses primarily on the nuclear strategic arms race as it pertains specifically to the US and the USSR. Much of the massive post-World War II military buildup by the Soviets, including its nuclear strategic deterrent, can be viewed, partially, in terms of the USSR striving for global parity and superpower status. It strove to reject any idea that the US had exclusive rights to retain control of the seas as well as superiority in nuclear strategic weapons.

By the early 1970's the USSR did achieve parity with the US in a military context. At this point, as Christer Jonsson points out: "the Soviet leadership was determined that the USSR should have her

rights of global access, presence and influence acknowledged internationally." <sup>6</sup> This also implied, the USSR argued, that it shared an equal right to involve itself in third world countries for reasons of its own. The US has steadfastly rejected this Soviet argument.

In the case of both the US and the USSR the superpower factor interacts with other background factors to project an external image. The images thus projected have resulted in a highly antagonistic adversarial relationship further complicated by an insane nuclear strategic arms race.

Essentially, there are certain key questions that will be explored, in depth, in order to determine whether the nuclear strategic situation can continue to be managed and whether or not the prospects are favorable for resolution of the nuclear dilemma by the superpowers. Some of the more significant ones are as follows.

1.a. The Image of the Soviet Union

- . Is the Soviet Union inherently expansionist?
- . Is it still seeking to fulfill its historical ambition to achieve world domination?
- . Is ideology becoming less of a driving factor for the Soviet Union in achieving its global ambitions?
- . Is the Soviet Union not expansionist at all but just defensive and widely misunderstood?

b. The Image of the United States

- . Does the US view itself as the only nation capable of defending liberal democratic ideals and freedom and, subsequently, feels honor-bound to spread its ideology throughout the world?
- . Does the US feel compelled to project its global presence in order primarily to prevent the spread of communism and Soviet influence?
- . Does the US view its ability for global projection as necessary solely to ensure the protection of its own and its allies interests as well as its own national security?

2. The Utility of Military Force In Contemporary International Relations

- . Is the use of such force in the modern world becoming an anachronism with the advent of nuclear weapons?
- . Is the existence of nuclear weapons forcing the world to seek more rational means for resolving conflicts, especially between the superpowers?
- . Is military force still a viable option?

3. The Impact Of Nuclear Weapons On Conflict And Strategy

- . Has the existence of nuclear weapons had an impact on military thinking and strategy?

- . Are nuclear weapons looked upon only as more destructive and lethal than other weapons; but still capable of being utilized in a conflict?

4. The Nature Of Deterrence

- . What is deterrence strategy?
- . How best can it be maintained?
  - By - acquiring a minimal but guaranteed retaliatory capability?
  - Maintaining parity with the Soviet's nuclear strategic deterrent?
  - Striving for superiority or a first-strike capability?
- . Can compulsion be used to achieve nuclear arms control agreements from the Soviets?

5. The Role Of The Superpower Conflict In World Affairs

- . Is it the most significant in the world?
- . Must one use it as a backdrop in order to understand and respond to all other international conflicts?
- . Is it an impediment to the development of other nations and the resolution of their problems?

6. The Probability And Survivability Of Nuclear War, And the Feasibility Of Fighting Or Winning A Nuclear War

- . Is the nuclear strategic balance stable and the threat of nuclear war low?
- . Is the nuclear strategic balance extremely fragile due to technological changes, political tensions and nuclear proliferation and the threat of nuclear war growing daily?
- . If nuclear war breaks out can it be limited?
- . Is a nuclear doctrine of warfighting and prevailing possible?

7. The Role Of Nuclear Strategic Arms Reduction Negotiations

- . Can they replace military actions as a means to preserve national security?
- . Is diplomacy to be considered as a necessary but not dominant addendum to national security policy?
- . Do such negotiations just distract a nation's attention and cause it to neglect its real security needs?
- . Do both superpowers have the political will to ensure the success of such negotiations?

8. Determining The Nuclear Strategic Balance

- . What factors are to be included in the calculations?
- . What significance, if any, should the balance play in determining national security policy?
- . Considering the asymmetries in the nuclear strategic deterrents of both the US and the USSR, is it possible to determine what constitutes a nuclear strategic balance?

The thesis will argue that it is necessary, first of all, to gain a deeper understanding of the two protagonists in order that one can begin to understand why their mutual relations are so confrontational. In doing so, the paper will examine the influence that the factors of geography, ideology, psychology, history, politics and economics have had on the historical development of both the US and the USSR. It will be argued that these factors, many of which have

been moulded through years of historical tradition, have resulted in messianic ideals being formed in both the US and the USSR. Also, during the post 1945 period their bilateral relations resulted in the development of mutually negative stereotype images in the minds of both the public and government officials. These images, ultimately, have led to heightened levels of mutual mistrust, suspicion, and insecurity. Confrontation, rather than co-operation came to characterize their relationship. Subsequently, as these feelings began to build, so also did the pace of nuclear strategic weapons development. Also, as the numbers of weapons grew, paradoxically, it will be shown, feelings of security did not appear to increase, but rather to decrease, thus further fueling the nuclear arms race. Exacerbating this situation even more has been the periodic interjection of destabilizing nuclear weapons technology advancements such as the MIRV concept or the cruise missile.

Currently the race is on by both sides to develop and deploy anti-ballistic missile defense systems either in space or on earth. What all this has produced is a classic case of the action-reaction phenomenon, (only one of many stimuli which have helped fuel the nuclear arms race). As one side becomes aware that the other has developed a superior nuclear weapons system, then the other side feels compelled to develop its own counterpart and, if possible, to counter with a new superior system the other side does not yet possess.

By the end of 1984 all nuclear arms reduction talks had ceased while the nuclear strategic arms race continued to spiral upwards. The

threat to launch a new arms race into outer space appeared both real and ominous. Crisis management is being relied on increasingly to avoid a superpower confrontation from escalating into a nuclear holocaust.

While both sides proclaimed their serious desire to resume arms control negotiations, both rejected the other's preconditions. The asymmetries in their respective nuclear strategic deterrents, imply that while both the US and the USSR desire a halt to the nuclear arms race, neither is ready to sign any agreements, just yet.

A political solution, it will be argued, is the only solution. However, the real fear is that as nuclear weapons and their control systems become more technologically sophisticated that the decision making process may be removed from the hands of politicians and statesmen and be usurped, due to necessity, by highly complex machines. This, it will be argued, must not be allowed to occur. Clearly, time is running out. Certain key agreements must be concluded between both the US and the USSR to halt the momentum of the spiraling arms race. These will be examined as well as the future of nuclear strategic arms reduction talks.

FOOTNOTES

INTRODUCTION

<sup>1</sup>Christer Jonsson, "The Superpower Factor In Soviet Foreign Policy-Making", (University of Lund, Sweden, November 4, 1985), pp. 1-2. A paper delivered at the 1st World Congress for Soviet and East-European Studies in Washington D.C., October 30-November 4, 1985.

2

Hedley Bull, as quoted in, Christer Jonsson, "The Superpower Factor In Soviet Foreign Policy-Making", (University of Lund, Sweden, November 4, 1985), p. 2.

3

Jonsson, Op. cit., p. 5.

4

Jonsson, Op. cit., p. 4.

5

Jonsson, Op. cit., p. 15.

6

Jonsson, Op. cit., p. 6.

7

Marie Hoguet, "Understanding How The Experts Disagree", Arms Control To-Day, (Chicago, October, 1984), Vol. 14, No. 8, p. 8.

## CHAPTER ONE

### THE SOVIET UNION IN HISTORICAL PERSPECTIVE

Chapters One and Two will endeavor to examine certain significant factors such as geography, psychology, politics, ideology and economics in the historical development of the Soviet Union and the United States. It is felt that by doing so, one can grasp better the nature and complexities of the thinking of both nations and how it has contributed to the development of their mutual antagonistic relationship. It will be shown that by examining this divergency of world views which have developed as a result of very different historical pasts that one can begin, then, to comprehend the reasons behind the development of mutual stereotype images. It is because of these images that their relationship became one dominated more by confrontation than by a sincere desire to resolve their serious differences. These stereotype images must be modified and mutual trust achieved if there is to be any hope of them resolving their nuclear dilemma, and achieving some state of mutual coexistence to ensure world survival.

### THE SOVIET UNION IN HISTORICAL PERSPECTIVE

To many Western observers of the Soviet Union today, the word "enigma" probably best describes their overall impressions. In many ways contemporary Soviet society is as closed to Western eyes today as

it was two hundred years ago or more. Despite the fact that it occupies the largest land mass area of any country in the world and has one of the largest populations it has chosen, throughout the course of its history, to maintain an insular profile and limit contacts with the Western world. The crucial fact of Russian history is as Sir Bernard Pares points out:

To sum up: Russia had always with her the long and painful responsibility of being on the frontier between Europe and Asia. But then, too, she always had her own strong national existence, her family instinct of unity, her loyalty to her Church, of which she was become the champion. The East had imposed on her the necessity of a national dictatorship, but was already breaking up before her persistency. But, if she was to teach the East, she was also bound to learn from the West. This was the more difficult task of the two.

1

Despite the backwardness which characterized Russia when compared to Western Europe, it struggled to find solutions to its internal problems from within rather than turn to the West. It only turned to the West when absolutely necessary. Things did begin to change gradually with Peter the Great. However, the reality of Russia's situation meant that politically it had to contend with the burdensome task of controlling large numbers of various ethnic peoples within the country, while at the same time competing and getting along with the Western state system.

Theodore H. Van Laue makes an interesting observation when he remarks that:

Between 1856 and 1914, with the intelligentsia acting as chief but by no means sole intermediary, the Western model victoriously permeated Russian life. Consciously and unconsciously Russian 'society'

adopted Western standards, either in actual form or more often in ideal enlargement, as its frame of reference. Wherever one looks in Russian literature and journalism, or in the memoranda of the officials and the testimony of the crown councils, one observes the habit of invidious comparisons and, with increasing frequency, the frank admission of Russian backwardness.

2

In examining the important events which transpired throughout the course of Russian history, one of the many important themes emerging concerns Russia's alternating feelings of fascination or repulsion towards the West. It exhibited a xenophobia bordering sometimes on paranoia towards anything alien or Western which might taint Russian society. Only when Russia's backwardness became intolerable did it begin to open its borders to Western ideas and technology. Even then, suspicions, fear, and mistrust characterized the tone of its relations. All attempts were made to minimize such contacts. Looking back on the history of Soviet Russia, R.G. Wesson makes the observation that it is basically:

...a continuation of the tsarist state; but it may be remembered that the continuity rests not simply on tradition and inherited political culture but on the fact that Russians have faced the same major political problems since 1917 as before: namely, to hold together and rule the huge multinational realm in the face of solvent forces of modernity and to modernize economically (and militarily) without modernizing politically. Leonid Brezhnev, like Ivan IV, invites possessors of superior technology to his realm while shutting them off from his people and warning against subversive ideas from the West, not because it has been done but because it has to be done.

3

Throughout the centuries, Russia was ravaged by many foreign invaders. However, one in particular, the Tatars, who swarmed over Russia in the thirteenth century, left a lasting legacy. It marked the

beginning of imperial greatness for the Russians. For under Tatar rule there developed a strong Russian state which was later able to gradually overcome the alien oppressor during the fifteenth and sixteenth centuries. Once the Tatars had been suppressed, Russia began to expand outward across Asia. Having no natural or historically fixed boundaries, expansion took place in areas contiguous to Russia rather than across the seas where many European empires were conquered and developed.

It was Peter the Great who managed to open the so-called "window to the west" and satisfy the Russian desire for, among other things, warm water ports. In addition it sought for religious and strategic reasons to control Byzantium, the ancient seat of orthodoxy which permeated Russian society. Likewise being so close to Europe it imported Western technology to satisfy its needs while cautiously avoiding too much bilateral contact. Diplomatically speaking, as Gordon A. Craig notes:

Before the seventeenth century was over, the obvious advantages of continuous contact with foreign courts had led to the establishment of the first permanent missions abroad, and this process was pushed further by Peter the Great and by Catherine, whose policy was oriented to the West and who participated actively and profitably in the complex play of diplomatic maneuver that filled the eighteenth century. Although Peter may have had some doubts about the permanence of Russia's Western connection...after Catherine's time Russia's membership in the Western diplomatic community was continuous.

4

During the course of its outward expansion Russia established a pattern which would continue even into modern times. It chose never to attack a major power but to expand into areas in which it would

encounter minimal resistance. Upon encountering stiff resistance it would choose, rather, to withdraw. Traditionally, it has achieved greater success fighting on the defensive rather than on the offensive and when attacked by foreign states, (Poland, Sweden, France, Germany) in successive centuries, it managed to emerge victorious and consequently to acquire additional land. Any arguments against its expansion would be countered by one claiming that it was necessary for self defense and security. The Russians approached their expansion with a messianic fervor like the Spanish, Dutch and English. They felt that it was their destiny to spread the Russian culture and way of life wherever they expanded.

One big difference in the expansion or empire building carried out by Russia as compared to the European states was in the methods employed. Russia expanded into contiguous areas which were then intended to be assimilated by an expanding state. In most cases the areas in question were absorbed into the social and administrative order, ultimately becoming part of an expanding whole rather than becoming colonies of the conquering state. Russia's eternal struggle to achieve and maintain the level of national security that it desired saw it continually going to battle to move the borders farther away. This enabled them to overcome their enemies on the frontier and to occupy those territories from which attacks might be launched against it.

This feeling has permeated all of history even to the present time. This feeling undoubtedly contributed to Russia's extreme reluctance to surrender any lands once firmly occupied. Expansion,

unquestionably, must be considered to be the overwhelming fact of Russian history. During the course of some six hundred years almost every generation saw a substantial increase in the amount of land acquired by Moscow. The few setbacks that Russia suffered such as the Crimean War and the Russo-Japanese war of 1904, were ultimately overcome. As Wesson observes: "...when it embraced the Eurasian steppe; and it was endowed with corresponding self confidence. The idea of Russia dominating if not ruling the earth seemed by no means fantastic; the idea was as consoling for its oppressed as it was seductive for its leaders." <sup>5</sup> These messianic feelings, while altered over time, did remain part of the world destiny that Russia felt it was preordained to fulfill.

The Russian sense of mission was of paramount importance in its secular struggle to capture the hearts and minds of the people. They were particularly adept at convincing the conquered peoples of the inevitability of their condition after their incorporation within the empire. The Russian people consequently developed a submissive characteristic that saw them follow blindly the directives of some of the worst autocrats as long as they were successful rulers of the empire. It was as Wesson observes: "...the motivation of subordination of the individual, the sobornost ('togetherness') of <sup>6</sup> tsarism and the collectivism exalted by the Soviet Union."

For five hundred years, except for a very few brief periods, Russia has been subjected to strong government varying from despotic to monarchic-authoritarian, or oligarchic when the monarch happened to be weak. The Tatars were responsible for introducing it to Russian

society. They utilized force and conquest which was solidified by terror: their government was modelled on the refined despotism of imperial China. Their ideology simply stated was: "as there is but one God in heaven so there should be one ruler on earth."<sup>7</sup> This meant that any revolt against the autocrats was a sin and a crime together. The subsequent rulers of Russia gained power not by revolting against the Tatar hegemony, but by adopting its heritage.

For more than two centuries the two key elements of the Russian institutional system were autocracy and serfdom. Until the serfs were given their freedom in 1861 these two characteristics made Russia unique among the more significant countries in Europe. While other states in central and Eastern Europe exhibited one or both of these institutions, only in Russia were they so fully developed and allowed to function virtually unchallenged. The term autocracy has a literal meaning of "self rule." However, as exercised in Russia it came to represent a ruler endowed with unlimited or unchecked power over his own subjects. So defined, Russian rulers of the eighteenth century were autocrats in the truest sense of the term. There existed no legal or institutional forces to restrict their powers. There were no political institutions such as a parliament or political parties endowed with constitutional rights; there was no tradition of law as something above the person or the sovereign, nor was there an independent judiciary to interpret the laws that existed. Even the Orthodox Church was totally under the control of the monarchy. The Tsar or emperor, as he was then referred to, represented the only lawmaking authority and he alone could change or violate the laws he

8  
made. Though difficult for the Western mind to comprehend, Wesson points out that in Russia places in society were clearly defined and any deviance was dealt with by force. However, overall, the people and Tsar accepted their respective roles. This was in great part due to the fact that the:

Empire not only required, facilitated, and excused, but sanctified autocracy, which became a principle of national life, part of the moral order, flourishing even when the autocrat was personally a nonentity. The Tsars saw their power as holy, standing for the holy empire, with one faith and one ruler giving justice and peace to the nations. The Tsar became a half abstraction like heaven; and Russians took pride in what foreigners saw as a fault, submissiveness to despotism. Absolutist government was lauded as part of the Russian superiority by writers from the time of Ivan the Terrible to the end of Tsardom. 9

The only effective limitations placed on autocracy, apart from assassination, which accounted for the demise of several Russian Tsars in the eighteenth century, were of a purely practical nature. The awesome size of the country and the subsequent bureaucracy required to govern it, along with the usual attendant corruption, enabled some of the Tsars' orders to be circumvented or allowed to become buried in the sea of bureaucratic paper. Attempts were made during the eighteenth and nineteenth centuries by the Tsars to try and reform the overall governing system. However, it should be noted that such attempts were not made to limit the autocratic power of the Tsars or even to share it. They were made to increase the autocracies' efficiency.

Marshall S. Shatz makes an important observation when he points out that: "Many of the distinctive features of autocracy replicated themselves in the institution of serfdom. The serf estate was in many

ways a microcosmic version of the autocracy."<sup>10</sup>

In theory and in law, the serf was considered part of the land he worked and was not the personal property of the landowner. However, in reality this relationship was easy to circumvent and in many cases the serf was considered and treated as a slave. Again, Shatz makes a valid point when observing that:

The chief problem with both serfdom and autocracy was not that they invariably ground the individual down with daily acts of oppression and injustice, but that the two institutions were inherently arbitrary. They had the power to disrupt an individual's life unpredictably, at any moment. They did not always choose to do so, but when they did the individual had no reliable means of defense against them. 11

Another factor that exercised great control over the hearts and minds of the people was the Orthodox Church. As an institution which had inherited the Byzantine tradition of support for a strong monarch, it looked to the autocracy to aid it in ensuring the preservation of Russia's religious and cultural integrity. By the fifteenth century the Russians were able to expel the Tatars and their predominant affiliation with the religion of Islam.

The Orthodox Church continued to thrive under the new autocracy. However, in 1721, Peter The Great (Peter I) abolished the patriarchate and established a Synod which he controlled through its lay procurator. Thus, while its power and influence remained strong, for all intents and purposes, the ecclesiastics came to be rather statesmen than ministers of the Gospel. 12

Rule by the Tatars isolated much of Russia from the West and severely restricted its trade with Western European states. Russia became, predominately, an agricultural society where social and economic life centred on the self-sufficient manorial estate. As a

result of this situation, Russia never developed a significant urban middle class comparable to the bourgeoisie of Western Europe.

Another significant factor which contributed to the development of autocracy in Russia as Shatz points out were: "...the circumstances created by Russia's geography."<sup>13</sup> The majority of the Russian population had settled in the western reaches of the vast flat plain that stretches virtually unbroken across Eurasia. Geographically, this exposed terrain presented no serious obstacles to a determined invader. Russia had no natural barriers like an English channel, an Alps, neither an Atlantic nor Pacific ocean to ensure its security. Over the centuries invaders came from the East, West, and South menacing its independence and autonomous cultural development. To the northwest were the Swedes and Baltic Germans with whom Russia would share many battles. On the Western borders were the Poles and Lithuanians, wrestling with the Russians for domination over the borderlands between them, as well as threatening Orthodox Russia with possible Catholic domination.

Having suffered these countless invasions it is not surprising that the Russians have a siege mentality induced in them which has carried over even into modern times. In the pre-1917 revolutionary years, the task of maintaining national self preservation under very extreme geopolitical conditions meant that the Russian people came to rely heavily on a strong Tsar capable of mounting the required military forces to ward off any invaders, and preserve their national security.

Another effect that geography had on the course of Russian history was the Eurasian plain. Likewise with no effective natural

barriers, it laid itself open to not only external invasion but internal colonization as well. As Russia spread out and expanded its empire it did so, as mentioned earlier, by assimilating contiguous landmasses into the "mother country" rather than expanding overseas. Thus, Russia, by the sixteenth century, had grown immensely and had absorbed many diverse ethnic groups and tribes within its boundaries. While its population was large, it was spread very thinly over a huge territory. Consequently, the harsh climate covering much of the country and the above made economic development of the country as a whole extremely difficult. However, despite these facts, mobilizing and organizing the people to develop an economy to sustain the population was necessary and essential if military security was to be maintained. As has been noted:

'Conditions and traditions have produced a definite political mentality in Russia which goes back for several centuries...The Russian distrust of the West, the cult and consciousness of the precedence of the community over the individual, the recognition of the unlimited power of governmental authority over society, and the discrepancy between political reality and the professed ideal aim--all these phenomena of Soviet thought and life have their roots in conditions which developed in Russia between the beginning of the thirteenth and the end of the sixteenth century.'

14

Coercion proved to be a necessary tool for Russia to accomplish its goals under very trying circumstances. Such a situation reinforced the trend toward autocracy. For as Shatz points out the situation dictated the need for: "...a strong, centralized political force capable of mobilizing the resources geography had scattered so widely, in order to

ward off the dangers and potential dangers which that same geography invited."<sup>15</sup>

The dominant position of the autocratic Tsars remained one of the permanent features of modern Russia's historical development. As Robert C. Tucker notes:

...it is essential to realize that the Tsarist system of government was an absolute autocracy in the fullest sense of the word. The historical background of this autocratic system was the Mongolian occupation of Russian lands in the thirteenth century. Later the grand princes of Muscovy took the lead in overthrowing the alien yoke, but at the same time modeled their kingdom in many ways upon the realm of the Golden Horde. Tsarism arose as a Russian adaptation of Oriental despotism with an ideology drawn largely from Byzantine sources. The subsequent Europeanization of Russia altered the form and façade of the governmental system, but the institution of absolute autocracy was preserved intact.

16

However, one cannot solely relegate the autocracy to being merely a source of repression and exploitation of its subjects. Such is to overlook its historical role and, indeed, the main reason for its persistence. In reviewing the efforts put forth by the autocracy to ensure Russia's defense and economic development, as well as its expansion, they must be viewed for what they were--deliberate state policies designed to meet the national needs of the people as the state defined them. Even when one looks at the actions of Stalin, particularly in the 1930's, they can be seen then as:

...programs (which) were despotic in their implementation and profligate of both men and materials, but they were also recognizably products of the Russian political tradition of state initiative, the origins of which stretched back to the fifteenth and sixteenth centuries. Hence such actions by the state had a considerable degree of legitimacy in the eyes of the Russian people, and

this was doubtless part of the reason why, for all their cruelty, they prevailed.

17

Consequently, the political tradition that was now so pervasive throughout Russian society could only be viewed as autocratic and paternalistic. It was based, as Shatz points out, on two key assumptions:

...that the society is not capable of meeting the country's basic needs on its own initiative, so that the responsibility for determining and fulfilling those needs must be assumed by the state; and that the individuals who make up the society must be at the full disposal of the state in order for it to carry out its responsibilities. To some extent, this became a self perpetuating relationship.

18

Progress within the state was achieved through the offices of the Tsar as no other group was organized sufficiently to carry out the required responsibilities. This was simplified by the fact that society as a whole had grown accustomed to the state making the decisions that affected every facet of their lives.

However, by the latter eighteenth century small groups of primarily Western educated nobility began to question the continued existence of the autocratic system. Their demands on the surface did not appear so reprehensible. They sought a greater say by society in the formulation of policies which affected their lives and the national interest. Also, they agitated for reform of the concept of serfdom which would provide freedom for them and make them less as instruments of the state to be used at will.

The reality of the situation was that the Tsar and his autocratic rule were deeply entrenched in Russian society and were very unlikely to submit to change. While certain individuals may have

achieved some influence under the Tsar no room was left open for the development of a powerful nobility. Likewise, the Church was impeded from attaining too much power or influence over the people. The overwhelming portion of the population were serfs or chattel slaves until 1861, and even then the lot in life for the serfs changed very little. However, economic modernization demanded it. As Sir Bernard Pares points out:

Roughly speaking, the peasants received half of the land in perpetuity, but were to pay for it a moderate price in instalments extending over some fifty years. In the meantime, the Government advanced the whole of this amount to the gentry, who in many cases proceeded to spend it, and, selling what remained of their estates, came to swell the ranks of the Intelligents of the towns...but this first real attempt at a land settlement in Russia, coming as late as it did, failed to destroy in the peasant the idea that he had all along been the real master of the land, and that in principle he still ought to be so.

19

Industry had as its chief purpose to serve the state. Most of the industries were established by official decree or it offered its protection. While some private enterprise grew during the nineteenth century it remained and existed only under the close scrutiny of the Tsar. Most private capital was foreign and the majority of managers and merchants were non-Russians. This situation ultimately resulted in Russia being severely depressed and backward both economically and culturally. Again, Wesson draws a significant conclusion when pointing out that: "The basic difficulty was that progress depended primarily on the state, the orientation of which was inevitably political rather than economic. The autocratic regime stifled initiative, discouraged enterprise, and suffocated original thought."

20

After the middle of the eighteenth century, the influence of the French came into prominence as the German influence faded. France, being the world's intellectual leader at that time, provided many details about the West through its language which became adopted by the Russian ruling court. It soon became painfully obvious with the growth of the industrial revolution and scientific technology in the West that Russia was, in contrast, very backward and had to work diligently to keep up.

Many in the West were perplexed about Russia not knowing whether to consider it of Western or Eastern heritage. As Wesson describes the answer:

It was seen as Asian (at least politically) in Europe and as European (at least technologically) in Asia. It was an empire of the Oriental style mingling in and dependent upon the European world of nation-states, its political inferiors (in Russian eyes) and cultural superiors. Because of its location, it had special needs to rule Asian style and to progress in technology Western style. The ability to do this made possible the building of the proud empire; also stimulation and competition saved Russia from the depth of decadence that has invariably overtaken isolated empires after two or three centuries of splendor.

21

Wesson goes on to explain the key factors which have had an extremely strong influence on Russia's struggle for its unique identity:

...the two bases of Russian greatness were and are profoundly contradictory. The anomalous and uncertain role they imply has caused the Russians endless political and psychological difficulty. It has resulted in a deep ambivalence, or a series of ambivalences or dualities, that writers have noted in various terms: the Asiatic substance and the European veneer; the mystical and the rational; the state (nowadays the party) and the people; the 'black' masses and the modernized elite; the

submissiveness of the people and their individualism or rebelliousness. Russian foreign policy, political institutions and culture have likewise been permeated with this duality, the basic uncertainty whether Russia should be considered an indefinite empire (in Leninist terms, a world revolutionary movement) with a special destiny or a state among states following in the stream of Western civilization.

22

The ambivalence in their attitudes towards the West can clearly be seen in terms of a love-hate or fascination-repulsion syndrome. The Western powers were considered to be heretical in faith as well as alien in political philosophy. Confused, they felt that they could neither treat the West as inferior nor recognize them as equals. Russia was astute enough to realize that it needed their cooperation and technology but knew also that they could never be trusted or embraced as real friends. While Western ambassadors were invited to St. Petersburg, they were treated as spies. Travellers were generally unwelcome, yet they needed both the hard currency from the West as well as their expertise in those areas in which Russia was backward.

By the middle of the eighteenth century the Tsarist regime was characterized by chaos with no effective chain of political authority. There was no Prime Minister or Cabinet. The Tsar chose his ministers and any authority they had came from him. Such a system did not breed excellence among the ministers of the Tsar. There was no question that the traditional political system was out of step with the times. The problem was that no viable alternative presented itself. Meager attempts, such as the post-Crimean reforms, accomplished little and the autocratic system carried on. Emancipation of the serfs in 1861 further weakened and demoralized the gentry, the class upon which the state rested.

However, the struggle for change was beginning in earnest by the latter part of the eighteenth century, and as Marshall S. Shatz points out:

Recognition of the changing nature and role of the educated elite in Russia is crucial to an understanding of the origins of dissent, because this is the segment of Russian society that has issued the most persistent challenges to the state's monopoly on political power since the late eighteenth century. Peasant revolts and workers' strikes, though they sometimes attained ominous proportions, were usually local and sporadic, flaring up unpredictably and unable to sustain themselves.

23

Due to the fact that Russian society was culturally backward and traditionalistic, it was incapable of generating an intellectually elite group spontaneously. Consequently, the state proceeded to create one of its own. Ultimately this proved very dangerous to an autocratically ruled society. The state required this new elite to help eradicate Russia's backwardness, but it had to allow them freedoms to accomplish their goals that were forbidden to other members of society. Eventually these privileges as Shatz points out:

...however, breed a sense of pride and self-esteem that leads them to resent the restrictions and arbitrary treatment they must sooner or later encounter at the hands of a paternalistic government. From these circumstances comes the state's dilemma. It cannot simply take advantage of its monopoly on political power and crush the educated elite by brute force when it steps out of line without jeopardizing its own goals of modernization and material progress.

24

Politically, the elitist intelligentsia sought revolution, not reform of the Tsarist system. Reformers to them were considered to be "deceitful and 'compromise' was a slur. Unable to achieve anything in practice, they had no sense of practicality."

25

The latter part of the nineteenth century saw Socialism rise to prominence. It provided a common ground for Westernizers, Slavophiles, Populists, and Marxists:

As G.F. Kennan notes:

Frustrated, discontented, hopeless of finding self-expression--or too impatient to seek it--in the confining limits of the tsarist political system, yet lacking wide popular support for their choice of bloody revolution as a means of social betterment, these revolutionists found in Marxist theory a highly convenient rationalization for their own instinctive desires. It afforded pseudoscientific justification for their impatience, for their categorical denial of all value in the tsarist system, for their yearning for power and revenge, and for their inclination to cut corners in the pursuit of it. It is therefore no wonder that they had come to believe implicitly in the truth and soundness of the Marxist-Leninist teachings, so congenial to their own impulses and emotions. Their sincerity need not be impugned. This is a phenomenon as old as human nature itself.<sup>26</sup>

Socialism, it appeared, would provide the best, perhaps the only hope of preserving the true Russia, that in reality, was basically imperial values.

As Russia began to modernize and its educated class grew, it found that it could not escape a growing sense of national awareness. It appeared that the old ideology no longer served its purpose. Rapidly, it was becoming clear that dramatic changes--social, economic and political--would have to occur if Russia was to eliminate the shackles of backwardness and to advance to take its place in a rapidly changing world.

As Russian nationalism and patriotism grew, it gradually became a distinct disadvantage to be a non-Russian politically, psychologically, socially and to some extent economically. Such

Russianism provided stimulation to minority nationalism which was, in turn, stimulated by it.

Official policy dictated that non-Russians be made into Russians especially by education. The minorities which totalled well in excess of one-half of all the population, presented various problems. The most serious was with Poland, a strong nation possessing an exceptionally proud tradition. They were never satisfied to stand under the Russian eagle. Rebellion in 1830 and 1863 convinced the Russians that the only answer was incorporation into the Russian empire.

By 1904 things seemed to be coming apart in Russia. Unofficial groups opposed to the Tsarist regime sprung up and became very vocal. Other organizations sprung up also, such as working men's unions, intellectual clubs, etc. All of these groups were unanimous about one thing, change must come and quickly. Fearful of an insurrection, the Tsar agreed to a semi-constitution with his proclamation of the Manifesto of October, 1905. It promised an elected legislative assembly or Duma. This action proved to be the first weakening of the tsar's absolute autocratic rule. Refusing to surrender any significant powers to the Duma led to its dissolution in July, 1906. The second Duma met a similar fate.

After the peasant disorders during the period 1904-1906, the unreliability of the commune system was highlighted. The government under Prime Minister Peter Stolypin decreed that peasants could henceforth leave the communes and form family farms in the capitalist-competitive rather than the collectivist spirit. As Wesson observes:

"Such changes were rapidly making the autocracy anachronistic, and the opposition was becoming more effective as it broadened and became more realistic."<sup>27</sup>

While all this was taking place, Russian industry, highly inefficient, was losing even more ground to the West which was constantly gaining more efficiency while advancing more rapidly in the technological field. As Russia moved to increase contacts with the West to improve her economy the result seemed to be: "As Western influence grew deeper, broader, and even more uncontrollable, the moral basis of the autocracy shrank. Its obsolescence became evident in the age of secularism and democracy, and the government was corrupt and demoralized."<sup>28</sup> It is interesting at this point to examine the views held by K.P. Pobedonostsev regarding Russia and the West. He defined the West:

...not in terms of geography, but in terms of institutions and values. He believed that each society or state possessed distinctive political and social beliefs and institutions which helped to shape its character. Each nation's development represented an organic process based on immutable laws. Each state was thus a prisoner of its past. Thus he explained that some states, such as Russia, had centralized, authoritarian governments because in their distant past the emphasis had been upon communal life and upon firm control over the family by the father or by the patriarch; consequently, each person remained dependent, political power was highly concentrated, and strong central government developed. On the other hand, the Anglo-Saxon and Scandinavian states had decentralized democratic governments because in their distant past the emphasis had been upon individualism, and the father did not acquire absolute power in the family; consequently, democratic local government developed, and the central authority remained comparatively weak.

Thus as Wesson points out the Russian empire now faced an unbearable dilemma:

...it could evidently neither continue as an autocracy nor become a democracy. There was no evident middle way to satisfy the desires of the Russian people and the minorities for more freedom without giving freedom to break up the Russian-dominated system. It is not impossible that the liberals or moderates, those of more Western and modern outlook, could have developed some sort of federal relations that would have saved unity while conceding self-rule. This would have meant solving the dilemma of the empire by ending its imperial character and the advantages accruing to the dominant people. But the liberals foundered on this question; it seemed that they would have to betray their ideals of freedom or propose the dissolution of the empire. Moreover, there was no means for the autocratic system, dedicated to self preservation, to reform itself; and liberals had no idea how the obscurantist governors could be persuaded to sacrifice their own power.

30

The desire for radical change had reached a point where removal of the Tsar and his regime became not only necessary but inevitable. However, those outside observers who foresaw the nation choosing a political system similar to that of the free and progressive countries in the West were wrong. The history of Russia dictated that as Wesson concluded: "Constitutional government would have been difficult in Russia under the best of circumstances; under the worst of circumstances, it was impossible."

31

The Provisional Government set up after the overthrow of Tsar Nicholas II was virtually impotent. It could do little more than make concessions when the situation dictated it. It sought primarily to maintain central control while avoiding making necessary decisions. The collage of revolutionary and reformist groups covered a broad

spectrum of possible changes in the Russian political and social structure. None seemed capable of garnering the necessary support to gain control of the government.

- . The Liberals: under leader Paul Miliukov foresaw ethnic territorial autonomy failing since the border areas would choose to align themselves with foreign powers.
- . The Socialist-Revolutionaries: proposed a complex scheme to provide autonomy for various minorities within respective areas.
- . The Mensheviks: would settle only for cultural autonomy for minority groups and, in addition, rejected federalism as divisive of the socialist proletariat.
- . The Bolsheviks: proposed the most practical solution. They called for deflating and confusing the movement by offering complete formal independence while essentially centralizing authority through rule by a strongly unified party.

32

The moderate socialist prime minister, Alexander Kerensky, was able to maintain his position solely with the support of the Bolsheviks. In addition he had to share authority with the Petrograd Soviet or Council of Workers and Soldiers' Deputies.

However, Lenin's party was prepared with a plan to replace the Tsar and provide a strong government with some modern adaptations. His political organization was autocratic, hierarchic, and semi-military operating under extreme secrecy. Apart from Lenin's party no Russian party was demonstrably democratic. Lenin himself was indifferent to democratic norms. In reality, the Bolshevik leadership had little contact with the workers for whom they spoke. They treated the people

as if they were instruments of the state or the cause. As Robert C. Tucker has noted:

Lenin was of course the supreme leader and dominating figure, and his personal role in decisions concerning foreign policy and the conduct of external relations was correspondingly great. His decision-making power was not a function of the state office that he held as chairman of the Council of People's Commissars (Sovnarkom), but of the enormous authority he enjoyed within the ruling party, which he himself had organized and led on its revolutionary career to power. This authority rested not only upon his demonstrated capacity for outstanding revolutionary leadership and resulting prestige, but also upon his remarkable persuasiveness within the circle of men controlling Russia. His ultimate sanction for enforcing political decisions upon the party was the threat to resign.

33

Soon after Lenin assumed power, a strident anti-Western reaction in Russia grew along with increasing isolation from the West. The movement of the capital from Petrograd to Moscow, although dictated somewhat by military consideration, was symbolic of a reversal of two centuries of Europeanization presided over by the Baltic capital.

34

From the Revolution in 1917 until 1939, through one of the world's worst peacetime slaughters, there occurred throughout Russia a gradual evolution towards despotism. As Wesson explains it:

The Leninists introduced a systematic self-justification much more thorough and purposeful than anything the tsars had attempted, a unifying and ordering compulsory belief system, an ideology in the most authoritarian sense. This was a sine qua non for an absolutist state under modern conditions: where there must be education and extensive communication, the people have to be given a plausible interpretation of the ordering of society; where the heretical outside cannot be physically excluded, it must be morally excluded. Lenin said correctly, 'Without a revolutionary theory there can be no revolutionary movement.' Theory, or a coherent answer to questions of purpose, was necessary to hold the movement together and give it self-conviction to

act decisively. Ideology was essential to legitimate the arbitrary regime and to enable a bunch of outsiders to claim the rights of the sacred tsars and to act with self-confident ruthlessness. 35

Marxism-Leninism, the basis of much of the ideology, claimed that existing privileges were based primarily on force and fraud and promised a classless socialism. Marxian emphasis on collectivism over individualism was acceptable to a society long accustomed to the supremacy of the state and which idealized community, both in the communal institutions of the peasantry and in the togetherness of the empire. As Richard Lowenthal points out: "The fundamental, distinctive social reality in the Soviet Union is the rule of the bureaucracy of a single, centralized, and disciplined party, which wields a monopoly of political, economic, and spiritual power and permits no independent groups of any kind." 36

Marxism-Leninism, in adapting the theory to suit the Russian experience, not only rationalized the merging of many minority nations into a single political body, but it also made it easier for radicals of dissatisfied minorities--Balts, Poles, Jews, and others who comprised many of the revolutionaries to join Lenin's party.

Russian feelings of inferiority were assuaged partly by Marxism which explained their poverty as virtuous and temporary. Historical justice, it was argued, would eventually work to overcome the exploiters--the bourgeoisie--and place power in the hands of the presently oppressed workers. The plan fitted well the ambivalence of Russian society. They could outrightly reject all facets of the Western form of society while admiring its material and technological advancement.

Marxism per se was not precisely tailored to fit the Russian experience. Russia was predominately a peasant, rural society lacking a strong widespread industrial proletariat. For the Russians as Wesson says: "...this was excellent in theory but unsuited to political traditions and the practical situation."<sup>37</sup>

It was, as Wesson points out, the mastery of Lenin that was able to take the basic tenets of Marxism and massage them into an ideology more consistent with Russian historical traditions and present circumstances:

Lenin practically equated Marxism with revolution in Russia and modified it as seemed appropriate for that purpose. The Bolsheviks were Russian revolutionaries who found Marxist approaches and the Marxist theoretical framework useful...Marxism became a doctrine not for the Proletariat but for bourgeois intellectuals. Lenin thought of himself as a good disciple revising interpretations only as required by new realities. But the real issue was power, and Leninism was never a literal creed but loyalty to the political cause. Lenin was consistent in his ways as he developed a set of ideas suited to the making of revolution in Russia and nowhere else....Yet Leninism was so extreme and untraditional that it could not have found a large following in Russia except in times of desperation and stress. The Russian world was collapsing. The old autocracy had been discredited not only by military failures but by stupidity and degradation evident in the power of Rasputin and in the popular mind, by treasonous elements.

38

The greatest appeal that Marxism-Leninism had for the Russian masses was its pledge to provide salvation. It promised an end to private property and a sharing by all in the fruits of their collective labor. Peace and harmony would replace greed, envy and quarrels over private possessions. Ultimately, the state would no longer be required to maintain order in such a society and thus it would fade away. It

promised, also, as a result of this process to enable Russia to eliminate its backwardness and achieve the most advanced conditions of civilization--a veritable utopia.

However, as Richard Lowenthal points out, there are some weaknesses and contradictions inherent in the Communist version of totalitarian ideology. In the first he argues that:

...its vision of the millennium has more markedly utopian features--the classless society, the end of exploitation of man by man, the withering away of the state--which make awkward yardsticks for the real achievements of Communist states. Secondly, in a world where nationalism remains a force of tremendous strength, an internationalist doctrine is bound to come into conflict with the interests of any major Communist power or with the desire of smaller Communist states for autonomy. Thirdly, by... claiming to be 'democratic', Communist ideology makes the realities of party dictatorship and centralist discipline more difficult to justify; yet because appeal to blind faith is not officially permitted, justification is needed in 'rational' terms. ...Due to the fictions of democracy and rationality, the morale of party cadres has been made dependent on the appearance of ideological consistency.

39

As a result of these inherent weaknesses of Communist ideology Lowenthal notes that:

...the component doctrines--dealing with the 'dictatorship of the proletariat,' the party's role as 'vanguard' embodying the 'true' class consciousness, 'democratic centralism,' and the 'leading role of the Soviet Union'--become focal points of ideological crises and targets of 'revisionist' attacks whenever events reveal the underlying contradictions in a particularly striking way. Yet these are the very doctrines which the regime cannot renounce because they are the basic rationalizations of its own desire for self-preservation.

40

In 1919 and 1920 Lenin established a new organization called the Communist International or Comintern. Ostensibly it was designed

to oversee the establishment of a Soviet world. The parties representing the proletariats of various countries would, it was expected, pledge their loyalty to Russia as the supreme leader of Communism. Its ultimate goal was a world Communist revolutionary movement. Samuel L. Sharp, while acknowledging that writers such as R.N. Carew Hunt, have argued that: 'there are messianic and catastrophic elements in the Communist creed which influence...the Soviet drive for Soviet power.'<sup>41</sup> He states that this may be so but that the 'catastrophic tendency' seems to be held carefully in check. He goes on to make a further valid point in saying: "Granted that the Soviet leaders aim at 'world power'...they have long since decided not to fix any specific time limit for the achievement of this ultimate aim."<sup>42</sup>

Lenin's astuteness was to import Western political ideas, vocabulary, and institutions, and put them to Russian uses. His use of the term "party" differed from the way it was used in the West. There, a party was part of the whole electorate. To Lenin, "party" means a self-selected governing body. He used another Western political term--federalism--a political method used in the West for securing rights of self government--in Russia as a means of reconstructing the empire and establishing more secure control over national minorities. The irony in all this appears, as Wesson observes: "He put the empire back together in the name of freedom and anti-imperialism; the peoples had to be protected against heathen capitalism. In the name of internationalism the people were isolated as never before from the outside world and placed under Russian domination."<sup>43</sup>

In retrospect, despite a better future promised by the tenets of Marxism-Leninism, the reality has not been entirely what was expected. In many ways the new political system is just "old wine in new bottles." Since historically the Soviet peoples have known nothing other than autocratic rule, it is not surprising that they have submissively accepted Communism. They really had little choice.

Today the USSR, geopolitically and militarily, is one of the two most powerful countries in the world. Its major weakness continues to be its economy. The centrally planned economy is now working and this, more than anything else, accounts for its continued backwardness vis a vis the Western capitalist based economies. Access to the USSR is still closely controlled and its continued isolation from much of the rest of the world appears more voluntary than determined by outside forces. The Soviet way today continues to be based on the concentration of power and authority and the monopoly of force of the economy, and of political organization. It leaves no room nor tolerates any organized opposition. To the USSR, multi-party political elections would result in the dissolution of the ideology and of the basis for one party rule.

Any sign of discontent is usually met with force and a strengthening or reshaping of the control mechanism. The system cannot allow any tampering with the essential elements of party, monopoly, opinion control, centralized planning of the economy, collectivized agriculture, and police.

The reality of the present day Soviet Union is very much rooted in its history. Wesson points out:

As they have for centuries, the Russians regard themselves as bearers of a special world destiny, and now they are mostly prepared to tolerate Marxist-Leninist party rule in the conviction that this is the way to hold the conglomerate together under their hegemony. If the gains of so many victories were lost, the shock would be profound. Russians would have to alter radically their self-image. 44

As it will be illustrated in the next section, which deals with the United States viewed in historical perspective, the two countries evolved differently based on their respective historical pasts. The contrasts which will be highlighted when examining the United States' history, clearly illustrate that while each developed very differently based on their respective historical background, that both have emerged with separate messianic views about how the world should be reordered. Consequently, during the post World War II restructuring of international relations, while it was inevitable that the US and USSR would be the two dominant actors, it was also inevitable that their relations would not always be in agreement. Rather, their mutual relations would be characterized more by conflicting ideologies and subsequent confrontations reflecting their individual views. However, the possession of nuclear weapons by the US and USSR after 1949 reinforced, in the eyes of both superpowers, the need to achieve some level of mutual understanding and accommodation, lest their antagonisms towards one another lead ultimately to a nuclear confrontation, which both realized had to be avoided at all costs. Efforts were made to reduce the likelihood of such occurrences when both signed the "Declaration of Principles" as part of the SALT I agreement in 1972.

FOOTNOTES

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## CHAPTER TWO

### THE UNITED STATES IN HISTORICAL PERSPECTIVE

A look at the United States in historical perspective leads one to dwell on three of many important characteristics. One, it is an idealistic nation often times prone to espousing the virtues of democracy with a messianic fervor, while at the same time decrying the evils of tyranny and oppression. Two, scanning the history of the United States, its people emerge as a violent race. This trait is put into its proper context by Barbara Tuchman who comments by saying: "Warlike no; violent yes. That we are a violent people is undeniable, and the reason for this too goes back to the beginning."<sup>1</sup> Third is interventionism. This characteristic resulted from a maturing of the state over two hundred years. As the twentieth century wore on the wealth, power, and influence that it accumulated resulted in it ultimately having to sever its ties with neutrality and isolationism and intervene where democracy and freedom were threatened. This was accomplished with the aid of other nations which espoused the same ideals but lacked the force required to defend themselves.

In the post-1945 war period it was the United States which was looked upon to defend, globally, the tenets of democracy whenever and wherever they were threatened, primarily by an expanding Communist Soviet Union. This situation came about as Ronald Steel points out in

observing:

The change from the old isolationism to the new interventionism flowed almost inevitably from the Second World War. The unavoidable war against fascism revealed the bankruptcy of isolationism and destroyed the illusion that America could barricade herself from the immoralities of a corrupt world. It also provided the means for the dramatic growth of American military power which made the new policy of global interventionism possible.

2

Many wartime allies of the United States turned to it when militarily weak and economically devastated; the United States was their only hope to maintain their freedom which they had fought so hard to preserve.

A. A Brief Historical Look At The Development Of The United States

Three nations were primarily responsible for colonizing what is now known as the United States of America. They were England, Spain, and France, and to a lesser degree the Netherlands. The first permanent settlement to be established by the colonizers was St. Augustine (Florida). It was founded in 1565 by the Spaniard, Mendez De Aviles. The first permanent English settlement was at Jamestown (Virginia) in 1607. It was managed by a charter commercial company--The Virginia Company--that considered economic motives to be crucial to the settlement's founding.

3

The majority of the immigrants arriving at the new settlements were hoping to escape the religious and political turmoil of the Puritan Revolution in England and the maltreatment of the Huguenots in France. They brought with them hopes of economic betterment and

religious freedom. Thousands of others emigrated from France, Germany, and other European nations.

As the eighteenth century progressed so also did the number of colonies and settlements grow. At the same time political and economic grievances became exacerbated primarily by British mercantile regulations which impeded the colonies' commercial and industrial development. By the middle of the eighteenth century "...there had been created a greater sense of a thriving and distinctly American, albeit varied, civilization."<sup>4</sup> Distinct character differences could be found upon examining the groups inhabiting New England and those of the South. In New England, Puritan values were altered by the impact of commerce and by the influence of the Enlightenment, while in the South the so-called "planter aristocracy" developed a lavish and gentlemanly style of life. Enlightenment ideals also gained adherents in the South as a result of the establishing of institutions of higher learning.<sup>5</sup>

After the British and colonial forces managed to expel the French from Canada and the Great Lakes region during the French and Indian wars (1754-1760), the colonists came to feel that the need for British protection was not as great as previously. Unfortunately, the British were in the process of implementing a new colonial reorganization which would have placed the costs of their defense more on the shoulders of the settlers. This, among many other festering grievances, led ultimately to a series of events that unified colonial settlement against Great Britain culminating in the American Revolution

(1775-1783).<sup>6</sup> This resulted in the 13 Colonies gaining their independence.

The central tenets of their independence can be found in the formal Declaration of Independence. It was adopted by the Thirteen Colonies on July 4, 1776, and announced their intention to separate from Great Britain and to form the United States of America. It is considered to be the most important of all American historical documents:

It is essentially a partisan document, a justification of the American Revolution presented to the world; but its unique combination of general principles and an abstract theory of government with a detailed enumeration of specific grievances and injustices has given it enduring power as one of the great political documents of the West. 7

The opening paragraphs go to great lengths to assert the fundamental ideals of government based on the theory of Natural Rights which have been developed by previous political philosophers such as John Locke and John Jacques Rousseau. As the Declaration of Independence states all men are:

...'endowed by their Creator with certain unalienable Rights; that among these are Life, Liberty and the Pursuit of Happiness...whenever any Form of Government becomes destructive of these Ends, it is the Right of the People to alter or to abolish it, and to institute new Government, laying its Foundation on such Principles and organizing its Powers in such Form, as to them shall seem most likely to effect their Safety and Happiness.' 8

The document emphasized that it was not only the people's right but also their duty, when required, 'to throw off such government.' Thomas Jefferson summed up the spirit of the document in 1792 by saying "'Every man and body of men on earth possesses the right of self-

government."<sup>9</sup> In retrospect, from this point onward, the many varied facets of American messianic idealism began to unfold as its relations with the rest of the world expanded. As the Republic developed more and more, feelings grew that Americans felt (that) "they had the right to determine the fate and political direction of other nations, whether or not they welcomed such intervention."<sup>10</sup>

#### The Revolution:

- . Broadened representation in government
- . Put forth the concept of separating Church and State
- . Increased opportunities for Westward expansion
- . Brought the abolition of the remnants of feudal land tenure to an end.

#### The Constitution:

The United States' Constitution is very eloquently described by Clinton Rossiter who states that it was:

...a masterpiece of draftsmanship, probably the most artfully constructed charter of government the Western World had seen, certainly a vast improvement in mode of expression over the best of the state constitutions. Plain to the point of severity, frugal to the point of austerity, laconic to the point of aphorism, the Constitution was, as Randolph had recommended in his observations on the rough draft of late July, a statement in 'simple and precise language' of 'essential principles only' that could be 'accommodated to times and events' no living man could foretell.

11

In essence, the American Constitution:

- . Created a national government with ample powers for effective rule; but which were limited by a set of checks and balances to ward off any incipient tyranny or radicalism.

. Its concept of a strong orderly union was popularized by the Federalist Papers of Alexander Hamilton, James Madison and John Jay, which played an important part in winning ratification of the Constitution by the separate states.

The new Government of the United States was established as a Federal Republic. Its structure was outlined in the newly adopted Constitution (1787). The system described is the American form of democracy that would not only serve them well but would also become one of the sacred tenets of their idealism which they would attempt to spread throughout much of the world with a messianic fervor. As the United States gradually matured, it became recognized as a country where personal, religious, and political freedom were considered sacred and treated as such. These freedoms were considered so important that they were enshrined in the Constitution which became central to the very existence of the United States of America. Consequently, hundreds of thousands of immigrants poured into the United States seeking the freedom and opportunities which were inherent in the American way of life, and which did not exist in the countries from which they fled.

The US and USSR are two distinct countries with two distinct political and social systems that have evolved (sometimes through revolution) to satisfy the needs of their inhabitants. In the case of the United States, it found that being tied to the yolk of British colonialism was intolerable and it revolted and vanquished its oppressors. It then established a system designed to provide Life, Liberty, and the Pursuit of Happiness for all its subjects. Russia, in contrast, revolted against the Tsarist autocratic rule and replaced it

with the Dictatorship of the Proletariat which promised much, but if anything, repressed even more the individual liberties of the Russian people.

The "American dream" did not occur overnight nor did it develop without the usual growing pains of any newly emerging and developing nation. Two political parties emerged which provided much of the political debate concerning the country's future and how it should be governed. The Federalist Party (later to become the Republican Party), led by Alexander Hamilton, favoured considerable government intervention under a broad interpretation of the Constitution. The Democratic Party adhered, primarily, to the principles laid down by Thomas Jefferson. They favoured, briefly, narrow construction, and limited Federal Government intervention. Economically speaking, the two parties had definite references. The Federalist Party considered itself the spokesman for the agrarian interests in America, while the Democratic Party represented the propertied and mercantile classes. Americans, in general, were proud of the fact that no privileged aristocracy nor remnants of feudalism remained in America. However, many did differ on more subtle questions of egalitarianism and progress.

From the earliest days of the United States, its foreign policy was based generally on three political goals: (1) self-defense; (2) peace; (3) spreading the American way of life. Looking at self-defense, one historical component in the US defense policy has been continentalism. As Alfred De Grazia points out:

The doctrine of continentalism holds that the real interests of the United States are confined to the

Western Hemisphere; indeed, some interpreters would restrict American interests to the territory of the United States and its possessions. This is the oldest doctrine of American foreign policy, originating in the first days of the Republic. It obtained its classic statement in the Farewell Address of George Washington, who asserted that the United States had interests separate from those of the rest of the world and that the United States in the future must 'avoid entangling alliances' with the countries of Europe. When Washington enunciated this doctrine he did so not with the expectation of establishing a permanent concept but under the prodding of contemporary events; at this epoch Europe was being rocked by the wars of the French Revolution, and the United States was split between those who would honor, and those who would disregard, the Franco-American alliance made in 1778. 14

Another doctrine which became a central part of US foreign policy during the nineteenth century was the Monroe Doctrine enunciated by President James Monroe in 1823. Essentially, it warned the European nations that the US would not tolerate any meddling in the domestic affairs of American countries. Of key importance was the statement that the European nations must not seek to obtain further territorial possessions in the so-called 'New World.' Again, its statement was relevant primarily to contemporary circumstances, the apparent aim of France and Spain to restore Spanish rule to the former colonies in Latin America that had just acquired their independence. As De Grazia points out:

The Doctrine is a logically consistent expansion of continentalism; its premise was that the security of the United States required that European states should not have bases in South or Central America from which they might launch attacks on the United States. 15

The West was gaining greater attention in American life and in the 1840's expansion to the Pacific was fervently proclaimed as the

"Manifest Destiny" of the United States. This term has come to refer not only to the US's goal of expanding the Republic from the Atlantic to the Pacific, but also the fulfillment of American messianic goals. It has been succinctly defined as : "...the preordained logic and fate of America's historic role in world history, to civilize and develop a cohesive nation under the mantle of capitalist democracy."<sup>16</sup>

The balance of the nineteenth century, after the conclusion of the Civil War in 1865, was marked by massive railroad building and the disappearance of the American frontier. Great mineral deposits were uncovered and exploited along with important technological innovation, which sped up industrialization. It was in this field, particularly, where the United States was light years ahead of Russia and it became a key point in any descriptive balance between the two future world powers. The Americans developed an economy based on steel, oil, railroads; one that only a few decades after the conclusion of the Civil War ranked first in the world.<sup>17</sup>

Further expansion of the United States took place with the conquest of the Western territories--the annexation of Texas in 1845 and northern Mexico in 1848. With the purchase of Alaska from the Russians in 1867, and the rapid settlement of the last Western territory, Oklahoma, American capital and energies were focused on the Pacific and the Caribbean. Thus, by the 1890's, a new wave of expansionist sentiment was beginning to affect US foreign policy.<sup>18</sup>

The US first established commercial then political hegemony in the Hawaiian Islands and annexed them in 1898. In that same year its expansionist desires found release in the Spanish-American War which

resulted in the acquisition of Puerto Rico; the Philippine Islands, and Guam, and in a US quasi-protectorate over Cuba. Widening its horizons, the United States formulated the Open Door Policy (1900) which indicated its interest in China. It also intervened in the Panama revolution to facilitate construction of the Panama Canal. This was but one of its many future involvements in Latin American affairs under Theodore Roosevelt and later presidents.

President Wilson tried valiantly to keep the United States out of the First World War. However, it was eventually dragged into the conflict on the side of its allies (Great Britain and France, primarily). President Wilson promoted a precise role for American power. It emphasized three key points: (1) prevent revolutions (2) promote education and (3) advance stable and just governments.<sup>19</sup>

However, while rejecting popular attempts at revolution he did use the American military to quell rebellions--in China, in Haiti in 1915 and in Mexico in 1917.<sup>20</sup> All of these advocated communal ownership of productive assets. These actions certainly bring into question why such revolutionary changes that were outlined in the Declaration of Independence were satisfactory for Americans, but not for others if American political and economic self-interest was involved.

Herbert Hoover, President from 1929-1933, a Quaker, considered the Bill of Rights, enshrined in the American Constitution, to be the heart of it. He rejected the use of force except in the case of self-defense and outright opposed global crusades and Dollar Diplomacy which he claimed was 'not a part of my conception of international relations.' President Hoover saw:

...national security as requiring only enough force to prevent any foreign soldier from landing on American soil. (he emphasized) 'to maintain forces less than that strength is to destroy national safety, to maintain greater forces is not only economic injury to our people, but a threat against our neighbours, and would be a righteous cause for the ill-well amongst them.'

21

Isolationist sentiments began to spread after the War and culminated with the US voting against participation in the newly established League of Nations. Remnants of this policy persisted until December 7, 1941, when Japan attacked its naval base at Pearl Harbour. The Second World War, which concluded in 1945, underscored once again the importance of US resources, its highly productive economy and the prestige and power of the United States in world affairs. Possession of the atomic bomb, along with the above, made the US the undisputed most powerful nation in the world.

It is necessary, in order to more fully understand the confrontational nature of US-Soviet relations and their very different world views, to look at militarism and the American people. The threat of using military power has become a fundamental component of US foreign policy and the international goals it hopes to attain. As noted by Dr. Helen Caldicott: "Power and force were glorified as an intrinsic endowment of national life necessary to counter defiance by evil forces."<sup>22</sup>

#### B. America Viewed In A Military Perspective

Due to the dramatic changes in the sphere of military power and international relations particularly since 1945, a very important

question raises itself; namely, is the past relevant? Barbara Tuchman, in speaking about the Americans, concludes: "probably it is because, while the national experience of the last two centuries may be totally inapplicable and unusable in the world of the 1980's, it has formed certain American characteristics which I think will continue to operate."<sup>23</sup>

In commenting on the outstanding feature of America's military experience she points out that it has been its paradox which she sees historically as being "...anti-militarist in thought and sentiment while remarkably combative in character and practice."<sup>24</sup>

The remarkable number of wars and skirmishes that the US has been involved with since gaining its independence certainly appears to confirm this observation. However, in spite of this apparent bellicose characteristic, Barbara Tuchman observes: "...Americans have shown their dislike of organized war by a desperate attachment to three principles: unpreparedness until the eleventh hour; the quickest feasible strategy for victory regardless of political aims; and instant demobilization, no matter how inadvisable, the moment the hostilities are over."<sup>25</sup>

These facts are as true today as they were at the end of the Revolutionary War (1783). America rejected the concept of a standing army beyond what was required for national security needs. Tuchman concludes that the standing army phobia "derived not from any aversion to fighting but from the passion for liberty that infused the eighteenth century."<sup>26</sup> Memories of the political struggles of the seventeenth century in England resulted in the colonists in America viewing a permanent army as a threat to their liberty.

Traditionally, when Americans have been involved in wars their tactics have been to mobilize for a massive offensive, end the war as quickly as possible, and return home to demobilize as soon as possible. Tuchman makes a valid observation about containment of the Soviet Union in our time, how it "...would have been a very different matter if Churchill's strategy of invading Europe from the South-East had prevailed--and of course succeeded--but this likewise was too indirect and protracted for American taste. 'A Democracy cannot fight a Seven Years War,' General Marshall said."<sup>27</sup>

In America, strong public support is required for American troops to be sent abroad to become embroiled in a far-off war which may have questionable effects on US national security. The Vietnam war is a case in point. Once public opposition began to become so large, organized, and vocal, it was not long before the US extricated itself from the war and brought the soldiers home. Tuchman also makes a valid point when observing that "anti-militarism has been a fundamental sentiment in our history."<sup>28</sup> Equally valid is her point that: "Combining with isolationism and neutrality...anti-militarism has generated more genuine passion than any but the most pro-war sentiments."<sup>29</sup> However, the historical record indicates that it did not recoil from military action, particularly when it concerned the achievement of its national objective of "Manifest Destiny," "a summons," as Tuchman put it: "...to fill the continent allotted by Providence to our swelling population."<sup>30</sup> In reality, it was the early fulfillment of America's messianic feelings which would continue to thrive.

Given the fact that it was a large, well-developed Maritime power from the Atlantic to the Pacific, it appeared inevitable that it would make good use of the communication links available to defend liberty and justice wherever they may have been threatened. As the United States entered the twentieth century there was no question about the fact that a new era had begun. The problems of national security and the use of military power would never be simple again. The internal struggle over neutrality and isolationism was settled by the realities of the twentieth century world which produced two World Wars, and which it inevitably found itself involved in.

The reality of the post-1945 nuclear world is that, as far as America is concerned, the 1980's is proving to be very much an age of insecurity; one in which "America has already lost one of its three principles, having gone from unpreparedness to overpreparedness,...War is now a problem of avoidance--or should be."<sup>31</sup> G.F. Kennan, writing in 1946, made it clear what US policy towards the USSR should be. He stated: "...the main element of any United States policy toward the Soviet Union must be that of a long-term, patient, but firm and vigilant containment of Russian expansive tendencies."<sup>32</sup>

The final question to be explored concerns how the attitudes formed by the Americans over the last two hundred years will affect America's performance in the crises which lie ahead? It is essential after detailing sketchily the history of the United States, to try and find some answers to some key questions in order to define what the United States is, what its objectives are, and what image that it

projects not only to its arch-enemy, the Soviet Union, but to the whole world.

Ronald Steel makes a very incisive observation about America and its goal of universal peace. He points out that the United States: "In its rejection of imperialistic ambitions, and in its almost utopian idealism about the possibilities of universal peace, it reflects the assumptions of the American people about the goal of their foreign policy." <sup>33</sup> The history of the United States clearly unveils a messianic feeling (not unlike that possessed by the Soviet Union), that destiny has it that the United States can and must spread the virtues of democracy to the four corners of the globe.

Ronald Steel, very eloquently, seems to have captured the real essence of what makes America great as well as puzzled, when it showcases its success around the world and finds some nations rejecting its arguments and ideals. In addition to being one of the most benevolent nations in the world, it also has been one of the most intrusive and consequently has acquired its share of enemies. As Steel puts it:

Yet however deep and sincerely felt these assumptions of American benevolence may be, they are not often shared by the nations that feel the direct effects of American power. Nor are they always consistent with our own behaviour throughout the world. As the most powerful nation on earth--the richest, the most deeply involved and in some ways the most ideologically committed--the United States has intervened massively in the affairs of other nations. She has done so, to be sure, for the most noble motives and with the most generous impulses. But her high ideals have not diminished the impact of her power, nor has her generosity necessarily convinced others that her ambitions are purely philanthropic. In the eyes of much of the world, America is a nation possessed of an empire of

nominally independent client states and pursuing ambitions consistent with those of a great imperial power. Although we do not consciously seek hegemony over other nations and covet no other territory, there is more than one kind of empire, more than one way of exerting control over others, and more than one justification for doing so.

34

From this one can begin to formulate a profile of America. From its history it is clearly evident that it is an idealistic nation. It cherishes very dearly those "self evident truths" contained in its Declaration of Independence. It is so convinced of the inherent truth in its political (democratic) and social values that it feels honor bound to spread them throughout the world where oppressed people are tied down by the yolk of tyranny and autocratic rule.

From December 7, 1941, onward, after the attack by the Japanese on Pearl Harbour, American idealism, as Steel points out: "...was transformed into a plan. The Word was given Flesh by the mating of American military power to native idealism."<sup>35</sup> He goes on to say: "For the first time in its history the nation had the ability to seek its idealistic goals by active intervention rather than merely by pious proclamation."<sup>36</sup> The Second World War then provided the opportunity for the US to restore freedom in Western Europe and spread its ideals to whatever countries would accept them. With the conclusion of World War II in 1945 Steel concludes, somewhat cynically, that: "The moral purity of American isolationism gave way to the moral self-justification of American interventionism."<sup>37</sup> America was able to intervene, where it saw fit, by virtue of the dramatic growth in its military power by the end of the Second World War. In 1945 the US was, unquestionably, the most powerful nation in the world. It alone

possessed the atomic bomb. US soldiers were garrisoned from Berlin to Okinawa to stem the tide of Communism. In addition, it began to conclude military alliances which spanned the whole world as well as encircling the USSR and increasing its already high level of paranoia. The new sense of mission became halting the advance of Communism ("containment of Russian expansive tendencies," as Kennan refers to it). It resulted in the United States becoming committed globally to protect and to spread the tenets of democracy and freedom in order to make the world a better place.

The Soviet Union quickly became its strongest opponent, particularly after it joined the nuclear club in 1949. However, prior to this, as Dr. Caldicott points out:

(while) although the adversarial relationship between Russia and America began during the rule of the czars, it was only after World War I that the United States began to perceive the USSR as the spokesman for a world view that would challenge America's newfound status as a global power. 38

Billions of dollars were expended in foreign aid to help reconstruct a war torn Europe. In other places it was subtly used to evoke changes, more in keeping with American idealism. There, political and social structures were interfered with in order to try and align them more with the American model. Sometimes it was successful, other times, like Vietnam, it was not.

Despite its espousing the ideals and goals of universal peace, the United States has found itself involved in two land wars since 1950, (Korea and Vietnam), as well as sponsoring intervention in the affairs of other independent nations. The reason for intervention by

the US is somewhat paradoxical. It was not precipitated by the usual reasons such as:

- . seeking adventure
- . acquiring new territories
- . retaining distant colonies for material gains

Rather, it has done so primarily to contain Communism and to protect the free world with its democratic values and from being coerced by an alien system.

The following will be a brief look at some of the significant similarities and contrasts between the US and USSR based on their respective historical developments. Despite some shared similarities, they will illustrate how deep-seated their national and world views are, and how conflicts could easily develop, especially when both assumed superpower status after World War II.

FOOTNOTES

CHAPTER TWO

1

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Clinton Rossiter, 1787: The Grand Convention, (New York, 1966), p. 222.

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### CHAPTER THREE

#### THE US AND USSR: MUTUAL STEREOTYPE IMAGES AND

#### THE GEOMETRY OF BI-POLARITY

It is the contention of this paper that for much of this century, but particularly during the post World War II period, both the US and USSR developed mutual stereotype images about each other. Over time they came to be constructed more on the basis of myth, fear and mistrust, perceptions and misperceptions. However, despite the origins of these stereotype images, there is no question that they have had a decidedly negative impact on US-Soviet relations. Considering the nuclear strategic stockpiles that each side possesses, it is not difficult to see why these images can only exacerbate already tense relations and impede any hope of defusing the very volatile nuclear arms race. For this specific reason alone, it is critical to examine these stereotype images.

Arthur Gladstone, in an article entitled "The Conception Of The Enemy,"<sup>1</sup> presents an excellent framework within which one can examine closely the mutual stereotype images that the United States and the Soviet Union have developed about each other. He makes note of the fact that throughout the course of history there have been numerous examples of what he refers to as "hostile pairings" or mutually

antagonistic enemies. The post-1945 period has seen East-West (United States-Soviet Union) relations develop in a similar way. As Gladstone points out, there are basic patterns which are prevalent in most all of these "hostile pairings." Each side, Gladstone argues:

...believes the other to be bent on aggression and conquest, to be capable of great brutality and evil doing, to be something less than human and therefore hardly deserving respect or consideration, to be insincere and untrustworthy etc. To hold this conception of the enemy becomes the moral duty of every citizen, and those who question it are denounced. Each side prepares actively for the anticipated combat, striving to amass the greater military power for the destruction of the enemy. Many actions which are ordinarily considered immoral become highly moral when carried out against the enemy. Often people praise their compatriots for the same actions they condemn in the enemy. The approaching war is seen as due entirely to the hostile intentions of the enemy. The only way to prevent the war is to frighten the enemy by achieving and maintaining military superiority (in fact, by outdoing the enemy in the use of methods for which the enemy is generally condemned). Eventually preparations do lead to war, each side believing that the war was made necessary by the actions of the other.

2

Most, if not all of these characteristics are inherent in the mutual stereotype images that both the US and USSR have developed about the other. While historically such patterns of behaviour have ultimately led to war, the US realities of the present day dictate that these images must change in order for not only the US and USSR to survive, but also for the whole world to survive.

Gladstone goes on to argue that "Projection" is the defense mechanism which is most relevant for understanding the conception of the enemy. He defines projections as "the ascription to others of

impulses, feelings, and other characteristics which exist in an individual but which he cannot admit to himself."<sup>3</sup> He cites three factors which affect the occurrence of projection: "unacceptable aspects of the self, past history, and availability of a scapegoat."<sup>4</sup> He further includes three additional aspects, which he argues apply particularly to the type of projection that is relevant for international conflict. They are as follows:

1. "The amount of conflict between the projector and the object of projections." Projection, Gladstone maintains:

...can occur and be maintained more readily when the object is distant, not easily accessible for verification of characteristics. The distance which facilitates projection can be physical distance and it can also be social distance, which interferes with free interaction and the accurate conception of the other.

2. "The climate of opinion." Gladstone notes that:

...(people) generally find it easier to share the beliefs of others than to oppose them. ...Widely held projections are a special case of this social influence on our beliefs. Furthermore, if a belief is widely held it is much more likely to be acted on, since there is likely to be social approval for the action. Thus, a projection which is shared by a number of people is likely to have much more serious social consequences than if each of those people developed a different (though equally erroneous) projection.

3. "The ability to project onto a group of people, such as a political or ethnic group, or nation":

This would seem (Gladstone points out) to require that the group be personified, so that it is thought of somewhat as a single individual, or that the group members be regarded as essentially similar to one another.

Utilizing this conceptual framework, the paper will endeavor to

define the respective mutual stereotype images and to determine to what degree do: "our conceptions of the Russians and their conceptions of us involve projection rather than realistic appraisal."<sup>6</sup> The important significance of Gladstone's approach is seen when one extrapolates his idea, that projection plays a role in our conception of the Russians and their conception of us, to the point where one can look at how these stereotype images exacerbate East-West tensions and provide a stimulus for heating up the already volatile nuclear arms race. Gladstone asks a final question: "Suppose, further, that we were to discover and apply methods for eliminating projection from our thinking. Would we be any better off than we are now?"<sup>7</sup> Gladstone concludes, and rightfully so, that:

It would, I believe, change our ability to deal with this situation and to control its destructive potentialities. If the danger from the opponent could be seen in realistic terms, instead of being greatly exaggerated as a result of projection, it should be possible to devise reasonable ways of dealing with the danger instead of preparing for a holocaust which will destroy both sides. If the people on each side could recognize the extent to which their own actions serve to provoke and frighten the other side, instead of placing all the blame on the 'enemy', it should help tremendously in working out disarmament proposals which will serve to protect both sides instead of being to the advantage of one's own side. And if the people on both sides could recognize the extent to which they have needs and goals which are compatible, and even mutually dependent, this should facilitate the development of cooperative arrangements which are a necessary basis for peaceful relationships.

8

The Soviet Union is characterized widely in the United States as an aggressive, expansionist state committed to global domination. The paper will attempt to examine the evidence which supports this

assertion. It will also examine whether or not it is possible that this very same evidence represents a reasonable response to perceived external threats to the USSR. Because of the closed nature of Soviet society, it has always been difficult to obtain the necessary information about the Soviet government in order to understand its aims and goals better. However, as Marshall D. Shulman has observed:

In recent years we have come to learn a great deal about aspects of the Soviet Union, certainly much more than is reflected in public discussion. But of the actual distribution of power within the Soviet system or of the law governing the development of a modern totalitarian state, we still know very little. Necessarily, our thoughts regarding the changes which time can be expected to produce in this confrontation lead us into the realm of speculative projection from rather tenuous data.

9

The present day United States stereotype image of the USSR can be considered an amalgam of many sources of information. Much of what Shulman says above is still valid, but considerably more is known about the USSR today than was known in 1945. As it became clear that the USSR was to be its chief adversary in the post World War II period, it became critical to the US to learn more about the USSR. Consequently, much has been studied, written and said about the USSR since 1945. However, the US still must deal with a closed society that discourages close study and, consequently, much of what it knows about the USSR is based on secondary sources and interpretation of information made available to the Western world.

...a reflection of the official view of the Soviet Union and that view is a composite of the impressions of a handful of individuals whose job it is to decide what the Soviets are up to and what the United States should do about it.

10

Charles Bohlen and George Kennan, two of the more preeminent US

Russian experts or Sovietologists, have, as private individuals, selectively listened to so-called "experts" and then constructed their image of the Soviets from their own personal experience. These, as well as others such as Dean Acheson, Averell Harriman, James Forrestal, and Clark Clifford, helped develop the early cold war image of the Soviets during the Truman administration.

Presently, the US stereotype image of the Soviets can be considered to be based on an amalgam of: interpretation of historical facts, academic studies by Sovietologists, and the views of various public individuals and groups who, because of their intense curiosity about the Soviets and events transpiring in the USSR, write or talk about the subject. Also to be included as sources of information are government policy pronouncements and views put forth by various military and public action groups to warn the American public of the growing Soviet threat. Collectively, they all contribute to the image that the American public views as best describing the Soviets and the threat they pose to US national security, a stereotype image.

The Soviet Union also has a stereotype image of the United States. However, the procedure or method used in producing it is far different than that employed in the United States. The Soviet Union is a communist autocratic state, very rigidly controlled and centralized. The ruling elite presents the image based on its perception of the United States and the threat it poses to the Soviet Union. Public input and criticism is virtually nil and certainly not encouraged. However, it should be pointed out that over the last forty years or so there has been more contact with the West and consequently more

knowledge gained. Diplomats, United Nations' personnel, student exchanges, and scientists travelling to Western countries all have helped to expand the Soviet Union's knowledge of the US and other Western countries. Also, it has established a government department to specifically study the United States and Canada under the direction of Georgi Arbatov. The analyses and publications from this department and other sources mentioned collectively provide much of the material and information that it has about the United States. As mentioned earlier, the nuclear arms race and the threat it poses to the USSR plays a dominant role in the stereotype image that it has developed about the United States.

Richard J. Barnet, in commenting on the cold war states that it is:

...a history of mutual reinforcing misconceptions. In the United States ignorance about the Soviet Union produced a good deal of ideological scholarship about the Soviet system which did nothing to discourage Soviet analysts of the United States from giving expression to their own ideological biases about the American way of life. Official stereotypes in both societies have been the foundation stone on which to build solid academic careers.

11

Despite the fact that Barnet is making a comment on the cold war period, what he is saying is relevant even today as it was during the early cold war years.

#### A. The United States' Stereotype Image Of The Soviet Union

Since 1945 the popular image of the Soviet Union in the United States has been altered continuously based primarily on the magnitude of the perceived threat that the US felt the USSR posed. One of the

more prominent Soviet "experts" to emerge in the post 1945 era was Clark Clifford, a hard liner and advisor to President Truman. Clifford was asked by Truman to compile a top secret report outlining the views of prominent Soviet experts. Its result can be considered the first official "image of the enemy." While considered alarming and frightening at the time, Clifford remarked some thirty years later that the report's concern was justified but the analysis was out of focus. Another prominent Soviet expert was W. Averell Harriman. He, during the early cold war years, played one of the more significant roles in defining the national image of the Soviet Union. He supported the basic decisions of the cold war and steadfastly supported the concept of détente. While accepting the definition of the word détente as nothing more than relaxation of tensions, he did, however, argue that it was oversold, claiming to mean much more than what could ever be achieved. He felt that the Soviets were genuinely interested in avoiding nuclear war, but, for reasons unknown, had not accepted the status quo everywhere in the world, as some Americans naively believe, and no understanding to that effect has been made. In essence, Harriman felt that the Soviet Union was extremely backward. To rebuild its shattered economy it was in desperate need of heavy machinery. They had, he pointed out, no modern roads, no adequate railroad system, and 90% of Moscow's population lived in wretched conditions. He rejected the thesis that the Soviets were about to go on the offensive in the immediate future. Consequently, he pushed for the United States to take a tough line and utilize its economic power to make the Soviets behave.

George F. Kennan was the only influential advisor of the early post-war years who was a professional student of the Soviet Union. It was Kennan, who, in an 8,000 word telegram sent from the US embassy in Moscow in February, 1946, said that the Soviet Union's foreign policy was not significantly affected by the realities of the international world; in other words Kennan viewed its policy not as a response to Russia's treatment by the great powers, but rather, it emanated from internal traditions based on a deep-seated sense of insecurity where roots reached back to the middle ages when Russia had lain exposed to outside intervention by its nomadic neighbours. The expansion in which Russia had engaged since the end of World War II was therefore a natural consequence of its historical past and heritage. Kennan warned that the USSR would maintain a relentless pressure on its neighbours exploiting their internal weaknesses and divisions in order to conquer them. Russia, he concluded, was committed to the view that no lasting peace between it and the rest of the world was possible. Given such an attitude he felt compromises and concessions would be inadequate to mollify it and he was skeptical of any ad hoc emergency measures to impede its drive westward. Kennan continued in his subsequent writings to argue that what was needed was an equally relentless and sustained counter-effort to 'contain' the Soviet Union within the existing boundaries. The views Kennan articulated found support among the leading diplomatic and military figures in Washington. In time they managed to cause a complete reversal of earlier assumptions about the sources of Soviet behaviour. Prior to this time, the Soviet Union's

obduracy had been interpreted as a reaction to Western wrong; now was explained as inherent in Russia's tradition and outlook.

Kennan was also responsible for stressing the critical importance of ideology in any analysis of Soviet conduct. As Barnett points out:

A persistent idea in the American strategy for confronting the Soviet Union is that the ideological struggle must be resolved through internal change in the U.S.S.R. The popular notion of convergence implies far more fundamental change in the Soviet Union than in the United States...The justification for using American power to change Soviet society was that if the Soviets become more like the Americans in their values, in the organization of their society, they would become less dangerous.

13

Revolutionary ideology as defined and implemented by the Soviets is viewed by the US as "...a threat to established power because it challenges the purpose for which power is exercised."

14

The US image of the USSR is affected, in part, by this notion since it is alien to their beliefs. As Barnett points out:

Revolutionary organization, even a radical vision of how to achieve traditional social values and goals, is much less of a challenge. One can have a polite debate about whether it is a good idea to nationalize industry, have long-range economic planning, or to run a continental empire with a centralized bureaucracy. But an ideology that proclaims an entire social system to be the embodiment of wickedness precludes contact, much less accommodation. At the height of the cold war both sides used the rhetoric of disease to describe the system of the other. Communism was a virus, a social sickness, a disease of the body politic.

15

Ideology, Barnett feels, is not as much "an ideological straightjacket" for Soviet leaders as it once was a generation ago. It appears that using pragmatism to try and solve real problems is being

utilized more and more by the Soviets. However, the Soviets remain masters of adapting ideology to achieve practical political needs. The real problem, as Barnet sees it, is that:

...The American elite does not understand the language. Ideological rhetoric is threatening because it has two characteristics that make American lawyers, bankers, and generals particularly uncomfortable--vagueness and passion.

16

During the Eisenhower years, Secretary of State John Foster Dulles believed that free enterprise and freedom went hand in hand. He, like many other Americans, viewed the American economy as a model which the world could use to bring prosperity to their countries. Dulles was convinced of the necessity and moral obligation that the US had to liberate Soviet-dominated areas of Europe and to maintain a quarantine of the Soviet Union to keep Stalin's successors from achieving the international respectability they so obviously desired.

Dulles could probably be considered, ironically enough, as the purest ideologue in either the US or the USSR. As Secretary of State he expounded at great length on the unlimited expansion of American power. He stressed the establishing of military pacts, and military bases which surrounded the Soviet Union, as well as a relentless anti-Soviet diplomacy. All this he justified on the basis of the evil of Soviet power and made possible by the inherent weakness of their morally corrupt system. As Barnet observes: "It was a mirror image of the Communist view of capitalism--also an evil system destined to fall of its own weight but deserving of a push now and again."

17

Helmut Sonnenfeldt, another well-respected US Sovietologist, has expounded on another theory about the Soviet Union. It takes into

account that Soviets have, over time, been forced to conclude that there are many roads to socialism and that Marxism-Leninism does not provide answers to every question in the modern day world.

Sonnenfeldt's theory, which he delivered in an address to the Naval War College, runs counter to that of John Foster Dulles. He views the Soviet Union:

...as a threat not because it is the embodiment of an ideology but because it has lost its ideology. We are (he says) just entering the era of Soviet imperialism...For the first time their ambitions go beyond the Eurasian land mass. They are defining their interests in global terms. They are aiding guerrilla movements in Africa and selling airplanes to Peru. Unlike the British and French empires of the nineteenth century or the American empire, Sonnenfeldt argues that Russians do not have a civilization that anybody wants. Their model of bureaucratic socialism is not admired. There is little interest anywhere outside of Russia itself in their language or their culture. They have little chance of extending their power by launching a 'mission civilisatrice' or accepting some new version of the white man's burden. The sole source of their expanding power is military might. Because they are 'unable to transplant their values' they seek to maintain their influence through arms.

18

George F. Kennan, in an article entitled, Two Views of the Soviet Problem, presents two images of the Soviet Union. One, his own, and that of those he refers to as his "various critics." It is worth examining them since both views reveal disparate portions of the prevailing stereotype image. Kennan very importantly points out that:

...the differences have been, essentially, not ones of interpretation of phenomena whose reality we all agree on but, rather, differences over the nature and significance of the observable phenomena themselves--in other words, differences not about the meaning of what we see, but, rather about what it is that we see in the first place.

19

After examining these two views, the paper will look at the Reagan administration's view as expounded in the Pentagon's yearly review of Soviet military capabilities and intentions: (Soviet Military Power: 1984). While, admittedly, this view is slanted from a military perspective, in reality, it is, however, the military (national security) issue which predominates most in current US-Soviet relations. Consequently, the image presented in this study, along with the additional information gleaned from George Kennan's article and the previous information presented, most closely, the paper will argue, relates to the current US stereotype image of the USSR.

A brief synopsis of Kennan's article follows. Kennan's critics, he argues, view the Soviet leaders as a group of men motivated primarily by an intense desire to further expand their effective power most probably at the expense of the independence and freedom of other people. They also appear to show little regard for its potential effect on international peace and security. They view the USSR's massive buildup of its military forces and equipment as inexplicable in terms of protecting its national security. Since it cannot be explained by defensive consideration alone, they reason that it is further evidence of Soviet aggressive intentions. Soviet actions and perceived intentions in the Third World lead Kennan's critics to conclude that these countries are to be brought under the Soviet sphere of influence and used as pawns against the United States and other members of the Western alliance. Some examples of Soviet behaviour in this regard can be seen in Angola, Ethiopia, and Afghanistan. Defensive considerations are not viewed as the primary reason for such

meddling in the Third World. Additionally, they reject the idea that the US feels politically encircled and threatened and therefore must create a defensive buffer around its territory. Despite the fact that they recognize that Moscow faces critical internal problems, they do, however, reject this situation as one which will inhibit the Soviets' ability to pursue their aggressive external intentions.

Kennan considers this image of the Soviet Union not that much different than the one presented by the Nazi regime just prior to the Second World War. He expresses no surprise that they feel that the approach that Western statesmen should take with regard to the current Soviet regime should avoid any inference of appeasement which might result in a repeat of the mistakes the Western powers made during the 1930's. In addition, low priority should be given to the possibilities for negotiations and accommodations. Instead, they argue that primary emphasis should be placed on the building up of a formidable military force (primarily nuclear oriented), in conjunction with a highly united Western alliance. These two forces collectively would unequivocally demonstrate to the Soviets the Western capabilities and resolve to see a halt to Soviet expansionism. Subsequently, the Soviets, it is argued, will realize the danger posed by their aggressive behaviour and accept the necessity of cooperation with other nations to ensure peace and security for all and ultimately restore order in the international sphere. Kennan rejects the inference put forth by the American government that until such time as Soviet behaviour is modified to its standards that little is to be gained by mutual discussions. Kennan's

last point is well taken when commenting on this scenario. He states that:

...I fear that they see the success of any such discussions as something to which the Soviet leaders could be brought only reluctantly, with gnashing of teeth, and this seems to me to be a poor augury for the lasting quality of any results that might be achieved.

20

Kennan, as he points out, sees something "quite different."

Much of the Soviet image that he sees is summed up as follows:

I see a group of troubled men--elderly men, for the most part--whose choices and possibilities are severely constrained. I see these men as prisoners of many circumstances: prisoners of their own past and their country's past; prisoners of the antiquated ideology to which their extreme sense of orthodoxy binds them; prisoners of the rigid system of power that has given them their authority; but prisoners, too, of certain ingrained peculiarities of the Russian statesmanship of earlier ages--the congenital sense of insecurity, the lack of inner self-confidence, the distrust of the foreigner and the foreigner's world, the passion for secrecy, the neurotic fear of penetration by other powers into areas close to their borders, and a persistent tendency, resulting from all these other factors, to overdo the creation of military strength. I see here men deeply preoccupied, as were their Czarist Russian predecessors, with questions of prestige--preoccupied more, in many instances, with appearances than with the realities. I do not see them as men anxious to expand their power by direct use of their armed forces, although they could easily be frightened into taking actions that would seem to have this aim. 21

Kennan, while acknowledging that the Soviets are attempting to increase their influence in the Third World, expresses neither alarm nor surprise since, as he argues, "most great powers have similar desires." He is correct in stating that in the post-World War II period, Soviet actions in this area have resulted in only modest success, while failures such as Yugoslavia, China, and Egypt

predominate. Kennan argues quite poignantly that "...a wish to expand one's influence is not the same thing as a wish to expand the formal limits of one's power and responsibility." <sup>22</sup> He does not see the Soviets moving in this direction and particularly refutes the idea that the USSR has further designs on Western Europe to formally subjugate various geographical areas formally under their authority. Rightfully so, it would seem that it has sufficient problems keeping its Eastern European allies under complete control.

He also rejects "...the primitive thesis, drawn largely from misleading and outdated nineteenth-century examples, that the Kremlin might be inclined to resort to war as a means of resolving its internal difficulties. Nothing in Russian history or psychology supports such a thesis." <sup>23</sup> Kennan does not deny that certain aspects of Soviet behaviour instill fear and suspicion in the minds of US policymakers. In a following quote, he very astutely outlines what he feels is the true intent or reason for their actions which trigger many anti-Soviet suspicions in the US. Kennan refers to these actions as:

...certain disquieting tendencies, which oblige Western policymakers to exercise a sharp vigilance even as they pursue their efforts towards peace. I believe that these tendencies reflect not so much any thirst for direct aggression as an oversuspiciousness, a fear of being tricked or outsmarted, an exaggerated sense of prestige, and an interpretation of Russia's defensive needs to extreme--so extravagant and so far reaching--that it becomes in itself a threat or an apparent threat to the security of other nations. While these weaknesses probably affect all Soviet statesmen to one extent or another, the evidence suggests to me that they are concentrated particularly in specific elements of the Soviet power structure--notably in the military and naval commands, in the vast policy establishment and in certain sections of the Party apparatus.

Both Kennan and his critics acknowledge they view the Soviet Union primarily as a "great immediate and growing military danger." The causes of this danger are what separate Kennan from his critics. They choose to explain it by the "aggressiveness" inherent among the Soviets, while Kennan argues that the nuclear arms race is the primary factor.

The final image, which the paper will argue, of the most predominant stereotype image of the USSR by the US, is that put forth by the Defense establishment under the direction of the President. For it is they who ultimately are charged with the responsibility of protecting America's national security as well as that of its Western allies. Since 1945 US fears, misunderstandings, mistrust, and confrontations have not only collectively helped to paint a stereotype image of the USSR, but, also, depending on the levels of such factors, helped to fuel the existing insane, apparently unstoppable arms race. The US, just like the USSR, has reacted to apparent or perceived threats to its own security. Each has placed the majority of the blame on the other, while at the same time formulating an image of the other. As fears rose, so also did defense budgets and consequently the arms race. The mutual stereotype images are, in reality, barometers of the levels of fear and mistrust.

In the case of the United States, as the picture of the Soviet menace grew darker and darker, so also did public support for higher defense expenditures rise. The following synopsis from the US Pentagon's publication, Soviet Military Power 1984, illustrates quite

accurately, it will be argued, the current US stereotype image of the USSR.

The US Pentagon study states that:

The Soviet Union's emergence as a global superpower has been based principally on its military capabilities. Although Soviet leaders regard military power as their primary strength in the international arena, they also view the East-West relationship as a more comprehensive struggle involving political, economic, social and ideological factors, which they characterize as 'the correlation of forces'. They profess confidence that this correlation is shifting in favor of socialism. Soviet policy (they argue) has sought to shift this further through invasion, subversion, military and economic aid, the use of proxies, covert activities and political alignment with regimes or movements opposed to Western policies.

25

As well as partially outlining some factors which color its image of the USSR, the US also provides some specific reasons which underlie the mutual antagonistic and confrontational nature of their relationship. In a bi-polar world when one superpower speaks, as such, about the other, it implies that there is little room for compromise or closer understanding. The study goes on to state that despite its poor economy, heavy defense expenditures and perennial agricultural failures, the USSR continues to pursue a foreign policy that includes:

...an aggressive expansion of Soviet influence abroad. Over the past decade, the USSR has become increasingly active in the Third World, reflecting Moscow's power projection capabilities and skillful exploitation of political developments. Avoiding direct military confrontation with the West, Soviet leaders have followed a cautious approach through the creation and exploitation of opportunities to enhance Soviet power and reduce Western influence.

26

The US, the study goes on to relate, recognizes that unlike itself, the USSR has fewer domestic constraints on its foreign policy

activities than the US does. Consequently, it is not deterred from taking action in pursuit of its key national interests. Also, recognizing the power and influence of world opinion on public policy it endeavours to "manipulate it towards their own ends." Again, the study makes note of the "highly structured nature of Soviet society" which aids it in concentrating much of the nation's resources to enable expansion of Soviet power as well as to manipulate domestic opinion to legitimize policies. Since Soviet policies are not restricted by any time imperatives, the US feels that "their deep sense of mission about the course of history imparts consistency of action over a long time, allowing them to make plans that do not have to produce immediate results."<sup>27</sup> This feeling runs counter to the USSR view of the US as being inconsistent, erratic, and unpredictable.

The US recognizes that the Soviets do not restrict the projection of their power and influence solely by utilizing their military forces. It also sees it attempting to accomplish its goals through diplomacy, trade, aid, propaganda, and covert activities. These tools are seen as being useful to the Soviets for penetrating areas beyond the immediate reach of Soviet military forces. The US tends to view the concluding of Soviet treaties of friendship and cooperation (of which they have 10), particularly with Third World countries, as providing the Soviets with "instruments of power projection." It is through these treaties that it can expand its political and economic influence and establish a legal framework

for closer relations with less developed countries. The US sees the ultimate Soviet aim as being the establishing of Marxist-Leninist regimes with the USSR as protector. If one or more of these countries happens to possess a warm water port, strategically positioned to be of use to the Soviets as a forward base for military operation, then that makes the relationship that much more valuable.

The Pentagon argues that the Soviet Union uses arms control agreements to "increase its global reach." Arms control agreements are felt to contribute to the shaping of the balance of military forces worldwide, while arms control negotiations provide the Soviets with an international forum which they attempt to utilize to achieve their goals. The Pentagon goes on to accuse the Soviets of stretching "...the limits and spirit of both SALT I and SALT II Agreements in expanding and modernizing its strategic arsenal." <sup>27</sup> They have only seen fit to adhere to such agreements when it was in their best interests to do so. In addition the Soviets are accused of:

- . Refusing on-site verification of strategic weapons facilities
- . Using chemical and biological weapons (Afghanistan, Kampuchea, and Laos) (incontrovertible evidence of such is not available to the author's knowledge)
- . Flagrant violations of SALT II "understandings"
  - A. Encryption of missile-test telemetry
  - B. Construction of a large phased-array radar which violates the 1972 ABM Treaty.
  - C. Its new SS-X-25 ICBM (in testing stage), a second new one, is prohibited by SALT II.
  - D. It has violated the Threshold Test Ban Treaty limits on the size of its underground nuclear tests.

In essence, the Pentagon concludes they are not to be trusted and the US will respond accordingly. "The Soviet Union will not have an incentive to accept such reductions unless it is convinced that the West will not allow it to achieve unilateral advantage within or outside the arms control framework."<sup>30</sup>

The Soviets are also charged with fomenting discord and encouraging Marxist-Leninist type revolutions in the Third World. Regarding Soviet military aid to these countries: "...the USSR exports more arms and has more military technicians and advisers stationed abroad than any other country."<sup>31</sup> They are accused of fostering "dependency by assisting countries deficient in educational and technical assets." Additionally, the Soviet Union is said to have over 21,000 military advisers and technicians in nearly 10 countries. The Pentagon views such a presence as ultimately increasing the client state's dependence upon Moscow. Where possible, proxies or surrogates are used abroad--(Cuba is the prime example). Their use, the Pentagon says is for "...the promotion of anti-Western causes and the extension of Communist influence while minimizing Moscow's risk. Proxy forces are intended to project the appearance of international support to 'progressive' forces in a regional conflict."<sup>32</sup>

The Soviet Union is cited for expanding its forward support bases which enables them to fly military airlifts and reconnaissance over large parts of the world not reachable from Soviet territory. Some examples are:

1. Indo-China - former US naval facilities at Cam Ranh Bay
2. South Yemen

3. Ethiopia's Dahlak Archipelago in the Red Sea
4. Luanda Angola - Soviet naval ships in South Atlantic
5. Libya

Despite the fact that all this is a miniscule mirror image of US overseas bases, it is presented as evidence of Soviet force projection and aggressive militarism aimed primarily at the US.

Also, to further their goals economic aid is doled out to qualified recipients generally determined by bilateral agreements. This, the Pentagon argues "...give(s) the Soviets more flexibility in dictating terms and utilizing such agreements in support of overall policy objectives."<sup>33</sup>

The Soviets are additionally charged with carrying out such nefarious deeds as industrial and military espionage.

The sum total of what has been delineated so far presents the stereotype image of an enemy bent on aggressive expansion to further its international and ideological goals. It is not to be trusted, and is absolutely paranoid of outside forces which threaten it. Its inferiority complex forces it to work endlessly to show to the world that it is a superpower in every respect and the military equal of the US. Only by convincing the US and the world of this can it achieve the respect of the international community.

The Soviet Union's political and social systems are perceived to be a direct threat to all that American democracy stands for. Consequently, the US feels it must be ever-vigilant and maintain a military posture sufficient or greater to counter the Soviet threat. The invasion of Afghanistan and the shooting down of the Korean

airliner are just additional evidence of how barbaric and brutal the Soviets really are.

In summation the Pentagon study concludes:

In light of this threat to the United States and its Allies, the challenge is clear. We must maintain military capabilities sufficient to convince the Soviets that the costs of aggression would be far greater than any possible benefit. These capabilities are the cornerstone of our defense policy. ...Reducing arms and ensuring a more stable military balance stand at the top of our agenda. 34

Regarding a potential nuclear confrontation it states: "Our goal, our strategy and our defense programs are designed to ensure that the Soviet leadership understands as well that there can be no winner in a nuclear war and that the West has the confidence to resist Soviet intimidation." <sup>35</sup>

Any amelioration in their bi-lateral relations, other than military, is premised on the fact that some form of internal change, more in keeping with the US's messianic world view, must occur first. What has been learned to date would indicate that change within the Soviet Union must be generated from within. Outside influences are neither solicited nor wanted.

It is clear from the stereotype image that the US appears to have of the Soviet Union that there is a mixture of fear, distrust, and a lack of understanding of the reasons behind the awesome rise in Soviet military capabilities. Little regard seems to be given to the fact that it conceivably could be in reaction to the Western world's military capabilities which it views as aimed against the USSR. Burns H. Weston makes two valid observations about this situation which are

most probably ingrained in the US stereotype image of the USSR. He points out that two basic views stand out:

...One is that the buildup is compelling evidence of Soviet plans to pursue an expansionist aggressive foreign policy inimical to the historical preeminence and vitality of the Western democracies. The other is that Soviet military programs represent less a purposeful threat to the West than a reflection of Soviet conservatism, bureaucratic inertia, and a deeply engrained sense of vulnerability to external intervention or invasion, validated by centuries of deprivation and plunder at the hands of hostile foreign powers. (He concludes)...Whereas the first tends to commit the West to a path of permanent military competition and confrontation, the second holds forth the possibility of Soviet tractability ergo the potential for negotiation and compromise over the tensions that divide East and West. 36

There is no question that the military threat posed by the USSR colors greatly the US stereotype image of it. Weston's second point holds out some hope for a change in the future.

#### B. The Soviet Union's Stereotype Image Of The United States

Upon reviewing the various facets of the overall Soviet stereotype image of the United States, it becomes readily apparent that in many respects it is, as Raymond Aron describes it "An analogous stylized antithesis"<sup>37</sup> to what the American view is towards the USSR. It reflects, in many ways, the diametrically opposed social and political system which exists in the Soviet Union, the very antithesis of what is present in the United States. In the Soviet Union, as Raymond Aron points out:

...a single party erects a historical-social doctrine into a state truth, and rules in the name of the proletariat which it embodies and in the name of the historical mission (messianic goals) it has assigned itself. Diversity of religion or of 'national

cultures' is recognized, the equality of races and peoples is formally proclaimed, but all questioning of the single party is forbidden.

38

As a result, the image of the United States which is projected to the Soviet people emanates from the "single party" at the top and does not in any way reflect widespread public opinion. In reality the closed nature of Soviet society severely limits the average Soviet citizen from learning first-hand about the United States and its people. Consequently, the official Party image is the image.

In the early post-1945 years, according to George F. Kennan, Soviet views of the US could only be described as:

...distortions of understanding [which were]... particularly serious because [they were]...massively and deliberately cultivated. [They were characterized by]...the dense clouds of anti-American propaganda put out, day after day, month after month, and year after year, in the postwar period by a Soviet propaganda machine that had never been inhibited by any very serious concern for objective and observable truth, and was now more reckless than ever in its disregard for it. ...Here, the United States was portrayed, of course, as the most imperialistic, militaristic, and generally vicious of all aggressors. 'And this' affected the climate of relations at both ends; for on the one hand, the very extremism of these attacks confirmed Americans in their view of the sinister duplicity of Soviet policy (why, it was asked should a government that was really of peaceful intent have such need for the lie in the statement of its case?); while on the other hand, those Soviet leaders and officials who had a part in the making of policy, despite the cynicism with which they launched this propaganda, could not help being affected by it themselves, and were influenced accordingly in their interpretation of American behaviour.

39

Raymond Aron makes a significant point when commenting on how the two superpowers view themselves and project an image of their respective enemies (each other):

It is true that on a first analysis each of the superpowers understands itself differently from the way in which the other understands it, and that it can no more give up its own interpretation than it can subscribe to the heterointerpretation of its rival. Soviet propaganda denounces American pluralism and the rites of democracy as 'illusions' or 'hoaxes': the 'monopolists,' the leaders of capitalism who reserve real power for themselves, exploit the masses and orient American diplomacy in the direction of imperialism.

40

Much of the Soviet stereotype image of the United States is liberally sprinkled with dogmatic and ideological terms and adjectives which highlight the key facet of the image "the innate antagonism between capitalism and Socialism." As Kennan maintains:

Of the original ideology nothing has been officially junked. Belief is maintained in the basic badness of capitalism, in the inevitability of its destruction, in the obligation of the proletariat to assist in that destruction and to take power into its own hands.

41

An understanding of this important point helps one to comprehend how and why the Soviets view the US as they do. In addition, other specific Soviet characteristics, whether politically or historically based, or both, help contribute to the Soviet image of the US. They are, as Kennan points out: "...the secretiveness, the lack of frankness, the duplicity, the war suspiciousness (particularly potential nuclear war with the US), and the basic unfriendliness of purpose."<sup>42</sup> Combined with the Kremlin's belief in its infallibility and the Party leadership remaining, in theory, as the sole repository of the truth, the Soviet Union formulates its image of the United States in strong ideological and political terms. It stresses not only the inherent confrontational aspects of their respective political,

economic, and social systems but also the infallibility and inevitability of the triumphs of Socialism over Capitalism. In keeping with the present nuclear reality, the Soviet Union sees the United States as refusing to accept nuclear strategic parity and working feverishly to achieve nuclear superiority in order to be able to threaten the destruction of the Soviet Union or the "evil empire" as described by President Reagan.

As mentioned earlier, the official stereotype image of the United States emanates from the handful of men who rule at the top in the Politburo. However, considering the closed secretive nature of Soviet society, it is oftentimes difficult for outside observers to obtain a first-hand look at how the image is formed. Much of it is based on the "innate antagonism between capitalism and Socialism" as George Kennan notes. Since World War II the Soviet Union has made a conscious effort to send selected individuals to the West to learn first-hand about them. Such groups as exchange students, diplomatic personnel, journalists, as well as United Nations and various missions in Washington have aided the Soviets in learning a great deal about the Soviet Union. In Moscow the Soviet government has established a think-tank called the Institute for the Study of the United States and Canada under the direction of George Arbatov. From it has emerged as Adam Ulam notes:

...a new breed of Soviet spokesmen, equally at home in an East-West scholarly conference, at their institutes in Moscow, or addressing an American television audience, clarifying listeners' alleged misconceptions about the USSR and letting them in on the essentially peaceful and constructive intentions of the Politburo.

These Americanists, so-called, provide much of the information which the Politburo can utilize along with additional information from selected individuals (scholars, UN and embassy personnel, etc.) sent to the United States in order to formulate the official Soviet image of the United States which is then disseminated to the Soviet people via television, radio, or in printed form. In addition, the United States has its own eminent scholars and Kremlinologists who work ardently to keep abreast of any subtle or significant changes in Soviet behaviour which may affect the Soviet-American relationship. It is from such sources that one can begin to construct the Soviet stereotype image of the United States.

Despite the fact that any Western interpretation or description of the Soviet stereotype image of the United States is open to challenge because of its apparent bias, one is compelled to utilize whatever sources are available to best describe how the Soviets view the United States. The various facets which comprise the Soviet view of the US are summed up excellently in an article entitled "Soviet Perceptions Of The US--Results Of A Surrogate Interview Project."<sup>44</sup> It is derived from a memorandum distributed by the United States International Communications Agency (USICA). The report makes mention of the fact that while it focuses primarily on elites some respondents, however, felt that some specific views appeared to be shared by all of their contacts. Consequently, in such instances, the phrase 'Soviets at all levels' is used.<sup>45</sup>

#### A. General Observations

The report states initially that: "Soviets at all levels see

Soviet-American relations as their most critical international relationship and those who fear or desire a confrontational relationship." <sup>46</sup> This view seems to be held by both those who desire a cooperative relationship. In general, the USSR feels that the US does not attach the same degree of importance to the relationship that it does. Because of this they argue, that the US was responsible for the failure of detente to produce the mutual benefits that both appeared to be seeking. The deterioration in the detente process by 1979 resulted in the Soviets feeling that little was to be lost in terms of its relationship with the US by its invasion of Afghanistan. This attitude, the memorandum argues, "...makes it possible to fit almost any action into a pattern of anti-Soviet behaviour, and greatly blurs the perception of linkages between Soviet and American behaviours." <sup>47</sup> Despite the negative effects that the Afghanistan crisis had on Soviet-US relations there still remains, in the Soviet Union, a traditional and widespread perception of the US and USSR being natural allies. This image is thought to arise from: "a desire to be associated with the industrial West as well as from a visceral intolerance of non-whites." <sup>48</sup> As anti-Soviet rhetoric grew in the US it had the effect in the Soviet Union of enhancing the views put forth by those groups hostile to a cooperative relationship with the US; while those who remained committed to working toward a cooperative relationship with the US went on the defensive, modifying some of their earlier views.

The Soviets do not appear to be inclined to view their own actions as precipitants of US action. This attitude does have an

historical basis. Down through the years the Soviets (Russians) have consistently found it difficult to believe that they would take offensive actions choosing, rather to view each action as "defensive in a hostile world."<sup>49</sup> The memorandum goes on to make a very valid point that: "This unwillingness to be critical of their own actions makes it very difficult for them to understand other countries' actions which are predicated on a view that the Soviet Union is a military threat to their security."<sup>50</sup> This view alone not only illustrates how the Soviet Union is operating on an entirely different wavelength, but that the US is making confrontation more likely than cooperation.

#### B. Power Politics

The memorandum notes that: "Ideology clearly plays a role in Soviet views of the US. Yet, when Soviets discuss the relationship with Americans the terms are usually non-ideological and framed much more within the context of power politics."<sup>51</sup> The Soviets imply that any hopes for world peace must be predicated on the USSR and the US working together. The inference of this view indicates that they "...appear to desire the establishment of a Soviet-American co-dominion to stabilize a frightening world and avoid what is most feared: a third-party problem escalating into a superpower confrontation."<sup>52</sup>

The Soviets argue that a superpower is entitled to intervene as it sees fit in those geographical areas in which it perceives that it has a national interest. While prepared to accord the same rights to the United States, it feels that the United States is unwilling to reciprocate.

In spite of the fact that the Soviets feel that only they and the United States can together bring about world peace, the USSR speaks of the US as:

...a potential, if erratic, 'partner' in resolving the problems of world peace. They believe that they have a longer term view of the problems besetting the relationship and hope that American leaders will recognize its true importance. There is a strong feeling that the continuity in Soviet leadership requires of them a patient policy of educating each successive American administration to the real significance of the relationship.

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### 3. The Question Of Equality

The Soviet Union seems perplexed by the fact that while both it and the US appear to agree that world peace is only possible through their mutual cooperation; that the US appears to be unwilling to accord it equal status as a co-superpower in the international sphere. From the Soviet perspective they:

...see the US as unwilling to acknowledge its loss of economic and political preeminence, and unable to accept the ascendance of the Soviet Union. (the memorandum points out) The desire for U.S. recognition of Soviet equality and legitimacy is palpable in most conversations with Soviets."

54

Strong feelings exist in the Soviet Union about US efforts to exclude the Soviet Union from participating in the resolution of important international issues. A case in point is the Middle East where the US has effectively isolated the USSR from any peace negotiations aimed at resolving crises in the area. The Soviets feel that as a co-superpower that it is only right that they be involved in any peace initiatives. The article notes that "Many Soviets believe

that the U.S., in failing to accept their equality and legitimacy, focuses in communication with the Soviet Union only on the negative and does not place disagreements in an 'appropriate' context of mutual respect and recognition."<sup>55</sup>

#### 4. American Foreign Policy

The Soviets, in general, tend to view American foreign policy as inconsistent and erratic. Americans, themselves, they tend to see as unpredictable and unreliable. The predominant consistency that they do see the Americans portraying concerns their unrelenting anti-Soviet stance which they see as being personified by the President, his administration, pressures from the military as well as the military industrial complex. In addition, they see it fulminating from the imperatives of domestic politics as well as the need for drawing attention from American foreign policy failures elsewhere.<sup>56</sup>

Most Soviets believe that their serious attempts at improving US-USSR relations have brought few if any significant returns to themselves. For this they blame the US. A case in point concerns the Soviets agreeing to increase emigration of those, particularly Jews, who wished to leave the USSR. In return they did expect some quid pro quo, which they felt was only just and fair. Instead of the Most Favored Nation Status (MFN) which would have enabled the Soviets to expand their trade with the US on mutually favorable terms, they received little if anything and felt their efforts went unappreciated.<sup>57</sup>

Another incident which illustrated the US's reluctance to enter fully into the relationship concerned SALT II. President Carter's withdrawing of his initial support of the treaty provided further evidence, in the eyes of the Soviets, of America's unwillingness to accept the Soviets as an equal co-superpower. To the Soviets, the treaty represented benefits for both sides as well as a movement towards world peace. It also recognized Soviet nuclear parity with the US. The implications felt by the Soviets were that the US was unwilling to sign SALT II which would restrict the US from regaining, once more, nuclear strategic superiority.

The Soviets outrightly rejected the US linkage theory or "the carrot-and-stick hypothesis." <sup>58</sup> As the memorandum notes:

There is considerable evidence that the Soviets miscalculated the vehemence and scope of American reactions and still tend not to credit as a reaction per se. We are dealing with attitudes and perceptions, not actions. We cannot conclude that if Soviets had perceived a higher payoff to the American relationship based on more restrained Soviet behaviour, their actions would have been more constrained. Nonetheless, it seems clear that the Soviets do not believe that the 'carrot-stick hypothesis' has been tested yet. They believe that they have seen many sticks but few carrots. 59

To the extent that Americans believe that the hypothesis has been tested there exists a fundamental perception gap. If we assume that the Soviets were willing to sacrifice major gains in the American relationship by invading Afghanistan, our understanding will sharply diverge from that of the Soviets. <sup>60</sup>

Soviets at most levels in society are acutely aware of American military strength. They treat US debates about how American military

strength is slipping vis a vis the Soviet Union as nothing more than US rationalizing a military buildup to achieve US superiority. Despite the fact that the Soviets feel that they have achieved parity with the US, they face the future with some trepidation. The political as well as the military leaders look upon US technology with awe. They recognize from past experience what it is capable of achieving and consequently fear that the US, if it so chooses, could "...unleash its productive capacity and eliminate the Soviets' hard earned relative gains." <sup>61</sup> This attitude, the memorandum notes, is reinforced by other considerations:

First, most Soviets are convinced that they would not be first to attack, but that their actions are defensive in nature. They find it difficult to believe that the US sees the Soviet Union as a threat. But, they fear that the US untempered by the horrors of war on its own territory, might be tempted to attack or that war might arise out of a third country conflict. Second they view the US as 'trigger happy' and erratic, willing to commit its military strength much more readily than the Soviet Union--this even after Afghanistan. Such 'militarism' is even more dangerous in Soviet eyes if the US perceives itself to be losing preeminence around the world. Third, even those insulated from economic sacrifices by virtue of their own privileged position, are aware of the societies' vulnerabilities, especially economic. They fear that a new arms race will be severely detrimental to their own society and that they may not be able to keep up with the US. 62

The Soviets feel, however, in spite of these serious concerns, that they are considerably more disciplined and willing to sacrifice for the national interest than are the Americans. Regardless, they view the present volatile situation as very dangerous.

Soviets speak about the possibility of war with visceral emotion. However, it would appear that they will continue to probe

American strength and resolve. Direct confrontation appears to be an unthinkable thought.

Despite the heavy expenditure of time and resources on attempting to better understand the American political process, the military industrial complex and the power and influence of public opinion, there continue to be fundamental misperceptions. The memorandum illustrates a case in point:

...Grigory Romanov, Politburo member and head of the Leningrad Party organization met with the Congressional delegation (Codel) led by Senator Ribicoff. After listening impatiently to a long discussion about the problems of SALT II and the role of Congress Romanov finally said that if the President really wanted SALT II why didn't he simply discipline the members of his party.

63

Two points which can be derived from this exchange which demonstrate the lack of a deep understanding of the American political system are: "First, the Soviets intend to deal with only one US Government, even if they do perceive the importance and role of other groups. Second, their misperceptions about the American system are basic." <sup>64</sup> It appears that even the Soviet Americanists lack such an understanding of the US political interactions at the national, state, and local levels. Consequently, the Soviets have come to focus their attentions primarily on Washington and New York while failing "to pay sufficient attention to both the nature of constituency politics and the autonomy of state and local governments." <sup>65</sup> They do not appear to fully comprehend the role of the judiciary. Instead, emphasis has been placed on understanding the White House, Congress, heads of large multi-national corporations and labor union leaders. All of these

components are viewed as stereotypical of the US military-industrial complex which it feels has considerable power and influence within the American political system.

The Soviets appear to have an insatiable curiosity about the US. It stems from two factors: "First, the U.S. represents an exotic forbidden fruit--hard to travel to and surrounded by mythology. Second, the U.S. is the only real standard of comparison for Soviets." <sup>66</sup> The availability and wide range of consumer products in the US is held in awe. Their tremendous appeal is evidenced by the fact that professional travel abroad is sought after in large part because of the unique shopping opportunity it offers the Soviet traveller.

The USSR views itself as inferior to the West in terms of economic development and standard of living. In contrast they feel that they too have made impressive economic gains which are not recognized by the US and other Western nations. Culturally, however, the Soviets are extremely proud and see theirs as being superior to the American culture.

The Soviets feel that their deep abiding interest in learning all they can about the US is not shared by most Americans. They view most Americans as either uninterested or ill informed about Soviet culture and history. At the same time, to many Soviets, there appear to be many contradictions when viewing the United States. Many find it difficult to believe that an advanced rich country like the US that produces an overabundance of food, assorted consumer goods, rock music, jeans and other goods, could have crime in the streets, unemployment,

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some poverty and democracy. The memorandum notes some of the predominant conflicting views:

...the overriding view is of America the land of plenty...they assume that the average American is wealthy and has little material need; however, they perceive the U.S. to have endemic unemployment, inflation, and exploitation. They are comforted by the perceived economic security of their own system, tending to regard the American economy as benefiting only one group.

68

Most information made available to the average Soviet citizen about the US concerns the economic problems that the US faces. In reality, most are ignorant about how Americans actually live. Few are even aware that programs such as unemployment compensation, medical insurance, and social security do exist. The memorandum points out that:

Although Soviets are awed by American economic and technological capacity, they see their own system's strength in its emphasis on economic rights and the security this implies. This view is broadly held even though there is general recognition (and perhaps acceptance) of a highly stratified distribution system. It is held even by people who complain about inefficiency of the system and the pervasiveness of blat.

69

The USSR, while accepting the fact that the US economically is more productive than the USSR, hastens to point out that the US has not suffered the ravages of war on its continent like it has. The USSR feels certain that it possesses a stronger moral superiority than the US.

The Second World War still figures prominently when the USSR views itself in relation to the US and other countries. To the Soviets:

The war explains everything--even for those too young to remember the experience themselves. There are some signs that this line is wearing thin, but it remains potent. It explains everything from the shortage of goods to the fundamental belief that the

USSR must defend itself and could never commit aggression for it knows better than anyone else the consequences of war.

70

This argument is used often to explain or justify why the USSR would never be the first one to launch a nuclear war.

The Soviet approach towards the commercial aspects of its relationship with the United States in many ways mirrors its political attitudes. Ostensibly, any business dealings that it has with the US are determined primarily by strict economic considerations. However, as the memorandum concludes: "...the Soviet desire to trade with the U.S. exceeds pure economic rationality and appears to be tied up with the prestige and legitimacy presumed to accrue from an association with the other great superpower."<sup>71</sup>

The desire for a widening of economic relations with the US is not based entirely on obtaining specific products or technology. There is additionally: "...a continuing fascination with finding the 'key' to American economic success. It may thus be that understanding the process, not obtaining the product, is the goal."<sup>72</sup> The Soviets suspect that there must be a planning mechanism of sorts which is a well hidden state secret. Their puzzlement appears to be based on the apparent lack of a centralized planning centre like that in the USSR. As the memorandum notes: "...The great efforts to establish the International Institute for Applied Systems Analysis were based largely on the assumption that with greater study the key could be found."<sup>73</sup>

While acknowledging that the US is a very wealthy and highly productive society, the Soviets seem to be perplexed and confused when they attempt to understand it as a system. In their experience and

according to their ideological thinking "it ought to collapse of its own weight or fly apart from the centrifugal forces."<sup>74</sup> Much of this can be attributed to the mirror image effect. The USSR has had no experience with a system similar to that of the US. Consequently, they find difficulty making sense out of the processes in the US. Similarly, the US has difficulty relating to the Soviets, likewise, because it neither has had experience with a system similar to the Soviet one. To the Soviets:

A system which functions without apparent rigid discipline or enforced order is difficult to comprehend. Even Soviet specialists well-informed but lacking a fundamental grasp of the social/political dynamism of American society, continue to search for the "real" centre(s) of control within the society.<sup>75</sup>

In summary, the Soviets are ambivalent toward many facets of the American system. Many reject what they see as a high value being placed on political freedoms in the US while they seem to value equally economic rights. It is felt that the Soviets sense that acceptance of one is only at the expense of the other. Many feel that the exercise of political rights in the US is, in reality, license, not freedom. They see in this exercise:<sup>76</sup> "...a manifestation of weakness, not strength." While the Soviets do not place political freedoms high on their priority lists, they do, however, envy the "...diversity of cultural expression available in the outside world--particularly in the US."<sup>77</sup>

The memorandum concludes with a significant observation that:  
 "...a curious love-hate relationship emerges in the attitudes of many Soviets about the U.S."<sup>78</sup> It goes on to say that:

Even if personally interested in greater political/individual freedom and intrigued by the American system, many hold the elitist view that while they and their peers could cope, widespread freedoms would lead to chaos in society and perhaps undermine their own positions. Thus, while privileged Soviets may desire personal freedoms for themselves, their fear of introducing Western values into Soviet society helps moderate their fascination with the outside world.

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Any progress towards some degree of peaceful co-existence ended quickly with the election of President Reagan in 1980. What the Soviets saw happening in the United States made them both fearful and determined not to let the US threaten them under any circumstances. As Jonathan Steele notes: "As far as Moscow was concerned, the Reagan administration exacerbated US-Soviet relations in every field."<sup>80</sup> The Soviet image of the US hardened even more in reaction to President Reagan's pronouncements. His statement that the US was falling behind the USSR militarily saw a call for a \$1 trillion military buildup which included an acceleration in the development and deployment of new missiles i.e. the MX, Midgetman, and the Trident II D-5. In addition he announced a \$26 billion research program to explore the feasibility of a ballistic missile defense system.

On the ideological front Reagan's anti-Soviet feelings were clearly enunciated in various speeches in which he referred to the Soviets as "an evil empire" and "the focus of evil." In a speech (made before both houses of Parliament in London in June 1983) he called for a global crusade against communism.

In the Third World, the US embarked on a new path of interventionism which brought it into conflict with Moscow and its

allies. In the Middle East, increased US strategic cooperation with Israel appeared to be aimed at Syria (backed by the Soviets). In Central America, the invasion of Grenada and US support for the "Contras" in their war against Nicaragua were clearly warnings to Cuba, the Sandanista regime, and indirectly to the Soviets, that meddling in the US perceived sphere of influence was not to be tolerated. The downing of the South Korean jetliner in September, 1983, only fueled the fires of anti-Soviet antagonism in the US. The result of all this was, as Steele points out: "At the end of September 1983 Andropov declared that it was 'an illusion' to think any deals could be struck with the Reagan administration."<sup>81</sup>

The overall situation became even more intractable when the US, ignoring USSR warnings that it would break off any strategic arms limitation talks if US Pershing II and Cruise missiles were installed in West Germany and some NATO countries, chose to deploy the missiles. The USSR responded by walking out of the strategic arms reduction talks and deploying new SS-20 shorter range SS-21's in East Germany and Czechoslovakia as well as more missile carrying submarines off the American coast. As Steele notes: "The Kremlin believed that if it continued the talks as though the NATO weapons made no difference, this would only be seen as a sign of Soviet weakness and encourage Reagan to proclaim a political victory."<sup>82</sup>

With the death of Andropov in February, 1984, Konstantin Chernenko came to power in the Kremlin. Initially, Reagan lowered the level of vitriolic rhetoric against the Soviets and called for "dialogue" with the Soviet Union. The Soviets interpreted this as a

domestic ploy. Steele notes: "The Kremlin took every opportunity to show that East-West relations would remain frozen unless the United States demonstrated by means of 'practical deeds' as Chernenko put it, that it was softening its anti-Soviet line."<sup>83</sup>

From all of this, there emerged a more determined Soviet Union ready at all costs to see significant changes take place in US policy towards it, and also, ready to match any US increase in nuclear strategic weapons systems regardless of the costs and sacrifice involved. Steele provides an excellent summary of the period:

With the collapse of detente, the Soviet Union reverted to a posture of massive rearmament and political isolationism. In a speech to the Central Committee in June, 1983, Andropov described the world as divided by 'a social barricade' between socialism and imperialism. A month later he told the West German Chancellor, Helmut Kohl, that the peoples of East and West Germany would have to look at each other across a 'palisade of rockets.' Behind these dramatic analogies lay an old Russian mood, a reversion to a Fortress Russia strategy in which the Soviet Union would patiently watch and wait in the faint hope that the world beyond its borders would one day become a friendlier place.

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Clearly, by 1984, the mutual stereotype images of the US and USSR had hardened considerably to the point where both sides considered it fruitless to pursue any meaningful dialogue without first there being significant changes in attitude and sincerity. There appeared little likelihood of compromise. Meanwhile, the nuclear arms race appeared headed for another quantum leap forward with both sides accusing the other of seeking superiority.

### C. Similar And Contrasting Characteristics

The history of the United States is generally agreed to have

begun with the establishment of a settlement in Jamestown, Virginia, in 1607. In fact, this would provide it with a more recent history than the Soviet Union which traces its early beginnings to the establishment of Kievan Rus in the ninth and tenth centuries.

Another significant contrast concerns the religious preferences which played a significant role in the development of both countries. The United States saw Protestantism develop as the religious preference among the majority of its citizens. However, particularly after the mid-seventeenth century, the church increasingly became separate from the state in the British colonies. This situation was formalized later by its incorporation into the US Constitution. As a result, many other religious groups were permitted to develop and Roman Catholicism and the Jewish faith grew significantly. In Russia, church and state maintained a closer alliance than in America. There, Russian (Greek) Orthodoxy became incorporated into the Caesaro-Papist Byzantine state in which the Tsar was treated as a divine ruler who dominated the Church through the secular-appointed Procurator-General of the Holy Synod. Only one religion was permitted just as the Tsar was the absolute ruler.

Politically, Russia and America developed historically along two very different roads. Having adopted a Constitution in 1787, America began to travel inexorably but slowly down the road towards liberal democracy. This process was aided by the Constitution which provided for political freedom, freedom of the press and speech, as well as the separation of powers, and toleration of rival political groups and parties. Habeas corpus as well as due process of law was

ensured as well as many other personal freedoms. In Russia the three guiding principles of Tsarist government were expounded by Tsarist spokesman, K.P. Pobedonostev. They were Orthodoxy, Autocracy and Nationality. The transformation which took place after 1917 under Soviet rule saw these three principles modified, in name only, to suit the Soviet Communist's political and social vision for the Soviet Union in the twentieth century. They became: One-party or One-man rule, and the Great Russian nationalism. The secret police, originally established by Ivan the Terrible, were to play an increasingly important role in the new society. They existed solely to serve as the protectors of absolutism whether Tsarist or Soviet. To fulfill their duties, police-state institutions of labor camps, the "Gulag" were set up to punish wrong-doers and disbelievers. Extensive internal spy and informer networkers were set up to keep the rulers aware of any dissent. Isolation from the rest of the world, except when absolutely necessary, became the norm to avoid tainting the minds of Soviet citizens.<sup>86</sup>

The United States, despite its shorter history, gradually developed into a prime example of Greco-Roman, and Judaeo-Christian Western civilization. The Protestant Reformation and the subsequent political turmoil which ensued was fresh in the minds of many of the immigrants, who poured into the United States to escape its evils and oppression. Eventually it played a significant role in the development of democracy as it evolved in America.

An important contrast concerns the political and economic development which occurred in England, on the European continent, and

in America during the latter part of the nineteenth and early twentieth centuries. As the Industrial Revolution spread throughout these countries, in particular, a significant degree of liberal-democratic government became entrenched in their political systems. As a result, the capital versus labor struggles that accompanies the later stages of industrialization in these countries were settled primarily by the ballot box, rather than by attempted mass violence by workers or "revolution." The situation in Russia was considerably different. Firstly, Russia was geographically isolated from much of the European continent. Its religious development was considerably different from that in Europe and America. Primarily, by choice, it remained cut off from Western civilization. It remained particularly unaffected by the Renaissance and such post-Reformation political developments as the Huguenot attacks on absolutist government in France. In fact, the Slavophiles, in their own way, sought to reform the Western world. It was not until the twentieth century that the industrial revolution took hold in Russia, thus enabling it to pass into a "bourgeois" phase of political development, making it capable of developing into a state of political freedom with the ensuing civil rights present in most liberal democratic systems of government. Russia rejected this option in favour of becoming an industrialized giant with a continued autocratic political system, isolated from much of the rest of the world. It continued to rule with such guidelines from the past as censorship, absolutism and a privileged ruling elite. The only significant difference appears to be rule by a self-perpetuating oligarchy instead of rule by a hereditary monarchy.

In reality, despite many stark contrasts, the US and USSR share three key similarities which characterize the historical development of each, and help explain if only partially, the nature of their current antagonistic relationship.

1. Both nations came into being as the result of violent revolution. In 1776 the North American colonies revolted against Great Britain, their former colonial masters. In 1917, after a violent revolution, Russia and the myriad other nationalities, which comprised the Tsarist empire, combined to establish a state with a union of Soviet peoples.
2. In the case of both the US and USSR it can be said that "(the)  
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historical process was harsh." It can be concluded that:

Even when concealed beyond the facades of 'spreading Christianity of 'la mission civilisatrice', or the 'white man's burden', this historical process was harsh. The Spanish conquistadores, as well as the French, British, Russian or American conquerors, asserted their influence with the sword. The white settlers not only subordinated, but at times exterminated the indigenous, more primitive people, who stood in their way.  
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Both societies utilized the tool of force to ensure national expansion.

3. Both nations are imbued with a messianic zeal which they feel honour-bound to spread throughout the world. The US with its Declaration of Independence and Constitution, which expound on the principles, ideals, and freedoms of liberal democracy, as well as a capitalist economy, comes head-to-head with the USSR. The Soviets, in contrast, espouse the virtues of Communist socialism. Based on the philosophy of Karl Marx and Friedrich Engels, and later V.I.

Lenin, it has developed an ideology and way of life which is the complete antithesis of capitalism and democracy. Each professes to be the "guiding light" and both work diligently to spread their respective creeds to the four corners of the globe, whether it is wanted or not.

Despite the significance of these similarities, they have resulted in both nations becoming increasingly antagonistic to each other as they find their respective international goals coming into conflict with one another.

The contrasts in development by the United States and the Soviet Union are unquestionably extremely diverse. When events brought the two giants to centre stage at the conclusion of World War II in 1945, it became somewhat simpler to comprehend how the seeds of a potentially deadly rivalry could develop between them. In addition, the words written in 1840 by Alexis De Tocqueville seemed, by 1945, to be very prophetic:

There are at present two great nations in the world which seem to tend towards the same end, although they start from different points. I allude to the Russians and the Americans...Their starting point is different and their courses are not the same, yet each of them appears to be marked by the will of heaven to sway the destinies of half the globe. 90

The relations that developed between the United States and the Soviet Union after 1945 reflect, in many ways, the very different historical paths each had travelled to eventually become the two most powerful nations on earth. Both had developed separate messianic views about how the world should be ordered and each felt honour-bound to spread the "faith" to the four corners of the globe. As each sought

its destiny, the inevitable clashes developed. When both acquired the atomic bomb, a nuclear rivalry began with potential consequences never before encountered by man. For the first time in history man possessed the capability of destroying not only his enemies but the whole world in just a matter of hours or even minutes.

The potentially deadly nuclear rivalry that has ensued since 1949 has, in many ways, been fueled by the mutually antagonistic stereotype images that each has about the other. Historically, their separate developments reveal characteristics that make the US and USSR poles apart in their thinking. Acceptance or toleration of their different views might have avoided clashes had both powers not become the two dominant actors in the post-1945 international world.

A brief review of the significant events which have occurred between 1945 and 1984, which have brought the US and USSR into confrontational situations, will follow. This review, it is felt, will illustrate better how each perceived its role in the international sphere and how stereotype images each had about the other, not only impeded each from attaining its stated goals, but helped considerably to fuel the nuclear arms race. The following section will conclude with a brief outline of these stereotype images, and provide a backdrop for looking at the nuclear arms race, which has come to be the most pervasive characteristic of East-West relations and the most serious threat to world survival.

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#### CHAPTER FOUR

#### CONFRONTATION, INTERVENTION AND THE EVOLUTION OF EAST-WEST RELATIONS: 1945-1984

By the end of 1984 US-Soviet relations were at an all time low. All nuclear arms reduction talks had broken off and the United States was moving quickly to redress an apparent Soviet lead in the nuclear military balance. Spurred on by President Reagan's hatred of the "evil empire," some one trillion dollars was spent to counter the Soviet threat. The Soviets, as they have demonstrated in the past, were not about to let the massive US military buildup go unchallenged. Consequently, they too responded in kind by pouring massive amounts of money into their armaments buildup program. Apart from the fact that their mutual relations were worse than ever, the level of nuclear armaments possessed by both sides, undeniably, had reached insane proportions. It has become questionable whether the nuclear threat each had poised against the other was manageable or spinning out of control. Clearly the question of world survival had become tenuous at best. A point had been reached where relations between the two superpowers had to improve dramatically if there was to be any hope for the resumption of nuclear disarmament talks and political solution to the existing problem.

In reviewing the turbulent years 1945-1984, I propose to look specifically at East-West relations during this period and to examine

how they evolved. Richard J. Barnet makes a valid observation about the period when he points out that "...the managers of the global competition on both sides have believed that no fundamental improvement in US-Soviet relations was possible without profound ideological conversion. Each projected that belief onto the other."<sup>1</sup> In retrospect, such ideological conversions were not to occur but rather have hardened over the years. This, in part, helps to explain the stormy nature of their relationship during this period. George F. Kennan, writing in 1947, warned of the dangers inherent in any future relations with the Soviet Union. He said:

It must invariably be assumed in Moscow, that the aims of the capitalist world are antagonistic to the Soviet regime and therefore to the interests of the people it controls. If the Soviet government occasionally sets its signature to documents which would indicate the contrary, this is to be regarded as a tactical manoeuvre permissible in dealing with the enemy (who is without honor) and should be taken in the spirit of caveat emptor. Basically, the antagonism remains.

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Unquestionably, the antagonism referred to above by G.F. Kennan was shared equally by the Soviet Union. In reality they were mirror images of one another. Richard J. Barnet, in speaking about the post-war period, makes a valid observation when saying:

In the years of co-existence, especially since World War II, what each society has produced, how each has spent its money, how much freedom and dissent each has allowed, how much secrecy each has craved, and how each has treated the rest of the world have been substantially determined by what a roomfull of men in the White House and the Kremlin thought their counterparts were doing or about to do. The Cold War has been a process of education of two rival elites.<sup>3</sup>

A. Significant Political Events Affecting East-West Relations 1945-1984

It will be argued that virtually all of the significant events during this period involved, to some degree, the two superpowers, and can be viewed in terms of "Confrontation" and "Intervention" between the two. Urs Schwarz, in his book entitled Confrontation and Intervention in the Modern World, provides a very useful definition of these terms. Confrontation, he views, as "an exercise in mutual deterrence, a means of limiting the use of force and pursuing objectives without resort to war." Likewise, he views intervention as "a strategy to limit the use of armed force and to keep events under the control of the actor in its pursuit of its international goals."

Both powers have utilized these strategies to pursue their international goals despite the fact that often they are mutually harmful to one another, as well as the rest of the world. Consequently, they feel strongly impelled to try to reduce their antagonism, or at least the level on which it is expressed, since both sides are acutely aware of the dire consequences of a confrontation escalating to the point of nuclear war breaking out.

Reaching a state of lasting *détente* during this stormy period has proven to be virtually impossible. The Soviets continued clinging to their Marxist-Leninist beliefs of class struggle between the socialist and capitalist systems, and this has been one of the primary sources which has led to numerous confrontations and interventions by both superpowers. Compounding this problem was the Stalinist view that the Western allies and Germany were linked together in a conflict that

would ultimately result in the downfall of Western capitalism and the triumph of the Communist world. This view undoubtedly helped to exacerbate the growing rift between East and West and made reaching an accommodation that much more difficult. In addition, the Soviets view wars of national liberation as a normal desirable and permanent state of affairs, something the US cannot accept, and this had led to heightened tensions throughout the world (Ethiopia, Angola, etc.) and proved also to be a strong impediment to improved East-West relations.

As Schwarz observes:

Even the concept of peaceful coexistence is synonymous with undying struggle. It implies that two antagonistic world systems exist which cannot be reconciled, and since reconciliation is neither possible or desirable, they may provisionally try for tactical reasons to postpone a clash which in the long view is inevitable.

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In retrospect, it appears that the differing world views of the Soviets and the Americans contributed greatly to rising tensions between East and West during this period. Perceptions and misperceptions by both powers about the role each would play in the international sphere also played a dominant role in widening the gap between the two superpowers. However, above all else, the East-West nuclear strategic balance has come to dominate relations between the two, and ultimately, the fate of the whole world is left hanging in the balance. As mentioned earlier, the old nation state balance of power system had faded into obscurity and the new world was to be vastly different.

The chronicle of significant events during this period reflects the growing struggle for supremacy between the two superpowers and, as

mentioned earlier, overshadowing all of this has been the nuclear arms race which has had an increasing influence on the course and outcome of world events.

### 1. The Cold War

Since 1945 postwar politics, broadly speaking have, as Fred Halliday points out in his book, The Making of the Second Cold War, passed through four phases which are defined primarily by the character of Soviet-US relations at each stage. Briefly, Fred Halliday's conceptual framework for looking at the Cold War is as follows:

- Phase 1 - 1946-1953 (Soviet Expansionism: US Containment)
- Phase 2 - 1953-1969 (Period of Oscillatory Antagonism)
- Phase 3 - 1969-1979 (Period of Detente)
- Phase 4 - 1979 - onwards (superpower standoff)<sup>5</sup>

### 2. Phase 1 - 1946-1953

Despite the fact that the US and Soviet Union were, ostensibly, allies at the end of the Second World War, in reality strains in their relationship had already begun to surface. There had been disagreements over when and where the "Second Front" should begin as well as the post-war arrangements for Germany and the future of Eastern Europe. However, at the conclusion of World War II in 1945, with Britain and Western Europe economically crushed by the war, the US troops returned home to an economically intact country unscarred by the war. Meanwhile, the Soviets took the opportunity presented by the

power vacuum left in Europe in 1945 to consolidate its sphere of influence over Eastern Europe.

Between 1945 and 1948, the Soviet Union extended its control and influence over most of the Eastern European countries bordering on its frontier, as well as briefly over North Korea, Manchuria, and Northern Iran. An interesting analogy is presented by A. Bromke concerning the way in which the Soviet Union imposed its domination over Eastern Europe, compared to the way Britain ruled colonial India. The two methods were not entirely different as one might imagine:

The direct annexation of the eastern periphery of the region into the Soviet Union makes it resemble those parts of the Indian subcontinent which were run directly from London; while the maintenance of the facade of sovereignty and a degree of actual autonomy in the remaining countries of Eastern Europe comes close to the British doctrine of paramountcy in the various semi-independent Indian states. By linking the interests of the ruling elites--be it the maharajas or the leaders of the Communist parties--to the new imperial power, the centre's basic objectives are distanced from unrest among the local populations.

6

The US was convinced that the Soviets were seeking to communize, not only the Soviet occupied countries, but also Turkey, Greece, and Western Europe. In 1945, the Western allies in Europe were economically devastated and militarily, extremely vulnerable. Having heard Stalin declare in Moscow in 1946: "...that there could never be a lasting peace with capitalism," and Churchill warning the West in a speech delivered in Fulton, Missouri, in March, 1946, that an "iron curtain had descended across the middle of Europe," the US, alone, possessed the capability of halting any further Westward expansion. President Truman acted in response to Soviet meddling in Turkey and

Greece by announcing what has come to be referred to as the Truman Doctrine which, in part, warned the Soviets by declaring: "...it must be the policy of the United States to support free peoples who are resisting attempted subjugation by armed minorities or by outside pressures." <sup>7</sup> Truman achieved his desired effect, particularly in Greece and Turkey, where Soviet actions ceased.

The London Foreign Ministers' Conference in December, 1947, saw the end of significant negotiations between the US and Soviet Union for some time to come. There followed a period of almost six years during which there was a virtual breakdown in communications between the superpowers.

In April of 1948, the US announced its Marshall Plan designed to rebuild the economies of Western Europe and make them better able to defend against any westward moves by the Soviet Union. By this time, the US found itself permanently involved in Western Europe in order to fill the vacuum created by the defeat of Germany and the decline of British and French power and influence.

With the partition of Germany in 1945, a primary area of conflict developed between the West and the Soviets over how it was to be controlled. As early as March, 1948, Soviet authorities had begun to impede road traffic to Berlin and in June imposed a total blockade. This confrontation led to a massive air-lift of supplies to West Berlin and negated Soviet moves. The blockade ended in 1949. Ultimately, this situation led to the establishment of the North Atlantic Treaty Organization (NATO) which sought to link the US militarily to Western Europe (including Greece and Turkey) by making an attack on one an

attack against all. Arkady N. Shevchenko, formerly Under Secretary General of the United Nations, who defected to the US in 1978, in a recent book entitled, Breaking With Moscow, makes mention of a conversation with Nikita Khrushchev in which he comments on the European situation. He stated:

'We threw a little scare into the NATO countries last year with the spirit of Camp David', he said in recalling his 1959 talks with President Eisenhower.

'We must work further at turning the United States against Europe, and Europe against the United States. That was the technique Vladimir Ilyich (Lenin) taught us. I have not forgotten his lesson.'

8

In turn, the Soviet Union brought its East European satellites under the banner of a newly created organization called COMINFORM (Communist Information Bureau). Its ultimate purpose was to provide unity and cooperation under Soviet surveillance, i.e. keep the satellites in line. The open defiance to Soviet control by Yugoslavia in 1948 was a severe blow to the Soviet Union as it ultimately saw Yugoslavia aligned with the the West.

The year 1949 saw the Soviets join the nuclear club by exploding its first atomic bomb, and the Chinese Communists, under Mao Tse-tung, come to power. In early 1950, Mao Tse-tung went to Moscow where he and Stalin signed a treaty of friendship and cooperation which brought the two Communist giants together.

On June 25, 1950, the North Koreans poured across the 38th parallel and invaded South Korea. In retrospect it would have to be considered as a serious miscalculation by the Soviets who possibly engineered the attack, and who unquestionably supported the move. The

subsequent actions by the United Nations in approving the Uniting for Peace resolution and the General Assembly's condemnation of Chinese intervention showed the extent to which the Soviets were isolated. The UN expeditionary force, comprised primarily of US troops, fought until an armistice was arranged in July, 1953.

Thus ended Phase I of the Cold War as defined by Fred Halliday. He attributes the end of Phase I to two significant events which altered significantly the current Cold War environment and signalled a new change in direction. The two key developments were, as Halliday points out:

...one, the death of Stalin in March 1953, and the attendant 'Thaw' in Soviet policies at home and abroad; two the election of Eisenhower, who promised to end the Korean War. Together these led to the cessation of hostilities in the Far East, with the Korean Armistice of July 1953 and the ceasefire in Indo-China in 1954.

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Upon reflecting upon Phase I of the Cold War, it is interesting to note as Adam Ulam has in his book entitled Expansion and Coexistence: Soviet Foreign Policy 1917-1973, that: The period of American monopoly of the bomb was the period of the greatest Soviet aggressiveness in foreign policy, of the rapid satellization of Eastern Europe and of the Communist conquest of China. Another very significant observation was made by George Kennan who argues that the American elite misunderstood Stalin's attitude toward nuclear weapons. He points out:

There is no reason to doubt that Stalin saw this weapon as he himself described it: as something which one frightened people with weak nerves...Indeed, in view of the physical dangers the weapon presented, and the confusion which its existence threw over certain cherished Marxist

concepts as to the way the world was supposed to work, he probably would have been quite happy to see it removed entirely from national arsenals, including his own, if this could be done without the acceptance of awkward forms of international inspection...Little of this was perceived on the American side in particular.

10

The fact is, if George Kennan is right, then as Barnet points out: "...the American misunderstanding about the effect of nuclear weapons on Soviet thinking is perhaps the most fateful miscalculation of history. It is the most dramatic example of how difficult it has been in the nuclear age for great empires to grow political power in gun barrels."<sup>11</sup>

As Phase One of the Cold War drew to a close the fact was, as Halliday concludes: "Neither East nor West was able to prevail over the other, and the very partitions that accompanied its end, in Germany, Korea, and Vietnam, symbolized the inclusive character of its termination."<sup>12</sup> Unquestionably, gains were made by both powers. In contrast to the situation the Soviets found themselves in 1945, the situation in 1953 was far different. Now it had cemented ties with its bordering countries and established an alliance system from Berlin to Peking and Hanoi. Despite the horrendous death toll and destruction caused during the war, the Soviet Union worked relentlessly to rebuild both in Eastern Europe and the Soviet Union, all of this under the banner of socialism.

The United States also constructed a far-ranging alliance system to thwart any further Soviet expansionism. In contrast to the alliance system of the Soviet Union, the US one was worldwide. Its vibrant, undisturbed economy took on a post-war dynamism that gave it

even greater power and predominance in the international sphere. It played a significant role in the rebuilding of the war-damaged economies of Western Europe and Japan, while at the same time projecting "...a 'Free World' ideology in which it was the military, political and cultural leader."<sup>13</sup> Individually, both gained strategic influence which would continue to grow in future phases of the First Cold War of the nuclear age.

### 3. Phase 2 - 1953-1969 (Period of Oscillatory Antagonism)

Phase Two was notable primarily for the fact that a substantial East-West dialogue had begun once again. Negotiations covering Korea, Germany, Austria, and Indo-China were reconvened. The Austrian problem was solved by agreeing to declare it neutral in return for a complete evacuation of Soviet forces. In both Korea and Indo-China military hostilities ceased with Korea and Vietnam, by joint agreement, being partitioned. Still no solution was worked out for Germany but tensions were reduced. However, despite the easing in tensions, one thing was certain at this point in the Cold War as Barnet observes:

...it was the image not the reality, that sustained fear on both sides. The conservative politicians in charge of defining the American national interest shared one idea with their Bolshevik counterparts: the world was not big enough for both to maintain their power. The very existence of two such radically antithetical social systems threatened the survival of each...The cold war has fed on misunderstanding, but it is not the product of misunderstanding.

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President Dwight D. Eisenhower and his Secretary of State, John Foster Dulles, put forth a foreign policy more nationalist and

unilateral than President Truman's. The period saw an acceleration of rearmament of the West and American dominated alliances which ringed the Soviet and Chinese parameters. Strategically, Dulles enunciated his nuclear doctrine of massive retaliation which reflected the superiority that the US had in this area over the Soviet Union, and its deep concern over Soviet expansionism.

By 1954 the Soviet army numbered some 5 million men (up from 2.8 million in 1947). At the same time, the CIA, according to NSC-68, estimated the Soviet nuclear stockpile at 200 bombs. (The US total at the same time was close to 600.)<sup>15</sup> As concern grew over the size of the Soviet nuclear arsenal the writers of NSC-68 warned:

'Our intelligence estimates assign to the Soviet Union an atomic bomber capability already in excess of that needed to deliver available bombs...For planning purposes, therefore, the date the Soviets possess an atomic stockpile of 200 bombs would be a critical date for the United States, for the delivery of 100 atomic bombs on targets in the United States would seriously damage this country.'

16

With the death of Stalin in March, 1953, an era came to an end which Adam Ulam describes as one:

...when a decision by one man could change abruptly the whole course of foreign policy of the Soviet Union and world Communism. His successors neither collectively nor singly would ever again have that power. Increasingly, though still enjoying a flexibility for maneuver inconceivable to democratic statesmen, they would become slaves of the past and susceptible to domestic and intra-Communist bloc pressures. With Stalin's death, it is also now clear, effective unity of the Communist bloc also passed.

17

First Malenkov with his "New Course" and then Khrushchev, under the banner of "Peaceful Coexistence" and "separate paths to socialism,"

tried to break out of the foreign policy constraints imposed both by the Stalinist inheritance and Western containment. As Shevchenko points out, the Soviets believed "...that peaceful coexistence was the Lenin-era maxim Khrushchev had revived and trumpeted. It provided the smokescreen behind which efforts to expand Soviet influence were planned."<sup>18</sup> In addition, the French withdrawal from Indo-China in 1954, combined with the anti-communist McCarthy era in the US, led to an American commitment to large scale retaliation against any further Communist advances which, it was feared, might lead to a chain reaction.

The decision by NATO members in May of 1955 to admit West Germany to the Alliance stirred up the paranoid fears that the Soviets had about a rearmed West Germany. Shevchenko states that the Soviet position regarding Germany: "...was that two sovereign states had appeared on German soil. As a result of developments in the postwar period, each was an 'independent nation'. It was therefore impossible to achieve 'a mechanical integration of the two parts of the former Germany.'<sup>19</sup> Consequently, the Soviet Union reacted by establishing the Warsaw Pact which bound East European states into a close military alliance with Moscow to counteract NATO.

A series of crises affecting East-West relations took place during the 1950's and 1960's. Beginning with the large supply of arms to Egypt in 1955, Soviet leaders made clear their willingness to provide military and economic aid to those states not allied with the West. After the October, 1956 intervention in Egypt by Britain, France and Israel aimed at the overthrow of Nasser following the

nationalization of the Suez Canal the previous July, the Soviets threatened to use force to bring about a cease-fire. With the defusing of the situation and the failure of the invasion, Soviet prestige rose in the eyes of the Third World, an area it would continue to try and gain more influence and control of in the future.

The US, in January, 1957, in a statement referred to as the Eisenhower Doctrine, made known its determination to recover for the West, the influence which Britain and France had forfeited after the war. At this same time the Soviet Union was forced to quell violent revolts in Poland and Hungary indicating to them and the other satellites that disobedience of Moscow's rule would not be tolerated.

A series of crises over the status of West Berlin erupted during the period 1958-1961 and threatened to escalate into another world war. Khrushchev and Eisenhower agreed that a four-party solution to the Berlin question must be reached. Halliday makes note of an excellent example of the oscillatory nature of US-Soviet Union relations during this period when he points out that:

A second pursuit of negotiation, epitomized in Khrushchev's visit to the USA in 1959, and the 'Camp David Spirit' developed between himself and Eisenhower, was overtaken by the breakup of the Paris Summit in 1960, the Berlin and Laos Crises of 1961, and the Cuba Missile Crisis of 1962. 20

January, 1961, saw John Fitzgerald Kennedy inaugurated as President of the US, bringing with him hopes for a new era in East-West relations. In June of that year Khrushchev and Kennedy met in Vienna. Khrushchev, in writing about Kennedy in his memoirs, said, with reference to how he handled the Cuban Missile Crisis:

I'll always remember the late President with deep

respect because, in the final analysis, he showed himself to be sober-minded and determined to avoid war. He didn't let himself become frightened, nor did he become reckless. He didn't overestimate America's might, and he left himself a way out of the crisis. He showed real wisdom and statesmanship when he turned his back on right-wing forces in the United States who were trying to goad him into taking military action against Cuba.

21

By 1962 the US had nuclear superiority which the Soviet Union attempted to undermine by placing ballistic missiles in Cuba, in easy reach of US cities. When US intelligence sources discovered this in October, 1961, President Kennedy reacted by ordering a naval blockade around Cuba and issued an ultimatum to Khrushchev to remove them immediately. This crisis brought the world as close to a nuclear confrontation between the superpowers as had ever occurred. Shevchenko outlines Khrushchev's intentions in deploying the missiles in Cuba by indicating that the Soviet Union felt that:

Beyond a defense for Cuba, the more important gain would be a better balance of power between the United States and the U.S.S.R. Khrushchev's plan was to create a nuclear 'fist' in close proximity to the United States, and at first glance it seemed seductive. The Soviet Union could get a 'cheap' nuclear rocket deterrent, and accomplish much with very little.

22

In addition, it had serious repercussions on East-West relations. Thus, it clearly demonstrated the US resolve not to allow the basing of missiles in Cuba only 90 miles from its shores. Also, it made the Soviet Union acutely aware of its nuclear strategic inferiority vis à vis the US, something which they vowed to themselves would never be allowed to continue. This confrontation with the US resulted in a dramatic increase in Soviet defense expenditures to

ensure that the imbalance with the US would be redressed. The nuclear arms race was now in full gear. In the case of the Soviet Union, conventional force increases went hand in hand with nuclear weapons development.

Subsequent to the Cuban missile crisis a new and more relaxed relationship developed slowly into a concept referred to as "détente." (This concept will be explained more fully in Phase 3.) However, while the US chose to interpret it as a serious attempt to ease tension and reduce situations which could develop into serious confrontations, the Soviets pointed out that the relaxation of tension did not mean an end to Soviet support for guerilla movements in Asia, Africa, and recently Central America, or a slowdown in its military buildup. In the final two years of Khrushchev's reign, a number of important steps were taken to improve East-West relations. In 1963 an agreement to set up a "hot line" telephone between the Kremlin and the White House was signed as well as a Partial Nuclear Test Ban treaty.

However, November, 1963, saw the assassination of President Kennedy and the assumption of power in the US by Vice President L.B. Johnson. Unfortunately, his administration gradually became totally consumed by US involvement in the Vietnam war. Soviet assistance to North Vietnam during this time was restricted to the supply of war material and logistical support. As the war intensified from 1965 onward, further strains developed in US-Soviet Union relations. Likewise, in 1965, US forces invaded the Dominican Republic. President Lyndon Johnson, mindful of the difficulty of eradicating Communism from Cuba once it had become entrenched, ordered US troops into the country

in the first American military intervention in Latin America since 1926. Initially, the US justified its actions by claiming it did so to protect American lives, but several days later the President declared that their assignment was "...to prevent another Cuba" in the Western Hemisphere. Tensions mounted even more, when the June, 1967 Middle East war broke out. As previously, the US supported Israel, while the Soviet Union backed the Arabs. The Soviets provided the Arab states with arms and diplomatic support but proved unwilling or unable to intervene decisively to prevent the overwhelming Arab defeat which followed Israel's pre-emptive strike. East-West relations suffered even more when the Soviets marched into Czechoslovakia in 1968 to put down an internal insurrection seeking more liberal government policies. The West, as previously, deplored the action but avoided direct involvement.

As Phase Two of the Cold War began to wane, some progress was made by both sides in attempts to prevent any mutual confrontation from deteriorating to a point where nuclear weapons might be used. A result of this was the signing of:

- 1967 Outer Space Treaty (prohibiting the placing of nuclear weapons in space)
- 1968 Nuclear Non-Proliferation Agreement as well as a series of summit meetings up to 1967.

Only in 1969, when President Nixon assumed power did Phase III begin. It was to be the beginning of a period, as Halliday points out, "...of consistent negotiation or détente."<sup>23</sup>

#### 4. Phase 3 - 1969-1979 (Period of Detente) ✕

The election of Richard M. Nixon to the US Presidency in 1969 saw a profound change develop in US foreign policy. The new theme emphasized withdrawal from third world confrontations around the world. It saw the revival of a nationalistic and unilateral foreign policy enunciated by his Secretary of State, Henry Kissinger. The policy stressed a balance of power diplomacy designed to keep the US free of lasting commitments so that it could move back and forth between the other power centres--Europe, China, Japan, and the Soviet Union, hopefully to maintain some degree of equilibrium. ✓

The concept of detente was to receive its greatest emphasis during the Nixon years in the White House. While it was not to last for a long time, Leonid Brezhnev worked diligently to foster its growth. The US also saw a possible opportunity to ameliorate their strident differences and to develop a constructive working relationship. ✓

Detente was heralded by both the US and Soviet Union as a possible means through which their mutual antagonistic and confrontational relationship might become more friendly and constructive. However, the fact was that they each had separate but distinct definitions of the term, as well as different understandings about how it should operate in both their bi-lateral relationship and in the pursuit of their respective international goals. Richard J. Barnet points out that when Soviet officials are asked to define "detente": "...they usually say that the word describes sixty-odd agreements covering a wide variety of subjects from nuclear weapons to

avoidance of accidents at sea to cooperation for developing new techniques for heart surgery." <sup>24</sup> However, numerous Americans, as

Shevchenko points out felt that:

"...détente would maximize cooperation while discouraging uncontrolled competition. The Kremlin welcomed a certain amount of cooperation, on its terms, but it never accepted the idea of abandoning competition, either military or ideological. One of the great fallacies of détente was the idea that if the Soviet Union were engaged in economic, trade, cultural, and other agreements, the West would be able to moderate the Soviets' voracious appetite for expansion and promote a shift in the U.S.S.R.'s global aims. Nothing could be further from reality. The Soviet Union has never contemplated agreeing to arrangements that would in any way tie its hands in the pursuit of what it wanted. 25

The United States based its understanding of the term détente more on the statement of basic principle that President Nixon and Leonid Brezhnev signed in 1972, and which Henry Kissinger referred to as a "road map" for détente. The principles outlined the basic ground rules for coexistence which were expressed in diplomatically obscure language. Probably, the key provision was an agreement to consult each other with regard to the development of situations capable of causing a dangerous exacerbation of their relations. The two powers agreed that they had a special responsibility to do everything in their power in order that conflicts or situations will not arise which could serve to increase international tensions. American critics of détente point out Soviet Union violations of the "understandings" such as the Soviet failure to notify the United States of the imminent Egyptian attack on Israel that began on October 6, 1973, or even to take steps to stop it.

Détente, as the Soviets viewed it, offered them numerous

advantages, not the least of which, was the acceptance by the US of Soviet strategic parity in nuclear weapons. The Strategic Arms Limitations Agreement (SALT) talks presented the possibility of reducing nuclear arms and stabilizing the arms race. It also paved the way for further development of East-West trade and possibly an increase in badly needed Western technology. The Soviet Union began to feel at long last that the West was prepared to formally accept the Soviet sphere of influence in Eastern Europe. This was demonstrated by the 1971 Berlin Accords which would see Western recognition of the German Democratic Republic and Poland's post-war Western frontiers. With nuclear parity, the Soviet Union looked forward to securing an assured role in future international crisis management. In the Soviets' view, as outlined in, The History of Soviet Foreign Policy, they have become "one of the greatest world powers, without whose participation not a single international problem can be solved."<sup>26</sup> From this, one can interpret that the Soviets expected, henceforth, to be consulted and their interests represented in any international settlement of regional tension, whether it occurred in the Middle East, the Persian Gulf or Indo China.<sup>27</sup>

Despite the fact that the Kremlin wanted détente to be permanent and Brezhnev saw it as being "irreversible," such was not the case. Marshall Shulman, who served as the Secretary of State's advisor on Soviet affairs during the Carter administration, viewed the struggle for détente in the Soviet Union as a :

'dispute between champions of economic modernization who support peaceful coexistence, and military interests and the orthodox party apparatus whose vested interest in an imperialist enemy is combined

with a fear of the effect of modernization on the system. For them, détente holds the danger of a weakening of the ideological élan which is their stock in trade, an opening of the country to subversive influences, increased trouble with intellectuals and nationalist minorities, and an erosion of the image of the imperialist threat which legitimizes their power. They also fear that abandonment of self-sufficiency may lead to fatal dependence on the West, that détente will weaken Soviet political control at home and in Eastern Europe and that foreign trade will not be very productive.'

28

Jonathan Steele, in commenting on the decline of détente as viewed by the US states that:

The United States found the psychological and political burden of giving up nuclear superiority and accepting parity too hard to bear. Americans (he argues) misunderstood the radical changes in the Third World such as those in Angola, Ethiopia, Iran and Nicaragua between 1975 and 1979... 'They also assumed, in line with old and mistaken Cold War thinking, that détente could be used to liberalize the internal Soviet system, and were unreasonably disappointed when it did not.'

29

While there is considerable truth in what Steele says, one cannot overlook the fact that they both defined détente differently and thus saw its process being operated very differently. In essence, as Steele points out: "The trouble was that the competitive instincts that remained dormant in the US-Soviet relationship during détente eventually revived and became too strong." <sup>30</sup> The strong barriers of mutual suspicion and mistrust were never reduced to a point where at least the spirit of détente--the easing of tension--could operate for an extended period.

By 1972, events began to occur which would start to chip away at the détente process. However, despite this fact there were events

which transpired during this period which did, in the eyes of the Soviet Union, enhance its recognition as truly one of the strongest nations in the international sphere.

Nixon's visit to China in that year opened the first direct US diplomatic dialogue between the US and Communist China. It, undoubtedly, was unsettling to the Soviet Union which was experiencing very cool relations at this time with the Chinese. The Soviets were deeply concerned should the US and China become allies and put forth a united front against the Soviet Union.

The conclusion of the war in Vietnam in 1973 did help improve the atmosphere of détente between the US and Soviet Union. However, at the same time, it provided the Soviet Union with the opportunity to extend Communist influence throughout South-East Asia. Yet, overall, détente proved to be quite fragile and limited.

There was a marked increase in Soviet military support for the Arabs during the 1973 war, which produced a nuclear alert in the US, and threatened to escalate into a global conflict. However, despite their vocal concern for strengthening détente, the Soviets continued to increase its supply of arms to the Third World, which was of deep concern to the US which feared further Soviet expansionism. This was particularly true in the cases of Angola and in the Horn of Africa where Soviet supplied Cuban expeditionary forces acted as Soviet surrogates. This was very unsettling to the US and further increased its suspicions of Soviet intentions.

The marked improvement in China's relations with the US, Japan, and Europe, after the death of Mao tse-Tung in 1976, also produced

further strains, both in East-West relations and in Soviet-Chinese relations. This was particularly true after China marched into North Vietnam at the beginning of 1979.

During this same period some of the greatest efforts put forth to overcome cold-war hostilities were made in Europe. When W. Brandt became Chancellor of Western Germany in 1969, he pursued the concept of *Ospolitik* vigorously. Normalization of relations between East and West Germany paved the way for the 1970 Treaty of Non-Aggression between the Soviet Union and West Germany and the 1971 Four-Power Agreement on Berlin.

In 1973, two sets of parallel negotiations were begun on 'Mutual and Balanced Force Reductions' in Europe and on 'Security and Cooperation in Europe.' North America and the Soviet Union signed what is referred to as the Helsinki accords. For the Soviet Union, this represented a major foreign policy victory by finally recognizing the post-war boundaries of Europe.

By the end of the 1970's the Soviet Union had emerged from the shattered ruins of the Second World War to assume a position of world power status. Militarily, the Soviet Union was superior to the West in conventional forces, and equal to the US in nuclear strategic capability. Economically, it lagged behind the US. Put succinctly, the Soviet Union was powerful and had definite national as well as global interests and possessed considerable world influence. It became extremely difficult for East-West relations to improve in this tense environment since many of their interests were in conflict with one another. In fact, the death-knell to *détente* most probably occurred in

December, 1979 when the Soviets invaded Afghanistan. This action by the Soviet Union unquestionably led President Carter to ask the US Senate to delay indefinitely any ratification of the SALT-II Agreements designed to further limit nuclear strategic weapons.

#### 5. Phase 4 - The Second Cold War, 1979 Onwards (Superpower Standoff)

Phase 4 of the Cold War, which Fred Halliday refers to as Cold War II, covers the period 1979 onwards. It was a period of growing instability in the relations between East and West, in reality a superpower standoff. It was characterized by an increase in hostility towards internal opposition within the Soviet Union while at the same time East-West contacts were reduced even more. Jewish emigration was reduced by 95% between 1980 and 1982 with direct telephone links to Western Europe being severed in 1982 and the mailing of books abroad was curtailed. This went together, as Halliday points out: "...with an attempt to stimulate greater patriotic sentiment in the Soviet Union and with an emphasis on the need to educate the young in the necessities of military discipline."<sup>31</sup> However, clearly, there was no return to the excesses of the Stalinist period, but there was a notable increase in the repression of dissent in both the Soviet Union and the East European bloc of countries. The most notable example was in Poland, where CPSU leaders, in order to contain the Solidarity movement, played a role in the declaration of martial law in December, 1981, by Polish leader General Jaruzelski.

Phase 4 of the Cold War can best be described as:

...a concerted and sustained attempt by the USA to subordinate the various dimensions of its foreign

policy and that of its allies to confrontation with the Soviet Union. The image of a 'Soviet Threat' was used not merely to elicit increased vigilance against the Soviet Union, but also to create a strategic framework within which other issues should be seen and given their due proportion and to mobilize the European allies and Japan for economic pressure on the Soviet Union. The emphasis was on facing up to the Soviet Union, rather than on seeking compromise, and on giving priority to this, rather than on the relative distinctiveness of the different issues dividing the states of the world.

32

The election of US President Ronald Reagan in 1980 brought a strong conservative, ultra-nationalist mania with a distinct anti-Soviet bias to the White House. He campaigned on a platform that stressed the need for massive defense expenditures to redress a military imbalance that had developed over the previous several years. He argued against Senate ratification of the SALT-II accords and pointed out that, until the US had militarily rebuilt its forces to counter the massive Soviet buildup, that no meaningful nuclear strategic arms reduction agreement could be negotiated which the US would be prepared to approve.

President Reagan, along with his Secretary of State, Caspar Weinberger, managed to stir up anti-Soviet hatred and stress how their global interests affected the national security of the US. Such arguments and proclamations were used to secure congressional approval for increased defense expenditures, some one trillion dollars over four years. The net result of all the bellicose rhetoric on both sides has been extremely negative as far as East-West relations are concerned.

Since President Reagan came to power three Soviet leaders have died: Brezhnev, Andropov and Chernenko. All took a hard line against

Reagan's anti-Soviet position. Arms reduction negotiations went nowhere and once the US installed its first Pershing II missiles in Europe the Soviets, keeping to their word, withdrew from all arms reduction talks in late 1983. East-West relations were never colder.

Fred Halliday notes that the period from 1979 onward exhibited many changes in East-West relations not seen in the three phases of Cold War I. One example is ideology, which he argues lacked the strong motivation after 1979 that it possessed during Cold War I. The realities of power politics in a questionably stable nuclear age has seen the superpowers, while not abandoning their mutual antagonisms, establish an informal system of assumptions about crisis management in order to avoid situations which could threaten not only the security of their own relations, but also those of the rest of the world.

Changes in power and influence, as evidenced in the evolution of East-West relations during the Cold War period, were extremely significant. In the early Cold War years the US had unquestionable military as well as economic superiority over the Soviet Union. Such a situation put the Soviet Union in a weakened situation from which to negotiate. As time went on the US did not ever lose its superiority in these two areas, but rather the Soviet Union closed the gap and thus increased its power and influence vis à vis the US. By the time Cold War II began, Washington was having to show some restraint and negotiations were more balanced. Talks were taking place on strategic and European nuclear weapons reductions. This was a marked contrast to the period 1946-1953 when no significant East-West negotiations at all took place.

In summing up the important constituent components of Cold Wars I and II, Fred Halliday makes some very excellent conclusions. He observes:

Both periods of heightened east-west tension were produced not by impersonal and imminent forces nor by the mere facts of military accumulation, but by the evolution of that globalized social conflict accentuated by the other constituent elements of world politics. Cold War II reflected the desire of both blocs to retain what they had acquired in the earlier periods of reduced antagonism, together with their determination to deploy the fear of the other as a composite ideological device for guaranteeing unity at home. Above all, it reflected the continued force of long range goals that were irreconcilable with each other and which determined the strategic plans of both camps.

33

President Reagan's vitriolic tirades about the Soviets and their evil empire ended any hope of the Soviets and the US improving their relations, at least for the near future. In retrospect it can be seen that:

The Second Cold War was neither an accident, nor the product of some near conspiracy: it reflected conscious long-term divisions taken by people in power with limited control over world events. Theirs was a response to a challenging world situation which provided new challenges to their system of domination and new opportunities for prosecuting the globalized conflict with the opposing bloc.

34

With 1984 being a US election year and with a new Soviet leader, K. Chernenko, who from the start was considered an interim leader due to his age and failing health, there was little likelihood of any meaningful dialogue occurring. Meanwhile, the arms race was speeding up with ballistic missile defense systems and anti-satellite weapons capable of being operated in outer space either being developed or tested. Unquestionably, rapid advancements in all areas of nuclear

weapons systems are creating an extremely destabilizing situation not only for the US and Soviet Union, but for the whole world.

The overall situation is rapidly spinning out of control. There are serious questions whether or not the nuclear threat is manageable. Present reality appears to dictate however that: "The conflict between the two countries will continue in the foreseeable future. The problem is not whether it can be solved but how to assuage and defuse it."<sup>35</sup>

In retrospect, looking back over the years of the early beginnings of the Cold War, the United States and the Soviet Union already had mutual stereotype images of one another. Much of the content of these images developed as a result of their respective differing historical pasts and divergent political and social systems. The Cold War period and the growing influence of nuclear weapons in their bi-polar rivalry served to expand the scope of these stereotype images which were to play a key role in the ensuing nuclear arms race. These mutual stereotype images not only helped to fuel the nuclear arms race, but also contributed significantly to the demise of all nuclear arms reduction talks by late 1983.

FOOTNOTES

CHAPTER FOUR

1

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2

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Steele, Op. cit., p. 49.
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Halliday, Op. cit., p. 17.
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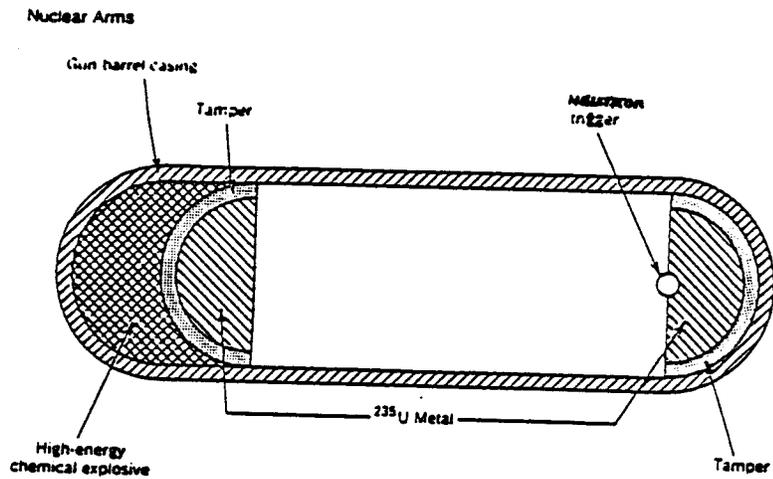
CHAPTER FIVE  
THE NUCLEAR ARMS RACE

Over all these years the competition in the development of nuclear weaponry has proceeded steadily, relentlessly, without the faintest regard for all the warning voices. We have gone on piling weapon upon weapon, missile upon missile, new levels of destructiveness upon old ones. We have done all this helplessly, almost involuntarily, like the victims of some sort of hypnotism, like men in a dream, like lemmings heading for the sea, like the children of Hamelin marching blithely along behind their Piped Piper." [George Kennan, as quoted in, Ruth Adams and Susan Cullen (eds.), The Final Epidemic, Education Foundation for Nuclear Science, Chicago, 1981.]

With every passing day the words spoken by George Kennan become more ominous. However, while the overall insanity of the situation cannot be denied, certain questions remain to be answered. How did the US and USSR become entangled in this deadly rivalry? And can it be stopped? The answer to the first question can be discovered by examining the events leading up to the dropping of the first atomic bomb by the US on Japan on August 6, 1945, and those following thereafter. The answer to the second question, if truly there is one, will be examined in future chapters.

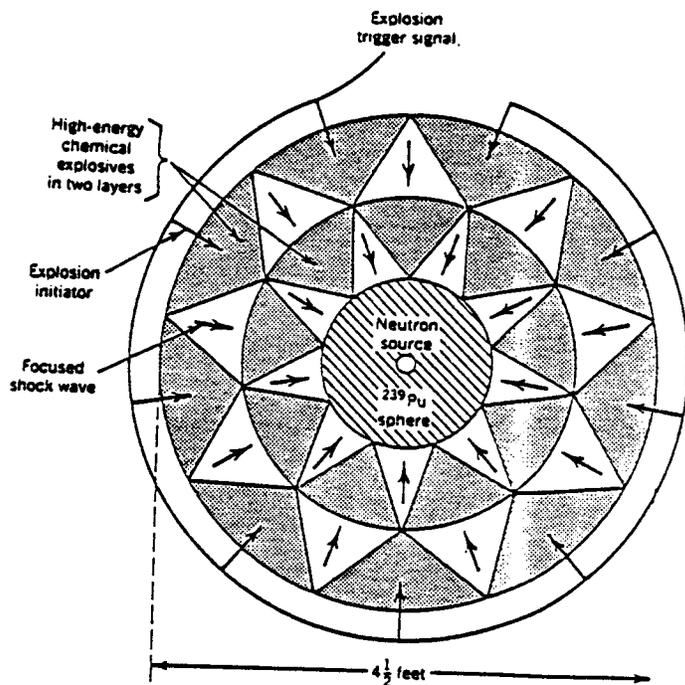
On August 6, 1945, the United States dropped the first atomic bomb on the Japanese city of Hiroshima. The magnitude of its destructive power was awesome and the ensuing loss of life shocked not only the scientists who developed the bomb but also the whole world

ILLUSTRATION 5:1 GUN BARREL DESIGN FOR A NUCLEAR FISSION DEVICE USING U<sup>235</sup> AS THE FISSIONABLE MATERIAL. 235



Gun-barrel design for a nuclear fission device using <sup>235</sup>U as the fissionable material. The chemical explosive drives two subcritical masses together, creating a supercritical mass that can undergo a rapidly growing chain reaction.

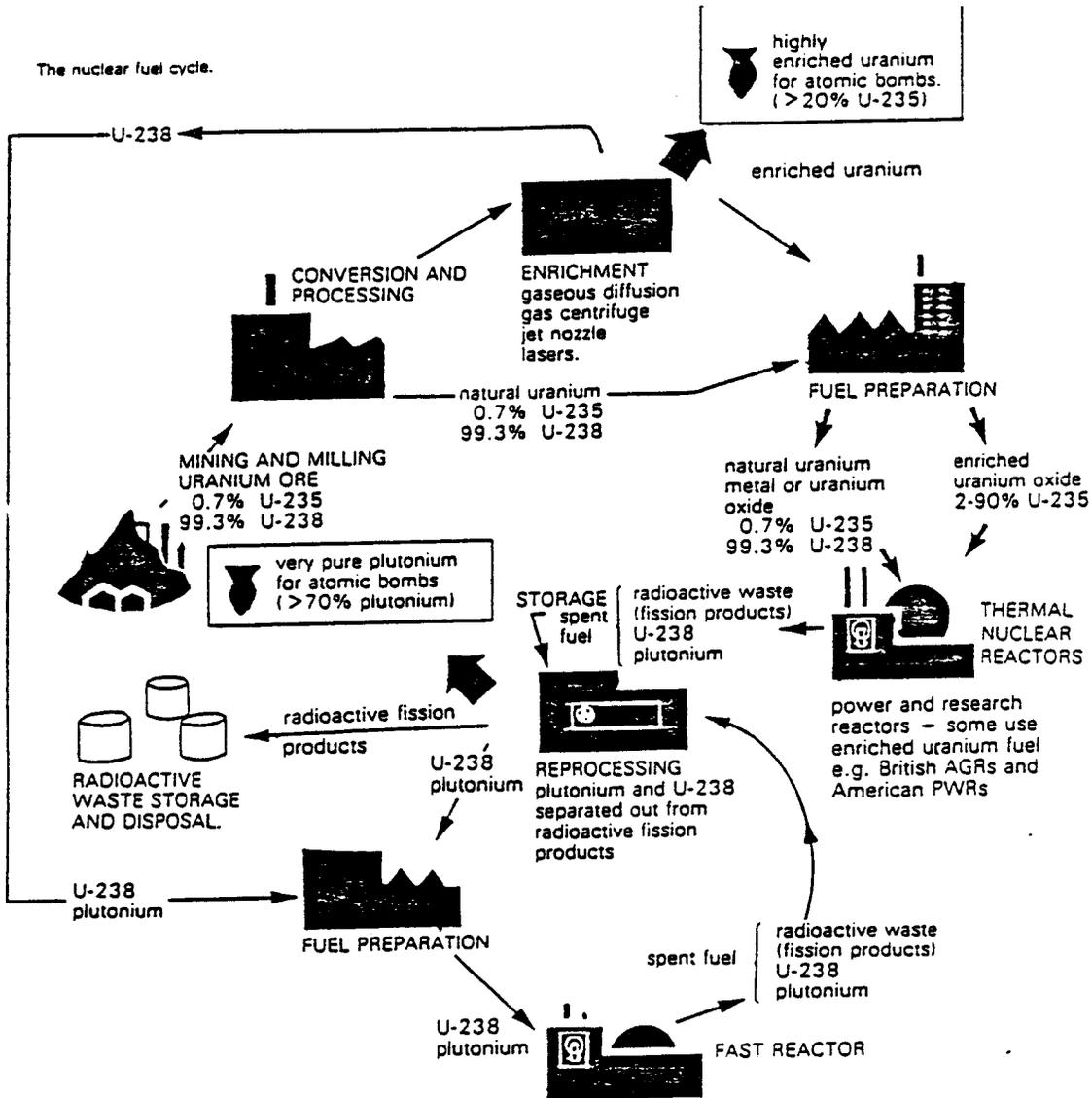
Source: Dietrich Schroer, Science Technology And The Nuclear Arms Race, (New York: John Wiley & Sons, 1984), p. 32.



Design sketch of the first  $^{239}\text{Pu}$  implosion nuclear bomb (not drawn to scale).

Source: Dietrich Schroeder, Science Technology And The Nuclear Arms Race, (New York: John Wiley & Sons, 1984), p. 33.

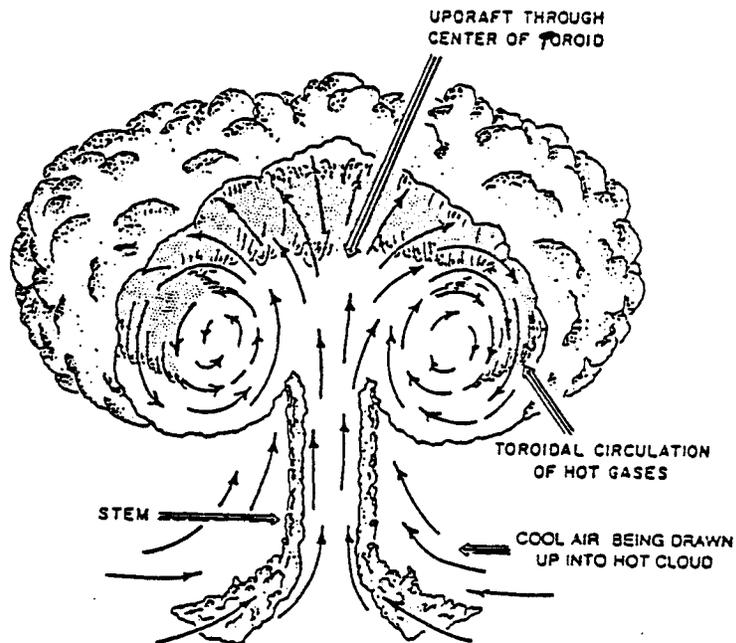
ILLUSTRATION 5:3 THE NUCLEAR FUEL CYCLE: PLUTONIUM REPROCESSING.



## Plutonium reprocessing

The only other way of making an atomic bomb is to use a reprocessing plant to separate out the plutonium which is produced in the fuel rods of a nuclear reactor. Contrary to

ILLUSTRATION 5:4 THE MUSHROOM CLOUD FROM A 1-MT EXPLOSION ONE MINUTE AFTER THE EXPLOSION



The mushroom cloud from a 1-Mt nuclear explosion 1 min after the explosion. (Glasstone and Dolan, 1977, Figure 2.07a, p. 29.)

Source: Dietrich Schroerer, Science Technology And The Nuclear Arms Race, (New York: John Wiley & Sons, 1984), p. 66.

who understood it even less. Some 130,000 people died as a result of the atomic explosion. Approximately eighty-eight percent of the people within a radius of 1,500 feet of the hypocentre died immediately or later that day. Most of the other deaths occurred within a few weeks or months after the explosion.<sup>1</sup> Three days later, on August 9, 1945, a second atomic bomb was released over the city of Nagasaki, resulting in the death of some 60,000-70,000 people and the destruction of approximately 44% of the city.<sup>2</sup> Subsequently, the war with Japan came swiftly to an end. Illustrations 5:1 and 5:2 depict the enriched Uranium and Plutonium type bombs used in August 1945. Illustration 5:3 illustrates the Plutonium reprocessing system used to obtain weapons grade material. Illustration 5:4 depicts the mushroom cloud resulting from the explosion.

Undoubtedly, these events had ushered in the dawn of a new era in the history of the world. Albert Einstein, whose theories had now been put into practice, had serious forebodings about this demonstration of atomic power. Einstein has been quoted as saying to fellow Nobel Prize winner Linus Pauling, shortly before his death that: "I made one great mistake in my life--when I signed the letter to President Roosevelt recommending that an atomic bomb be made."<sup>3</sup> In essence, man, for the first time in history, possessed the capability of destroying not only his enemies, but also the whole world.

The world, as it was then known, would be altered dramatically in the years to come. For as Fred Kaplan observed: "The whole

conception of modern warfare, the nature of international relations, the question of world order, the function of weaponry, had to be thought through again. Nobody knew the answers; initially, not many had even the right questions."<sup>4</sup>

Once the US and USSR had both achieved nuclear capabilities and realized their destructive potential, the arms race and the struggle for nuclear superiority began. While both superpowers had their individual and international goals, while attempting to achieve them, neither seemed ready to use atomic weapons. If nothing else, both the US and USSR were acutely aware of the potential results of an atomic war and both sides worked assiduously to avoid situations that might result in a direct confrontation perhaps resulting in a nuclear war.

As the nuclear stockpiles on both sides began to increase, the US and USSR came to feel that without sufficient numbers of nuclear weapons with which to deter the other side from initiating a "first-strike" attack, that one could become vulnerable to the caprices of the superior nuclear power. This situation marked the early beginnings of the creation of the "mutual hostage" relationship and the birth of the nuclear strategic doctrine of "deterrence." Out of all this emerged the nuclear arms race which continues even today. Neither side can nor will tolerate the other gaining what is perceived to be the upper hand. As the nuclear weapons system and warhead stockpiles grew astronomically on both sides, they gradually became perceived more and more as psychological weapons. The threat they posed came to achieve the desired effect since their use by either power would result in annihilation not only for the US and USSR, but most probably, for

the whole world. As Fred Kaplan points out:

The nature of war had changed drastically and so had the conditions of peace. The atomic bomb would forever more dominate both. (Quoting Bernard Brodie, a renowned military strategist, Kaplan states) 'Everything about the atomic bomb is overshadowed by the twin facts that it exists and that its destructive power is fantastically great.' 5

To Kaplan, the key was to be found in the phrase 'it exists.'

To Bernard Brodie and his other colleagues at Yale "a plan for ensuring peace first had to come to grips with the fact of everyday living with the bomb."<sup>6</sup>

The mutual stereotype images that the US and USSR developed about each other have, over time, led to increased levels of mutual mistrust, suspicion, and insecurity. As these feelings began to build, so also did the pace of nuclear weapons development. Paradoxically, it appears that as the numbers of nuclear weapons grew, feelings of security did not increase but, rather, have appeared to decrease, thus further fueling the nuclear arms race. Exacerbating this situation even more has been the periodic interjection of destabilizing nuclear weapons technology advancements such as the MIRV concept or the cruise missile. (A glossary of nuclear weapons related acronyms and terminology is provided in Appendix A.)

Jonathan Schell, in his book The Fate Of The Earth does an excellent job in presenting the extreme seriousness of the never-ending nuclear arms race and its overall threat to human survival. However, his solution is not only extreme but most probably impossible to achieve. He argues: "In sum, the task is nothing less than to reinvent politics: to reinvent the world."<sup>7</sup> In reality, as the

Harvard Nuclear Study Group states "...neither politics nor the world were invented by men, nor can either politics or the world be reinvented."<sup>8</sup>

As the early beginnings and evolution of the nuclear arms race are examined, it is necessary to remember that "...in international relations as in all of politics, the goal is to relate the desirable to the possible. The impossibility of achieving perfect solutions should not, however, breed discouragement. It should only strengthen determination to persevere."<sup>9</sup> In the final analysis, a political solution is the only answer to terminate the race towards Armageddon.

#### A. Sowing The Seeds Of A Rivalry

##### 1. The Manhattan Project

Just prior to the beginning of World War II, physicists investigating the nature of matter and the structure of the atom made two significant discoveries. The first was made by two German scientists in 1938. They discovered that atoms of uranium could be made to split--or fission--if bombarded with neutrons. The second discovery was made in April, 1939, just five months prior to Hitler's invasion of Poland. In France it was discovered that a self-sustaining nuclear chain reaction was possible. The immediate realization was that these two principles could be employed to release tremendous amounts of energy contained within the atom and that therefore, nuclear bombs with incredibly devastating power could be constructed.

The fear in America at this time among those scientists studying the atomic concepts was that Hitler might develop the bomb

first and use it. Subsequently, Albert Einstein was persuaded by a number of physicists to write a letter to President Roosevelt warning him of such a possible danger and urging him to allocate the necessary funds for the required research into these critical discoveries. The final draft of Einstein's letter was penned by Dr. Leo Szilard, signed by Einstein, and delivered by hand to Roosevelt by Dr. Alexander Sachs, an economist with the Lehman Corporation. Sachs was able, after lengthy discussion with Roosevelt, to get his approval to finance an intensive project to determine if an atomic bomb was feasible, and if so, to build it. Thus the birth of the 'Manhattan Project.'

The Manhattan Project to produce the atomic bomb turned out to be a gargantuan undertaking. When it was completed and phased out in 1946 it consisted of:

...37 installations spread over 19 American states and Canada. It employed some 37,000 employees including the central core of physicists based at the Los Alamos laboratories in the New Mexico desert. It was at Los Alamos under the direction of Dr. Robert Oppenheimer that the scientists worked out in detail how the principle of nuclear fission could be utilized to make an atomic bomb. Finally, in July 1945, after an expenditure of some \$2.2 billion and in the greatest secrecy, the world's first atomic bomb was tested at Alamogorda...Twenty days after the Alamogorda test, the second of the three atomic bombs constructed by the Manhattan Project was dropped on Hiroshima. Three days after Hiroshima the third bomb was dropped on Nagasaki."

11

## 2. The Soviet Nuclear Development Program

On July 6, 1945, while the Potsdam Conference was in progress, the first atomic bomb test took place at the Alamogordo test site in New Mexico. Later, on July 24th, President Truman broke the news to

Stalin who remarked very casually, as Truman wrote later, that "...he was glad to hear of it and hoped we would make good use of it against the Japanese."<sup>12</sup> President Truman and Prime Minister Churchill were convinced that Stalin was completely in the dark about the atomic bomb. However, as David Holloway points out, both were mistaken as "...Stalin knew of the Manhattan Project and had initiated Soviet work on the bomb in 1943."<sup>13</sup>

The discovery of nuclear fission in Berlin in 1938 also stimulated the interest of Soviet physicists who closely monitored international progress in the field of atomic energy. Leningrad became the leading research centre for such work. It was there that Igor Kurchatov headed up the nuclear laboratory at the Leningrad Physicotechnical Institute and was later to become scientific director of the atomic project. In addition, he co-ordinated the research of his own laboratory as well as that conducted by scientists working at the Radium Institute and at the Institute of Physical Chemistry. The Radium Institute was directed by V.G. Khlopin. The director of the Institute of Physical Chemistry was N.N. Semenov whose work on chain reactions earned him a Nobel Prize. In June of 1940 the Academy of Sciences set up a Uranium Commission, with Khlopin as chairman to direct research on the uranium problem. This, as David Holloway notes, "...was a clear sign of the Academy's interest in nuclear fission."<sup>14</sup>

At the end of 1940 or early in 1941, N.N. Semenov wrote a letter to the government on behalf of Kurchatov regarding the possibility of creating an atomic bomb. It generated little interest and with the German invasion all nuclear research was halted

completely. However, early in 1942, as a result of information obtained about British, American, and German work on the bomb, the Soviet leadership began to treat the issue more seriously.<sup>15</sup>

Stalin was deeply concerned about the costs of developing the bomb especially when two scientists suggested that it could equal the total costs of the entire war effort. However, Stalin agreed to initiate a small project under the direction of Kurchatov who began research in earnest in February or March of 1943. Current estimates of time for producing a bomb were thought to be between ten and twenty years. By the time of the Potsdam Conference the Soviet Union had a significant atomic bomb project underway.<sup>16</sup> News of the American success in producing the bomb came as a blow for the Soviet Union. As Alexander Werth, who was in Moscow at the time, wrote that the dropping of the bomb on Hiroshima had "an acutely depressing effect on everybody. The atomic bomb was seen as a threat to Russia, and some Russian pessimists...dismally remarked that Russia's desperately hard victory over Germany was now as good as wasted."<sup>17</sup>

The dropping of the atomic bomb on Hiroshima led Stalin to order the atomic research project to shift into high gear. Shortly after returning to Moscow after the Potsdam Conference as Holloway notes, Stalin summoned B.L. Vannikov, the Peoples Commissar of Munitions, and his deputies to the Kremlin where they were joined by Kurchatov to hear Stalin state: "'A single demand of you, comrades,' said Stalin. 'Provide us with atomic weapons in the shortest possible time. You know that Hiroshima has shaken the whole world. The balance has been destroyed. Provide the bomb--it will remove a great danger

from us."<sup>18</sup> It was estimated at this point that with unquestioned full support it would take approximately five years to produce an atomic bomb. As things turned out, the first Soviet test of an atomic bomb took place exactly four years to the month after that August meeting with Stalin (1949).

The Second World War saw a tremendous infusion of foreign technology enter the Soviet Union from outside, primarily in the form of captured German scientists, technicians, equipment and entire production plants disassembled in Germany and returned and rebuilt in the Soviet Union. Lend-Lease also provided them with the necessary technology and equipment to carry on the war effort. Also, during post-war reconstruction, the USSR utilized this technology to develop the TU-4 bomber which was an exact copy of the American B-29 (three of which made a forced landing on Soviet territory in 1944).<sup>19</sup>

It is interesting to note Holloway's comments on the progress of the Soviet atomic bomb project in 1945. It was, as he says:

...better organized than the German, and while the Soviet Union acquired some scientists, technicians and equipment, most of the leading German nuclear scientists fell into Western hands. The information passed by Klaus Fuchs (worked on Manhattan Project and passed on information to the Soviets) and other atomic spies was more important for the Soviet effort perhaps speeding up the development of the atomic bomb by as much as a year or two. But it is certainly wrong to say that this is how the Soviet Union acquired the 'secret' of the atomic bomb, for as Niels Bohr remarked, the only secret of the atomic bomb is that it can be built."<sup>20</sup>

The Soviet Union gained much more from German rocket technology. Having sent observers to Germany in 1945 to study its rocket technology, they returned to the Soviet Union and developed its

first long-range rocket, the R-1 which was test fired in October, 1947. It was, in fact, a modification of the German V-2.<sup>21</sup>

The United States also managed to acquire access to German rocket technology when Dr. Wernher Von Braun led his team with their important papers to the American forces. In retrospect, the Soviets, unlike the US, accorded higher priority to rocket development, initially, than did the US.

In October 1946, the Soviets rounded up thousands of German engineers and technicians and brought them back to the Soviet Union to work under the direction of Soviet scientists. In 1947, a Council of Chief Designers was set up to co-ordinate the Soviet program. It was chaired by S.P. Korolev, who later was responsible for designing the Soviets' first intercontinental ballistic missile. Some other important designers appointed to the Council were: V.P. Glushko (assigned to developing the liquid-propellant rocket motors for most of the USSR's strategic missiles), A.M. Isaev who was the Chief Designer of a bureau for rocket motors since 1944, and A.N. Pilugin, who was the Chief Designer of Control Systems. By 1950, the USSR had test fired the R-2, an improved development of the R-1, but with a range of 600 km, about twice that achieved by the R-1. Also, by this time work had begun on the SS-3, which was deployed in the mid-1950's<sup>22</sup> (see Illustration 5:5 regarding important dates in the early USSR nuclear weapons program).

Meanwhile, in 1949, in the United States, the General Advisory Committee, chaired by Dr. Robert Oppenheimer met concerning whether or not America should proceed with research leading to construction of a

ILLUSTRATION 5:5    IMPORTANT DATES    IN THE EARLY SOVIET NUCLEAR WEAPONS PROGRAM.

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25 December 1946 <sup>1</sup>	First chain reaction in an experimental pile.
10 June 1948 <sup>2</sup>	Plutonium production reactor goes critical.
29 August 1949 <sup>3</sup>	First test of a plutonium fission bomb.
October 1951 <sup>4</sup>	First test of a U-235 fission bomb.
12 August 1953 <sup>5</sup>	First test of a thermonuclear bomb, with a yield of 200–400 kilotons ('Joe-4').
22 November 1955 <sup>6</sup>	First superbomb test, with a yield of 1,600 kilotons.

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*Notes*

1. I.F. Zhezherun, *Stroitel'stvo i pusk pervogo v Sovetskoy Soyuz atomnogo reaktora*, Moscow: Atomizdat, 1978, p. 114.
2. *Ibid.*, p. 133.
3. W.J. Schultis *et al.*, *Analyses of Research and Development Trends in the U.S. and the U.S.S.R.*, vol. 2, Institute for Defense Analyses: Arlington, Virginia, 1971, Appendix B, p. B-47.
4. *Ibid.*, and *Announced Foreign Nuclear Detonations – Through December 31, 1978*, U.S. Department of Energy, Office of Public Affairs, Nevada Operations Office: Las Vegas, Nevada, p. 1. The Soviet Union held only two nuclear tests in 1951; the actual test dates are not known, but the U.S. government made the announcements in October, on the 3rd and the 22nd.
5. Herbert York, *The Advisors: Oppenheimer, Teller and the Superbomb*, San Francisco: W.H. Freeman and Co., 1976, pp. 89–91; see also David Holloway, 'Soviet Thermonuclear Development', in *International Security*, Winter 1979/80, vol. 4, no. 3, pp. 192–7.
6. York, *op. cit.*, pp. 92–3; Holloway, *op. cit.*, p. 195. The yield is taken from a declassified intelligence document quoted in full in the latter source.

SOURCE: DAVID HOLLOWAY, THE SOVIET UNION AND THE NUCLEAR ARMS RACE, (NEW HAVEN, 1983), p. 26

hydrogen bomb. It was lobbied strongly by Dr. Edward Teller and opposed equally strongly by Dr. Oppenheimer. In the end, the Committee recommended against it, on the basis that with no limits to its destructive capabilities that it would endanger humanity. In spite of this rebuff, Dr. Teller pushed hard for his so-called "super bomb" and ultimately won out over Dr. Oppenheimer's objections. President Truman ordered a crash H-bomb program. The first H-bomb was exploded on Eniwetok atoll in the Pacific in 1952. (See Illustration 5:6.)

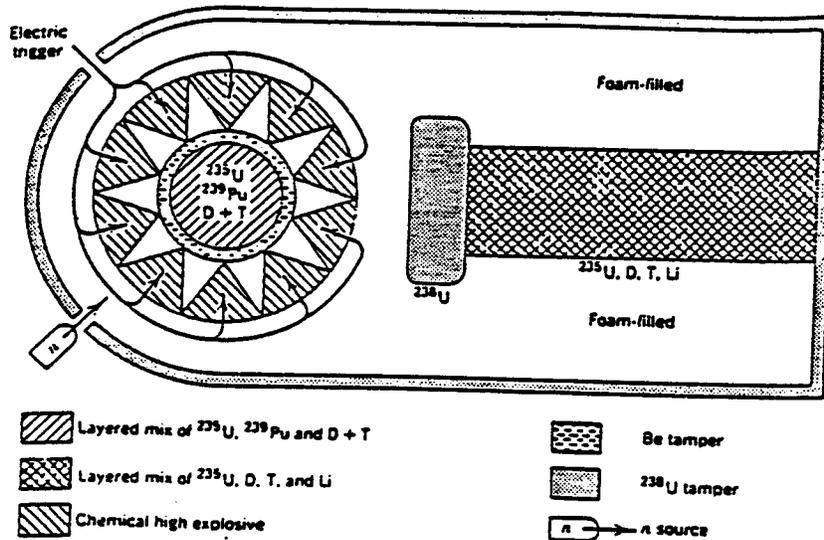
The USSR, in what was to become a classic example of the action-reaction phenomenon, which would characterize much of the future nuclear arms race, worked feverishly to duplicate the US achievement. In August, 1953 the Soviets tested what they considered to be a thermonuclear bomb. However, as Herbert F. York noted:

...the bomb tested by the Soviet Union, while thermonuclear--or, in the curious Soviet phrase 'one of the types of a thermonuclear bomb'--was not a 'superbomb.' It was not based on the principle that makes it possible to obtain an almost infinite yield from a combination of fission and fusion reactions. The Soviet test of August 1953, dubbed in the West 'Joe-4', had a yield in the order of 200-400 kilotons, while the American thermonuclear device (not a deliverable bomb) tested in October 1952 had a yield of 10 megatons, and the American bomb tested in February 1954 had a yield of 15 megatons. It was not until November 1955 that the Soviet Union tested a superbomb, with a yield of 1.6 megatons.

24

The awesome feature of hydrogen bombs, particularly the fission-fusion-fission devices is that not only are they enormously powerful, but they theoretically have no limit at all to their explosive power. (See Illustration 5:6.) For example, the US Titan II ICBM warhead has a yield of 10 megatons. This is equivalent to 10

ILLUSTRATION 5:6 THE FUSION "H" BOMB.



A typical hydrogen bomb is a four-stage device. In the first stage, a conventional explosion is set off; in the second stage, the conventional explosion initiates a fission reaction, which is, in fact, an atomic bomb; in the third stage, the heat from the atomic bomb initiates a fusion reaction; and in the fourth stage neutrons from the fusion reaction initiate additional fission, on a scale vastly greater than the first, in a surrounding blanket of fissionable material. "The trigger," he said, "consists of a carefully fashioned, subcritical, spherical piece of plutonium, with a neutron-initiator device in its interior and a high-explosive jacket surrounding it. Things begin when detonators all over the sphere of the high-explosive jacket go off as nearly simultaneously as the design permits. Now the high-explosive jacket explodes and sends a shock wave travelling inward in a shrinking concentric sphere, and gaining in force and temperature as it proceeds. When its leading edge reaches the plutonium core, there is an abrupt jump in pressure, which squeezes the plutonium in on all sides with great precision. The pressure makes the plutonium go from subcritical to supercritical. At this point, the neutron initiator fires, and the chain reaction begins. The trick is to compress the plutonium as much as possible as quickly as possible because then more generations of nuclei will be fissioned, and more energy will be released, before the explosion, in effect, blows itself out. When that happens, all the energy from the plutonium trigger will have been released, and particles whose atomic identity has been lost will be boiling and surging in an expanded sphere whose temperature exceeds stellar levels. Now the fusion--otherwise known as the thermonuclear reaction, because of the extreme heat needed to initiate it--can begin. The fusion fuels--lithium and isotopes of hydrogen--fly around with such velocity that they can simply coast right into one another, spitting out nuclear particles as they fuse. This is not a chain reaction, but again the explosion is stopped by the expansion caused by its own heat. By the time that happens, however, the last stage--the fissioning, by neutrons released both by the fission trigger and by the fusion reaction, of the surrounding blanket of material, which might be uranium-238--is under way. There is basically no limit to the size or yield of a thermonuclear weapon. The only limits on a bomb's destructive effect are the earth's capacity to absorb the blast."

Source: Dietrich Schroerer, *Science, Technology, and The Nuclear Arms Race*, (New York: John Wiley & Sons, 1984), p. 63.

Jonathan Schell, *The Fate of The Earth*, (New York: Alfred A. Knopf, 1982), pp. 16-17.

million tons of TNT and is 800 times more powerful than the atomic bomb dropped on Hiroshima. A single Titan II warhead has more than three times the explosive power of all the bombs dropped by air on Germany in World War II. To reach further into the realm of the unfathomable Suddaby notes that:

the most powerful hydrogen bomb ever tested was made by the Russians, and it had a yield variously estimated at between 58 and 65 megatons. Khrushchev is reported to have declared that the bomb could have been made even bigger, but that all the windows in Moscow, some 4000 miles away from the testing ground, might have been shattered by the blast. 25

### 3. The Nuclear Arms Race Begins

In 1945, at the end of the war, the US, alone, possessed the secrets of the atomic bomb. However, it had only one bomb left in its arsenal. Already, fears of nuclear proliferation were spreading around the world. Secretary of State Dean Acheson, and David Lilienthal, Chairman of the US Atomic Energy Commission put forth a proposal to control the proliferation of atomic energy research and development. It was referred to as the Baruch Plan and seemed doomed to be rejected right from the start. The proposal called for the establishing of a International Development Council which would take possession of the nuclear warheads from the US only if the Soviet Union immediately relinquished control of its uranium mines and production facilities to an international authority. In the meantime, the US would continue constructing more bombs and conducting research on new weapons until it was satisfied with the international procedures for inspection and control. Any nation trying to subvert the agreement would be punished

by the United Nations at the behest of the Security Council which was dominated by the US. In addition, Russia would also have to give up its power of veto. Needless to say, considering the fact that in 1945, the US alone possessed atomic weapons' capabilities, and realizing the extreme fears that the Soviets harboured about this situation, it is not difficult to understand why the USSR rejected the Baruch Plan outright, thus enabling the US to continue expansion of its arsenal and research into viable delivery systems.

26

Considering the high level of anti-Soviet feeling in America immediately after the war, it is not difficult to understand Stalin's decision to produce a Soviet atomic weapon as quickly as possible. Statements such as that by Eugene Rostow (formerly President Reagan's director of the Arms Control and Disarmament Agency), who, in 1946, circulated a memo among people at the Office Of Strategic Services proposing that "...Stalin be given an ultimatum--democratize your society or we will obliterate your cities with nuclear weapons."

The mutual mistrust and fear as well as the paranoia suffered by the USSR were enough reasons, by the time both possessed atomic and hydrogen weapons, to start the nuclear arms race. As Adam Ulam points out:

...1950-1951 was the period of the building and acquisition of American air bases, stretching from the Atlantic almost to the Persian Gulf, from which American aircraft could reach Russia's interior and most of her industrial centres.

28

The USSR was not in a position to counter any US nuclear threat until 1954, when it managed to produce a relatively small number of TU-4 and Badger bombers, which could reach the US from Soviet bases.

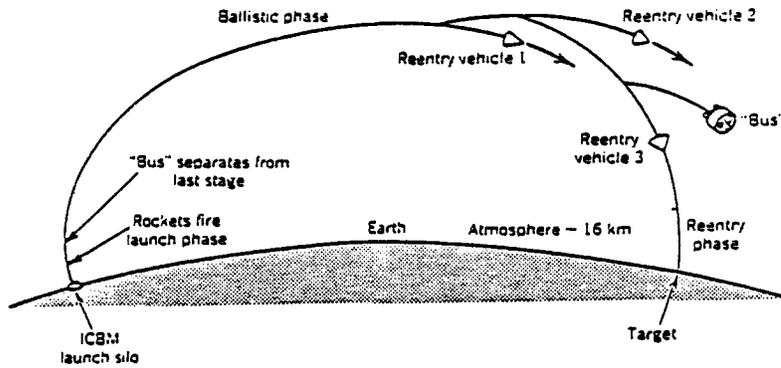
However, due to fuel constraints the bombers would be unable to complete a return trip to the USSR. By 1957, with the Soviet's launching into space the world's first satellite, the new era of intercontinental ballistic missiles (ICBM's) was about to begin. Then the race really began in earnest on both sides. (See Illustration 5:7 which depicts the three phases of flight of an ICBM.)

An important addendum to the above is outlined in explicit detail by Fred Kaplan in his book The Wizzards of Armageddon. In it he relates that for over thirty years, beginning almost from the dropping of the first atomic bomb on Hiroshima, that a small group inside the US strategic community had been devising the plans and shaping the policies on how to use the bomb. Some of the brightest minds in America from multi-academic disciplines studied the subject in-depth and produced position papers which ultimately found their way into government policy pronouncements. One of the most prominent of these think-tanks was established by the US Air Force. It was called the Rand Corporation. (Two other prominent think tanks were The Hudson Institute and The Brookings Institution which did similar work.)

Kaplan explains its inception as follows:

Rand had its origins in the military planning rooms of World War II. It was a war in which the talents of scientists were exploited to an unprecedented, almost extravagant degree. First, there were all the new inventions of warfare--radar, infrared detection devices, bomber aircraft, long-range rockets, torpedoes with depth charges, as well as the atomic bomb. Second, the military had only the vaguest of ideas about how to use these inventions; thinking about new problems was not an integral feature of the military profession. Someone had to devise new techniques for these new weapons, new methods of assessing their effectiveness and the most efficient way to use them. It was a task that fell to the

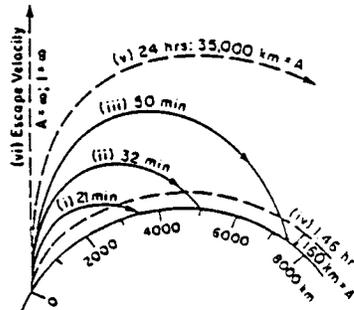
ILLUSTRATION 5:7 THE THREE PHASES OF THE FLIGHT OF AN INTERCONTINENTAL BALLISTIC MISSILE.



The three phases of the flight of an intercontinental ballistic missile.

In considering the range of a ballistic missile, as a first approximation the launch and reentry phases can be ignored (i.e., one can act as if the ballistic rocket instantaneously reaches the final ballistic velocity  $v$ , and as though it flies at all times in a vacuum). The range of a rocket depends very strongly on its ballistic, or terminal, velocity.

Figure 6.3 shows this relationship for various ballistic velocities of a rocket fired at  $45^\circ$  with respect to the earth's surface. It shows, for example, that an increase of 33% in the ballistic velocity from 5.5 km/sec to 7.4 km/sec increases the range of the missile by 108% from 3450 km to 7180 km. For a velocity of 8 km/sec, the missile can go into orbit at an altitude of 160 km just above the atmosphere, circling the earth in 1



Trajectories of ICBMs launched at  $45^\circ$  to the horizontal, with instantaneous velocities of (i) 5.5 km/sec, (ii) 6.4 km/sec, (iii) 7.4 km/sec, (iv) 8 km/sec, (v) 10.7 km/sec, and (vi) 11.2 km/sec. Case (iv) involves enough ballistic speed to put the missile into orbit just above the earth's surface; case (v) can put the rocket into a geosynchronous orbit 38,000 km above the earth's surface; in case (vi) the rocket will leave the earth altogether. The flight times are indicated for (i), (ii), and (iii); for (iv), (v), and (vi), the times required to complete one orbit are shown.

Source: Dietrich Schroerer, Science Technology And The Nuclear Arms Race, (New York: John Wiley & Sons, 1984), p. 139.

scientists...In short, precisely how should these new weapons be used to produce the greatest military payoff?...The operational research groups were composed of scientists of all fields--physics, astronomy, chemistry, physiology, zoology, economics, mathematics--and thus were called "mixed teams." 29

The Rand Corporation came into being on March 1, 1946. Working initially out of the Douglas Aircraft building in Santa Monica, California the Rand staff worked along with the Douglas engineers strictly on technical and engineering problems: comparisons of rockets and ramjets, the use of titanium alloys on supersonic airplanes, aerial refueling, bomber and fighter designs, nuclear propulsion, upper-atmosphere physics as well as new mathematical and statistical techniques.<sup>30</sup>

During the late 1940's and early 1950's the connection of Rand to the nuclear arms race can be gleaned from the following: "It was run under Air Force contract....The Air Force was the only service that had the atom bomb; American security policy was based almost entirely on the bomb; therefore, Air Force policy essentially was national security policy, and Project Rand was the Air Force centre of ideas."<sup>31</sup>

The Soviet Union, in contrast, had no "think-tanks" comparable to the Rand Corporation, the Hudson Institute, the Brookings Institution, or many others doing, among other things, government contracted defense research in the United States to explore problems of strategic concern. As David Holloway notes, particularly up until the death of Stalin, "Weapons development and military doctrine existed in separate worlds: the former was pushed at a rapid pace, the latter was

stifled."<sup>32</sup> Holloway also quotes Major General Kozlov who wrote later that:

...Stalin's scornful statements about atomic weapons were the reason why our military thought was not directed in time to an objective and far reaching evaluation of the new instruments of warfare, to the discovery and analysis of new phenomena of armed conflict and of the revolution in military affairs which had developed.

33

By 1966, Soviet concern about the lack of such resources, as well as the need for them to keep abreast of the US in nuclear research and development, was reflected in an article co-authored by V.D. Sokolovskiy and M.I. Cherednichenko. They commented that the RAND and the Hudson Institute in the US were at work solving 'many military problems.' They also made note of similar work being done at the British Institute of Strategic Studies, as well as a 'technical centre' attached to the NATO Supreme Command doing strategic planning. Work at such research centres, the Soviet writers stated, is brought about by bringing together highly qualified specialists--a 'huge army of scientific, military and political Illustrations' who are devising plans for 'an openly aggressive strategy.'

34

Not long after, in 1967, the Institute of The United States (later to include Canada) was established. Its location, as the Scotts point out "...is no accident, as the Russians so often say, that the new institute was located immediately across the street from the apartment building where Marshal Sokolovskiy and other senior Soviet officers were living at the time."<sup>35</sup> Many prominent military specialists in various fields of military expertise were subsequently appointed to do research at the Institute of the USA.

By the late fifties the nuclear arms race was not only picking up speed but was also resulting in increasing levels of nuclear strategic weapons and delivery systems on both sides. As this transpired, fears began to grow about possible US-USSR confrontations that might result in a nuclear holocaust. Already, by 1954 there were enough nuclear weapons in the US and USSR's stockpiles to completely annihilate the whole world. Despite this ominous fact, the numbers and technological sophistication of such systems was reaching, already, mind-boggling proportions of destructive capability.

#### 4. The Dynamics Of The Nuclear Arms Race

From 1949 onwards, once the Soviets had joined the exclusive nuclear club, the numbers of weapons and weapons systems grew on both sides. As mentioned earlier, paradoxically, increased levels of national security consciousness did not result, rather, feelings of insecurity, fear, mistrust, and vulnerability grew dramatically. Perceptions or misperceptions of each other's capabilities and intentions not only helped fuel the arms race, but had a direct bearing on the respective nuclear strategic doctrines that both the USSR and the US formulated. As mutual relations improved or deteriorated, so also did their respective doctrines evolve to suit the changing conditions. Technological advancements by one power or the other were also significant factors which helped to perpetuate the arms race.

Some startling facts which help to put the magnitude of the arms race into perspective are as follows. Since World War II, governments around the world have spent approximately 9 trillion

dollars (US) on defense, with the US and USSR being the largest spenders. Collectively, they represent only 11% of the world's population, but spend almost one-half of the world's military budget (in 1982 it exceeded \$600 billion). Even if one factors in the inflation component the overall figures are still staggering. In addition, the US and USSR alone export 58% of the arms moving in international trade while controlling 96% of the world's nuclear weapons. With no hope in sight of reversing this trend, the arms race continues to accelerate.<sup>36</sup>

While there is no single factor which alone contributes to fueling the nuclear arms race, there are, however, a number which collectively do contribute to its continued growth. The following will be examined in varying degrees of detail to illustrate their significance. It should be mentioned that, while all of these factors are present in both the US and USSR, some tend to play a more significant role in either the USSR or the US--ie. technological advancements by the US have consistently been ahead of those in the USSR. In contrast, while ensuring a defined level of national security is important to the US, the USSR is virtually paranoid about the subject.

##### 5. National Security

National security, during the post-war period, has achieved tremendous significance in overall East-West relations. However, as Robin Luckham points out it is a "nebulous word. Like patriotism and motherhood it is hard to be against. Yet it is as well to enquire into

its history, meaning, and use, at least that made of it by politicians, the military establishment, and 'security analysts.'<sup>37</sup> He goes on to note that: "'Security' in the sense that it is now most commonly used is the brainchild of the Cold War. It is an ideology which legitimizes a number of crucial trends in the post-World War II world order."<sup>38</sup>

In the United States the words came into prominence in 1947 when the National Security Act, which created the National Security Council, was established. From it evolved a brand new set of institutions covering areas from loyalty checks to covert intelligence operations. Despite the nefarious aura that surrounded its activities it is interesting to note, as Richard Barnet points out that "...at no time has there been a national debate on what constitutes national security or how it can be achieved."<sup>39</sup>

In the US, the meaning today of national security differs little from the thoughts of the cold-war strategists in the 1940's and 1950's. As Barnet points out, national security still rests on three pillars:

- (1) Maintaining a military 'balance,' that is, having more nuclear weapons and more advanced technology than the Soviet Union or anyone else;
- (2) maintaining alliances around the world that promise or imply a promise, that the United States will resist by force any changes in the status quo that would favor the Soviet Union; and
- (3) maintaining a world wide presence through military bases, arms shipments, private investment, covert operations and increasingly private banks...the whole complex designed to keep as much of the world as possible respectful of American interests, hospitable to American investment, and available for the exploitation of natural resources.

By presenting such an aggressive posture the United States could not possibly avoid eliciting an intractable challenge from the Soviet Union.

The USSR does not use the term national security in the same way the US defines it. More often the subject is described in terms of protecting the motherland from outside influences which are anathema to Soviet socialist precepts. Fear of any external threat to the Soviet Union has historically reached levels of paranoia. Also, as a co-superpower it has international and regional interests which it considers to be inviolable. The retention of Eastern Europe is "...aside from the Soviet Union itself, the one area for whose preservation under their dominion they would take high risks of war with the United States."<sup>41</sup> As Soviet military power has increased and grown to be global in perspective, particularly since the early 1960's, the Soviets have been cautious in using it. They have chosen to use proxy troops (Cuban) to ensure their interests were protected (Angola). Afghanistan is the first time since World War II that the Soviets have committed combat troops abroad in a war.

The very antagonistic nature of the US-USSR relationship meant that their interests were destined to collide with each other. In order to ensure national security at home and in the areas each considered to be in their sphere of influence, both superpowers came to regard the possession of equal or superior military capabilities as necessary to alleviate their defensive fears and to support their international goals. The mutual fears and mistrust that each had about the other, whether real or imagined, eventually provided a stimulus for

each to develop and deploy more and more nuclear arms to meet real or perceived threats.

In essence, both the US and USSR are deeply concerned about providing for their respective national security in view of perceived or real threats posed by the opposition. Consequently, since both share a mortal fear of each other and since nuclear weapons are the most powerful available, each sees the maintenance of predefined levels of national security as requiring the possession of more than, or at least equal numbers of such weapons. Both consider this necessary to counter any threat posed by the opposition.

It is the collective fear, mistrust and perception of real or imagined threats by both the US and USSR regarding their predefined levels of national security that has led to it becoming a significant factor in propelling the arms race. <sup>42</sup> The following two extracts, one from the Soviet Union's perspective, and the other from the United States perspective, clearly illustrate the defensive attitudes on both sides, which only add fuel to the fire:

The Soviet Union was not the first to make the atomic bomb. It never used it and never engaged in blackmail. It...did not threaten anyone with nuclear destruction and did not surround Western Europe with military bases, although it was itself encircled... The Soviet Union has no forward-based system spearheaded at the very heart of another country, whereas the United States does have such a system.... The fact (is) that the Soviet Union has been compelled to do no more than answer challenges and catch up with the United States to maintain the balance of forces...When we study the situation created by political and military developments, is it surprising that the USSR should have found it necessary to create its own military potential...to counterbalance everything that threatened it?' 43

An extract by US General D.C. Jones, former US Chairman of The Joint Chiefs Of Staff, illustrates the American position, which in many ways is a mirror image of the Soviet one.

There is no question that Soviet momentum has brought them from a position of clear inferiority to their present status of at least strategic equality with the United States and the trends for the future are adverse...It is essential to proceed with out SLBM modernization programme, the development and deployment of the MX missile and rapid deployment of the 'air-launched cruise missile.' Over the longer term, I believe we must continue with the development of a manned penetrating aircraft to succeed the B-52...In summary, we face a period of high risk and great uncertainty in the strategic balance throughout most of the coming decade. We must be resolute in pursuing the modernization programme needed to overcome the effects of 15 years of strategic neglect. I consider our current programme a minimum baseline; depending upon future Soviet policies, actions and programmes, we may well need to do more.

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With such inflammatory and intimidating statements by both superpowers, it is not difficult to comprehend their influence on speeding up the nuclear arms race. (See Tables 5:8-A and 5:8-B.) They will illustrate in numerical terms the growth of intercontinental nuclear warheads and delivery systems by both the US and USSR during the period 1950-1980. More specific dates will be outlined later.

#### 6. The Action-Reaction Phenomenon

Simply described, it holds that as one superpower develops and deploys more or better nuclear weapons--which it inevitably justifies as essential in order to maintain its security--the other superpower, just as inevitably, views this as a threat. The general reaction is frequently to reply in kind. The end result is that new nuclear

TABLE: 5:8-A

US NUCLEAR INTERCONTINENTAL NUCLEAR FORCES  
DEVELOPMENT 1950-1980.

**Strength of Western and Chinese Nuclear Forces, by Number of  
Delivery Systems and Warheads, 1950-80**

Nuclear force and instrument	Number						
	1950	1955	1960	1965	1970	1975	1980
<i>Delivery systems</i>							
Intercontinental forces (U.S. only)	520	1,309	1,809	2,157	2,171	2,159	2,016
Bombers <sup>a</sup>	520	1,309	1,735	807	501	489	428
Land-based missiles	0	0	42 <sup>b</sup>	854	1,054	1,054	1,052
Sea-based missiles	0	0	32	496	616	616	536
Regional forces	116	441	772	782	668	802	853
United States							
Theater nuclear missiles <sup>c</sup>	0	114	128	252	108	108	108
QRA aircraft <sup>d</sup>	0	12	72	72	72	68	66
Forward-based bombers	45	135	0	0	0	0	0
Carrier-based aircraft	0	0	58	120	120	96	96
Sea-based missiles	0	0	0	40	40	40	40
European allies of the United States							
Theater nuclear missiles <sup>c</sup>	0	0	72	72	72	72	72
QRA aircraft <sup>d</sup>	0	56	96	110	92	48	34
Carrier-based aircraft	0	0	0	12	12	14	0
Medium- and intermediate-range missiles	0	0	105	0	0	18	18
Bombers	70	122	180	104	86	86	81
Sea-based missiles	0	0	0	0	48	112	128
China							
Bombers	0	0	0	12	18	60	90
Medium-range missiles	0	0	0	0	0	80	122
All delivery systems	636	1,750	2,581	2,939	2,939	2,961	2,869
<i>Warheads<sup>e</sup></i>							
Intercontinental range	n.a.	2,310	4,362	4,002	3,689	7,725	8,018
Regional range	n.a.	698	772	862	748	1,290	1,343
All warheads	n.a.	3,008	5,134	4,864	4,437	9,015	9,361

Sources: Stockholm International Peace Research Institute, *Tactical Nuclear Weapons: European Perspectives* (London: Taylor and Francis, 1978), pp. 16, 109-16, 124-34, 130-36; Bill Gunston, *The Illustrated Encyclopedia of the World's Rockets & Missiles* (Crescent Books, 1979), pp. 34-41; George H. Quester, *Nuclear Diplomacy: The First Twenty-five Years* (Dunellen, 1970), p. 111; Department of Defense Semi Annual Report and the Semiannual Reports of the Secretary of the Army, Secretary of the Navy, Secretary of the Air Force, January 1 to June 30, 1956 and the reports for 1957-61; Aviation Week and Space Technology, February 25, 1963, p. 105; Strategic Air Command, Office of the Historian, *Development of Strategic Air Command 1946-1976* (U.S. Air Force, 1976), pp. 20, 47, 81, 119, 148, 177; United States Military Posture for FY 1979 (U.S. Office of the Joint Chiefs of Staff, 1978), p. 32; IISS, *The Military Balance 1965-1966, 1970-1971, 1975-1976, 1980-1981*.

n.a. Not available.

a. Does not include aircraft in storage. By the early 1960s many bombers were equipped to launch nuclear air-to-surface missiles (ASMs) such as the Hound Dog and, later, short-range attack missiles. In 1960, 54 ASMs were operational; in 1965, 542; in 1970, 345; in 1975, 1,759; and in 1980, 1,020. The flexibility of bomber operations increased as airborne tankers entered the air force. In 1950, 126 tankers were operational; in 1955, 761; in 1960, 1,094; in 1965 and 1970, 615; in 1975, 599; and in 1980, 515.

b. Includes 30 U.S. Air Force Snark intercontinental-range cruise missiles.

c. Includes the early Mace and Matador cruise missiles and the Redstone and Pershing ballistic missiles.

d. Quick-reaction alert aircraft.

e. Before the development of thermonuclear weapons, the number of nuclear weapons available for delivery was substantially less than the number of delivery systems.

SOURCE: Robert P. Berman and John C. Baker, Soviet Strategic Forces Requirements and Responses, (Washington, 1982), p. 43.

TABLE: 5:8-B

SOVIET NUCLEAR INTERCONTINENTAL FORCES DEVELOPMENT:  
1955-1980.Soviet Nuclear Forces, by Number of Delivery Systems and Warheads,  
1955-80

Nuclear force and instrument	Number					
	1955	1960	1965	1970	1975	1980
	<i>Delivery systems</i>					
Regional forces	1,320	1,580	1,718	2,040	2,219	2,132
Bombers	1,296	1,296	880	724	660	655
Battlefield nuclear missiles <sup>a</sup>	24	48	28	54	72	72
Medium- and intermediate-range missiles	0	200	705	607	598	580
Variable-range missiles <sup>b</sup>	...	...	...	290	320	380
Sea-based missiles	0	36	105	365	569	445
Intercontinental forces	0	149	434	1,456	1,652	1,696
Land-based missiles	0	4	224	1,220	1,267	1,018
Sea-based missiles	0	0	15	41	196	522
Heavy bombers	0	145	195	195	189	156
All delivery systems	1,320	1,729	2,097	3,496	3,871	3,828
	<i>Warheads</i>					
Regional range	324	1,034	2,085	2,281	2,467	3,497
Intercontinental range	0	294	381	1,403	1,875	6,156
All warheads	324	1,328	2,466	3,684	4,342	9,653

Sources: International Institute for Strategic Studies, *The Military Balance* (London: IISS), selected years; *United States Military Posture for 1982* (U.S. Office of the Joint Chiefs of Staff, 1981), pp. 99, 100; Edward L. Warner III, *The Military in Contemporary Soviet Politics: An Institutional Analysis* (Praeger, 1977), pp. 187-200; "Statement of Secretary of Defense Robert S. McNamara before a Joint Session of the Senate Armed Services Committee and the Senate Subcommittee on Department of Defense Appropriations on the Fiscal Year 1966-70 Defense Program and the 1966 Defense Budget," declassified (U.S. Department of Defense, 1965), and statements for the budgets of 1967 and 1970; Robert P. Berman, *Soviet Air Power in Transition* (Brookings Institution, 1978), p. 23; *Department of Defense Annual Report Fiscal Year 1982*, p. 66.

a. Includes the SS-3 and SS-12 operational missiles.

b. Initially, nuclear weapon production lagged substantially behind the number of potential delivery systems. Additionally, the early TU-4 Bull bomber probably was only assigned to deliver nonnuclear weapons.

SOURCE: Robert P. Berman and John C. Baker, Soviet Strategic Forces Requirements and Responses, (Washington, 1982), p. 42.

weapons are almost always justified with reference to preceding actions by one's opponent. This phenomenon has tended, historically, to follow technological advances by one side provoking an equal response from the other.<sup>45</sup> (See Illustration 5:9 which depicts the relative US/USSR standing in the most important technology areas.)

The period 1950-1984 is full of examples of the action-reaction phenomenon. The following is a brief summary of events which produced these examples. It should be pointed out that over the years it has been the US which has consistently led in the field of technological development (the one significant exception was the introduction of the first ICBM which the Soviets tested on August 26, 1957, which was followed a couple of months later by the Soviets rocketing the first ever satellite into orbit around the earth).

During the early 1950's the American public, primarily through the news media and government pronouncements, was alerted to the fact that the Soviet bomber force was far greater than previously thought. The US Air Force was instrumental in spreading the fearful news of a so-called "bomber gap." In reality it was an invention of the Pentagon to justify getting larger appropriations of money to deploy the Air Force's new B-52 intercontinental bomber fleet to counter the perceived Soviet threat. The Soviets chose to spend their time and money on new missile technology. Once they launched their first test missile in 1957, President Eisenhower reacted by setting up the Gaither Committee to determine the extent of the Soviet missile threat. Despite the fact that the Soviets rejected his "Open Skies" proposal to slow down the arms race by allowing for on-site verification of each other's nuclear

ILLUSTRATION 5:9 RELATIVE US/USSR STANDING IN BASIC TECHNOLOGY AREAS.

Basic Technologies	1980			1982		
	US Superior	US-USSR Equal	USSR Superior	US Superior	US-USSR Equal	USSR Superior
Aerodynamics/fluid dynamics		X			X	
Automated control	X			X		
Conventional warhead (including chemical explosives)						X
Computer	-X			X		
Directed energy		X			X	
Electro-optical sensor (incl. IR)	X			X-		
Guidance and navigation	X-			X-		
Hydro-acoustic	X					
Intelligence sensor	X					
Manufacturing/production	X			X		
Materials (light weight, high strength)	X-				-X	
Microelectronic materials and integrated circuit manufacture	-X			X		
Non-acoustic submarine detection		X				
Nuclear warhead		X			X	
Optics	X-			X-		
Propulsion (aerospace)	X-			X-		
Power sources (mobile)						X
Radar sensor	X-				X	
Signal processing	X			X-		
Software	X			X		
Stealth (signature reduction technology)				X		
Submarine detection (including silencing)				X-		
Telecommunications	X			X		

Source: David Holloway, The Soviet Union And The Arms Race, (New Haven: Yale University Press, 1983), p. 136.

deterrent, Eisenhower proceeded, despite this fact, to authorize secret U-2 reconnaissance flights over the USSR to determine the extent of Soviet missile capabilities. The Gaither Committee reported back to Eisenhower that by 1959 the Soviets could launch 100 ICBMs against the US. Thus the birth of the infamous "missile gap" which also proved to be a myth. In reality, as Illustrations 5:8-A and 5:8-B reveal, the USSR, in 1960, had only 4 ICBMs while the US had 42. What was not said, was that the overwhelming majority of Soviet land based missiles in 1960 were short-range missiles targeted on Western Europe. Nevertheless, the so-called "missile gap" led to the acceleration in production of US ICBMs as well as SLBMs. The USSR reaction was not seen for several years, not until the arms race had reached a new momentum.<sup>46</sup> By 1970, Tables 5:8-A and 5:8-B indicate that Soviet intercontinental forces grew from 4 land-based missiles and 145 heavy bombers to 1220 ICBM's and 195 heavy bombers. The US was not standing still while Soviet strength was building. It increased its overall lead, which it had not lost to date, from 42 land-based missiles, 32 sea-based missiles and 1735 heavy bombers in 1960, to 1054 land-based missiles, 616 sea-based missiles, and, 501 heavy bombers in 1970. Total warheads reveal a more complete picture.

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	<u>DELIVERABLE INTERCONTINENTAL RANGE WARHEADS</u>		
	<u>1955</u>	<u>1960</u>	<u>1970</u>
<u>US</u>	2310	4362	3689
<u>USSR</u>	0	294	1403

In 1960 the US launched its first Polaris ballistic missile submarine. Five years later the USSR launched its version of the Polaris. It was a diesel-powered Golf-class missile carrying submarine which carried 3-SS-N-4 ballistic missiles with a range of 350 (NM)--not quite in the class of what is considered strategic nuclear weapons. However, by 1968 the Soviets launched their first Yankee-class SSBN, equipped with 16-1300(NM) SS-N-6 missiles. These could be considered fairly comparable to the US Polaris SSBN with 16 A-1 missiles. However, the US had already begun to modernize its SSBN fleet by adding the follow-on Polaris A-3 with its Multiple Independently Targetable Reentry Vehicle (MIRV) capability. (See Illustration 5:10.) The new missiles carried 3 warheads and had a range of 2500 (NM). While this system was being deployed, a more advanced SSEN, the Poseidon was being tested and made ready for deployment. The Soviets, in turn, did not develop and test MIRV'd missiles until 1973, five years after the US had deployed them. This technological concept led to enormous increases in numbers of warheads on each side as older missiles were either replaced or updated to carry multiple warheads.<sup>48</sup>

Current US technological developments such as the Manoeuvrable Reentry Vehicle (MARV) and cruise missiles are being closely monitored and developed by the USSR.

The action-reaction phenomenon is undoubtedly one of the key factors in fueling the nuclear arms race. Its potential seems endless as both powers currently are researching Ballistic Missile Defense (BMD) systems. If this system continues to be developed and deployed

ILLUSTRATION 5:10 MULTIPLE INDEPENDENTLY-TARGETABLE RE-ENTRY VEHICLES (MIRV) AND MRV'S.

## Multiple re-entry vehicles (MRV)

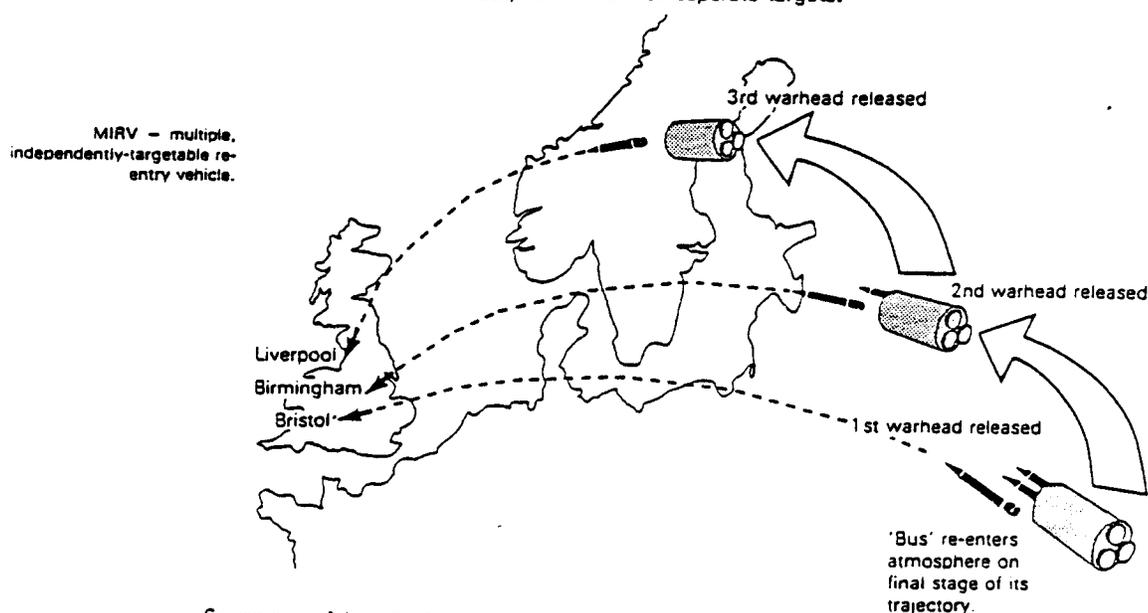
Modern ICBMs (and submarine-launched ballistic missiles – SLBMs) have a very important feature which has had severe repercussions on the nuclear arms race, nuclear strategy and the risks of nuclear war: this is that many modern missiles carry not just one nuclear warhead, but several – sometimes as many as 10.

The process of fitting more than one warhead to a missile was begun by the Americans in the early 1960s. At first, these missiles were known as multiple re-entry vehicles (MRVs) and what they did in effect was to replace a single large warhead by several smaller ones designed to scatter around a target much like shotgun pellets. The destruction caused by several small warheads is greater than that caused by one large warhead.

## Multiple independently-targetable re-entry vehicles (MIRV)

During the early 1960s, however, there were increasing fears that anti-ballistic missile systems could be developed. These, it seemed, might be launched at high speed towards incoming ICBM or SBLM warheads and destroy them high in the atmosphere (see Chapter IV). Accordingly, considerable attention was given to a variety of means to overcome this potential threat which might, in the future, lessen the ability of offensive missiles to reach their targets. The most important of the systems designed to overcome ABMs became known as MIRV – multiple independently-targetable re-entry vehicles.

The principle of MIRV is that a single missile carries not one, but several warheads. Unlike MRV however, these are not all released together and scattered at random around their target, but rather, carefully released and directed, each to separate targets which can be hundreds of miles apart. This enables them to avoid ABMs. The principle of operation is simple. After the final rocket stage of the missile had been released high in space, the 'post-boost control system' or 'bus' releases the first warhead which falls down in a trajectory towards its target. Then, using booster motors, the bus alters course and then releases the second warhead. This process continues until all the warheads have been despatched to their separate targets.



Source: Adam Suddaby, The Nuclear War Game, (London: Longman, 1983), p. 46.

by both sides it can only result in a quantum leap in the nuclear arms race.

### 7. The Role Of Scientists And Technologists

It is difficult to comprehend how such an arms race could have advanced one step without the time and money which has been spent by the scientific and technological communities. The US, which is, and has been, in the forefront of these fields, particularly since the success of the Manhattan Project, has shown the world the best and the worst sides of science and technology. Along with dramatic discoveries in medical science, space technology, agriculture and industrial technology, as well as a host of others, the US has been instrumental in improving the lives and well-being of its citizens as well as their life expectancy. Ironically, it is the US that has led the way scientifically and technologically in development of weapons with horrendous destructive capability. The USSR equally devotes a commensurate amount of scientific and technological brainpower to produce the same such weapons. However, it has traditionally been compelled to play catch-up as the US has consistently been the first to initiate major developments in nuclear weapons technology.

It is a sad commentary on the present state of the world when one considers the vast scientific resources devoted to the nuclear arms race. Frank Barnaby, former Director of the Stockholm International Peace Research Institute, makes this fact abundantly clear when pointing out that:

Today nearly half a million scientists work only on military research and development, about 40 per cent

of all scientists employed on research. If only physicists and engineering scientists are counted, it is well over 50 per cent. Two-fifths of world research and development expenditure, about \$50,000 million, is devoted to military research and development.

An effort of this magnitude cannot fail to produce staggering results. Improvements in warhead design and missile accuracy, which have virtually reached their theoretical limits, are just two examples which indicate the incredible progress made by military technology since World War II. In the next 30 years we can expect technological revolutions in space warfare, anti-submarine warfare, electronic warfare, air defense systems, early warning systems command control and communications systems, the automated battlefield, the military use of high-energy lasers, ballistic missile defense, and a number of other fields.

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Apart from the concern for national security, there are many other factors which influence scientists to do such research. One important one that cannot be overlooked is the fascination with technical matters. This factor is excellently illustrated, oddly enough, by Alfred Nobel (the inventor of dynamite) who, more than half a century before the discovery of nuclear weapons, when speaking about his work with explosives to a friend said:

...you know, it is rather fiendish things we are working on, but they are so interesting as purely theoretical problems, and so completely technical, as well as so clear of all financial and commercial considerations, that they are doubly fascinating. 50

It is the view of Sir Solly Zuckerman (former chief Scientific Advisor to the British Government) that it is the scientists who are largely responsible for the nuclear arms race. He makes his case in his book entitled Nuclear Illusion And Reality, when, speaking about scientists and their role in the nuclear arms race, he observes that:

In the nuclear world to-day, military chiefs, who by convention are a country's official advisors on

national security, as a rule merely serve as the channel through which the men in the laboratories transmit their view. For it is the man in the laboratory, not the soldier or sailor or airman, who at the start proposes that for this or that reason it would be useful to improve an old or devise a new nuclear warhead; and, if a new warhead, then a new missile; and given a new missile, a new system within which it has to fit. It is he, the technician, not the Commander in the field, who starts the process of formulating the so called military need. It is he who has succeeded over the years in equating, and so confusing, nuclear destructive power with military strength, as though the former were the single and sufficient condition of military success. The men in the nuclear laboratories of both sides have succeeded in creating a world with an irrational foundation on which a new set of political realities has, in turn, had to be built. They have become alchemists of our times, working in secret ways that cannot be divulged, casting spells which embrace us all. They may never have experienced the devastation of war, but they know how to devise the means of destruction. The more destructive power there is so one must assume, I imagine, the greatest chance of military success.

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(See Table 5:11 which illustrates the overall effect of a technological advance such as MIRV'ing had on the nuclear arms race.)

## 8. The Iron Triangle

As the nuclear arms race began to expand prolifically in both the US and USSR, large complex bureaucracies developed to deal with military matters. It has reached a point where, in the US, there are as many civilians paid out of the military budget as there are troops in uniform. Academics, bureaucrats and politicians have joined forces with the military and defense industries to form an academic-bureaucratic-political-industrial complex determined to maintain and where possible increase military budgets. They form powerful lobby

TABLE: 5:11

THE INFLUENCE OF TECHNOLOGICAL ADVANCES ON THE GROWTH OF NUCLEAR WARHEAD STOCKPILES. THE CASE OF MIRV.

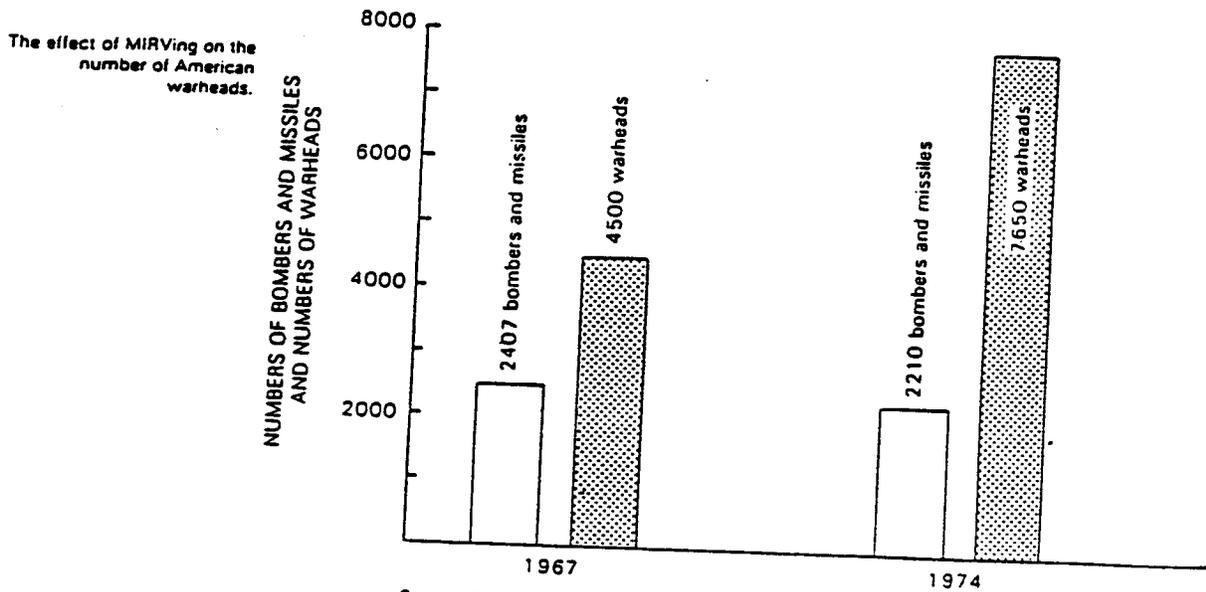
Billions of dollars are spent each year on continual improvements to the nuclear weapons of the last decade. Research and development takes place in government weapons laboratories, aerospace companies and in a variety of institutions under contract to the armed services and the Department of Defence. Technical refinements have now been incorporated into new weapons such as the Poseidon SLBM and the Minuteman III ICBM.

Two characteristics of these new weapons systems were of special importance because they were to make the use of nuclear weapons seem much more feasible. These characteristics were:

- The missiles were MIRVed.
- They were relatively accurate.

MIRV

Each Minuteman III and Poseidon missile contained three and ten MIRVed warheads respectively. The effect of MIRVing such missiles was, firstly, to greatly increase the total number of warheads in America's strategic nuclear arsenal, as the histogram shows. The Soviet Union did not begin MIRVing its missiles until 1975.



Source: Stockholm International Peace Research Institute.

Source: Adam Suddaby, The Nuclear War Game, (London: Longman, 1983) p. 108.

groups in Washington seeking vast sums of money to transform every conceivable technological advance for military purposes.<sup>52</sup> Controlling the power of this military oriented cabal has proved difficult for politicians. In many cases Congressional politicians find themselves working both sides of the issue. On the one hand, they are trying to restore some fiscal sanity to a country with a national debt approaching two trillion dollars (any such solution must include defense expenditure cuts); while on the other hand, where possible, they are lobbying hard to attract defense contracts to their states to reduce unemployment, to increase taxes to be paid to the state, and hopefully, if successful, to attract enough votes to get re-elected.

The three arms of the so-called "Iron Triangle" (Congress, the Pentagon, and the Military Industrial Complex), work hand-in-hand with the scientists and technologists to maintain and periodically to increase the momentum of the nuclear arms race. The monetary costs for fueling the nuclear arms race are staggering as noted previously.

The United States in 1984 earmarked approximately \$264 billion for the military, which amounts to 7.24% of the total gross national product. The total for 1984 is expected to reach approximately \$305 billion. During the five years 1984-1988, the Reagan administration plans to spend \$1.8 trillion on defense. By way of comparison, it only spent \$1.5 trillion over the preceding thirty-seven years.<sup>53</sup> Again, even factoring in inflation, the numbers are awesome for defense expenditures.

Two companies sharing in the funds appropriated for defense are the Los Alamos laboratory in New Mexico and the Lawrence Livermore laboratory in California. These two national laboratories are financed and operated by the Department of Energy under the academic sponsorship of the University of California. Since 1945, they have designed every nuclear weapon in the nuclear arsenal of the US. Los Alamos operates on a \$421 million annual budget and employs 7,018 people. Lawrence Livermore laboratory has a \$515 million budget with 7,160 people employed. The US Government encourages rivalry between the laboratories to stimulate competition to design the best nuclear weapons. Once built, the weapons designed by the labs are sent to the Sandia National Laboratory which adds the fuses as well as the firing and safety devices. The Laboratory is operated by Western Electric which has a budget of \$738 million and employs 7,985 people.<sup>54</sup>

Laboratory officials claim that they have no difficulty attracting young scientists to the laboratory since they offer them an opportunity to work with similar people, using the most up-to-date scientific equipment available including the CRC-1 computer, the world's most powerful. Most feel that their work will one day make the world a safer place but doubt that nuclear weapons will ever be completely eliminated. Herbert York, the first director of Lawrence Livermore, in describing the motivations of his former colleagues, said: "They derived either their incomes, their profits, or their consultant fees from it, but much more important than money as the motivating force are the individual's own psychic and spiritual needs."<sup>55</sup>

The fact is that the US military-industrial complex in the US plays an extremely significant role in the US economy. The following is a list of the top ten defense contractors with major contracts in excess of \$1 billion, as of 1982. They are ranked according to size, in billions of dollars.

General Dynamics	\$5.9
McDonnell Douglas	\$5.6
United Technologies	\$4.2
General Electric	\$3.7
Lockheed	\$3.5
Boeing	\$3.2
Hughes Aircraft	\$3.1
Rockwell International	\$2.7
Raytheon	\$2.3
Martin Marietta	\$2.0

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See Illustration 5:12 which outlines the various phases in US nuclear weapon development. Also see Figures 5:13, 5:14, 5:15 for a list of other significant defense contractors and weapons or weapons-related systems produced.

To round out the picture of the military-industrial complex mention must be made of some of the other components such as: Lobby groups for the defense contractors actively working in Washington, banks, accounting firms, trade associations, as well as research and development in related fields.<sup>57</sup> In reality, the result appears to be that the government "...ends up contracting out to counter an emerging threat to the very people who profit from it."<sup>58</sup> Consequently, it is in the best interest of such companies to encourage rhetoric which enhances the Soviet nuclear threat to America, since that helps to maximize sales and profits.

ILLUSTRATION 5:12 US NUCLEAR WEAPONS DEVELOPMENT PHASES.

Strategic Developments

**Nuclear Weapons Development Phases**

Phase	Activity
Phase 1 Weapons Conception	Studies by DOE/DOO/interested services generating interest in new weapon ideas or concept warranting formal program review.
Phase 2 Program Study or Feasibility Study	DOE impact report to DOD, Draft Military Characteristics (MC) and Stockpile-to-Target (STS) sequences prepared by DOD; Phase 2A: Design definition and cost study; form DOE/DOO project offices, select laboratory design team.
Phase 3 Development Engineering or Full-Scale Development	Approved DOD development request, with approved MCs and STS; nomenclature assigned; quantitative requirements set with development and production milestones.
Phase 4 Production Engineering	Tooling and processing; prototyping, construction of production facilities.
Phase 5 First Production	Evaluation and testing for weapon acceptance.
Phase 6 Quantity Production and Stockpile	Weapons produced and deployed and stored by DOD.
Phase 7 Retirement	Disposal of weapons and related material and recovery of nuclear materials.

<sup>1</sup> These phases are defined in a joint AEC-DOO agreement dated 21 March 1953; see also HAC, FY 1960 DOO, Part 4, p. 636.

Source: Thomas B. Cochran, William M. Arkin, Milton M. Hoenig, Nuclear Weapons Databook: Volume I: U.S. Nuclear Forces And Capabilities, (Washington: Ballinger and Company, 1984), p. 17.

ILLUSTRATION 5:13 US NUCLEAR WEAPONS' DEFENSE CONTRACTORS.

ASSOCIATE CONTRACTOR & LOCATION	CONTRACT DESCRIPTION AND COST (IN MILLIONS OF DOLLARS)
Aerojet Solid Propulsion Co. Sacramento CA	Stage II propulsion system. Received \$11.0 of \$129.4 Stage II. \$8.2
Aves Huntsville AL	Rocket test cell data acquisition and control of testing environment for use in J-4 and J-3 Arnold Engineering Development Center test facilities. Received \$2.8 of \$7.5
Wilmington MA	Re-entry system integration. Received \$0.005 of \$3.4 Re-entry system integration. Received \$7.7 of \$164.3
Boeing Aerospace Seattle WA	Redirection of basing concept from vertical shelter to horizontal multiple protective structure. TTD \$0.046 of \$3.4 Horizontal basing system. TTD \$0.101 of \$24.9 Blast and shock test program. \$4.5
Draper Laboratories Cambridge MA	Technical support for guidance programs. TTD \$0.038 of \$16.5
Energy Research Corp. Danbury CT	MX ground power advanced development program.
E-Systems Greenville TX	Conceal locations of MX missiles. \$0.396
Furgo National Long Beach CA	Siting and geotechnical investigations. Received \$4.6 of \$8.3 Acceleration of geotechnical and siting investigations. TTD \$0.013 of \$5.5
General Electric Philadelphia PA	Adaptation of MARK 12 re-entry vehicle for the MX. Received \$5.3 of \$68.9
Geodynamics Corp.* Santa Barbara CA	Geodetic and geophysical support. \$2.2
GTE-Sylvania Inc. Needham Heights MA	Command, control and communications system. Received \$10.0 of \$325.5
Hemmington Durham & Richardson Santa Barbara CA	Environmental baseline studies and environmental statements. Received \$3.3 of \$8.9
Hercules Magnas UT	Stage III propulsion system. TTD \$0.064 of \$75.3 Nuclear hardness and survivability. TTD \$0.067 of \$5.2 Engineering development, late exercise of Option D equitable adjustment. \$87.4

Honeywell Inc. Horsham PA	MX ground power advanced development program.
St. Petersburg FL	Specific force integrating receiver. Received \$10.0 of \$34.0
Karasgian and Case Los Angeles CA	Engineering services.
Logicon San Pedro CA	Software performance analysis and technical evaluation. Received \$0.556 of \$9.1
Martin Marietta Denver CO	Performance of MX weapon system assembly. Received \$15.7 of \$321.5 Assembly, test and system support, option changes and additions. TTD \$0.402 of \$49.9
Vandenberg AFB CA	Launcher studies and analysis for MX weapon system. TTD \$0.352 of \$3.1
Northrop Precision Products Div. Norwood MA	Third generation gyroscope program. Received \$7.6 of \$36.2
Hawthorne CA	Inertial measurement unit. Received \$17.5 of \$235.0 Inertial measurement unit changes. \$6.7
Olin Stamford CT	Propellants used to support space shuttle. Titan missiles. F-16 aircraft and MX. \$40.1
Questron, Inc. La Jolla CA	Hardened electronics analysis.
R.S. Hanson Co., Inc. Spokane WA	Engineering study—construction equipment.
Ralph M. Parsons Co.* Pasadena CA and Luke AFB AZ	Buried trench construction. \$6.3
Rockwell International Autonetics Div. Anaheim CA	Flight computer and integration of components into guidance and control systems. TTD \$0.273 of \$258.4
Rocketdyne Div. Canoga Park CA	Stage IV propulsion system. TTD \$0.203 of \$192.5 Redirection of Stage IV. \$8.5
Science Applications Inc. La Jolla CA	MX software studies.
Small Business Adminis. Washington DC	MX software studies and analysis program.
Softach, Inc.* Waltham MA	MX JOVIAL compiler. \$1.9

Source: Dr. Helen Caldicott, Missile Envy: The Arms Race and Nuclear War, pp. 190-191.

ILLUSTRATION 5:14 US NUCLEAR WEAPONS' DEFENSE CONTRACTORS.

Cont.

Systems, Science and Software <sup>®</sup> La Jolla CA	Nuclear hardness and survivability studies. \$1.5
Systems Technology Laboratory Inc. Arlington VA	MX housing study.
Thiokol Brighton City UT	Stage I propulsion system. Received \$13.6 of \$138.5 Stage I and ordnance update. \$17.9
TRW Redondo Beach CA and Norton AFB CA and Vandenberg AFB CA Redondo Beach CA	Engineering development. TTD \$0.033 of \$12.1 Systems engineering and technical support. \$42.3 Targeting and analysis program for FY90. \$5.8 Development of ST/TS of the Advanced ICBM (MC) weapon system.
UltraSystems, Inc. Irvine CA and Norton AFB CA	Integrated logistics support.
Weidinger Associates New York NY	Nuclear hardness and survivability analysis.
Westinghouse Electric Corp. Sunnyvale CA	MX Canister. \$6.0

SUB-CONTRACTOR & LOCATION	CONTRACT DESCRIPTION AND COST (IN MILLIONS OF DOLLARS)	ASSOCIATE CONTRACTOR
Air Research Manuf. Corp. Phoenix AZ	Build TVA Actuator.	AEROJET-GENERAL CORP.
Brunswick Corp. Lincoln NE	Manufacture Stage II case.	
Alcoa <sup>®</sup> Cleveland OH 44105	Aluminum forgings.	AVCO
Atlantic Research Corp. <sup>®</sup> Gaineville VA 22063	Rocket motor.	
Aves Aerostructures, Inc. <sup>®</sup> Nashville TN 37202	Deployment module structure.	
G & H Technology <sup>®</sup> Automation Industries, Inc. Santa Monica CA 90404	Separation connector.	

Gramman Bethpage NY	20 ship sets of titanium shroud components for MX nose cone. \$10.0	AVCO
Honeywell Avionics Division <sup>®</sup> St. Louis Park MN 55416	Automatic test equipment.	
O.E.A., Inc. <sup>®</sup> Denver CO 80210	Separation nut/gas generator.	
Times <sup>®</sup> Pittsburgh PA 15230	Shroud structure material.	
Unidynamics Phoenix, Inc. <sup>®</sup> Phoenix AZ 85062	Arm/disarm device.	GTE-SYLVANIA
Computer Sciences Corp. Applied Technology Falls Church VA	MX C3 system.	
Hayes International Birmingham AL	MX C3 system.	
Norden Systems Newark CT	MX C3 system.	HERCULES
Rockwell <sup>®</sup> Tulsa OK	Interstage integration.	
Hydraulic Research Inc. <sup>®</sup> Valencia CA	Thrust vector actuation.	MARTIN MARIETTA
BDM Albuquerque NM	Preservation and location uncertainty	
Cincinnati Electronics Cincinnati OH	Range and safety receivers. \$0.940	ROCKWELL AEROFET MFG. CO.
Endevco San Juan Capistrano CA	Dynamic data measurement system of 750 channels for MX testing.	
Goodyear Aerospace Co. Litchfield Park AZ	MX transportation and handling equipment.	
SCI Systems Inc. Huntsville AL	MX multipliers and power supply verifiers.	NORBITROP
Systems Engineering Labs Ft. Lauderdale FL	Computers for MX program.	
American Beryllium Sarasota FL	Beryllium spheres for MX guidance systems.	
Systems Engineering Labs Ft. Lauderdale FL	Computers for MX program.	

Source: Dr. Helen Caldicott, Missile Envy: The Arms Race and Nuclear War, pp. 192-193.

ILLUSTRATION 5:15 US NUCLEAR WEAPONS' DEFENSE CONTRACTORS.

Cont.

Hamilton Standard Windsor Locks CT	Flight coolant system. \$4.5	ROCKWELL AUTONETICS
Honeywell St. Petersburg FL	Main memory sub-system for MX electronics and computer assembly. \$12.0	
Systems Engineering Labs Fl. Lauderdale FL	Computers for MX program.	
Yardney Electric Co. Denver CO	Guidance and control batteries. \$1.0	
Aerojet Manufacturing Co. Fullerton CA	Support for Stage IV.	ROCKWELL ROCKETDINE
Bell Aerospace, Div. of Textron Inc. Buffalo NY	Support for Stage IV.	
Rockwell Int'l Missile Systems Div. Columbus OH	Support for Stage IV.	
QAO Corp. Beltsville MD	Support for MX software studies and analysis program.	SNI BUS ADM
Lockheed Missile Systems Co. Sunnyvale CA	MX Ordnance Initiation sets/flight termination ordnance sets.	THIokol
Maag East Aurora NY	Stage 1 thrust vector actuation control system.	
Hercules Bacchus UT	Graphite composite launch tube for MX canister.	WEST- ING. HOUSE

Source: Dr. Helen Caldicott, Missile Envy: The Arms Race and Nuclear War, p. 194

The strange contradiction in all this is that it is generally the civilian sector that comes up with the new weapons ideas who, in turn, sell these ideas to the Pentagon and then the cycle begins.

The question of how the Soviet counterpart to the US military industrial complex operates is difficult to determine precisely because such knowledge is not as readily available in the USSR as it is in the US. However, certain similarities do exist.

- . In both countries the military sector consumes the largest amount of manufactured goods and services.
- . More people are employed in military work than in any other occupation, except agriculture.
- . Military research and development occupies a very high proportion of the time of scientists and engineers.

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The dearth of information about the Soviet defense economy and how it operates prevents an accurate comparison with its US counterpart. The main specialized body for defense policy-making is the Defense Council, which, according to the 1977 Constitution, is a state and not a Party institution. It is, however, presided over by the Party Chairman. Despite the Party's domination over defense policy-making arrangements, the military, because of its professional expertise, plays a significant role too. The Minister of Defense sits on the Defense Council and is Chairman of the Main Military Council. The role of the Council of Ministers appears confined mainly to the planning, and management of military research and development keeping in mind the general policy put forth by the Politburo. The development of the Armed Forces, the missions and the roles to be played by the armed Forces in wartime, the creation of arms, stockpiles and other

related support equipment, has traditionally been governed by long-term plans (generally five years but sometimes for longer). Gosplan and the other economic agencies work with the Ministry of Defense and the General Staff in planning defense production. (See Illustration 5:16 which outlines the ministries in the USSR defense industry group.) Not since 1945 have Soviet authorities provided information on the size of its military effort. Each year an Illustration for the defense budget is published but it is risky to consider it a true indication of what the Soviet Union spends on defense since it is not clear what precisely this Illustration encompasses, nor is it clear that it has always covered the same expenditure items. See Table 5:17 which notes the various sources which present their estimated figures. Most probably an accurate one will never be obtainable.

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Despite the paucity of information on how the Soviet system compares with the US Military Industrial Complex, one only needs to read a short passage in Nikita Khrushchev's memoirs regarding a discussion he had with President Eisenhower about this matter, to see, that in essence, they are quite similar.

[Eisenhower] 'Tell me, Mr. Khrushchev, how do you decide the question of funds for military expenses?'

[Khrushchev] "Then, before I had a chance to say anything, he said," [Eisenhower] 'Perhaps first I should tell you how it is with us....My military leaders come to me and say, 'Mr. President,' we need such and such a sum for such and such a program.' I say, 'sorry, we don't have the funds.' They say, 'We have reliable information that the Soviet Union has already allocated funds for their own such program. Therefore, if we don't get the funds we need, we'll fall behind the Soviet Union.' So I give in. That's how they wring money out of me. They keep grabbing for more and I keep giving it to them. Now tell me, how is it with you?'

ILLUSTRATION 5:16 SOVIET MINISTRIES IN THE DEFENCE INDUSTRY GROUP.

<i>Ministry of:</i>	<i>Output</i>
Aviation Industry	Aircraft and aircraft parts
Defence Industry	Conventional Army <i>matériel</i>
Shipbuilding Industry	Ships
Electronics Industry	Electronic components and equipment
Radio Industry	
Means of Communication	
Medium Machine Building	
General Machine Building	Nuclear weapons
Machine Building	Strategic missiles
	Ammunition

**Sources**

Andrew Sheren, 'Structure and Organization of Defense-Related Industries', in Joint Economic Committee, U.S. Congress, *Economic Performance and the Military Burden in the Soviet Union. A Compendium of Papers Submitted to the Subcommittee on Foreign Policy*, Washington D.C.: USGPO, 1970, pp. 123-32. Michael Agursky, *The Research Institute of Machine-Building Technology*, The Hebrew University of Jerusalem: The Soviet and East European Research Center, Soviet Institutions Series Paper No. 8, September 1976, p. 6.

Source: David Holloway, The Soviet Union And The Arms Race, (New University Press, 1983), p. 120.

TABLE: 5:17 ESTIMATED SOVIET DEFENCE EXPENDITURES (VARIOUS SOURCES).

*Soviet defence expenditure: estimates in billions of rubles*

	1955	1960	1965	1970	1975	1979	1980
1. Official defence budget (current rubles)	10.7	9.3	12.8	17.9	17.4	17.2	17.1
2. Official science outlays (current rubles)		3.9	6.9	11.7	17.4	20.2	
3. SIPRI (current rubles)	23.3	21.8	30	42	45.4	48	
4. Lee (current rubles)	13.5-14.5	15.5-16.5	25.5-26.5	42.5-49	66.5-76		
(1955 rubles)							
(1970 rubles)			25-26				
5. CIA (1970 rubles)				42.5-49	71-81	99-115	108-126
6. China (current rubles)		19.5		40-45	50-55		
7. British (current rubles)				49	79	76-81	81-86

Sources

1. *Narodnoe Khozaystvo SSSR*, Moscow: Statistika, various years.
2. *Ibid.*
3. Stockholm International Peace Research Institute, *World Armaments and Disarmament, SIPRI Yearbook 1980*, London: Taylor & Francis, Ltd., 1980, p. 25. This is a compromise figure, which corresponds neither with the official Soviet figure, nor with the CIA estimate.
4. W.T. Lee, *The Estimation of Soviet Defence Expenditures 1955-75*, New York: Praeger Publisher, 1977, pp. 78, 115. The 1979 and 1980 figures are taken from U.S. Congress, Permanent Select Committee on Intelligence, House of Representatives, *CIA Estimates of Soviet Defense Spending*, Hearings, September 3, 1980, Washington D.C.: USOPO, 1980, p. 22.
5. CIA: National Foreign Assessment Center, *Estimated Soviet Defense Spending: Trends and Prospects*, SR 78-10121, June 1978, p. 1. Defence spending is defined to be comparable with U.S. accounts.
6. *Peking Review*, 28 November 1975, p. 9. The 1975 figure is taken from *Peking Review*, January 1976, as quoted in *The Military Balance 1977-1978*, London: The International Institute for Strategic Studies, 1977, p. 11.
7. *Statement on the Defence Estimates 1981*, Cmnd 8212, London: HMSO, April 1981, p. 4.

Source: David Holloway, *The Soviet Union And The Arms Race*, (New Haven: Yale University Press, 1983), p. 114.

'[Khrushchev] It's just the same. Some people from our military department come and say, 'Comrade Khrushchev, look at this! The Americans are developing such a system. We could develop the same system but it would cost such and such.' I tell them there's no money; it's all been allotted already. So they say, 'if we don't get the money we need and if there's a war, then the enemy will have superiority over us.' So we discuss it some more, and I end up by giving them the money they ask for.'

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It would appear that fear and the threat of vulnerability drives the military-industrial complexes on both sides in a similar fashion.

## 9. Political Rivalry

The political arm of the iron triangle must also be considered an accelerator in the arms race. The factors of science and technology, as pointed out already, do have their own momentum, but they do not exist on their own. They must be paid for and allocated by governments at great expense. Inevitably, other needy sectors of society must do with less. As Adam Suddaby points out:

The argument is not that the United States and the Soviet Union wish to fight each other with nuclear weapons, but that in their political rivalry, they must inevitably brandish the most powerful and convincing weapons they can lay their hands on. Such weapons must, of course, be nuclear and the greater their effectiveness, the greater their political clout. A country that knows it has an adequate or a superior nuclear strength can play a much more forceful role in the arena of international politics.

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There is no question that politics plays a significant role in the nuclear balance. US Secretary Of Defense Caspar Weinberger illustrates this point quite well when observing that:

The peacetime, day-to-day, decisions that collectively make up the behaviour of the United States, the Soviet Union and all other nations are influenced by perceptions of the US-Soviet strategic balance. The greater the imbalance, the more conscious we become of the limits to our options in international affairs and the greater chance that we might be forced to compromise our interests to avoid crises that might overburden our capacity to deter conflict. In the same vein, the greater the imbalance, the greater the tendency of the Soviet Union to embrace ever more ambitious definitions of what constitute legitimate Soviet interests; the greater their tendency to view the risks of crises as an unacceptable price to pay for the satisfaction of their political aims.

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The fear that exists on both sides is that each views its opponent as working feverishly to build up its nuclear arsenal in order to achieve nuclear superiority. The effect of achieving any such superiority would be to enable the more powerful country to exert considerably more political leverage and subsequently be able to influence world events to a greater degree. Neither is about to concede this advantage to the other. The end result is that the struggle for superiority and what politically accrues from it helps fuel the nuclear arms race.

#### 10. The "Follow-on" Imperative

Once a highly skilled and specialized team of scientists, engineers, are assembled with a single objective--design more lethal, more sophisticated, and more accurate weapons systems--there remains a strong incentive to keep the group together. The end result of this self-perpetuating phenomenon is the creation of better weapons. As Mary Kaldor points out in an article entitled 'Disarmament. The Armament Process In Reverse' that:

'Submarines are faster, quieter, bigger and have longer ranges. Aircraft have greater speed, more powerful thrust and bigger payloads. All weapons, particularly missiles, and greatly improved capabilities for communication navigation, detection, identification and weapon guidance. Each contractor has designed, developed and produced one weapon system after another, each representing an incremental improvement on the past. For Boeing, the Minuteman Inter-Continental Ballistic Missile followed the B-52 strategic bomber, which followed the B-47...The idea that each weapon system must have a follow-on has become self-perpetuating.'

61

This factor has unquestionably become one of the most dynamic factors in keeping up the momentum of the nuclear arms race. Following along, hand-in-hand with the "follow-on" imperative, is what Elizabeth Young refers to as the "ripening plum" syndrome. The theory of this holds "...that what can be done, will be if the money is available, and that a good reason will be found when the project is ripe for deployment."<sup>62</sup> This syndrome very aptly describes the relationship between the scientists, technicians and armaments industries with the Pentagon. There is no reason to believe an analagous situation does not occur in the USSR.

#### 11. Inter-Service Rivalry

The primary links in this rivalry are the US Navy and Air Force. Throughout the late 1940's and much of the 1950's, the US Air Force reigned supreme as the only military component capable of delivering nuclear bombs on target with its long-range bomber force. However, with the advent of the nuclear powered ballistic missile (Polaris) submarine the Navy then assumed what was to become an

increasingly significant role in the overall US nuclear deterrent force.

The leaders of both the Navy and Air Force are not that much unlike political leaders. Their overall power depends heavily on the size of the organization. What it amounts to is that leaders of big and expanding organizations tend to receive more respect than do leaders of smaller ones. Consequently, such leaders will valiantly resist any effort to cut either the budget or personnel level, in fact, they will work vigorously to expand them.

Both the Navy and Air Force (the two services primarily involved in the nuclear strategic theatre of operations) are in a constant struggle to either maintain or increase their share of the funds allocated for nuclear strategic weapons systems. The dynamics of the rivalry alone increases the pace of overall nuclear weapons deployment. What results from all this is, as Bruce Russett points out:

...that when one major weapons system becomes outmoded or obsolete, there will be a built-in interest group pressing either to modernize it and somehow keep it going or to replace it with something else that will do a similar job and keep the same people and resources employed. 63

Russett, in further elaborating on this situation, notes:

The Air Force's major mission has evolved to one strategic nuclear deterrence which depends on land-based missiles. Air Force generals will be loath to see that element of the strategic triad abandoned as obsolete. They will work hard for something like the MX and a means to deploy it. Once a weapon has gone far through the process of research and development, it becomes politically and bureaucratically very difficult not to produce and deploy it in large numbers. For example, the MIRV

was developed largely to ensure that some American retaliatory vehicles would be able to penetrate Soviet defenses even if the USSR should deploy an effective ABM system. The 1972 ABM Treaty between the US and USSR, however, very sharply limited ABM construction and made MIRV's unnecessary for the main purpose for which they were designed. Nevertheless, production and deployment of MIRV went ahead. 64

The Navy, likewise has its own interests to consider, like maintaining multi surface ships and mammoth nuclear aircraft carriers as well as the less glamorous nuclear submarines. Consequently, it must compete head-to-head with the Air Force for what it considers to be its fair share of the nuclear strategic weapons budget.

Much less is known about how the system employed by the USSR operates relative to the one in the US. Being a more highly structured society, which relies on centralized planning, particularly in the economy, there does not exist the same competitive environment that characterizes the US system. Inter-service rivalries and competition for budget funds are not present either to the same degree, or for the commercial reasons that are present in the US system. The highly centralized and planned economy as well as the tight political control over the military ensures this.

David Holloway provides some insight into the nuclear weapons acquisition process in the USSR. In the Soviet Union, from the point of view of weapons development, the key institutions are the research institutes and the design bureaus. The research institutes are generally large, well equipped and staffed with some of the Soviet Union's most preeminent scientists.

Briefly, the system is structured as follows:

1. Applied research is by and large institutionally separate from the design and development functions. Funding depends to a significant degree on the importance that a particular area is seen to possess for nuclear weapons development.
2. The role of the designer is crucial since his job is to attempt to match foreign weapons, while working at a distinct technological disadvantage.
3. The designer, when given a new project, most likely will try to meet it with available resources. However, this is not always possible (chronic shortages in the economy). The separation of applied research from development dictates that the designer must turn to the research institute and take what is available, rather than wait for a new development. This is due to the fact that development programs are not the way in which funds are acquired for applied research. The incentive to utilize fancy designs is not encouraged. If, de facto, a technological breakthrough is imminent then it may provide for major inter-generational changes in design and technology.
4. Competition between design bureaus, has been a common, though by no means universal, practice in developing new nuclear weapons, especially aircraft and missiles. Two or more design bureaus may be given the same project to develop and be asked to submit their final designs. However

it is the Ministry of Defense that ultimately selects the  
 65  
 best design for development. (See Illustration 5:18).

At this point, as Holloway points out:

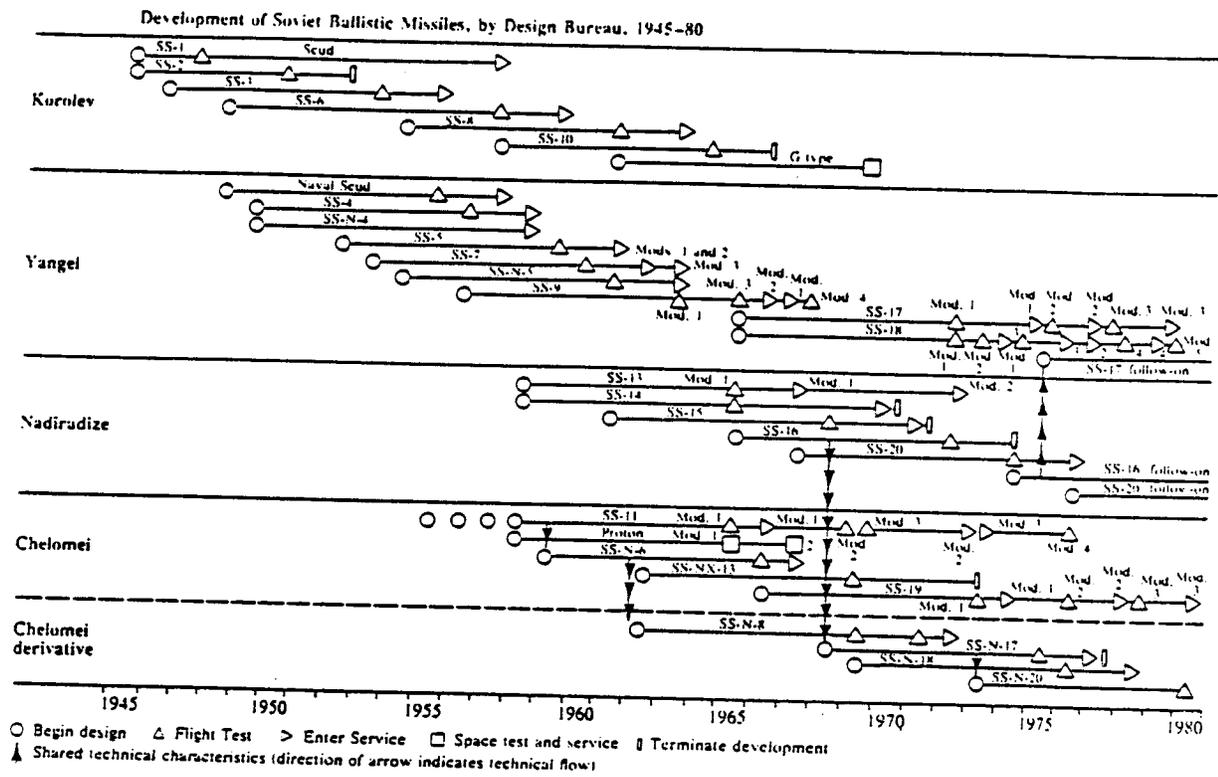
When a prototype or model is prepared it will undergo factory trials and then go for state trials, which determine how the system will perform under operational conditions; these latter trials are conducted by the services. If the design is approved for series production, a document called the Technical Conditions is drawn up which sets out the purpose of the product, the basic tactical-technical data, the parameters that govern its suitability for delivery to the customer, the methods of quality control and so on....It is generally true of the Soviet economy that vertical links (such as those between enterprise and ministry) prevail over horizontal ties (such as those between enterprises). This is true of military R & D too....The role of the Ministry of Defense in weapons acquisition seems to reinforce the tendency towards conservative and evolutionary technological change: the complex committee structure for approving new development programs is likely to inhibit innovation, while the different services fight to be expected to press for follow-on systems-pressure that may be welcome to the design bureaus, since it will keep them occupied with designs that are not too challenging. 66

Clearly while the two "iron triangles" function under two very different sets of rules, the end result, a deadly tit-for-tat nuclear arms race, still prevails.

## 12. Political Distrust: Security Dilemmas

The phenomena of trust and mistrust are two factors that are often overlooked as key elements in fueling the nuclear arms race. There is no question that distrust leads to worst-case scenarios being harbored by both the US and the USSR. Likewise it leads to military buildups and an acceleration in the nuclear arms race. Andrew White,

ILLUSTRATION 5:18 DEVELOPMENT OF SOVIET BALLISTIC MISSILES, BY DESIGN BUREAUS 1945-1980.



*Missile Design and Development*

Chief designer	Major focus	Common characteristics
S. P. Korolev	Space boosters and global rockets	Nonstorable liquid fuel; large missiles
M. K. Yangel	Land-based ICBMs and MRBMs	Storable liquid fuel; large missiles
V. N. Nadiradize	Land-based military missiles	Solid fuel; small missiles
V. N. Chelomei	Cruise missiles, naval missiles, space boosters, and variable-range ICBMs	Storable liquid fuel; sea-based and variable-range missiles

Source: Robert P. Berman, and John C. Baker, Soviet Strategic Forces: Requirements And Responses, (Washington: The Brookings Institution, 1982), pp. 82-83.

in a pamphlet entitled The Terror Of Balance (1982) provides an excellent summary of the facts surrounding the effects of political distrust and security dilemmas on the superpowers.

Each side makes pessimistic calculations about its own weapons performance; each assumes that what it can conceive on its drawing boards, the other must be about to deploy; each guesses at the military advances the other may have in, say, 10 years time, and formulates its own plans on that basis....Thus, both sides tend to be convinced perpetually of the 'inferiority,' actual or potential, of their own strategic firepower. Neither side can find a margin of safety wide enough to be able to say 'enough is enough' and freeze weapons deployment. Not only is the notion of 'sufficiency' no longer a viable criterion in forward weapons planning and procurement, but there is, in fact, no logical upper limit to the number and to the degree of sophistication of the weapons each side may seek in the quest to overcome security anxieties that, in reality, have no technical or military cure. For the underlying paradox of the arms race is that, with every new weapons system that one side deploys, it ends up multiplying, rather than alleviating, its own security. The nuclear arms race has evolved into a self-generating process of escalating fear response and counted-response which has an internal upward dynamic and no ascertainable point of termination short of nuclear war or effective disarmament. 67

The example of the "Prisoner Dilemma" is a case study which examines some of the many difficulties associated with the question of security and safety in the world. It is utilized extensively by nuclear strategists to explain the dilemma that the US and USSR face when trying to find a mutually viable solution to the nuclear arms race. It is outlined in Appendix B.

The tables following this chapter will illustrate not only assessments of nuclear deterrent capabilities by country (US-USSR), but also combined comparisons of the two countries. Specific note should

be made of Illustrations 5:19, 5:20, 5:21 and Table 5:22, which outline the future projected plans of both powers. It appears that 50,000 warheads each is not enough as the plans for new weapons appear quite prolific. The conclusions imply only what has been accepted as fact for some time, that the US lead in technology has not to date been surpassed, except for a very brief period in the late 1950's. What is important, though, is that despite the lead in technology that the US has held for many years, the Soviets, given time, have consistently managed to catch up and achieve parity with the US. Despite all of this, the nuclear arms race proceeds relentlessly with no apparent end in sight.

ILLUSTRATION 5:19 US - SOVIET FUTURE NUCLEAR WEAPONS PROGRAMS.

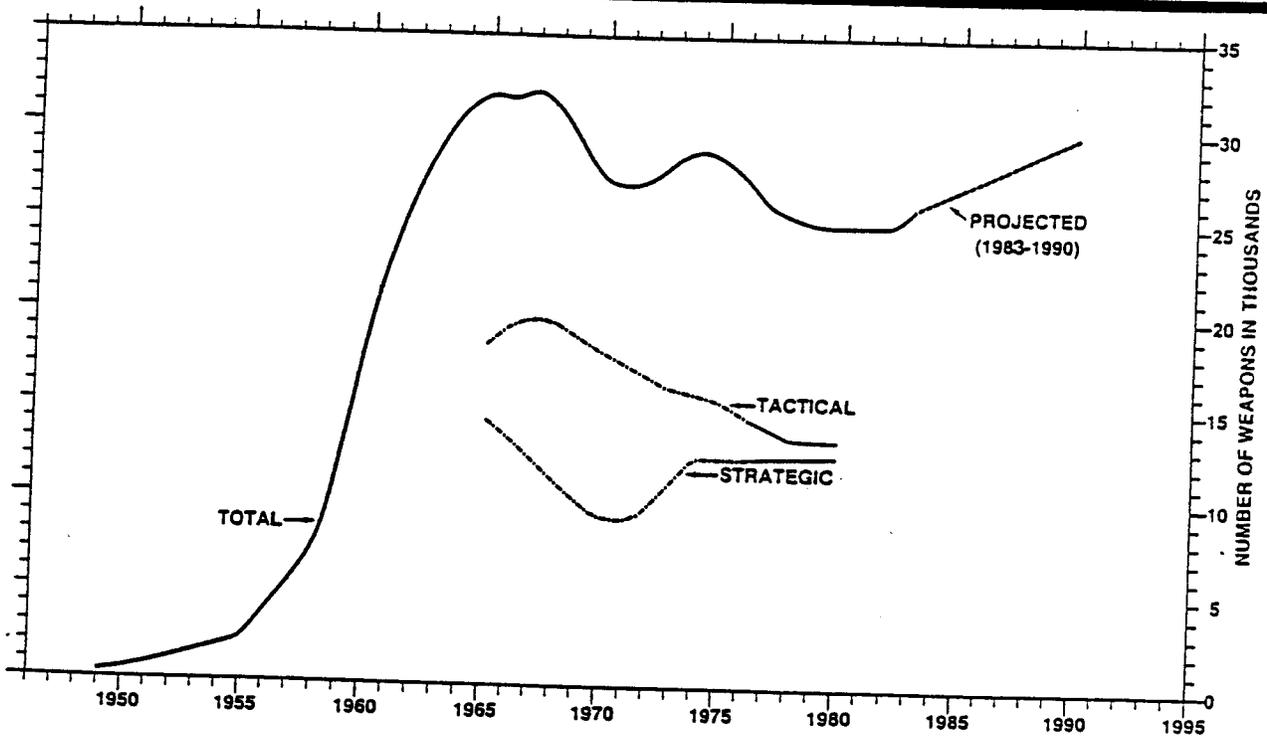
Future Nuclear Weapons Programs

<i>United States</i>	MX ICBM Small ICBM B-1B bomber Advanced Technology Bomber ("Stealth") Advanced Cruise Missile Advanced Air-to-surface Missile Trident II (D5) SLBM Intercontinental cruise missile Joint Tactical Missile System 155mm AFAP (W-82) Standard-2 Nuclear ASWSOW Nuclear Phoenix MARV
<i>Soviet</i>	SS-X-24 (MX class) solid fuel ICBM Improved Liquid Propellant ICBMs SS-X-25 small solid fuel ICBM SS-X-28 large ICBM SS-NX-23 (Trident II class) SLBM Blackjack (B-1 class) heavy bomber AS-X-15 air-launched cruise missile Bear H ALCM carrier SS-NX-21 (Tomahawk class) SLCM Yankee class cruise missile submarine Modified Galosh ABM interceptor High acceleration ABM interceptor SS-CX-4 GLCM SS-X-23 SRBM SS-X-28 (SS-20 replacement)
<i>British</i>	Trident II (D5) SLBM Harrier II GR5
<i>French</i>	ASMP air-to-surface missile SX mobile IRBM ASLP long-range attack missile M-5 MIRVed SLBM Hades SRBM Mirage 2000N
<i>Chinese</i>	CSS-NX-3 SLBM CSS-NX-4 SLBM CSS-5 ICBM

Source: William M. Arkin, Richard W. Fieldhouse, Nuclear Battlefields: Global Links In The Arms Race, (Cambridge: Ballinger Publishing Company, 1985), p. 151.

ILLUSTRATION 5:20 US NUCLEAR STOCKPILE, 1949-PRESENT (WITH FUTURE PROJECTIONS).

Future Developments



U.S. nuclear stockpile, 1949 to present (with future projections).

Source: Thomas B. Cochran, William M. Arkin, Milton M. Hoenig, Nuclear Weapons Databook: Volume I: U.S. Nuclear Forces And Capabilities, (Washington: Ballinger and Company, 1984), p. 14.

ILLUSTRATION 5:21 PROJECTED US NUCLEAR WARHEAD PRODUCTION,  
1983-MID-1990's.

Projected Warhead Production

Projected Nuclear Warhead Production, 1983 to mid-1990s

In Production (1983)	Number Planned
B61 Bomb	1000
W76 TRIDENT I	1600
W79 8-inch artillery shell (ER warhead)	800
W80 Air-Launched Cruise Missile	4000 <sup>1</sup>
W80 Sea-Launched Cruise Missile	1000
B83 Bomb	2500
W84 Ground-Launched Cruise Missile	560
W85 PERSHING II	300
SUBTOTAL	11,760 <sup>1</sup>
<b>Planned (1983-1988)</b>	
W81 STANDARD-2	500
W82 155mm artillery shell (ER Warhead)	1000
W87 MX Warhead	1055 <sup>2</sup>
Surface and Air Delivered ASW Weapon	1250
Subsurface Delivered ASW Standoff Weapon	400
SUBTOTAL	4205 <sup>3</sup>
<b>Future Systems (Late 1980s-1990s)</b>	
TRIDENT II	5000 <sup>4</sup>
SENTRY (ABM)	500
New Strategic Air-Launched Missile	1200
Corps Support Weapon System	500
Advanced Tactical Air Delivered Weapon	2500
Advanced Cruise Missile Technology	(3000) <sup>5</sup>
Advanced Mobile ICBM	3000
Bomber Defense Missile	?
SUBTOTAL	12,700
<b>Alternate Systems</b>	
Tactical Air-to-Surface Munition	(1500)
MaRV for TRIDENT II	(7500) <sup>6</sup>
<b>TOTAL WARHEAD PRODUCTION</b>	<b>28,665<sup>7</sup></b>

1 Number includes Advanced Cruise Missile Technology Warhead, which will replace ALCM warheads on a one-for-one basis.  
2 Not all of these warheads will be produced in the 1980s.  
3 Does not include W87 production for TRIDENT II.  
4 Not all of these warheads will be produced in the 1980s.

5 Number includes Advanced Cruise Missile Technology Warhead, which will replace ALCM warheads on a one-for-one basis.  
6 This number does not include Alternate Systems.  
7 Competing warhead programs for TRIDENT SLBM upgrade and TRIDENT II (instead of W87).

Source: Thomas B. Cochran, William M. Arkin, Milton M. Hoenig, Nuclear Weapons Databook: Volume I: U.S. Nuclear Forces And Capabilities, (Washington: Ballinger and Company, 1984), p. 16.

TABLE: 5:23

## THE SOVIET - AMERICAN NUCLEAR STRATEGIC BALANCE AT KEY DATES 1964-1981.

## A. Strategic balance at key dates, 1964-81.

	USA		USSR
1964: January - Johnson Freeze Proposal; balance on July 1.	834	ICBMs	190
	416	SLBMs	107
	630	Bombers	175
	1,880	Total	472
<i>Thinking about Nuclear War</i> <span style="float: right;">59</span>			
1967: January - first SALT proposal by U.S.	1,054	ICBMs	500
	576	SLBMs	100
	650	Bombers	155
	2,280	Total	755
1968: September - SALT due to begin.	1,054	ICBMs	875
	656	SLBMs	110
	565	Bombers	150
	2,275	Total	1,135
1969: November - SALT begins.	1,054	ICBMs	1,140
	656	SLBMs	185
	525	Bombers	145
	2,235	Total	1,470
1972: May - SALT Accords signed; balance on June 30. <sup>1</sup>	1,054	ICBMs	1,527
	656	SLBMs	459
	430	Bombers	156
	2,140	Total	2,142
1974: November - Vladivostok Accord; balance on June 30. <sup>2</sup>	3,858	Missile IRVs	1,986
	5,700	Missile + Bomber Warheads	2,500
	1,054	ICBMs	1,567
	656	SLBMs	655
1979: June - SALT II Treaty signed; balance on September 30. <sup>3</sup>	390	Bombers	156
	2,100	Total	2,378
	5,678	Missile IRVs	2,222
	7,650	Missile + Bomber Warheads	2,500
	1,054	ICBMs	1,400
	656	SLBMs	923
	348	Bombers	156
	2,058	Total	2,493
	7,274	Missile IRVs	5,375

SOURCE

DAVID HOLLOWAY, THE SOVIET UNION AND THE NUCLEAR ARMS RACE,  
(NEW HAVEN, 1983), (1) pp. 58-59, (2) p. 60 (3) pp. 61-62

TABLE: 5:23

THE SOVIET - AMERICAN NUCLEAR STRATEGIC BALANCE AT  
KEY DATES 1964-1981.

Cont.

	USA		USSR
	9,200	Missile + Bomber	6,000
1981: January 1	1,052	ICBMS	1,398
	576	SLBMs	950
	316	Bombers	150
	1,944	Total	2,498
	7,065	Missile IRVs	6,375
	9,000	Missile + Bomber Warheads	7,000

*Sources*

- 1964: *The Military Balance 1977-78*, London: The International Institute for Strategic Studies, 1977, p. 80.
- 1967, 1968, 1969: Raymond L. Garthoff, 'SALT and the Soviet Military', in *Problems of Communism*, January-February 1975, pp. 22-4.
- 1972, 1974, 1979: Stockholm International Peace Research Institute, *World Armaments and Disarmament. SIPRI Yearbook 1980*, London: Taylor & Francis, 1980, pp. XLII-XLVI.
- 1981: U.S. Secretary of Defense, *Annual Report Fiscal Year 1982*, p. 53.

*Notes*

1. The SALT I Interim Agreement did not limit bombers, or warheads; the ceilings it set on ICBMs and SLBMs took account of Soviet systems then under construction, as well as of those deployed.
2. The Vladivostok Accord, which was designed to set a framework for the SALT II Treaty, established a ceiling of 2,400 strategic nuclear delivery vehicles (ICBMs, SLBMs and bombers) for each side.
3. The SALT II Treaty has not been ratified by the U.S. Senate, but neither side is doing anything to contravene the Treaty.

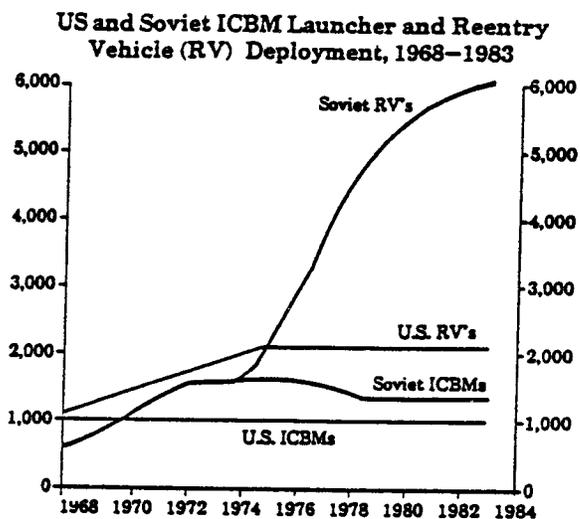
*Acronym:* IRV - independently-targetable reentry vehicle.

*B. The Strategic Balance in the 1.80s*

(i) In 1982 the Soviet Union has the theoretical ability to destroy 91 per cent of the U.S. ICBMs in a single strike. This could in theory be done by launching 210 SS-18 ICBMs, each with ten warheads, against the U.S. ICBM silos. Such a strike would result in the destruction of 1,960 warheads, or about 18 per cent of the total number of U.S. warheads.

The United States, by firing 550 Minuteman III ICBMs, with three warheads apiece, against the 820 MIRVed Soviet ICBMs, could theoretically destroy 4,300 warheads, or about 39 per cent of the Soviet total. This calculation assumes that the planned improvements to Minuteman III guidance and warheads have been carried out.

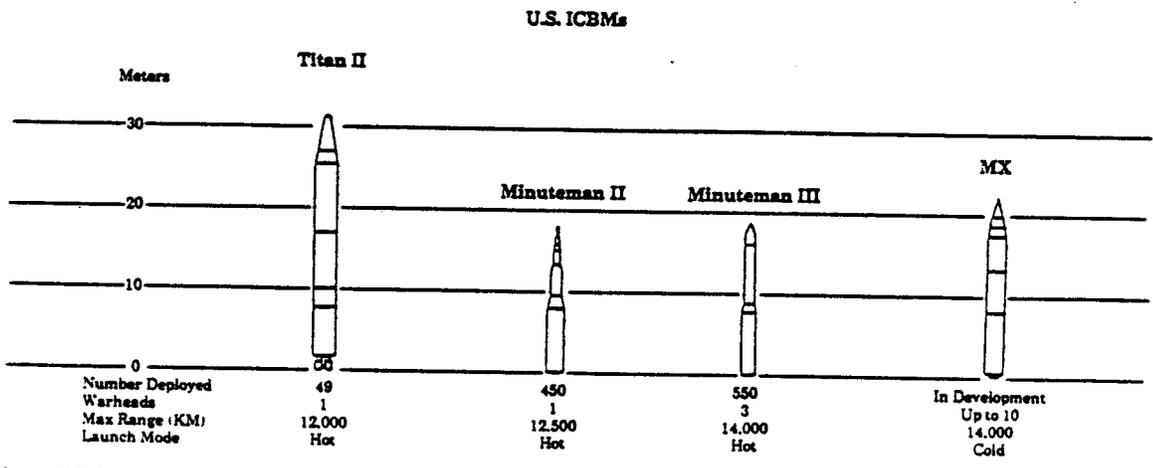
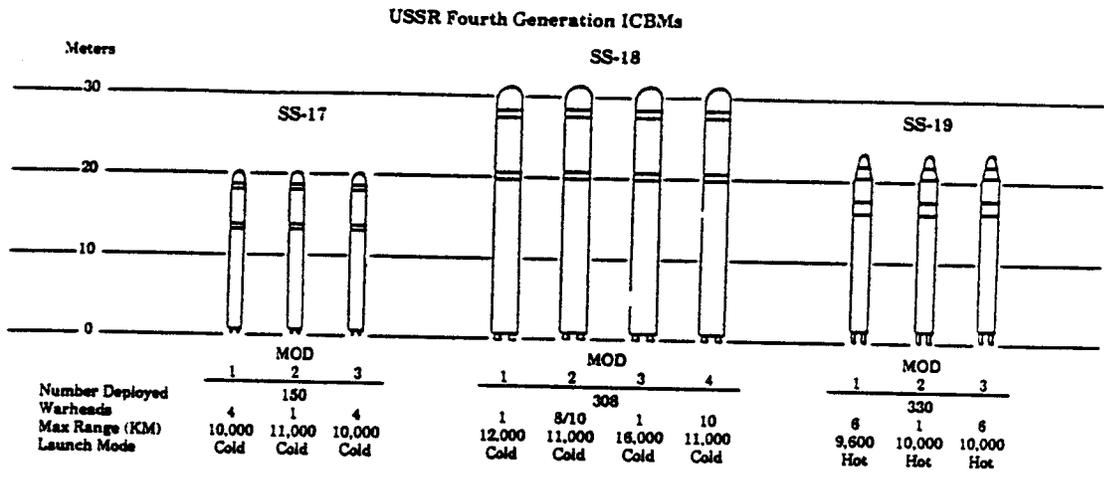
ILLUSTRATION 5:24 US AND SOVIET ICBM LAUNCHER AND REENTRY VEHICLE (RV)  
DEPLOYMENT, 1968-1983.



Source: U.S. Department of Defense, *Soviet Military Power 1983* (Washington, D.C.: U.S. Government Printing Office, 1983), p. 19.

As cited in: R. James Woolsey (ed.), Nuclear Arms: Ethics, Strategy, Politics, (San Francisco: ICS Press, 1984), p. 75.

ILLUSTRATION 5:25 COMPARISON: US ICBM'S - SOVIET FOURTH GENERATION ICBM'S.



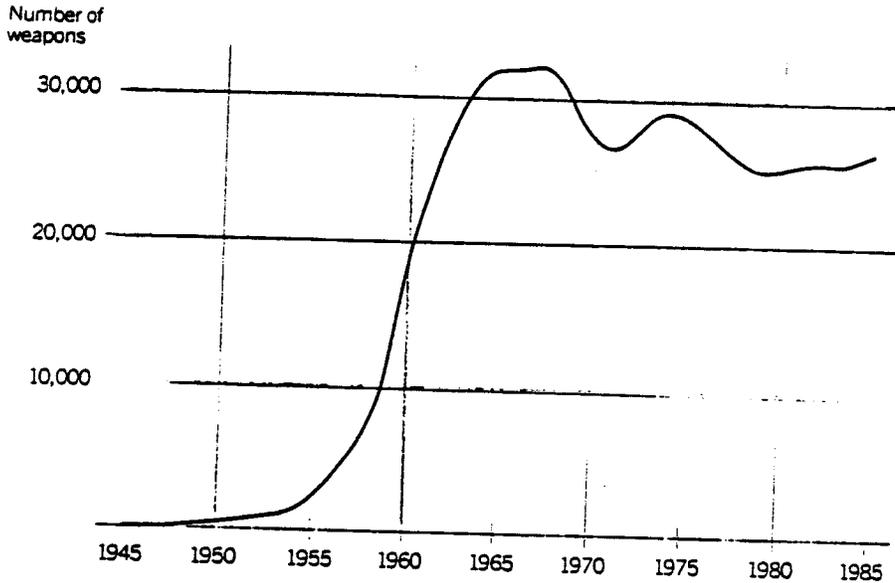
Source: U.S. Department of Defense. *Soviet Military Power 1983* (Washington, D.C.: U.S. Government Printing Office, 1983), p. 20.

As cited in: R. James Woolsey (ed.), Nuclear Arms Ethics, Strategy, Politics, (San Francisco: ICS Press, 1984), pp. 72-75.

TABLE 5:26

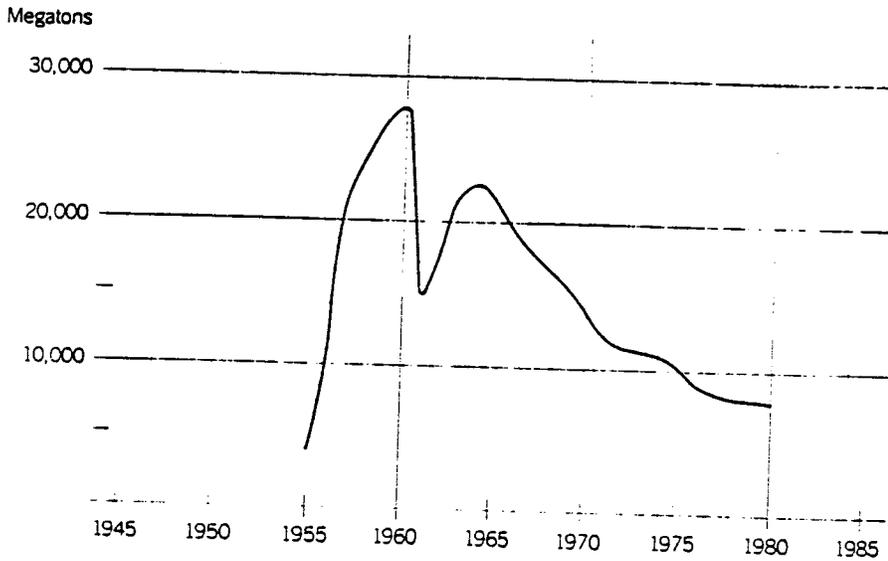
COMPARISON: NUMBER OF US NUCLEAR WARHEADS AND BOMBS  
- 1945-1984 WITH US NUCLEAR STOCKPILE: YIELD IN  
MEGATONS 1955-1980.

### Number of U.S. warheads and bombs, 1945-1984



Based on Department of Defense statistics. For further information, see Cochran, Arkin, Hoenig, *Nuclear Weapons Databook*, 1 (Cambridge: Ballinger Publishing Company, 1984), p. 15.

### The U.S. nuclear stockpile: Yield in megatons, 1955-1980



Informational graphics: Michael Yanoff. Wayne E. Nail assisted in preparing the charts for publication.  
William M. Arkin, Thomas B. Cochran and Milton M. Hoenig, "Resource Paper on the U.S. Nuclear Arsenal", in *The Bulletin Of Atomic Scientists*, (Chicago: August - September, 1984), p. 45.

Source:

TABLE: 5:27

US NUCLEAR WEAPONS STOCKPILE: 1945-1983.

Source: Thomas B. Cochran, William M. Arkin Milton M. Hoenig, Nuclear Weapons Databook: Volume I: U.S. Nuclear Forces and Capabilities, (Washington: Ballinger and Company, 1984), p. 15.

<b>U.S. Nuclear Weapons Stockpile</b>	
<u>Year</u>	<u>Number of Warheads</u>
1945	2
1946	9
1947	13
1948	50
1949	250
1950	450
1951	650
1952	1000
1953	1350
1954	1750
1955	2250
1956	3550
1957	5450
1958	7100
1959	12,000
1960	18,500
1961	23,000
1962	26,500
1963	29,000
1964	31,000
1965	31,500
1966	31,500
1967	32,000
1968	31,000
1969	29,000
1970	27,000
1971	27,000
1972	27,500
1973	28,500
1974	29,000
1975	28,500
1976	27,500
1977	26,000
1978	25,500
1979	25,000
1980	25,000
1981	25,000
1982	25,000
1983	26,000

Stockpile numbers for 1945-1948 are taken from an undated State Department memorandum circulated in 1982, and David Alan Rosenberg, "U.S. Nuclear Stockpile, 1945-1950," *The Bulletin of the Atomic Scientists*, May 1982; Authors' estimates of the current size of the stockpile and historical trends are derived from SAC, FY 1981 EWDA, Part 2, pp. 798-799, BDB; JCAE, *Development, Use and Control of Nuclear Energy for the Common Defense and Security and For Peaceful Purposes, Second Annual Report*, 30 June 1976, pp. 135-136; MASC, FY 1982 DOE, p. 142; OOO, FY 1984 Annual Report, p. 55. For the years 1949-1958 the estimate is rounded to the nearest multiple of 50 warheads, and for the years following 1958 to the nearest 500 warheads.

FOOTNOTES

CHAPTER FIVE

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Albert Carnesdale, Paul Doty, Stanley Hoffmann, Samuel P. Huntington, Joseph S. Nye, Jr., Scott D. Sagan (The Harvard Nuclear Study Group), Living With Nuclear Weapons, (New York, 1983), p. 19.

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Ibid., p. p. 18-19.
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Alexander Werth, Russia At War 1941-1945, (London, 1965), p. 925, as quoted in, David Holloway, The Soviet Union And The Nuclear Arms Race, (New Haven, 1983), p. 20.
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V.D. Sololovskiy, M.I. Cherednichenko, 'On Contemporary Military Strategy', as quoted in, Harriet Fast Scott and William F. Scott, The Armed Forces Of The USSR, (Boulder, Colorado, 2nd ed., 1981), p. 81.

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Note: Colonel Proektor is a Doctor of Historical Sciences, a military scholar of note at Imemo, a former faculty member of the Frunze Military Academy. He was also a contributor to major Soviet military texts including: History Of Military Art and The Soviet Army.

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## CHAPTER SIX

### US-USSR: NUCLEAR STRATEGIC DOCTRINE AND THE MAINTENANCE OF DETERRENCE

#### 1. US Nuclear Strategic Doctrine And The Maintenance Of Deterrence: 1945-1984

In reviewing this subject area four specific aspects will be examined. First, the evolutionary development of US nuclear strategic doctrine will be looked at over the past four decades. Second, the assumptions which underly the concept of deterrence will be outlined as well as how they relate to strategies for coping with war between the US and USSR. Third, US efforts to develop credible and effective limited war strategies will be examined as well as their degree of credibility. Fourth, the general relationship between changes in strategic weapons technologies and their effect on changing US strategic thought. More specifically, attempts will be made to distinguish the difference between Counterforce and Countervalue strategic targeting doctrines. Also the importance of relative vulnerability or invulnerability of strategic weapons' systems in terms of deterrence, stability and technological change will be reviewed.

Strategic thought, as David W. Tarr notes, refers to "the predominant ideas, concepts and doctrines that specify the ways in which the armed forces of a nation should be employed."<sup>1</sup> Colin Gray adds a further dimension to this definition when he notes that: "'Strategy', [is] a word stemming from the ancient Greek term for a

general and generalship, [and it] refers to the relating of military to political purpose." <sup>2</sup> US strategic doctrine, since World War II, has concerned itself not only with the specific national security of the continental United States, but, also, because of its newly acquired world power status, a global outlook and capability to fight wars at various levels and intensities to protect its own, as well as its allies', interests. All these became part of its overall strategic doctrine. Those involved with strategic studies since 1945 have had to come to grips with the new realities which came into being with the invention of atomic and thermonuclear weaponry. As Colin Gray points out:

Stated in the most general terms, the challenge confronting the postwar strategist has been to discover and refine, ways in which American society can live with the inalienable fact of nuclear weapons...The strategist is indeed required to design schemes that reduce the possibility of the United States suffering catastrophic nuclear damage, but in the context of the design of strategies of threat and execution vis-a-vis another nuclear-armed power ...Strategy and strategic studies are, therefore, a necessary concomitant of the enduring disorder called international politics. <sup>3</sup>

Edward Luttwak outlines certain American national characteristics or an American national "style," as he puts it, which are anathema, as he argues, to strategic thinking. He points out:

As a nation, Americans are pragmatic problem solvers rather than systematic or long-range thinkers. Our whole experience tells us that it is best to narrow down complicated matters so as to isolate the practical problem at hand, and then to get on with finding a solution. Strategy by contrast is the one practical pursuit that requires a contrary method: to connect the diverse issues into a systematic pattern of things; then to craft plans--often long range--for dealing with the whole. <sup>4</sup>

Prior to World War II, it was logical for US military strategy to assume that in the event of it becoming involved in a major conflict that time would be available to permit mobilization of its war-fighting machine. However, with the Soviets possessing the atomic bomb by 1949, dealing with an imminent war-threat required different tactics. The new atomic era meant that a war could result from a pre-emptive strike by one side without any prior warning. Fears grew on both sides concerning the possibility of just such an occurrence. The whole world, not just the US and USSR, had been shown what the destructive capability of atomic weapons was after Hiroshima and Nagasaki. Thus, strategic thought during Truman's administration came to stress pre-attack readiness (forces-in-being) not post-attack mobilization and counterattack.

The Soviet Union soon came to be identified as the US's major security threat, and containment of the USSR's rapid expansion program became a primary objective of US foreign policy during this period. The US viewed its major security problem at that time to be the protection of Western Europe from Soviet attack and the principle function of American armed forces to be to prevent this from occurring.

It became difficult to sell these ideas to the American people who, once the war ended, wanted to see demobilization of the armed forces, a reduction in defense spending and more emphasis on building a peacetime economy. Thus, its defense budget dropped dramatically during the late 1940's.

"Deterrence as a concept was neither well articulated nor well understood in these years," comments David Tarr. It was generally

assumed that if the Soviets initiated a first-strike, that the armed forces in the US would begin to mobilize, while SAC strikes would substantially destroy the Soviet economy and its industrial base, neutralize its war-making ability and consequently be followed up by conventional forces retaking positions in Europe previously swallowed up by the USSR. In hopes of preventing such an occurrence, the Truman administration adopted the concept of "Containment" as a strategic theory. This, it was hoped, would prevent Soviet expansionism from reaching a point where use of atomic weapons would have to be considered. Certain important events, which occurred in the late 1940's, forced the US to reassess its strategic assumptions. Three of these were the Berlin crisis, the takeover of Mainland China by the Communists and the USSR's development of its own atomic bomb. Publication by the Truman administration of National Security Council document (NSC-68) on April, 7, 1950 [prepared by a State Defense Policy Review Group, chaired by Paul H. Nitze] presented the President with four options:

1. Continuation of current policies and programs
2. Isolation
3. Preventive war
4. A rapid build-up of the political economic and military strength of the free world.

After a lengthy discussion, options 1 through 3 were rejected. The direction then was set for the future development of the US nuclear strategic deterrent.<sup>6</sup>

With the conclusion of the Korean war, strategists began to

include the concept of limited war in their thinking. This ultimately meant having strategic plans for both nuclear and conventional situations. President Eisenhower, upon assuming office on January 20, 1953, stated that his new administration's first priority was to formulate a basic and comprehensive national security policy. Subsequently, a task force (named Operation Solarium) was established to define the parameters of such a policy. In January, 1954 Secretary of State John Foster Dulles enunciated the Eisenhower Administration's strategic doctrine of "Massive Retaliation." It unquestionably made US nuclear deterrence policy very explicit, as well as controversial. In essence, it outlined a policy designed to function both to deter and to respond with its nuclear arsenal to carry out the threat if deterrence was perceived to be failing. The questionable nature of this doctrine concerned the fact that the growing Soviet nuclear capability was apparently being ignored or not taken seriously.

The Rand Corporation, after studying the issue of deterrence, concluded that a credible retaliatory threat (nuclear deterrence) required an invulnerable second-strike capability able to respond to a Soviet first-strike. All of this was premised on the fact that even though in 1956 the US bomber command (SAC) had about 1650 strategic bombers capable of reaching their predetermined targets in the USSR, and the Soviets had only about 150 bombers capable of reaching the US. The SAC bombers were based at only 30 lightly defended bases in the US<sup>6</sup> and at 70 bases overseas (available for use only during wartime). Desmond Ball<sup>7</sup> has concluded that "...massive retaliation lacked credibility." The facts would seem to confirm this conclusion.

Prior to 1954-55 the US was capable of launching a nuclear attack on the USSR with virtually a negligible response. However, by the time of John Foster Dulles' speech, delineating the new nuclear strategic doctrine of the "Massive Retaliation," the Soviet Union was developing its own nuclear strategic deterrent capability. The larger it grew the less rational the doctrine of "Massive Retaliation" became.

Historically, it is fair to argue that use of scare tactics have resulted in public opinion being swayed to support such defense buildups. In the mid to late 1950's a "bomber gap" was brought before the American public, followed by a "missile gap" during the Kennedy administration. Administration arguments were presented pointing out the vulnerability of the US to nuclear attack. The result was massive funds spent to develop new ICBM's as well as a host of other nuclear strategic weapons. The importance of bombers decreased somewhat as these new weapons came on-stream, though they continued to remain an important part of the TRIAD configuration.

During the Eisenhower administration, the US nuclear strategic deterrent program called for the building and deployment of:

- . Approximately 1100 strategic missiles
- . Approximately 20% were to be the first-generation Atlas and Titan ICBMs (later phased out of the missile inventory)
- . About 10% were to be mobile Minuteman-I ICBM's (later withdrawn from inventory due to cost and technical programs)
- . Only some 800 missiles were the strategically viable, second-generation Polaris (SLBM's) and the Minuteman-II ICBM's in hardened silos.

On January 20, 1961, President J.F. Kennedy was inaugurated as President and he, along with his Secretary of Defense set out to change the present nuclear strategic doctrine. They rejected the inflexibility and lack of options the doctrine of massive retaliation presented. Again, the Rand Corporation and other specialists, under the direction of Defense Secretary McNamara, undertook to find a new nuclear strategic doctrine.

At this point, it is necessary to examine the current level of the US nuclear strategic deterrent. When President Kennedy took office, the US was essentially just entering what can be referred to as the "missile age." There was only about 12 operational ICBM's and they were all slow-reacting, radio-guided, liquid fuelled missiles (the extremely vulnerable Atlas D missiles). In addition the US had deployed only two missile launching submarines SSBN's (carrying Polaris A-1 missiles).<sup>9</sup>

In retrospect, it is now evident, that: "The decisions of the Kennedy Administration essentially determined the size and character of the US missile forces for the next two decades."<sup>10</sup> In March of 1961 President Kennedy sent his proposed nuclear deterrent building and deployment program to Congress. The key points were as follows:

- . Limit the Titan missile force to 54 Titan II's,
- . US missile forces to be restricted to relatively small low-payload warheads,
- . The Polaris program to be limited to 41 submarines carrying 656 SLBM's (rather than the 45 submarines the Navy wanted),
- . An upper-limit of 1000 Minuteman ICBM's (not formally announced by Secretary of Defense McNamara until November 5, 1964).

The rapid pace of the US nuclear strategic stockpile can be seen when one considers that by the time of President Kennedy's assassination in November 1963, the overall figure had doubled since President Eisenhower left office to over 1900 nuclear strategic missiles:

- . 54 storable liquid-fuelled, large payload Titan II ICBM's
- . 656 Polaris SLBM's
- . 1200 Minuteman ICBM's (cut back to 1000 in 1964).

11

Strategists then began to address the question of survivability of US strategic forces. Some results of their studies resulted in bomber bases being dispersed over a wider area and the addition of missile-carrying submarines and the hardening of ICBM silos.

By the early 1960's nuclear strategists were divided into two groups: 1) Those advocating a "finite" deterrence policy; and 2) Those advocating a "counterforce" policy.

1. Those who espoused the "finite" deterrence route argued that the best way to achieve nuclear deterrence was by threatening to destroy a fixed (hence the term "finite") number of Soviet cities. The number decided upon--200--represented, supposedly, a level of damage that would constitute an "unacceptable" level to the Soviets (also known as counter-city or countervalue strategy). They supported the newly-developed nuclear missile carrying submarines because of their invulnerability as well as their missiles' accuracy and yield levels adequate to ensure destruction of cities, but not powerful or precise enough for counterforce targets. The concept came to be called "minimum deterrence." Thus the important

factor in this strategy which determines the strategic force size, are the number of targets deemed necessary to assure deterrence, rather than the number of Soviet strategic weapons, military sites etc. Proponents of this strategy argued that since the size of the US retaliatory system would not be directly related to the existing number of Soviet weapons, then the finite or minimum deterrence policy would allegedly inhibit strategic arms race incentives.

2. Counterforce advocates contended that strategic thought must proceed beyond deterrence. A countercity or countervailing response, they argued, while punitive, was irrelevant to the immediate military situation. They, in turn, argued for strategic armed forces capable of retaliating in order to mitigate the enemy's capacity to continue to fight. They felt responses should be based on Soviet military capabilities with strategic weapons base sites being the prime targets. Consequently they called for numerical and qualitative superiority over the USSR in order that sufficient weapons, with technological superiority, particularly in the areas of accuracy, yield and penetrability, would be effectively deployed against a variety of Soviet military targets.

Once the "missile gap" myth was exploded during the Kennedy administration other strategic doctrines than massive retaliation were explored. One alternative, which was examined closely, concerned increasing US counterforce targeting for purposes of "damage limitation." In essence, the idea proposed retaliating against any

Soviet missiles and bombers held in reserve so as to destroy as many as possible, thus limiting Soviet damage to targets in the US.

In 1960, the United States formulated a plan designed to outline the ways in which a nuclear war could be conducted against the Soviet Union. It is referred to as the S.I.O.P. (Single Integrated Operational Plan)--

"...single because it is the only contingency plan that accounts for the nuclear weapons of all three branches of the United States military, and integrated because it embraces all the nuclear contingency plans of the United States' regional commands in the Pacific, the Atlantic, and Europe, plus the lesser forces of America's closest and only real nuclear ally, Britain."

13

As William Arkin explains: "In fact, the S.I.O.P. is so secret that it has its own security classification: Extremely Sensitive Information, or ESI."

14

In essence, it provides the President with a series of options on how a nuclear war with the Soviet Union should be waged should one be initiated by the USSR. The S.I.O.P. has been periodically updated to reflect changes in the USSR's nuclear strategic deterrent, and any real or perceived threats posed by it. Presently, the current S.I.O.P. is designated S.I.O.P.-6. The one inherited by the Kennedy administration contained only one plan, under which:

...the United States would launch all its strategic nuclear delivery vehicles (SNDV's) immediately upon the initiation of nuclear war with the Soviet Union. The single National Strategic Target List (NSTL) predominately included Soviet and satellite cities; no strategic reserves were to be retained; and there was no provision for the preservation of command and control capabilities.

15

The Kennedy Administration rejected the inflexibility of the doctrine of massive retaliation and sought one which provided both

flexibility and multi-options. Consequently, Secretary of Defense Robert McNamara put forth the strategic doctrine of "Assured Destruction" as the fundamental element of nuclear deterrence. Its success was premised on taking away from the USSR any incentive to attack the West. The primary threat was directed against Soviet population and industries (the countercity or countervalue targets). The "Destruction" aspect was "assured," so the argument goes since the US TRIAD defense (offense) was invulnerable to a Soviet first-strike because its elements were dispersed, mobile, hardened, or submerged. The aim of the US retaliatory force was to deliver as many bombs and warheads necessary to achieve the destruction of one quarter of the Soviet population and at least 50% of its industrial base. The above described doctrine was based on the following strategic assumptions:

1. That nuclear war was more likely to start as a result of escalating actions by both sides rather than as a result of a first-strike by one side.
2. Counterforce target incentive continued to operate but doctrinal emphasis was placed on assured destruction.
3. That the Soviet Union realized that "Mutual Assured Destruction" postures would be in the best interests of both parties.

16

The theory was that with both powers possessing strategic weapons that held the population and industry of the other hostage that the overall situation would be stabilizing. It was further argued that there would be no incentive to preempt during a crisis. Also, with both sides possessing secure retaliatory forces, arms control measures were thought to be enhanced, thus slowing the spiral of the arms race and

hopefully leading to agreement that would reduce efforts by one to achieve superiority over the other.

17

McNamara opposed the ABM concept fearing that it could provoke one side to launch a first-strike counterforce attack if it felt sufficiently secure that its ABM system could effectively stop a second-strike attack (if any weapons remained). He instead preferred the stability of a countervalue "Assured Destruction" posture.

The SALT-I negotiations allowed both sides to have two ABM sites. Eventually this was reduced to one site and the US abandoned the ABM concept altogether not long after (see Illustrations 6:1 and 6:2).

McNamara's strategic concepts were never completely abandoned. From the Kennedy years onward the predominant declared nuclear strategy between the US and the USSR has been referred to as Mutual Assured Destruction (MAD). It was based on the assumption that:

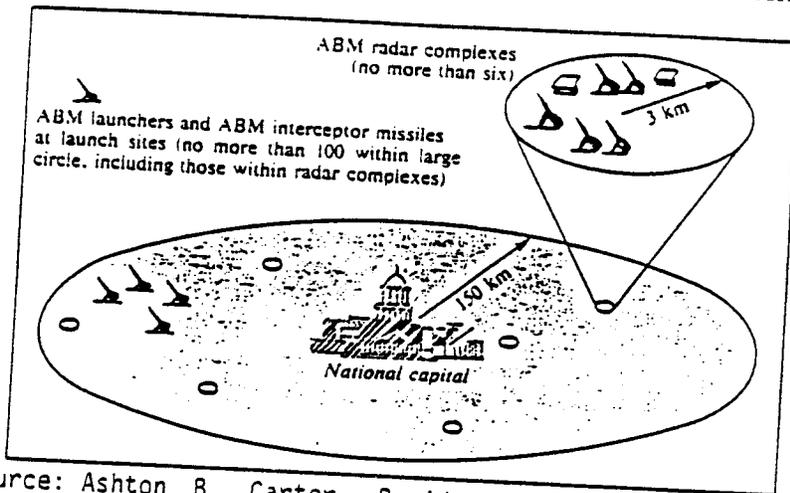
...because both sides possessed sufficiently large numbers of nuclear warheads, neither side would dare to attack the other because this would inevitably provoke a devastating nuclear retaliation. In essence both sides deterred aggression by the possession of a second-strike capability.

18

Adam Suddaby makes a valid point in commenting on the two criteria required to pursue successfully a strategy of Mutual Assured Destruction. Regarding nuclear strategic weapons:

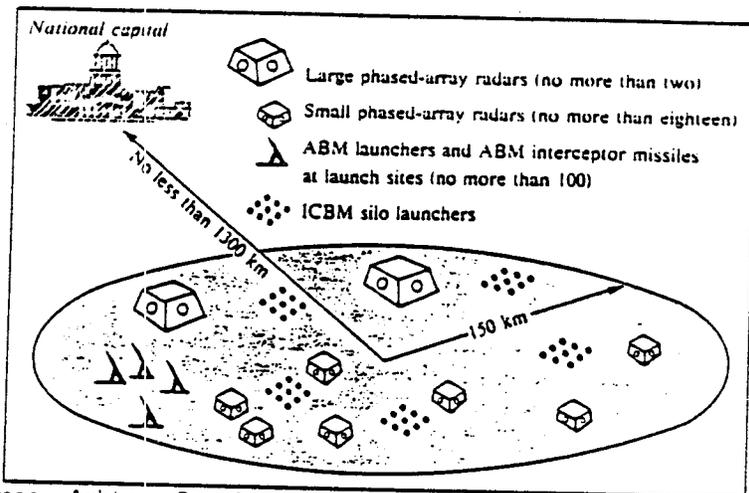
...Firstly, they must be as invulnerable as possible, in order to avoid being destroyed in a surprise counterforce attack launched by the opposition. It is this requirement that has led inter-continental ballistic missiles gradually to supplement the slower and more vulnerable bombers and why, in turn, ICBM's have been protected by being placed in concrete silos and by being made mobile. The placing of missiles in

ILLUSTRATION 6:1 ABM SYSTEM DEPLOYMENT FOR A NATIONAL CAPITAL AREA.



Source: Ashton B. Carter, David N. Schwartz (eds.), Ballistic Missile Defense, (Washington: The Brookings Institution, 1984), p. 224.

ILLUSTRATION 6:2 ABM SYSTEM DEPLOYMENT PERMITTED FOR AN INTERCONTINENTAL BALLISTIC MISSILE LAUNCHER AREA.



Source: Ashton B. Carter, David N. Schwartz (eds.), Ballistic Missile Defense, (Washington: The Brookings Institution, 1984), p. 225.

submarines which roam the depths of the oceans is a logical extension of this requirement for invulnerability.

The second criterion is that sufficient numbers of warheads must be possessed in order to cause 'unacceptable' damage to an aggressor. The point that a potential aggressor will only be deterred from attacking if he is convinced that any aggression on his part will be met by such devastating retaliation that any gains from his attack will be far outweighed by the damage he will suffer in return.

19

While not a particularly attractive method for ensuring peace, it has, for forty years, prevented a nuclear holocaust from occurring. The incredible paradox of Mutual Assured Destruction, as a viable strategic doctrine, is that it operates by threatening the very disaster which it is designed to prevent.

Since 1960, the nuclear stockpile of the United States has rapidly grown to approximately 45,000 weapons by late 1984. President Jimmy Carter's administration initiated a change in direction for the US' nuclear strategic doctrine. He propounded the so-called "countervailing strategy." In utilizing this strategy, as James Littleton points out: ...The trend was to develop mechanisms for the limited and controlled use of nuclear weapons, rather than the single catastrophic salvo visualized in the original version of S.I.O.P.<sup>20</sup> For the first time in the short history of the nuclear arms race it appeared that some nuclear strategists and key government officials were giving consideration to the thought that fighting a nuclear war, in a controlled or limited situation, and prevailing was possible. This ominous trend carried over into the new Reagan administration. Throughout this period the MIRV and cruise missile concepts moved from

the testing to the deployment stages and could best be described as destabilizing factors in the nuclear arms race. The Soviets were not far behind the US in deploying their own version of these weapons systems.

With the advent of the 1980's, US nuclear strategists were becoming acutely alarmed at the numbers and qualitative improvements in Soviet strategic forces. Its build up of all types of armaments led many US defense analysts to question the need and purpose. This ultimately led to the raising of questions about its overall capabilities and intentions.

President Reagan came to power in 1980 vowing to redress this growing imbalance, perceived or otherwise, and to restore the US nuclear strategic balance to the position it once held. Consequently, he argued for higher defense expenditures since the Soviets, he said, only respect strength. His aim was to increase counterforce capability with greater strategic force targeting, and flexibility to include mobile ICBM's (the MX, still under development) and higher yield warheads with greater accuracy (the MARK 12-A warhead). In addition, he allocated funds, cancelled during Carter's administration, to develop the new supersonic long-range B-1 bomber. Along with the above, new improved SLBM's (the Trident II D-5) and cruise missiles (air, sea, and ground-launched) were to be added to the nuclear strategic inventory. With the issue of Presidential Directive Number 59 in 1980, the countervailing strategy was outlined as part of US targeting doctrine. The overall numbers of nuclear strategic weapons had reached a point where redundancy and diversity of US strategic

forces made it possible to consider replying in a controlled and deliberate way in proportion to the nature of the attack. In the early 1980's, as Littleton points out:

...senior members of the Reagan administration spoke openly of 'nuclear war fighting.' Their stated intention was to organize and equip U.S. forces in such a way that they would be able to wage and 'prevail' in a nuclear war, over a protracted period of time if necessary. This intention was expressed in a still-classified five-year 'Defense Guidance' document produced by the White House in the spring of 1982, and formalized in the current S.I.O.P.-6. 21

A widely held view regarding such a scenario is that the fragile and tenuous nature of the extremely important Command-Control-<sup>3</sup> Communication and Intelligence functions or (C I), as it is sometimes referred to, would make success in a nuclear war highly questionable. <sup>3</sup> C I is comprised of all of the surveillance, early-warning communications, and command facilities available to the military. It is, as William Arkin points out "...the nervous system of the nuclear arsenal...Everything from a simple telephone to protected underground cables to satellites are used to control nuclear forces."<sup>22</sup>

In a recently published book entitled The Button: The Pentagon's Command And Control System--Does It Work?, the author, Daniel Ford presents an extremely critical assessment of the whole command and control system which, as mentioned earlier, is the 'nervous system of the nuclear arsenal.' The great fear is that it could very easily fail when it is most urgently required. As Daniel Ford notes very poignantly:

In the 1980's, there is no longer a guaranteed grace period for hot-line consultations while opposing bombers, at subsonic speeds, approach each others territory. The technology has changed--to-day's

intercontinental ballistic missiles (ICBM's) fly at speeds in excess of fifteen thousand miles per hour (and can arrive in as little as 8-13 minutes)--and this has prompted changes in the kinds of firing mechanisms relied upon to assure retaliation. It must now be recognized that in an actual U.S.-Soviet confrontation, the good sense of leaders on both sides could be overwhelmed by the brute fact that they might have little warning time or opportunity to deliberate, a situation made all the more acute by the vulnerability of the leaders themselves to each others nuclear weapons. Common sense demands deliberation and restraint, but the arrangements now in place for assuring retaliation depend on the ability to take speedy action at the first sign--or apparent sign--of an enemy attack.

23

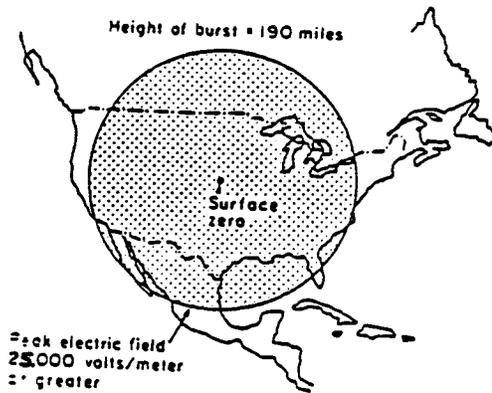
Ford goes on to quote Dr. John Steinbruner, the Director of Foreign Policy Studies at the Brookings Institution, who says:

'...We've got to realize the implication of what we have done...' I think that like many things, one doesn't want to overdo the set-trigger analogy, but to a first approximation that is the way to think about the situation. We have rigged it so there is not a safety catch. There are many safety catches under normal circumstances. We've never taken them all off, and let's hope we never do, because the situation that would obtain would be so volatile I doubt if anybody could control it. It is primed to go--massively--and it would take very little to set it off. And the reason is that's the only way it can operate, given the extreme vulnerability of the entire (command and control) mechanism to the preemptive moves of the opponent.'

24

While such a preemptive or 'decapitating attack' is considered possible but improbable under present circumstances, it could occur. If it did, the Command Control and Communication network would be one of the first targets. The most significant damage to the entire nerve centre probably would be caused by EMP or electro magnetic pulse (see Illustration 6:3), a relatively little-understood phenomenon, but a potentially devastating factor capable of affecting the United States'

ILLUSTRATION 6:3 THE EFFECTS OF ELECTROMAGNETIC PULSE.



A nuclear explosion 300 km high above the United States could blanket all of it with an electromagnetic pulse with electric fields as high as 25,000 volts per meter. (After Office of Technology Assessment, 1981, p. 297.)

Source: Dietrich Schroerer, Science Technology And The Nuclear Arms Race, (New York: John Wiley & Sons, 1984), p. 280.

Every nuclear weapon gives off various kinds of energy. Some of that energy is in the form of gamma rays. If a large weapon is detonated close to the ground, most of the damage is caused by the resulting heat and blast and by the extensive radioactive fallout. The prompt gamma rays and associated electromagnetic disturbances are relatively trivial in comparison with all the other effects of the weapon.

However, if a large nuclear weapon is detonated at high altitudes--a few hundred miles above the United States, say--the gamma rays assume an altogether different significance. The energetic gamma rays would interact in the upper atmosphere, creating intense electromagnetic radiation that would spread for a thousand miles or so in every direction. It could bathe the entire country in an electrical storm that could potentially affect much of the nation's communications and electronic circuitry. Unlike lightning bolts, which are highly localized, the EMP phenomenon would have broad-ranging effects, which would be especially pronounced since the EMP disturbance is formed locally wherever the gamma rays strike the top of the atmosphere. This means that the voltage from the burst does not diminish much even at great distances from the point of the explosion.

Source: Daniel Ford, The Button: The Pentagon's Command And Control System--Does It Work?, (New York, 1985), p. 158.

ability to respond, in kind, should it be so-attacked. The issue, as Ford points out, is "...whether EMP will cause wholesale destruction of the nation's communications and electronic circuits or whether the effects will be more limited."<sup>25</sup> With these fears in mind, the Reagan administration has initiated an \$18 billion dollar program to improve and harden all of the facilities connected to C I to withstand EMP.<sup>3</sup> Defense Secretary Caspar Weinberger's talk of conducting limited nuclear war in specific situations and prevailing added only a superfluous note of insanity to the present situation.

Looking at US nuclear strategic doctrine from a different perspective, two authors, Spurgeon M. Keeny Jr. and Wolfgang K.H. Panofsky, outlined one which they referred to as Nuclear Utilization Target Selection or NUTS.<sup>26</sup> They began by questioning whether "declaratory doctrine has generated requirements or whether the availability of weapons for targeting has created doctrine." This is certainly a valid question considering the fact that both sides now possess some 50,000 warheads, far more than is required to eliminate every conceivable counterforce and countervalue targets; in fact the whole world, many times over. Recognizing this situation the authors put forth the concept of NUTS which purports to characterize "...the various doctrines that seek to utilize nuclear weapons against specific targets in a complex of nuclear war-fighting situations intended to be limited as well as the management over an extended period of a general nuclear war between the superpowers."<sup>27</sup> This doctrine is based to a great extent on nuclear confrontation being able to be controlled or limited once started. Most current military analysts question this

premise. The authors themselves concluded that:

...NUTS creates its own endless pressure for expanded nuclear stockpiles with increasing danger of accidents, accidental use, diversions to terrorists etc. But, more fundamentally, it tends to obscure the fact that the nuclear world is in fact MAD. 28

In essence, the concept is destabilizing in that it would most probably speed up the arms race and increase weapons stockpiles. Also, the idea that once a nuclear war began that it could be limited or controlled is highly questionable.

It is difficult in 1984 to determine if President Reagan is personally committed to achieving nuclear superiority over the Soviets or is attempting to redress what he perceives to be a nuclear weapons lead by the USSR. One thing is clear, the defense budget is rising, new development programs such as "Stars Wars" defense systems and others, are receiving close attention.

The present overall review of the nuclear strategic posture that the US will assume in future years is being conducted by Fred C. Ikle, US Undersecretary of Defense For Policy. In essence, it would appear that "...the Pentagon is determining how the various elements of the air defense system and the projected space and missile defense system--Star Wars--can be integrated into the nuclear command structure and its guiding strategic plan, S.I.O.P." <sup>29</sup> Whatever the outcome, it is important to note that the USSR is not sitting idly by. It has an extremely formidable nuclear strategic deterrent force. The Soviet's particular political, social and economic system is far different from that of the US and undoubtedly accounts for its perception of the nuclear strategic capabilities and intentions of the US. This also

leads to its own nuclear strategic doctrine to counter the threats posed by the US. There is certainly no question that it can and does compete effectively in the arms race and its fears and mistrust help formulate its nuclear strategic doctrine which, like that of the US, has evolved over time.

## 2. USSR Nuclear Strategic Doctrine And The Maintenance Of Deterrence 1945-1984

Most of what has been written and published about Soviet military thought and nuclear strategic doctrine in the post-World War II period is a reflection of what has been seen through the eyes of Western authors. Unlike the United States, as David Holloway points out, "the politics of Soviet defence policy and other related subjects like nuclear strategic doctrine is difficult to study because key aspects are shrouded in secrecy, but an important role has been played by debates about doctrine itself." <sup>30</sup> It is by studying these debates that many outside observers have managed to put together many pieces of the puzzle and also, to provide some insight into the nebulous world of Soviet military thought and nuclear strategic doctrine. However, despite the common thread that seems to weave itself through the nuclear arms race, that principally involves the US and USSR, the process for developing and implementing nuclear strategic doctrine in the USSR is entirely different than the one utilized in the US. The similarities are few.

In the USSR an understanding of certain key fundamentals is essential to an overall basic comprehension of Soviet defense policy

and the role that doctrine plays in it. Harriet Fast Scott, in quoting Soviet sources, provides some important definitions and distinctions which are inherent in the Soviet political and military systems. In quoting N.A. Lomov:

The dependence of military strategy on politics, its subordinate position in relation to politics, is underscored in the Marxist-Leninist definition of war as the continuation of the politics of a state, or of classes, by other, that is, violent means. 31

Also, it is important to note that military strategy should not be confused with military doctrine. In the Soviet military system it has a definite and very precise meaning:

'Strategy is general and common for all services of the armed forces of a country, since war is not waged by any one service of the armed forces or service branch, but by their combined efforts. Coordination of the actions of all the services of the armed forces in war is possible only within the framework of a common military strategy.

Strategy has two aspects, as do the other branches of military art and military science: general theoretical and applied.' 32

Military doctrine, in contrast, as Scott points out:

...was formulated under the guidance of the Communist Party after it reached certain conclusions regarding the world socialist system...on imperialism as the source of aggressive wars, on the types of wars in the modern era and the relationship of socialism to them, on the socio-political and class content of a possible nuclear rocket war, on certain factors deciding the source and outcome of war, and on the 'inevitable' victory of the Socialist coalition in a war against the imperialist bloc. 33

From all this, military doctrine is defined as:

'...a system of guiding views and directions of a state on the character of wars in given specific historical conditions, the determination of the military tasks of the state, the armed forces and the principles of their structuring, and also the methods

and forms of solving all these tasks, including the armed struggle, which flow from the goals of war and the socio-economic and military-technical possibilities of the country. 34

In summarizing all of this, H.F. Scott notes that:

In other words, contemporary Soviet military doctrine is the political course of the Communist Party and the Soviet state in the military sphere. Doctrine, which looks only to the future, is formed 'with the help of military science and is based on its conclusions.' Whereas doctrine is 'a single system of views and directions free from private views and evaluations...in military science various and even contradictory points of view do have a place, with various presentations and hypotheses.' 35

Throughout Soviet military writings there are various references to doctrine, strategy, military science, and military art. Many military strategists now work in research institutes as well as in the armed forces. They work strictly under the close guidance of the Communist Party. Military doctrine, thus, is derived from party decisions, and military strategy must be consistent with approved doctrine. It is important to note that each of these terms have specific meanings and are not to be used interchangeably. 36

Within the framework of military doctrine considerable debate has taken place regarding nuclear war and its usefulness as an instrument of policy. In 1954 G. Nalenkov argued that a nuclear war would lead to the destruction of the world as we know it, and for this view, some criticized him. Subsequently, N.S. Khrushchev, at the 20th Party Congress, stated that world war was not 'fatalistically inevitable,' and, at the same time rejected Nalenkov's view of the consequences of nuclear war. The late 1950's and early 1960's saw feelings change to reject the theory that nuclear war was inevitable,

or even necessary for the triumph of socialism, or as an expedient instrument of policy. However, it was to be prepared for. Views, in some respects, became polarized. In late 1958 Lt. Colonel Ye. Rybkin wrote that:

'...to assert that victory is not at all possible in a nuclear war could not only be untrue on theoretical grounds, but dangerous as well from the political point of view...Any a priori rejection of the possibility of victory is harmful because it leads to moral disarmament, to a disbelief in victory and to fatalism and passivity. It is necessary to wage a struggle against such attitudes.

The debate continued into the 1970's. As David Holloway

notes:

The debate of 1973-1974 (nuclear war can lead only to mutual if not worldwide annihilation) may also have been a prelude to the reformulation or clarification of doctrine that has taken place since the mid 1970's. The destructiveness of nuclear war has been strongly emphasized in the Soviet press, and the suicidal nature of any decision to start such a war has been underlined by Brezhnev. At the same time, however, it is asserted that such a war has to be prepared for: strategy, in other words, has not been made redundant. Parity has been affirmed (Harriet Fast Scott argues 'Soviet plans to achieve strategic nuclear superiority were laid long before the nuclear confrontation of October 1962) by Brezhnev as the goal of Soviet policy, and the pursuit of superiority has been disavowed. Parity is a key concept here, for it approximates the idea of mutual deterrence in that it recognizes that for the time being, the basic nature of the Soviet-American strategic relationship is one of mutual vulnerability to devastating retaliatory strikes.

A further excerpt from Soviet writings on the subject of military doctrine helps to explain the Soviet military posture in the 1980's.

Of all wars possible in the contemporary era the main danger is presented by world nuclear missile war which the imperialist aggressors and in the first place the United States, are preparing against

the socialist commonwealth and first of all against the Soviet Union as the most powerful of the socialist states. Therefore, in the content of Soviet military doctrine, the main place is occupied by the propositions which pertain to the problems of the preparation and conduct of a world nuclear-rocket war. At the same time the possibility of the conduct of combat operations by units and sub-units without the use of nuclear weapons, i.e., by conventional means, is also considered. 40

In contrast to the United States, where military doctrine is open to public criticism and alternatives can be discussed, USSR military doctrine is the expression of the military policy of the Communist Party. Consequently competing doctrines are not tolerated nor are public disagreements or criticism of any doctrinal tenet allowed. Military doctrine is the same for all of the Soviet services and is concerned not with the present but with future military action. In the Soviet Union politics plays the leading and guiding role in the formulation and carrying out of strategic doctrine.

It is interesting to note, upon reviewing the evolution of Soviet military thought, that, contrary to the US, it does not revolve around the concepts of nuclear strategic deterrence so familiar in Western strategic thought. In fact, deterrence is not even a part of the Soviet strategic vocabulary. Soviet military thought has instead focussed traditionally on defense which to the USSR means the capacity to defend against foreign aggression and ultimately win any war which develops. Soviet acceptance of nuclear weapons has been adapted to their same concentration of defense and war-fighting capability, not deterrence.

As previous Soviet writings have pointed out, it is assumed

ILLUSTRATION 6:4 MAJOR DEVELOPMENTS AND DOCTRINES IN THE US - SOVIET STRATEGIC WEAPONS REGIME.

Year	Nuclear Strategic Balance	Major Developments	U.S. Strategic Doctrine and Policy	Soviet Strategic Doctrine and Policy
1945	U.S. nuclear monopoly	First nuclear weapons	Targeting of cities	Consolidation of WWII gains narrow, continental mission
1946		Baruch and Gromyko plans		
1947		NSC-20 and Containment	Containment of Soviet Communist expansion	
1948				
1949	U.S. monopoly of intercontinental delivery vehicles	First Soviet nuclear weapon B-36 deployment approved	Rearmament Engagement in Europe and Asia	Stalin sees nuclear weapons as adjunct to conventional forces
1950		NSC-68 & military buildup Decision to build H-bomb	Targeting extended to include both industrial and military targets	Western Europe effectively held hostage, as USSR is faced with U.S. monopoly on intercontinental bombers
1951				
1952		First U.S. H-bomb (Nov.)		
1953		First Soviet H-bomb (Aug.)		
1954		Massive Retaliation announced 12 Jan.	Massive Retaliation, militant posture	Ambiguous doctrine and posture
1955	Developing symmetry in delivery capabilities	First Soviet bombers able to reach U.S.		
1956				
1957		Gaither Report First Soviet ICBM test (Aug.) Sputnik I launched (Oct.)		
1958				Apparently minimum deterrence, not first strike
1959		First SIOP		
1960	ICBM "gap" favors U.S.	"Missile gap" fears in U.S. Soviet Strategic Missile Forces organized	Evolution of deterrence theory, flexible response	"Speak-softly-while-getting-a-big-stick" (Kolkowicz, 1971, 437)
1961		McNamara's Ann Arbor speech (16 June)	Second Strike Counterforce targeting begins (and continues until about 1974)	Massive Retaliation doctrine Inflexible posture Strategic inflexibility
1962		Cuban Missile Crisis Minuteman I IOC		
1963		Limited Test-Ban Treaty Hot-Line agreement	Soviet intentions under-estimated	
1964		Chinese nuclear bomb (Oct.)	AD & DL seem to be on equal footing	Moving toward invulnerable second-strike force
1965			Greater-Than-Expected threat considered	
1966	854 U.S. ICBMs, 304 Soviet	Minuteman II IOC Soviet ICBM buildup starts	Both sides developing deterrence capability, flexible response, global posture.	
1967	U.S. levels off at 1054 ICBMs	Outer Space Treaty	Enthoven to Congress: U.S. seeks AD - SUPER	
1968		NPT signed Safeguard ABM approved		
1969	Effective parity established by now	SALT negotiations open	U.S. AD capacity > excess (Enthoven)	
1970		IOC of first U.S. MIRV		Long-term sustained military buildup begun
1971		Poseidon IOC (Mar.) Biological Warfare Convention (Apr.)		
1972		SALT I agreements	Strategic Sufficiency	
1973		Accelerated Trident program		
1974		Indian nuclear bomb (May)	Retargeting: Mikle & Schlesinger; graduated escalation options	

Source: William H. Baugh, The Politics of Nuclear Balance: Ambiguity And Continuity in Strategic Policies, (New York: Longman, 1984), pp. 44-45.

ILLUSTRATION (continued)  
6: 4

Year	Nuclear Strategic Balance	Major Developments	U.S. Strategic Doctrine and Policy	Soviet Strategic Doctrine and Policy
1975				
1976				
1977				
1978				
1979				
1980		SALT II signed but not ratified by U.S.		
1981	"Window of (U.S.) ICBM vulnerability" begins to open	PD59 signed 25 July Major new U.S. strategic weapons effort	Countervailing	
1982		START negotiations open		

Source: William H. Baugh, The Politics of Nuclear Balance: Ambiguity And Continuity In Strategic Policies, (New York: Longman, 1984), p. 46

that the initiation of war, nuclear or otherwise, will develop from Western "imperialist aggression." The responsibility of the Soviet Armed Forces will then be to confront the enemy with the most effective weapons at their disposal and to win the war. Then, it can be said, that the acquisition of nuclear strategic weapons fits into the Soviet concepts of war-fighting to ensure victory. However, it must be stated that despite the Soviet's focus on nuclear weapons that, it does not imply a willingness to start such a war, nor conclude that there is necessarily a high probability of it occurring. But it does indicate Soviet efforts to adjust their doctrine to the reality of the nuclear strategic setting.<sup>41</sup>

Based on the guidelines established by military doctrine, Soviet military strategy distinguishes four kinds of strategic actions. For the purposes of this discussion, the first is most significant.

The strategic nuclear offensive conducted by strikes of the Strategic Rocket Forces, nuclear submarines armed with nuclear ballistic missiles and long-range aviation elements of the Soviet Air Forces. Such strikes would be carried out on the basis of a single plan and preparing for such an offensive is the primary task of military strategy.<sup>42</sup>

Also see Illustration 6:4 for Soviet nuclear strategic doctrine and policies compared to those of the US 1945-Present.

The development of the Soviet's nuclear strategic forces has followed a consistent pattern of long-term missile programs. As the nuclear deterrent grew; new weapons as well as modifications of old ones have continually been deployed. Evolutionary periods are discernible as a result of military or political requirements changing. During the 1950's, regional political problems dictated the

parameters of new weapons systems. However, early in the 1960's intercontinental weapons requirements took precedence. Missiles to cover both regional and intercontinental ranges were developed to satisfy the requirements of both forces. It is interesting to note that: "The military requirements that prompted deployment of the generation of Soviet intercontinental missile forces being deployed in the early 1980's were set initially during the 1960's; in the intervening years Soviet intercontinental requirements appear to have changed only incrementally."<sup>43</sup> Berman and Baker also note that the early 1960's (perhaps events leading up to and including the Cuban Missile Crisis)"...were the most visible of the critical periods...when both the political and the military situation shifted suddenly. The redirections and 'quick fixes' in Soviet strategic planning initiated then determined how Soviet strategic forces would develop for the next two decades."<sup>44</sup>

Despite Stalin's outward expressions of indifference to atomic weapons, the Soviet Union had an extensive atomic research project well underway when the war ended in 1945. By 1949 it had exploded its first atomic bomb and by 1953 had tested a thermonuclear device. It was not until the death of Stalin that Soviet political and military leaders began to grapple with the effects nuclear and long-range weapons had on military strategy and organization.

Statements by the Eisenhower administration regarding its willingness to utilize its nuclear advantage to suppress communist threats around the world; as well as the fact that by 1955, US and NATO forward-based systems, virtually surrounding the USSR, and numbering

over 500, prompted the Soviets to increase both its regional and strategic nuclear capabilities.

By the mid 1950's the USSR was deploying its first intercontinental bombers--the MYA-4 Bison and the TU-20 Bear. Only about 200 of these heavy bombers were deployed. The reason for this quite probably was due to:

...The eight to ten hours necessary to reach their targets curtailed the effectiveness of Soviet bombers. Nonetheless, they may have been valued for their political effect by starting to offset the intercontinental threat posed by the United States to the Soviet homeland and its regional security objectives. The strategic bombers were also probably seen as a useful hedge against failure or delay in the development of strategic missiles. 45

By the late 1950's and early 1960's, Soviet military doctrine shifted recognizing the importance that long-range intercontinental missiles would play in future military affairs. In August, 1957 the USSR successfully tested the world's first ICBM--the SS-6. Utilizing an SS-6 booster, two months later it launched the world's first satellite into orbit. The direct result of these technological breakthroughs was that with strategic missiles, the USSR acquired a technology that could support its regional political and military objectives and directly offset American intercontinental strategic  
46  
might.

The end result, organizationally, of these developments was the establishing, in December 1959, of the Strategic Rocket Forces. They were to be responsible for both the regional and intercontinental missile forces. Soviet writings declared the SRF to be the preeminent  
47  
service in wartime, displacing the ground forces.

An interesting, as well as an important point to remember when comparing US and USSR thoughts on nuclear strategic doctrine is that:

In Soviet thinking, deterrence is a political rather than a military concept and has received relatively little attention in military writings which are concerned primarily with the preparation for war and the conduct of war; there is no Soviet equivalent to the theory of deterrence developed in the United States in the late 1950's and early 1960's...The Soviet conception of deterrence is thus different from the American and is embedded in the wider notion of war prevention.

48

It is thought that the decision to shift military resources away from heavy bomber production in favor of IRBM's and ICBM's took place around the Twenty-first Party Congress in 1959. Khrushchev believed that nuclear missiles would negate the need of maintaining large conventional forces. As Berman and Baker point out, "Land-based missiles probably also appealed to both political and military leaders because of their more economical operating requirements and the possibility they afforded of tight command and control."

49

As a result of Soviet achievements in space, and developments in its ICBM program, and together with exaggerated claims of technological superiority, the US claimed a "missile gap" was developing between its nuclear strategic missile program and that of the Soviets. This perceived image was enough for American hawks to persuade the Eisenhower and Kennedy administrations to dramatically increase military expenditures to catch up and surpass the Soviets. At this point the arms race was heating up rapidly on both sides.

The Soviets, by 1961, were still emphasizing intermediate-range missiles at the expense of ICBM's. However, at the same time

they began to feel that they had underestimated the pace of the US ICBM program. Technologically, the US took a quantum leap in deploying advanced (relative to Soviet ICBM's) ICBM's including the solid fueled Minuteman. Soviet first-generation ICBM's failed to provide the required military capability for the Soviets. The Soviet SS-6 Sapwood ICBM, from the Korolev design bureau, suffered from technological shortcomings as an ICBM and resulted in only a few being deployed.

Development of a second-generation of Soviet ICBM's was well underway by the late 1950's--the SS-7, SS-8, and SS-9 were considered quite capable of covering area targets such as bomber bases, and early-warning missile sites on the US mainland. Also on the drawing board were the Soviet's first solid fueled ICBM--the SS-13, and the Yankee-class submarine and its ballistic missiles (both deployed in 1968). However, at this point the greatest achievement in Soviet strategic affairs must be considered the shift from a military posture based on conventional military forces to one based on nuclear forces under the command of the SRF.<sup>50</sup>

The mid to late 1960's saw the greatest efforts put forth by the Soviets in developing their ICBM force. Technological problems forced them to juggle and redirect many programs to ensure an adequate nuclear deterrent. The USSR was compelled to reorient its SS-11 missile from being an anti-naval weapon to one capable of being utilized in both a regional and a strategic role.

The USSR clearly was falling behind the United States' nuclear strategic capability by the time President Kennedy assumed office and claimed a "missile-gap" favoring the Soviets existed. The USSR

witnessed the US knee-jerk reaction to this perceived threat.

- . Authorization for the Polaris program increased the numbers from 19 to 41 submarines.
- . The number of Minuteman missile in hardened silos nearly tripled.

The reality was that by 1962 "...it became evident for the USSR that it was being rapidly outpaced--both qualitatively and quantitatively--by the US in terms of intercontinental strike forces.<sup>51</sup>

It was, at this time, powerless to equal the ever-growing US nuclear strategic arsenal. It was not until 1963, that its second-generation ICBM's--SS-7 Saddler, and the SS-8 Sasin--were deployed. Because of their relatively poor accuracy and high vulnerability to a counterattack they were an inferior counter threat to the US's new Minuteman missiles. Also, due to the slow production process of these new large Soviet missiles, the US was in an excellent position to widen the gap in terms of numbers of ICBM's deployed. By 1961 Soviet officials recognized that their present plans to equal the US in numbers of deployed nuclear strategic systems was inadequate. This situation, along with its historical paranoid fear of threats real or perceived to its national security, made a change in direction mandatory for Soviet military planners.<sup>52</sup>

Soviet leaders had even more cause for fear of the US nuclear threat, when in 1961, the US Deputy Secretary of Defense announced its current assessment of the US-Soviet strategic balance. Clearly, it reflected the fact that the US, having closely examined photoreconnaissance satellite pictures, was aware that the so-called

'missile gap' was a myth and that, indeed, the US did possess a significant strategic advantage over the USSR. As Berman and Baker note:

The sudden coincidence of these political and military events may well have convinced Soviet leaders that dramatic changes in their strategic arms were necessary if the USSR was to acquire an adequate intercontinental capability for directly offsetting U.S. intercontinental might. Thus the stage was set for another heated round in the nuclear arms race.

53

Considerable pressure was put on the Soviet leadership by the military to develop a new plan to reduce the widening gap between US and USSR nuclear strategic weapons. The problem was, however, that the next generation of ICBM's were not off the drawing board yet. This overall situation led to what may be considered a very big gamble by Khrushchev to buy some time. Khrushchev approved plans to deploy USSR IRBM's and MRBM's in Cuba, only 90 miles off the US mainland. The Soviet plan was to station 24 SS-4-medium range and 16-SS-5 intermediate range missiles (each with one reload) at ten separate sites. It is argued that this gamble offered the Soviets their only hope for quickly closing the nuclear weapons gap between themselves and the US. The attempt to accomplish all this resulted in the most serious confrontation between the US and USSR in the post-1945 nuclear era. The US managed to force a withdrawal of any such missiles and a dismantling of the launch sites. Defense photoreconnaissance satellites, employed by both sides, have now made it virtually impossible for one side to accomplish such a mission without being detected.

The result of this Soviet fiasco reinforced its belief that any credible nuclear deterrent must be based on its long-term intercontinental force program. By the mid 1960's, it was clear to the Soviets, that numerically and qualitatively its strategic nuclear deterrent was inferior to that of the US. It was at this point that the USSR began to deploy its third generation ICBM's--the SS-9 Scarp, the SS-10 Scrag and the SS-13 Savage--each developed by a different design bureau. The SS-10 was later eliminated and the SS-9 became the newest ICBM's to be deployed. The SS-9 Scarp (Yangel design bureau) was intended to replace the old SS-7. Its characteristics included:

- . Able to cover large area targets
- . Greater accuracy (SS-7 CEP 1.5 NM, SS-9 CEP 1.0 NM)
- . Hard target capability (US Minuteman silos and underground launch-control centres).

55

However, despite the improvements designed into the SS-9, its overall size and expense prevented the achievement of a production rate comparable to that of the US Minuteman. Recognizing this fact, the Soviets altered their plans somewhat to enable deployment of sufficient numbers of SS-9's to neutralize the Minuteman force in the US by targeting the 100 very hard launch control centres necessary to operate and deploy all of the Minuteman missiles.

56

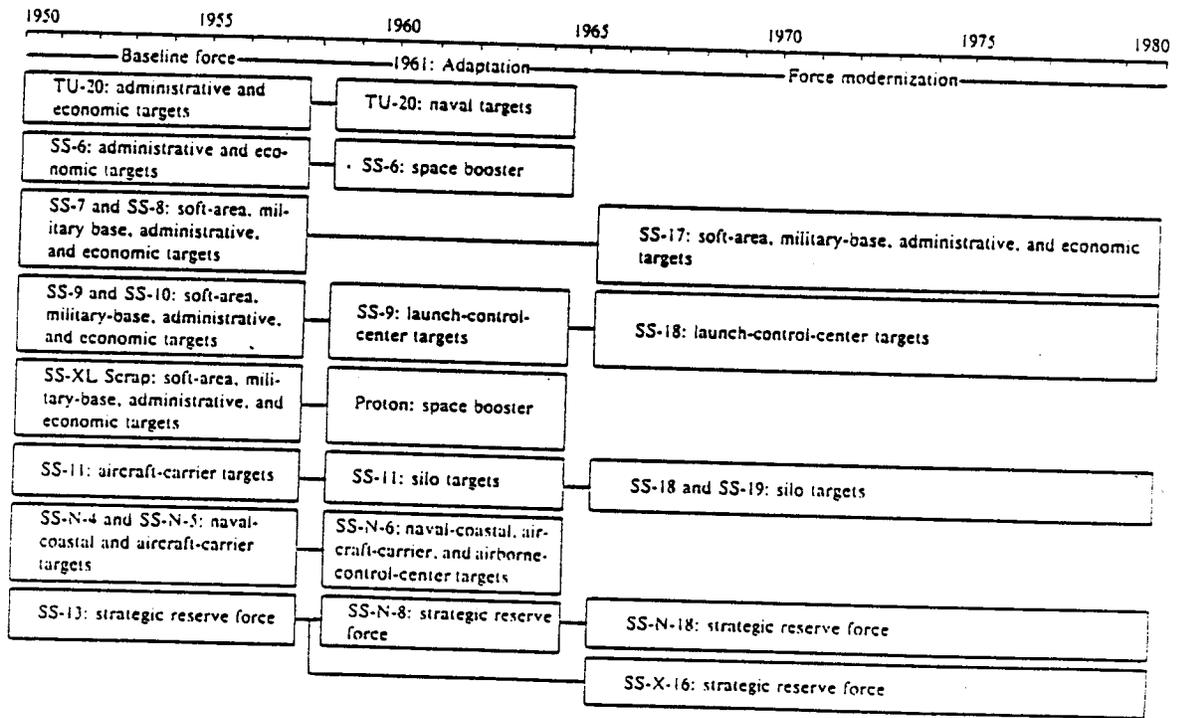
Sufficient numbers of the SS-13 ICBM were to be counted on to close the gap in the arms race, and to match all of the US's Minuteman force missile for missile. It was a radical design change for the Soviets new SS-13. While earlier Soviet ICBM's were intended to cover wide area targets, the SS-13, used a solid-fuel propellant and carried a smaller nuclear warhead. Designed by the Nadiradize design bureau,

which specialized in solid fuel missiles, its characteristics were somewhat similar to the US's earlier Minuteman I. Its smaller size meant that more could be produced not only more quickly but for less money.

"The SS-13 seems to have been intended to serve as a strategic reserve for the Soviet land-based missile force. Its propulsion system made it feasible to be deployed as a mobile missile, difficult to locate and destroy in wartime. The long-standing interest of the USSR in mobile missiles and its claims to have developed a mobile ICBM during the mid-1960's suggest that a mobile SS-13 was expected to serve as a hedge against a U.S. first strike and as a secure strategic reserve in the event of a prolonged nuclear conflict. 57

However, due to serious technical difficulties related to the SS-13's guidance system and its old fuel motor, the missile production was severely curtailed. Eventually only 60 were deployed, all in missile silos. The search for a reliable, reasonably priced ICBM continued. Again, the end-product came from a different design bureau, (that of V.N. Chelomei), the SS-11 Sego was selected to satisfy the Soviets' immediate need for an ICBM that could be deployed quickly, and provide a comparable response to the US Minuteman. It was somewhat similar to the SS-13 (relatively small with a small warhead only reasonably more accurate (SS-13-MOD.2-C.E.P.82 N.M. VS SS-11-MOD-3-0. C.E.P.59 NM). The most significant difference was that it used storable liquid fuel, as opposed to the SS-13 using a solid propellant. Also, it was the only ICBM in the Soviet nuclear arsenal possessing a variable range capability (able to strike at both full intercontinental range as well as at medium range targets).<sup>58</sup> (See Illustration 6:5.)

ILLUSTRATION 6:5 DEVELOPMENT OF SOVIET STRATEGIC WEAPONS TO MEET INTERCONTINENTAL TARGETING REQUIREMENTS: 1950-1980.



Source: Robert P. Berman, and John C. Baker, Soviet Strategic Forces: Requirements And Responses, (Washington: The Brookings Institution, 1982), p. 114.

Soviet nuclear strategic forces never developed within a fairly rigid structure such as the US TRIAD (ICBM's, SLBM's and heavy intercontinental bombers). While it possessed various quantities of each of the US's TRIAD components, the percentages of each were far different. Much of this can probably be related to key geographical facts. The US is a maritime as well as a land-based country. It has easy access to all of the world's major sea lanes. The USSR, in contrast, is primarily a large relatively land-locked nation. Consequently, today approximately 70 percent of its total nuclear strategic firepower is contained in its land-based ICBM's. However, the Soviet Union also recognized the favorable feature of the relative invulnerability of missile launching submarines, and consequently began to develop a significant force of SSBN's. They, too, evolved through various generations of increasing technological sophistication.

When the Soviet Strategic Rocket Services were established (1959), the navy lost any significant role to play in the nuclear strategic theatre of operation. It was only when the US began to accelerate its Polaris submarine program that the Soviets realized the declining ability of its navy to counter such US submarine forces. In 1962, the US committed several Polaris SSBN's to the NATO nuclear strike plan. Despite the fact that both the US and USSR agreed to treat NATO-Warsaw Pact affairs separately from the nuclear strategic theatre of operations, these Polaris submarines and their missiles could, even under NATO command, pose a serious threat to the Soviet homeland, as well as targets in all of the Warsaw Pact countries.

Consequently, US sea-based strategic missiles came to pose the most difficult defense problem for the Soviets. The US was ahead not only in SSBN and SLBM technology but also in anti-submarine warfare technology (see Illustration 6:6). Complicating this factor was the necessity of Soviet naval forces to pass through many key "choke-points" or narrow straits prior to reaching the open oceans. Virtually all of these choke-points are controlled and monitored by the US and its allies. Even once the Soviets developed and deployed its own missile launching submarines, their actual "on-station" time was severely cut due to a lack of forward-bases around the world in which the submarines, and other naval vessels, could be tendered, repaired or resupplied.

In response to this growing threat from the ocean depths, the USSR made some important military decisions. It decided:

- . To reduce its mass production of such important ASW forces as the large Moskva-class helicopter cruiser, and the high-speed Alpha-class attack submarines,
- . To develop less direct means of countering the Polaris--such as by degrading its operational effectiveness,,
- . To target US command and control links with ICBM's,
- . To direct, if necessary, its anti-satellite weapons (first-tested in the late 1960's) against US space-based navigational aids for the Polaris.

59

Late in the 1960's, the Soviets decided to expand its own sea-based ballistic missile forces. In 1968, it deployed its first Yankee-class submarine armed with the SS-N-6 Sawfly missile, thus improving its overall strategic position vis a vis the United States.

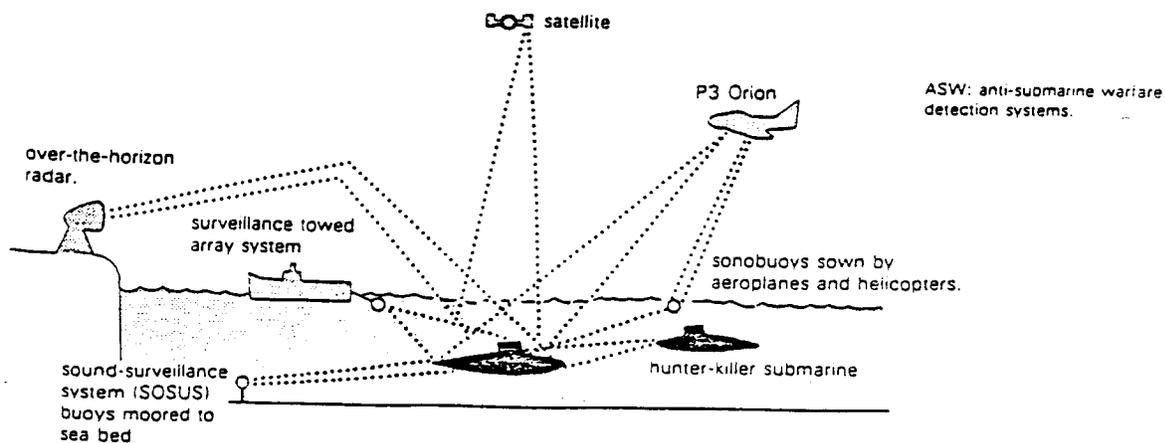
As Berman and Baker note:

## Anti-submarine warfare (ASW)

Because they operate in radio silence, in the depths and the vastness of the oceans, nuclear submarines have always been regarded as essentially undetectable and, therefore, invulnerable. Accordingly, they have provided security in the knowledge that, even if the enemy attacked first and destroyed all the ICBMs and bombers, the nuclear submarines would remain immune and intact. They would then be able to mount a devastating retaliatory attack. Since (for example) just five Poseidon submarines could kill 37 million Russian people, and destroy 60 per cent of Soviet industry, the knowledge that both sides have invulnerable submarines capable of inflicting massive retaliation has meant that both sides have, so far, been deterred from launching any kind of attack through fear of the devastating consequences that would ensue.

However, in recent years, both the United States and the Soviet Union have devoted enormous resources to develop anti-submarine warfare systems with which to detect, track and destroy enemy submarines. Submarines can now be detected and tracked by a vast range of sensors including:

- Long arrays of hydrophones deployed along the sea bed. These are known as SOSUS (sound surveillance system) and can detect enemy submarines at great distances, and locate them to within a radius of 50 nautical miles or less. The United States has some 22 SOSUS installations around the world, including one stretching from a base at Brawdy in Wales out to the mid-Atlantic ridge.
- Hydrophones towed by surface ships or rapidly sown by aircraft and submarines.
- Active and passive sonars mounted on attack submarines (attack, or hunter-killer submarines are used to attack and destroy other submarines).
- A variety of sonobuoys, magnetic anomaly detectors and infra red detectors that can be sown from, or operated by, aircraft.
- Satellites which can detect submarines by using lasers and by identifying their wakes as they travel beneath the waves.
- Highly sophisticated, over-the-horizon radars.



Source: Adam Suddaby, The Nuclear War Game, (London: Longman, 1983), p. 57.

Nonetheless, deployment of these submarines signaled the beginning of a period in which the role of Soviet sea-based ballistic-missile forces would increase especially in the intercontinental theatre of operations. Construction of strategic-missile submarines had the highest priority in the Soviet naval program, thus signifying the Soviet leaders' sense of urgency in enhancing the sea-based missile force and matching the U.S. sea-based forces. Soviet military plans to deploy the Yankee class SSBN armed with the new SS-NX-13 missile with a 400 mile range, and with terminal guidance system were curtailed somewhat due to technical difficulties with the SS-NX-13 missile. Its initial intended use was to counter Western carrier task forces and possibly even the Polaris submarines. Despite these problems, Soviet leaders...were apparently convinced of the need to expand the Soviet sea-based strategic capability and politically match the growing U.S. SSBN force. Sea-based missiles not only would improve the survivability of the strategic forces but also would serve as a strategic reserve. 60

(See Illustration 6:7.)

Within a few years, the Yankee-class SSBN's were equipped with a new SLBM--the SS-N-6 with a range of 1300 NM. By 1970, such submarines were patrolling off both US coasts. This resulted in the Soviet SSBN's being able to cover a wide range of US targets, however, it is now known that they were limited to covering US SSBN support and communication facilities, large ports, and major US home fleets such as Norfolk, Virginia. As has been noted, "...institutional interests of other services, such as the SRF, probably prohibited any further expansion in the Navy's strategic strike mission through the 1960's."<sup>61</sup>

Soviet SSBN's had certain limitations which affected their operational reliability and survivability, unlike their US

ILLUSTRATION 6:7 DEVELOPMENT OF SOVIET BALLISTIC MISSILE SUBMARINES, 1955-1980.

Development of Soviet Ballistic Missile Submarines, 1955-80

Submarine class <sup>a</sup>	Year operation <sup>b</sup> began	Propulsion type	Surface displacement (tons)	Number of launch tubes	Missile carried	Number of submarines	
						In operation in 1980	Built as of 1980
Zulu V	1955	Diesel-electric	1,950	2	SS-N-4 <sup>c</sup>	1	5
Golf I	1958	Diesel-electric	2,300	3	SS-N-4	0	23 <sup>e</sup>
II	...		2,300	3	SS-N-5	13	
III	...		2,900	6	SS-N-8	1	
IV	...		2,900	5	SS-N-6	1	
Hotel I	1959	Nuclear	5,000	3	SS-N-4	0	8
II	1963		5,000	3	SS-N-5	7	
III	...		5,000	6	SS-N-8	1	
Yankee I	1968	Nuclear	8,000	16	SS-N-6	28 <sup>d</sup>	34
II	...		8,000	12	SS-NX-17	1	
Delta I	1973	Nuclear	9,000	12	SS-N-8	18	33
II	1976		10,000	16	SS-N-8	4	
III	1978		10,500	16	SS-N-18	11	
Typhoon	1980	Nuclear	25,000	20	SS-NX-20	0	1

Sources: Department of Defense Annual Report Fiscal Year 1982, p. 46; Chief of Naval Operations, *Understanding Soviet Naval Developments*, 4th ed., pp. 91-99; USSS, *The Military Balance 1980-81*, pp. 9, 89; DOD, *Soviet Military Power*, pp. 9, 57-59; *Aviation Week and Space Technology*, June 16, 1980, pp. 75-76; Fiscal Year 1977 Authorization for Military Procurement, Research and Development, and Active Duty, Selected Reserve and Civilian Personnel Strengths, Hearings before the Senate Armed Services Committee, 94 Cong. 2 sess. (GM), 1976, pt. 1, p. 85.

- a. Names are those designated by NATO.
- b. The original missile carried was the Naval Scud.
- c. One sank in the Pacific Ocean in 1968; one Golf I has had its missiles removed and has been converted to serve as a command-and-control platform.
- d. In order to stay within the limits established by the 1972 SALT I accords, the USSR has dismantled the launchers on five Yankee-class ballistic-missile submarines which the U.S. Navy now classifies as attack submarines.

Source: Robert P. Berman, and John C. Baker, *Soviet Strategic Forces: Requirements And Responses*, (Washington: The Brookings Institution, 1982), p. 108.

counterpart's fleet of SSBN's. The Soviet SSBN fleet was hampered by such factors as they:

- . had a questionable chance of surviving very long in a protracted US-USSR conflict
- . had to contend with at least 12 key "choke points" to reach their patrol positions
- . were relatively noisy and vulnerable to detection
- . were limited in their choice of US targets due to the short range of the SS-N-6 missile
- . had few forward-base locations for repairs and resupply thus reducing on-station time.

62

While most of these limiting factors still exist today, the Soviet SSBN fleet poses a formidable threat to the US homeland.

The period beginning with the 1970's saw the Soviets not only introduce its fourth generation of ICBM's, but also achieve parity with the US' nuclear strategic deterrent. While the third generation of ICBM's was able to match, in numbers, the US' missile force; the fourth generation resulted in significant advances being made in both the areas of effectiveness and survivability of the Soviet's US strategic missile deterrent.

At this point, mutual strategic arms limitation talks between the US and USSR yielded a signed agreement in 1972 (SALT-1) and the signing of the Antiballistic Missile (ABM) Treaty and an interim-agreement limiting strategic offensive arms. (This subject area will be explored more fully in Chapter 7.) The net result for the Soviets, strategically speaking, was that:

...Soviet missile deployments were viewed as an effective deterrent to the American use of (and the threat to use) strategic nuclear forces. The USSR's

second-strike capability gave it a credible deterrent, at least in the eyes of the West, that immeasurably improved the basis for Soviet political and military security.

63

The Soviets' key objective, at this point in time, was to achieve nuclear strategic parity with the US and subsequently be given due recognition as a global superpower. "The USSR considered attaining nuclear parity an important factor in shifting the global 'correlation of forces' against the United States' willingness to exercise its political and military power abroad."<sup>64</sup>

By the mid to late 1970's the USSR was becoming increasingly confident in both the qualitative and quantitative aspects of its nuclear strategic deterrent. Significant improvements in these areas followed the deployment of its fourth generation of missiles. Decisions made by Soviet leaders in the late 1960's would begin to bear fruit by late 1970's and early 1980's. The decision to diversify its intercontinental strategic strike force by developing long-range sea-based missiles resulted in the USSR being able to complement its large land-based ICBM force with a strategic reserve at sea. This meant that the role and character of the Soviet navy would undergo dramatic changes. Some of these were:

- . The deployment of the new Delta-class SSBN's carrying long-range SLBM's capable of deep-strike targeting of virtually any point in the US.
- . The Soviet navy was now to provide support of the SSBN force by utilizing surface ships and other forces to defend against any possible Western threats in wartime.
- . A new SLBM, the SS-N-8, was developed and carried by the new Delta-class SSBN's.

65

The Soviets continued to lag behind the US in anti-submarine warfare. Consequently, the new Delta-class SSBN's were stationed in the Barents and Norwegian seas so as to be relatively near home areas rather than in the open oceans like the Yankee-class SSBN's. "The Soviet Union seems to have chosen to trade off the greater operating area made possible by long-range SLBM's for potentially safer deployments near its own shores."<sup>66</sup>

Fourth-generation land-based ICBM's were designed in the mid-1960's to counter any ICBM system the US had.

#### SS-18 ICBM

- . Designed by the Yangel bureau
- . Deployed in 1974
- . Hard-Target capability
- . 4 modifications by late 1970's of which 2 carried 1 warhead and 2 carried multiple warheads (8-10).

#### SS-19 ICBM

- . Deployed 1975
- . Carries single warhead or 6-MIRV's warheads
- . Regional and intercontinental capabilities
- . Hard-target capability
- . Backup for SS-18

All three missiles, when armed with one warhead, usually are intended for use against special kinds of targets in very hard silos or ones difficult to locate.<sup>67</sup>

Reacting to perceived threats from the Western "imperialist aggressors" the Soviets began a massive continuous build up of its nuclear strategic arsenal as well as conventional forces throughout the

1970's and into the 1980's. However, as the Soviet arsenal grew, so also did its doctrine begin to preach that war might no longer be a 'fatal inevitability' and possibly could be avoided. Perhaps this doctrinal change was motivated more by the fact that they came to realize that no country could hope to win in an all-out nuclear war. In commenting on the Soviet military posture, should such a war break out, Marshal Rodion Malinovsky reiterated:

A future world war, if the imperialists succeed in unleashing it, will be a decisive armed clash of the opposed social systems. ...It inevitably will be thermonuclear, a war in which the main means of destruction will be the nuclear weapon and the basic means of its delivery to the target, the missile. ...Now wars might arise without the traditional clearly threatening period, by surprise, as a result of the mass use of long-range missiles armed with the powerful nuclear warheads.

68

The strategic doctrine, so called, which has been described has not changed that much during the 70's and into the 80's. What has changed, has been the role of the Soviet Armed Forces which have changed and adapted to meet the new requirements which the Kremlin anticipated. Along the way massive defense expenditures have been provided to equip and train the forces to fight and win any war started by the Western "imperialist aggressors."

Perceptions, misperceptions and mistrust by both sides have resulted in the seemingly endless arms race. In reality they do mirror image one another in that both react as if ultimately a clash between the two powers is inevitable, and, if so, each is determined to be ready and able to fight a protracted war and win at any cost. All

this, in spite of the fact that both powers publicly acknowledge that such a war could be militarily suicidal.

Raymond L. Garthoff, in a recent article entitled "Mutual Deterrence, Parity and Strategic Arms Limitation in Soviet Policy" noted:

...since the late 1960's, when SALT was launched, the Soviet political and military leadership has recognized that under contemporary conditions there is a strategic 'balance' between the two superpowers and, as a result, mutual deterrence; that the nuclear strategic balance is not transitory, but also not necessarily enduring, and that continuing military efforts are required to be assured of its stability and continuation; that agreed strategic arms limitations can make a contribution, possibly a significant one, to reducing these otherwise necessary reciprocal military efforts; but, finally, that in recent years US readiness to accept parity and strategic arms limitations reflecting and perpetuating parity has become increasingly doubtful.

69

Strobe Talbot, in a recent book Deadly Gambits, expanded on the final point made by Garthoff, in particular, and with some very convincing evidence drew much the same conclusion. Garthoff, concludes also, that "...Soviet leaders believe that the need to avoid a nuclear war can best be served by prudent actions within a framework of mutual strategic deterrence between the Soviet Union and the United States."<sup>70</sup>

### 3. US Nuclear Strategic Deterrent (1984)

The United States has chosen to divide its nuclear deterrent into three strategic systems, each of which is capable of carrying out an assured destruction retaliatory attack on the USSR in response to a

possible Soviet pre-emptive strike. This particular configuration is referred to as the TRIAD and was explained and justified in 1979 in the US Department of Defense Annual Report which said:

The TRIAD gives us the necessary diversity. No potential enemy could expect to destroy the ICBMs alert bombers and on station SLEMs in a simultaneous attack. In most circumstances at least a large fraction in two out of three components of the TRIAD would survive. The enemy's defenses would then have to deal with weapons approaching him from different directions at varying speeds, and along a variety of trajectories. There would be no way for him to escape without unacceptable damage.

71

The argument is, that with this particular composition of their forces, that a second strike capability is provided. Also, since a first-strike capability requires a high degree of certainty about the results, the TRIAD configuration is felt to be maximally deterring. The significant features of the TRIAD are outlined in Illustration 6:8.

The nuclear strategic arms race between the US and USSR shows few signs of slowing down. Consequently, any figures provided are constantly in a state of change. For purposes of this paper, those figures provided by the London International Institute of Strategic Studies (IIIS) will be used. Future projections and developments will be outlined to illustrate the continuing trend to increase not only the overall numbers in nuclear weapons systems but also the level of technological sophistication and lethality.

See Illustrations 6:9 and 6:10, which outline the various assumptions and qualifications affecting the figures on Table 6:11.

The ICBM component currently consists of 1000 Minuteman (450 Minuteman II's and 550 Minuteman III's), armed with a total of 2129

ILLUSTRATION 6:8 FEATURES OF THE "LEGS" OF THE US STRATEGIC TRIAD.

**Features of "Legs" of the Strategic TRIAD**

**ICBMs**

- full target coverage
- high degree of accuracy (depending on model)
- assured ballistic penetration
- rapid retargeting capability
- constant survivable command and control
- highest degree of reliability (98%)<sup>1</sup>
- highest degree of alert (90%+)
- hardened silos
- post attack survivability
- quickest reaction time
- low operating cost (\$330 m/yr)<sup>2</sup>

**SLBMs**

- highest degree of survivability (60% of forces at sea)
- assured ballistic penetration
- tenuous communications link
- high degree of reliability
- ability to withhold from initial attack
- invulnerable to detection or attack<sup>3</sup>

**Bombers**

- survivability of forces on alert (30%)<sup>4</sup>
- recallable after takeoff
- flexible targeting to include mobile targets, targets of opportunity, and multiple targets separated by long distances
- highest degree of accuracy
- vulnerable to air defenses
- ability to withhold from initial attack

<sup>1</sup> SASC, FY 1981 OOD, Part 2, p. 549.  
<sup>2</sup> SASC, FY 1982 OOD, Part 7, p. 4002.  
<sup>3</sup> SASC, FY 1982 OOD, Part 3, p. 183.  
<sup>4</sup> SASC, FY 1982 OOD, Part 7, p. 3799.

Table 5.2  
**Strategic Nuclear Forces (1971-1981)<sup>1</sup>**

	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
B-52	412	402	422	422	420	419	417	344	343	343	344
FB-111	66	60	71	72	69	68	66	66	65	63	62
MINUTEMAN	990	955	970	999	1010	1094	1162	1180	1170	1167	1164
TITAN II	58	57	57	57	57	58	57	57	57	56	56
SRAM	—	227	651	1149	1451	1431	1415	1408	1396	1383	1374
ALCM	—	—	—	—	—	—	—	—	—	—	—
HOUND DOG	340	338	329	327	308	288	249	—	—	—	14

<sup>1</sup> SAC, "The Development of Strategic Air Command: 1946-1981," 1 July 1982

Source: Thomas B. Cochran, William M. Arkin, and Milton M. Hoenig, Nuclear Weapons Databook Volume I: U.S. Nuclear Forces And Capabilities, (Cambridge: Ballinger Publishing Company, 1984), p. 101.

ILLUSTRATION 6:9 NOTES TO ACCOMPANY LONDON INTERNATIONAL INSTITUTE OF STRATEGIC STUDIES FIGURES IN THE MILITARY BALANCE - 1984-1985.

The tabular presentation of data on nuclear-capable weapon systems has been changed in this edition. Table 1, which includes systems in Chinese and South Korean hands, now gives world-wide coverage of nuclear-capable systems reported as deployed, with inventories and weapon and warhead characteristics, where known. Table 2 amplifies this by listing deployed launcher totals for categories of system (except some maritime systems) which directly affect the European Theatre.

No attempt has been made to compare totals directly, chiefly because weapon loading and the use to which dual-capable systems are put are so uncertain. Not every example of a nuclear-capable system necessarily has a nuclear role - indeed there may be no nuclear warheads available for it - nor are crews invariably trained in nuclear delivery.

ILLUSTRATION 6:10 ALPHABETIC LISTING OF QUALIFYING FACTORS AFFECTING I.I.S.S. FIGURES FROM THE MILITARY BALANCE: 1984-1985.

<sup>a</sup> ICBM = range of over 5,500 km; IRBM = 2,400-5,500 km; MRBM = 800-2,400 km; SRBM = 800 km or less.

Long range = over 9,000 km; medium-range = 5,600-9,000 km; bomber = aircraft primarily designed for bombing missions.

<sup>b</sup> Ranges given in km; for nautical miles, divide by 1.852. Use of maximum payload may reduce a missile's operational range by up to 25% of figures shown. Figures for aircraft are theoretical maximum unrefuelled range at optimum altitude and speed. Higher speeds, lower altitudes and full weapons loads reduce range, especially with strike ac; for instance an A-6, at operational height and speed and with typical weapons load, has a combat radius of some 1,500 km, compared with a maximum ferry range of 4,700 km.

<sup>c</sup> Throw-weight is the weight of post-boost vehicle (warheads, guidance systems, penetration aids) deliverable over a given range.

<sup>d</sup> CEP (circular error probable) = the radius of the circle around a target within which there is a 50% probability that a weapon aimed at that target will fall. For obvious reasons, this is a figure with a rather large degree of

uncertainty attached to it.

<sup>e</sup> Warhead yields vary greatly; figures given are estimated maxima. KT range = under 1 MT; MT range = over 1 MT. Yield figures for dual-capable weapons (which can deliver conventional or nuclear warheads) refer to nuclear warheads only.

<sup>f</sup> All the types listed are dual-capable. Total actually available as nuclear strike aircraft may be lower than the figure shown.

<sup>g</sup> Except in Britain and France, nuclear warheads are held in American custody. No nuclear warheads held on Canadian, Danish or Norwegian soil. In few cases is the M-109 likely to have a nuclear role.

<sup>h</sup> All NATO missiles of US origin, except SSBS, *Pluton* and MSBS (French).

<sup>i</sup> *Buccaneer*, *Nimrod* of British origin; A-7, F-4, F-16, F-104, P-3 American; *Mirage*, *Super Etendard*, *Atlantic* French; *Jaguar* Anglo-French; *Tornado* British-German-Italian.\*

<sup>j</sup> Variable range; some for peripheral targeting.

<sup>k</sup> Nuclear warheads held in Soviet custody. Ac all of Soviet origin. It is uncertain how many are nuclear capable.

Source: The International Institute for Strategic Studies, The Military Balance 1984-1985, (London: 1985), pp. 129, 136.

TABLE 6:11 US NUCLEAR CAPABLE DELIVERY VEHICLES: WORLD WIDE.

Category and type	First year deployed	Range (km)	Thow. weight (000 lb)	CEP (m)	Launcher total 7/84	Warhead details* and comments
<b>UNITED STATES</b>						
<b>LAND-BASED</b>						
<b>Strategic ICBM</b>						
LCM-33C Titan II	1962	15,000	8.3	1,300	37	1 x 9Mt W-53/Mk 6. Being phased out
LCM-30F Minuteman II	1966	11,300	1.6	370	430	1 x 1.2Mt W-56/Mk 11C. (442 launchers if 8 are comms vehs.)
LCM-30G Minuteman III	1970	14,000	1.5	280	250	3 x 170kT W-62/Mk 12 MIRV.
	1980	12,500	2.4	220	300	3 x 335kT W-78/Mk 12A MIRV.
<b>Intermediate/medium-range</b>						
GJCV						
BGM-109A Tomahawk	1983	2,500	n.a.	n.a.	64	1 x 10-50kT W-84.
AIRBV = Pershing II	1983	1,800	n.a.	45	48	1 x 5-50kT W-85 (yield selectable).
<b>Tactical SRBM</b>						
MGM-31A/B Pershing IA	1967	160-320 (0.7)		400	90	1 x 60-100kT W-50.
MGM-52C Lancer	1972	110	0.5	150-400	90	1 x 1/10/50kT W-70. Dual-capable
<b>Air-to-air (dual-capable)</b>						
M-10A1/A2	1977/9	20	0.3	170	1,046	5-10kT W-31 (M-423) or 0.5-2kT W-79 (M-753).
M-109 153mm SP how	1963	18/24/30	0.128	n.a.	2,200	1 x 0.1kT W-48 (M-454).
M-198 152mm how	1979	1.6-14	0.128	n.a.	907	1 x 0.1kT W-48 (M-454).
<b>Air-to-ground (dual-capable)</b>						
Special ADM	1964		0.15		n.a.	Sub-kt.
Medium ADM	1965		0.4		n.a.	W-45. 73 yields, 1-15kT.
<b>SEA-BASED</b>						
<b>Strategic SLBM</b>						
UGM-133A Poseidon C-3	1971	4,600	3.3	450	304	10 x 40-50kT W-68. Atlas 14 serv.
Trident C-4	1980	7,400	3.0+	450	288	8 x 100kT W-76 MIRV.
<b>Tactical SLCM</b>						
BGM-109A Tomahawk	1983	2,500	0.27		48	1 x 200-250kT (selectable) W-80. Dual-capable.
<b>ASW</b>						
UUM-14A SCUBROC	1963	50	0.6		324	1 x 1-5kT W-55.
RUM-3A SSRDC	1961	11	0.25		± 800	1 x 1kT W-44. Dual-capable.
SAM (dual capable)	1956	37	0.35		± 300	0.1kT W-45. (Standard 2 with W-48 to replace)
OB-1A(N)B Minutide	1958	140	1.12			2/20-40kT W-31 mod 2. (Not in first-line service)

\*For notes, see p. 136

Source: The International Institute For Strategic Studies, *The Military Balance 1984-1985*, (London: 1985), pp. 130-131.

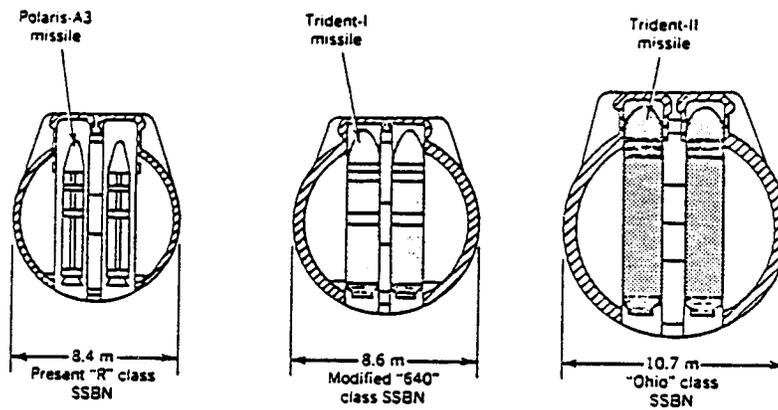
Category and type	First year deployed	Range (km)	Thow. weight (000 lb)	CEP (m)	Launcher total 7/84	Warhead details* and comments
<b>STR</b>						
<b>Strategic Long-range bombers</b>						
B-52G	1959	12,000	0.95	45	151	12 ALCM, 4 SRAM, 4 x B-28/-43/-57/-61 bombs.
B-52H	1962	16,000	0.95	45	90	4 SRAM, 4 x B-28/-43/-57/-61 bombs.
<b>Medium-range bombers</b>						
FB-111A	1969	4,700	2.5	37.5	56	4 SRAM, 2 x B-41/-41 bombs.
<b>Tactical</b>						
<b>Land-based strike</b>						
F-4E	1962	2,200	2.4	16	440	1 x B-28RG/-41/-57/-61 bombs.
F-111E/F	1967	4,200	2,272.5	25	230	3 x B-43/-57/-61 bombs.
F-16	1979	3,800	2	12-15	436	1 x B-16 (also 1 x B-43) bombs.
<b>Carrier-based strike</b>						
A-6E	1963	3,200	0.9	15	170	3 x B-28/-43/-57/-61 bombs.
A-7	1966	2,800	0.9	15	288	4 x B-28/-43/-57/-61 bombs.
F/A-18	1982	1,000	2.2	17	63	2 x B-57/-61 bombs.
S-3	1974	73,700	0.6	n.a.	110	1 x B-57 depth charge.
ASW	1961	2,500	0.4	n.a.	213	2 x B-57 depth charges.
P-3	1982	2,400	2.8	-	1,008	On B-52G. Total excludes reloads.
<b>ALCM</b>						
AGM-86B	1972	55-60	2.2	-	924	200kT W-49. On B-52G/H, FB-111A.
<b>Rockets (blast)</b>						
AGM-69A	1958	-	-	-	n.a.	Strategic: 1.45Mt, 228kT.
B-28	1960	-	-	-	n.a.	Tactical: 70, 350kT, 1.1Mt.
B-43	1962	-	-	-	n.a.	Strategic and tactical: 1Mt.
B-57	1972	-	-	-	n.a.	Tactical: sub-kt to 10 (720) x t.
B-61 mod 1	n.a.	-	-	-	n.a.	Strategic: 100-500kT.
B-61 mod 2/3/4/5	n.a.	-	-	-	n.a.	Tactical: 100-500kT.

warheads with a potential deliverable megatonnage to between 1292.4 and 1315.5 MT, depending on the selected payload. The US currently has 4 Ohio-class SSBN's (each has 24 launch tubes) at sea, carrying a total of 288 Trident C-4 SLBM's, an increase of 24 from a year previous. In addition, there are 31 Poseidon-class SSBN's, those constructed between 1960 and 1967, carry 16-SLBM's. Two of the Poseidon submarines have been modified to carry the Trident 1-C4 SLBM and 19 others carry older Poseidon C-3 SLBM's. The total number of deliverable warheads is now 5344 (an increase of 192 from the previous year). In addition, the estimated potential deliverable megatonnage has increased from the previous year by 19.2 MT to an overall total of between 352 and 382.4 MT.

The Poseidon C-3 and Trident 1C4 missiles are MIRVed thus allowing the Poseidon to carry from six to fourteen warheads (the average is about 10). The Trident 1C-4 missiles not only possess a greater range capability than the Poseidon but also have more than double the yield (from 40 to 100 Kt.) and have a similar degree of accuracy (CEP-450-M). The size of the Trident 1 was restricted in order to allow its deployment in the smaller Poseidon SSBN's launch tubes (see Illustration 6:12).

The Strategic Air Command (SAC) operates over 326 strategic bombers, of which 241-B-52's and 56 FB-111's are in the active force; with those remaining being designated for backup and training. The bomber force is equipped to carry six types of nuclear bombs and two missiles: the short-range attack missile (SRAM), and the air-launched

ILLUSTRATION 6:12 COMPARISON OF INSTALLATION OF US POLARIS, TRIDENT-I, AND TRIDENT II SLBM'S IN VARIOUS SSBN'S.



Installation of the Polaris, Trident-I, and Trident-II SLBMs into Lafayette class Poseidon, modified Poseidon, and Ohio class Trident submarines.

Source: Dietrich Schroerer, Science Technology And The Nuclear Arms Race, (New York: John Wiley & Sons, 1984), p. 170.

cruise missile (ALCM). The bombs are differentiated by various weights, yields, accuracies and delivery profiles. <sup>74</sup>

As the IIIS points out:

Of the 151 operational B-52G, 61 have a non-nuclear role, and there is one training squadron. Some 84 B-52G aircraft have been fitted with the AGM-86B Air Launched Cruise Missile. The most recent data suggests that the 90 B-52 M, 84 B-52G 56 and FB-111 A, at nominal average loadings could carry a total of 1,020 ALCM, 924 AGM-69-A SRAM and 812 bombs. On the basis of these loadings, air-deliverable megatonnage would be 204 for ALCM, between 157.1 and 184.8 for SRAM, and 2,030 MT for bombs (bomb yields are likely to average 2 MT each). Total aircraft-delivered megatonnage would thus be perhaps of the order of 2,400 MT. <sup>75</sup>

#### 4. US Nuclear Strategic Follow-On Programs

Despite the fact that the US possesses some 26 types of nuclear warheads deployed in 28 different delivery systems and an overall total of some 26,000-28,000 nuclear warheads, research, development, and deployment plans for new weapons and delivery systems continues. Some of these future plans are as follows:

- . Under current plans, between 1983 and 1993 add an additional 21,000 warheads to the stockpile.
- . The MX "Peacekeeper"? missile is in flight testing. It will carry 10-W-87 MIRVed warheads (more than three times as many as carried by Minuteman III, as well as being twice as accurate. Deployment in hardened silos is expected by late 1986. The W-87 warhead is designed in such a way that its "baseline" yield of 300 Kt. can be increased to 475 Kt. by changing fissile materials. The number to be deployed is presently under Congressional review. The Joint Chiefs of Staff want 200.

- . Development of a new single warhead ICBM (Midgetman) to be widely dispersed in super-hardened silos, or hardened mobile launchers. Each would carry either the W-87 (MX) warhead (one) or a new warhead having a variable yield from 100 Kt - 500 Kt.
- . By the late 1990's at least 20 Trident submarines will be deployed (4 are in service in 1984). The New Trident II D-5 missile is planned for deployment in 1989. It will be larger, more accurate, and have greater range and a larger yield than Trident I. A new high-yield warhead (estimated to be approximately 475Kt), will be placed on a new reentry vehicle (MK-5) with an accuracy CEP of 480 feet. Essentially this will provide the warhead with a hard-target kill capability; comparable to the lower yield, but more accurate MX.
- . A maneuvering reentry vehicle (MARV) (MK-600) is being considered for the Trident II and for the new Midgetman ICBM.
- . Development of a new Advanced Cruise Missile (ACM) with increased range, greater use of electronic countermeasures and "reduced observables."
- . A new intercontinental cruise missile with a 6000-8000 mile range is being developed. It would be supersonic (present models travel at about 500 MPH).
- . Deployment of the new B-83 bomb. It is a 1.1 MT-yield bomb which allows the bomber pilot to release the weapon at supersonic speeds from as low as 150 feet, activated by a parachute-type (drogue) retard and a time delay fuse. It is expected that when it is delivered at low altitudes that its accuracy will be equal to or

- better than that of ICBM's. It will possess hard-target kill capabilities.
- . Deployment of the common strategic rotary launcher (CSRL). Each of these will be capable of carrying either 8-ALCM's, SRAM's, or AASM's, or bombs, or mix of all these weapons. It ultimately will allow the B-52 bomber flexibility in rearming quickly for a second mission after an ALCM strike.
  - . Deployment of new B-1B bomber (1986). It is designed to carry ALCM's, SRAM's and both the B-61 and B-83 bombs.
  - . Deployment of the advanced technology bomber (under development since the late 1970's) in 1987 and expected to be in full operation by 1993. Its key feature will be its reduced radar cross section--close to zero compared to one square meter for the B-1B bomber and 10 square feet for the B-52's. It will employ active (electronic) and passive (non-metallic and absorbing materials) measures to decrease radar reflections and energy emissions from the aircraft. Current plans are to deploy 100-150 ATB's.
  - . Deployment of nuclear-armed sea-launched cruise missile (SLCM's) with a range in excess of 1500 miles. They are proposed for use on attack submarines and surface ships. Approximately 758 are to be deployed.

As authors Arkin, Cochran, and Hoenig note:

The administrations objective of building up nuclear forces is nonetheless being achieved, albeit at a slower pace, and with a different mix of weapons than were projected in 1980. The buildup will result in smaller weapons, greater accuracy and higher yield-to-weight ratios. The larger and fundamentally different arsenal will contain weapons far more capable than their predecessors. A larger

proportion of the weapons will be deliverable through innovations in MIRV's, selectable yields, and smaller sizes. The total yield of the stockpile, now in the range of 5 to 6 billion tons (down from a peak of some 27 to 28 billion tons), will increase as weapons with greater counterforce capability are introduced.

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The figures are awesome as well as mind boggling, despite the fact that they only represent one half of the equation. The USSR, in achieving rough parity with the US, has managed to develop and deploy an equally lethal nuclear strategic deterrent.

Upon close examination of the USSR nuclear strategic build up, particularly over the last 20 years or so, one cannot help but be puzzled by the numbers of weapons produced, as well as the pace of production. Some argue that it is simply the result of the action-reaction phenomenon where the Soviets are playing catch-up to the US. However, when one pieces together what information is available about the USSR, one can begin to understand some other possible reasons behind the massive build up. In commenting on the nuclear arms race in general, Colin S. Gray points out that:

With respect to the Soviet Union, one is competing with a state which a) views war (at all levels) as an instrument of policy; b) views a good defense as a good deterrent; and c) views Western interest in detente processes as a fairly direct consequence of the rise in the relative military strength of the Soviet Union.

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To many close observers the Soviets appeared, around 1966, to have begun a major expansion of their ICBM forces that continued unabated until they reached their peak of 1,618 in 1974. Only after the SALT I agreement was concluded did this number begin to decrease. However, a rapid development of new weapons systems, as well as

technological refinements and breakthroughs, have unquestionably allowed the USSR to close the gap between itself and the US. The question uppermost in the minds of the US and other Western leaders is, will the USSR be content with parity or does its ultimate long-term international goals dictate that it press for a decisive shift in the balance of nuclear strategic forces against the US and in favour of the USSR?

As Secretary of Defense J. Schlesinger stated in 1975:

Primarily at issue are the answers to two major questions. To what extent have the Soviets simply responded to and tried to counter US initiatives? And, to what extent have they sought (and do they continue to seek) something more ambitious than a capability for second-strike massive retaliation against the US?

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The very same question, quite legitimately, could be asked by the Soviet Minister of Defense. The lack of precise relevant answers to them, by both superpowers, most certainly contributes to the apparant endless nature of the nuclear arms race.

##### 5. USSR Nuclear Strategic Deterrent (1984)

At the outset, it is important to realize that the secretive nature and lack of precise data makes it more difficult to provide finite numbers of specific missiles and numbers of warheads in the USSR's nuclear strategic arsenal. The public at large is not privy to US intelligence estimates therefore it is unable to determine at this time the precise size of the Soviet nuclear arsenal based on US government figures. However, the London International Institute Of Strategic Studies; Military Balance 1984-85, provides what is

considered to be one of the more reliable sources of reasonably accurate data in this field. Consequently, these Soviet figures will be as a comparison to the United States' nuclear strategic arsenal. (See Table 6:13.)

Unlike the US, the USSR has not formally structured its nuclear deterrent along the lines of the US TRIAD. However, its force configuration employs similar land, sea and air-based components, but not in the same proportion. Being an extremely large land-mass country, with limited access to the world's sea lanes and a shortage of forward bases to resupply and reequip its submarines, the USSR relies heavily on its land-based ICBM force. (See approximate percentages as a part of overall strategic warhead totals--US vs USSR.)

	<u>US</u>	<u>USSR</u>
<u>LAND-BASED ICBM's</u>	17%	70%
<u>SLBM's</u>	41%	27%
<u>HEAVY BOMBERS</u> <u>(incl. ALCM's)</u>	42%	3%

For more precise data see the London-based International Institute For Strategic Studies Military Balance 1984-1985 (Tables 6:11, 6:13).

In attempts to understand why the Soviets have de-emphasized the long-range bomber component of their overall nuclear strategic forces, it is important to look at certain key factors which differentiate its situation from that of the US. As Norman Polmar in

TABLE 6:13

## USSR NUCLEAR CAPABLE DELIVERY VEHICLES: WORLD WIDE.

Source: The International Institute for Strategic Studies, The Military Balance 1984-1985, (London: 1985), pp. 133-135.

Category <sup>a</sup> and type	First year deployed	Range (km) <sup>b</sup>	Throw-weight (000 lb) <sup>c</sup>	CEP (m) <sup>d</sup>	Launcher total 7/84	Warhead details <sup>e</sup> and comments
<b>SOVIET UNION</b>						
<b>LAND-BASED</b>						
<b>Strategic</b>						
<b>ICBM</b>						
SS-11 <i>Sego</i> mods 1/2	1966/73	10/13,000	2	1,400	520	{ 1 x 1MT, 3 x 100-300KT./
mod 3	1975	8,800	2.5	1,100		
SS-13 <i>Savage</i>	1968	10,000	1	2,000	60	{ 1 x 750KT.
SS-17 (RS-16) mod 1	1975	10,000	6	450	150	{ 4 x 750KT MIRV. 1 x 6MT
(cold launch) mod 2	1977	11,000	3.6	450		
mod 3	1982	10,000	-	-		
SS-18 (RS-20) mod 1	1975	12,000	16.5	450	308	{ 4 x 20KT MIRV. 1 x 20MT. 8 x 900KT MIRV. 1 x 20MT.
(cold launch) mod 2	1977	11,000	16.7	450		
mod 3	1979	10,500	16	350		
mod 4	1982	11,000	16.7	300		
(mod 5)	(1985)	(9,000)	(16)	(250)		
SS-19 (RS-18) mod 2	1979	10,000	7.5	300	360	{ (710 x 750KT) MIRV. 1 x 5MT.
(hot launch) mod 3	1982	10,000	8	300		
<b>SEA-BASED</b>						
<b>Strategic</b>						
<b>SLBM</b>						
SS-N-3 <i>Serb</i>	1964	1,400	n.a.	2,800	45	{ 1 x 1MT.
SS-N-6 mod 1	1968	2,400	1.5	900	368	{ 1 x 1MT. Liquid-fuel. 1 x 1MT. Liquid-fuel. 2 warheads. Liquid-fuel.
<i>Sawfly</i> mod 2	1973	3,000	n.a.	900		
mod 3	1974	3,000	1.5	1,400		
SS-N-8 mod 1	1972	7,800	1.5	1,300	292	{ 1 x 1MT. 1 x 800MT.
mod 2	n.a.	9,100	8	900		
SS-N-17 mod 1	1977	3,900	2.5	1,500	12	{ 1 x 1MT. Solid-fuel.
SS-N-18 mod 2	n.a.	6,500	5	1,400	224	{ 3 x 7200KT. Solid-fuel. 1 x 450KT.
mod 3	1978	8,000	n.a.	600		
SS-N-20	n.a.	6,500	n.a.	600	40	{ 7 x 200KT MIRV. 9 x 7200KT MIRV.
	1981	8,300	n.a.	n.a.		
<b>Tactical</b>						
<b>SLCM</b>						
SS-N-3 <i>Shaddock</i>	1962	450	2	n.a.	296	{ 1 x 350KT (800KT, 1MT also reported).
SS-N-7 <i>Siren</i>	1968	45	1.2	n.a.	88	{ 1 x 200KT.
<b>AIR</b>						
<b>Strategic</b>						
<b>Long-range bombers</b>						
Tu-95 <i>Bear</i> B/C	1956	12,300	0.78	40	100	{ 1-2 AS-3/-4 ALCM, 2-3 bombs.
Mya-4 <i>Bison</i>	1956	11,200	0.87	20	43	{ 4 bombs.
<b>Medium-range bombers</b>						
Tu-16 <i>Badger</i>	1955	4,800	0.8	20	410	{ 1-2 AS-2/-3/-6 ALCM, 1 bomb. ( <i>Badger</i> G carries (76) AS-5.) Air Force (220), Navy (190).
Tu-22 <i>Blinder</i>	1962	4,000	1.5	12	160	{ 1 AS-4 ALCM, 1 bomb. Air Force (125), Navy (35).
Tu-26 <i>Backfire</i>	1974	8,000	2.5	17.5	235	{ 1 or 2 AS-4 ALCM, 2 bombs. Air Force (130), Navy (105).

his book Strategic Weapons: An Introduction observed:

The Soviet Union did not improve its long-range bomber force apparently because of (1) the geographic limitations to direct USSR to US bomber strikes; (2) the lack of overseas bases for Soviet bombers and tankers; (3) the lack of a politically strong airforce organization to compete for long-range bomber development; and (4) the logic in an approach to weapons development that differed from that of the United States.

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It should be noted that during the 1970's and into the 1980's, both sides possessed specific advantages over the other at various times. The US, with its admitted technological superiority, led the field in MIRV developments. By combining its expertise in both computers and electronic miniaturization it was able to produce large numbers of smaller weapons which possessed a better yield to weight ratio than previous warheads. The USSR, on the other hand, led the way in numbers of launchers, missile payloads, as well as in ongoing new missile development programs.

The USSR's total number of land-based ICBM's in 1984 is 1398 missiles. It is presumed by the US Defense Department that all 150 SS-17's, 308 SS-18's, and 360 SS-19's are MIRVed, but some analysts feel that some SS-17's and SS-19's may carry only one warhead. Any significant changes in both the size and type of breakdown of the above depends, to a great degree, on whether or not the Soviets intend to abide by the SALT II Agreement. Any deviation from the guidelines of SALT II could result in a dramatic increase in the arms race.

The sea-based nuclear strategic deterrent of the Soviets includes 64 SSBN's of which 62 are considered to be modern nuclear powered types. They carry approximately 936 SLBM's armed with

approximately 2100 warheads. The first two of a new class SSBN--the Typhoon class--armed with 20 SS-N-20 SLBM's, are now in service with the northern fleet. The Soviet SSBN fleet may be modernized within the SALT II restrictions only by dismantling some of its older Yankee-class submarines. (See Table 6:14.)

The air component of the Soviets' nuclear strategic deterrent includes some 165 Bear and Bison bombers capable of carrying both gravity bombs and air-to-surface missiles (ASM's). An up-dated version of the Bear bomber entered into the production cycle in late 1983, designated the Bear-H by US intelligence--some 20 are now in service.<sup>81</sup> This bomber carries the new long-range ALCM, the AS-15 which is now operational in small numbers. It provides a longer range weapon with an improved accuracy over older ASM's.<sup>3</sup> Additionally, several older Bear B/C bombers have been modified to carry the AS-4 instead of the AS-3 and are now referred to as the Bear G. bomber.

As mentioned earlier, overall rough parity exists in the nuclear strategic area between the US and USSR. As shown by delineating the US figures, those of the USSR are equally awesome. As far as the overall nuclear arms race is concerned, in the absence of any significant arms reduction agreement between the two powers, the race continues unabated.

#### 6. USSR Nuclear Strategic Follow-On Programs

. At least one, possibly two new types of solid fueled ICBM's are currently in the testing stage. One is a medium-sized MIRVed ICBM designated the SS-X-24 (a modification or replacement for the SS-17)

TABLE 6:14

## LISTING OF NUCLEAR TIPPED SLBM'S CARRIED ON US AND SOVIET SSBN'S.

Listing of nuclear-tipped SLBMs carried on submarines. The payload is given in metric tonnes.  
 \* numbers, unless otherwise indicated, are derived from the International Institute for Strategic Studies (1983).

Missiles	1st Deployed	Max. Range	Payload	RV/SLBM	CEP	Number of Reentry Vehicles		Y Total	EMT Total*
						1978	1983		
<b>United States</b>									
Polaris (A-3)	1964	4600 km	?	3 MRV @ 200 kt*	900 m	480	0	0 Mt	0 EMT
Poseidon (C-3)	1971	4600 km	1.5 t	10 MIRV @ 50 kt	450 m	4960	3040	152 Mt	413 EMT
Trident (C-4)	1980	7400 km	1.3 t	8 MIRV @ 100 kt	450 m	0	2112	211 Mt	455 EMT
Trident (D-5)	(1985)	11,000 km	?	14 MARV @ 150 kt*	?	0	0	0 Mt	0 EMT
U.S. total						5440	5152	363 Mt	868 EMT
<b>Soviet Union</b>									
SS-N-5	1964	1400 km	?	1 @ 1 Mt	2800 m	54	18	18 Mt	18 EMT
SS-N-6*	1968	3000 km	0.7 t	1 @ 1 Mt	900 m	528	400	400 Mt	400 EMT
SS-N-8*	1972	7800 km*	0.7 t	1 @ 1 Mt	900-1300 m'	370	292	292 Mt	292 EMT
SS-NX-17	1977	3900 km	1.1 t	1 @ 1 Mt	1500 m	16	12	12 Mt	12 EMT
SS-N-18*	1978	8300 km	2.3 t	7 MIRV @ 0.2 Mt	600 m	0	1456	291 Mt	498 EMT
SS-NX-20	(1985)*	8300 km	?	(12 MIRV, dev.)	?	0	(240)'	0 Mt	0 EMT
USSR total						968	2178	1013 Mt	1220 EMT
<b>Great Britain</b>									
Polaris (A-3)	1967	4600 km	?	3 MRV @ 170 kt	900 m	192	192	33 Mt	60 EMT
Chevaline	(1983)*	N.A.	N.A.	3 MRV*	?	0	0	0 Mt	0 EMT
U.K. total						192	192	33 Mt	60 EMT
<b>France</b>									
MSBS M-2	1974	1900 km	?	1 @ 0.5 Mt	?	8	0	0 Mt	0 EMT
MSBS M-20	1977	3000 km	?	1 @ 1 Mt	?	48	80	80 Mt	80 EMT
M-4	(1985)	4000 km	?	MRV	?	0	0	0 Mt	0 EMT
French total						56	80	80 Mt	80 EMT

N.A. - Not applicable.

The EMTs of the Polaris, Poseidon, and Trident I are, respectively 0.31 Mt, 0.136 Mt, and 0.215 Mt.  
 \*See Pretty (1982).

See the Stockholm International Peace Research Institute (1982).

These missiles are liquid fueled, although the International Institute for Strategic Studies (1983) lists the SS-N-18 as containing solid fuel.

\*Mod 2 is listed by Pretty (1982) as having a range of 9100 km with a payload of 3.6 tonnes and a single 800-kt warhead; that payload seems much too large to be reasonable.

Pretty (1982) reports a claim that the accuracy of this missile might be 400 m due to combining stellar with inertial guidance.

The Stockholm International Peace Research Institute (1982) considers this an experimental model, not becoming operational until 1985, others, such as the Department of Defense (1983), claim first deployment in 1983.

Source: Dietrich Schroerer, *Science Technology And The Nuclear Arms Race*, (New York: John Wiley & Sons, 1984), pp. 176-177

and a small-sized single WARHEAD SS-X-25 (a modification or replacement of the SS-13). Both were tested first in 1982 and 1983, respectively. Evidence indicates that the site preparation and possible deployment for the SS-X-25 has been implemented in both mobile and silo modes at old SS-7 and SS-8 missiles sites and at the existing SS-13 silos.<sup>82</sup>

- . Motors for two other ICBM's, the solid fuelled MIRVed SS-X-26 is reported to be an improvement over the SS-X-24. In addition, a large liquid fuelled follow-on ICBM to replace the SS-18---called the SS-X-27--is apparently undergoing development with flight tests expected to begin in 1985 or 1986.<sup>83</sup>
- . The SS-NX-23, a new liquid propelled SLBM possessing improved accuracy, reliability, and increased MIRV capabilities, has begun flight tests. It is expected to replace the SS-N-18 on Delta III-class submarines.
- . A second new SLBM (modified version of the SS-NX-23 and the SS-N-20) is currently passing through the research and development phases. It is felt that combined with the SS-NX-23, both could provide the Soviets with true counterforce capabilities for its sea-based forces. The trend would appear to indicate that the USSR intends to increase its percentage of overall nuclear strategic weapons.
- . The Soviets' new Blackjack A bomber is still in the testing stage but expected to be deployed in 1985 or 1986. It is expected that it will carry the AS-15 (ASM) as well as bombs and will replace the Bison and the Bear A gravity bombers.<sup>84</sup>

- . The London I.I.S.S. reports that two new long-range cruise missiles are in the development stage, designated the SS-NX-21, and the SSC-X-4 (sea and ground-launched respectively). Their ranges are estimated at around the 3000 Km.<sup>85</sup>

The specifics of the follow-on programs of the USSR indicates, like that of the US, that there appears to be no impetus to slow down the nuclear strategic arms race, rather, it appears to be gaining momentum. The real fear, at the moment, is that both powers will let the race drift into the high frontiers of outer space, where a new arms race would begin and stretch the already taut limits of manageability.

7. US-USSR: NUCLEAR STRATEGIC BALANCE? OR IMBALANCE?

The figures presented thus far, if nothing else, do reveal that both the US and USSR possess nuclear strategic arsenals of virtually incomprehensible proportions. To say that there is massive "overkill" potential on both sides would indeed be an understatement. The mere fact that the nuclear arms race plods on relentlessly would indicate, if nothing else, that either or both superpowers would appear to have some finite measuring device to determine the present nuclear balance between them. The various methods of measurement outlined in Figure 6:15 appears to indicate that there is a plethora of different methods, which supposedly provide such measurements for comparative purposes. The reality is that no simple measuring method or device exists. There are just too many assumptions and qualifications required to provide such a precise answer. There are too many unknown factors such as accuracy, reliability, numbers and sizes of warheads. In addition, the

ILLUSTRATION 6:15 A TYPOLOGY OF THE MEASURES OF THE STRATEGIC BALANCE.

*Simple Counts of Weapons Characteristics*  
(*"Bean Counting"; War Input Measures*)

Numbers of Weapons

- e.g., ICBMs
  - SLBMs
  - Total Missiles
  - Bombers
  - Total Launchers or Delivery Systems
  - Strategic Nuclear Launch Vehicles or SNLVs
  - "Large" or "Heavy" Missiles
  - MIRVed Missiles
  - ALCMs, GLCMs, SLCMs

Numbers of Warheads

- e.g., Missile Warheads (Reentry Vehicles, or RVs)
  - Bombs
  - ALCMs, GLCMs, SLCMs
  - Total of RVs and Bombs

Total Megatonnage (Explosive Yields)

- Total Throw-Weight of Missiles
  - Bombers
  - Missiles plus Bombers

Characteristics of Weapons

- e.g., Reliability
  - Availability (Duty Factor)
  - Time-to-Launch after warning

Performance Parameters (reflective of technology)

- Yield
- Yield/Throw-Weight
- CEP
- Hardness
- Penetration Aids (missiles and bombers)
- MaRV (Terminal Guidance) Capability

Numbers and Characteristics of Defensive Systems

- ABMs
  - Air Defense Aircraft
  - Air Defense Missiles

Composite Measures or Figures of Merit

- Total Equivalent Megatonnage (EMT) or Area-Destruction Potential
- Counter-Military Potential (CMP) or "Lethality" (K)
  - or Hard Target Kill Potential
- MIRV Potential of Missiles (based on Throw-Weight and RV Yield/Weight)
- Fractionation Potential of Missiles (same bases as MIRV Potential)
- Any of the Above Measures Applied to ICBMs

- SLBMs
- Bombers
- ALCMs, GLCMs, SLCMs

Equivalent Weapons Index (EW)

PSI Index

Outcome or Effects Measures.

(Simulation Results; War Output Measures)

Source: William H. Baugh, *The Politics of Nuclear Balance: Ambiguity And Continuity In Strategic Policies*, (New York: Longman, 1984), p. 12

sophistication and capabilities of penetration aids only add to the confusion.

Dietrich Schroeer, in his book Science Technology And The Nuclear Arms Race, provides as simple an appraisal of the two superpowers' nuclear strategic deterrents as possible. His arguments stress the importance that stabilizing and destabilizing weapons systems play in the overall conception of a balance. He states that:

...For the ICBM's only, the present trend is toward double instability. At the moment an actual first-strike surprise attack would at best be able to target two RV's on each silo with perhaps 85% reliability. If an attack by the ICBM's...on silos were carried out right now, and if it worked perfectly, then the Soviet Union would destroy perhaps 68% of all U.S. silos; the United States would only be able to target a maximum of 1076 silos with two ICBM warheads and, thus, could destroy only 45% of all Soviet silos.

86

Schroeer notes, however, that any such nuclear war scenario is really too rational to be carried off, as described, particularly during a crisis situation. The fact remains, Murphy's Law continues to operate worldwide. Also levels of acceptable damage are, as Schroeer points out, "...subjective and depend on circumstances (in addition) missile accuracies cannot be relied upon in a large-scale first strike."

87

The "fratricide" effect and the impact of EMP on carrying out nuclear war plans remain nebulous and clearly muddies the waters even more.

Schroeer notes, also, that:

...For SLEM's mutual assured destruction now exists, since SLEM forces are presently invulnerable; hence, in a deterrence diagram that includes all nuclear forces, mutual stability would exist. If one part of the Triad is in the region of mutual stability because it is invulnerable, then the whole Triad of deterrents is stable.

88

The key point that Dietrich Schroeer makes is that despite all of the methods which are utilized to determine whether or not a nuclear strategic balance exists, "...equality in weaponry does not necessarily guarantee peace: a state of mutual instability may increase the chances of war even if the armaments are equal." <sup>89</sup> (See Figure 6:16)

Defusing the present volatile situation resulting from the unbridled nuclear arms race since 1949, requires the two superpowers to accept certain key facts:

1. Time is rapidly running out for both the US and USSR if they hope to retain a significant degree of manageability over their respective nuclear arsenals. The fear is that overall control of the respective nuclear strategic deterrents may be transferred, by necessity, from politicians to complex computers.
2. A political solution to the nuclear arms race is the only solution.
3. Mutual trust must increase on both sides in order to create an environment suitable for achieving significant nuclear arms reduction. (See Appendix B.) The prisoner's dilemma illustrates the difficulties associated with achieving strong ties of mutual trust.
4. There must be an immediate halt to any further plans to militarize space (except for satellites to ensure verification of any treaties signed to reduce nuclear disarmament).
5. Both the USSR and the US must approach nuclear arms reduction negotiations with a heightened level of seriousness if any hopes for a significant agreement are to be realized.

Chapter Seven will examine the various attempts that have been made since 1945 to bring nuclear armaments levels under control. There have been some successes as well as failures but the fact remains, in 1984, the nuclear arsenals of both sides continue to escalate both quantitatively and qualitatively. The choice boils down to either co-existence or coextinction. How long these choices will remain available is a matter of pure conjecture.

**SOVIET GLOBAL POWER PROJECTION**

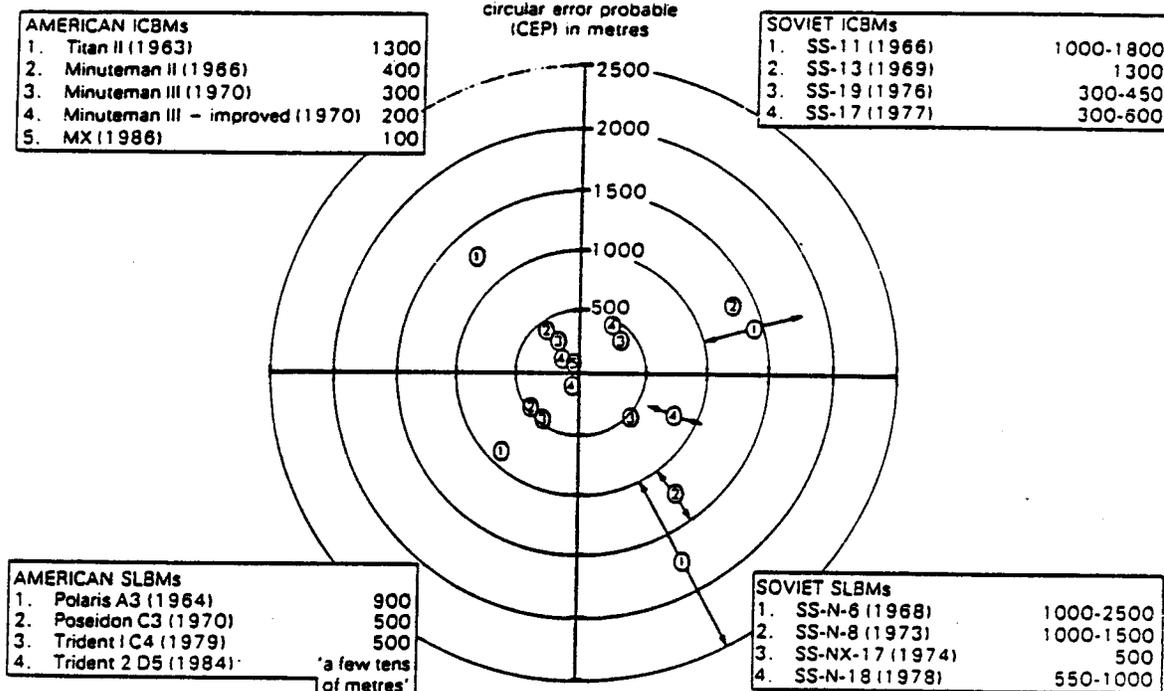


Source: U.S. Department of Defense, Soviet Military Power, (Washington D.C.: 1984), pp. 114-115.



**ILLUSTRATION 6:18 COMPARISON OF ACCURACIES OF US AND USSR ICBM'S AND SLBM'S WITH SPECIAL EMPHASIS ON US NEW MX ICBM.**

'All of these developments have removed the single most important technological obstacle which prevented the use of strategic nuclear weapons against hardened targets . . . Improvements in accuracy have now given military leaders more confidence that they can select and destroy well-protected targets at long range with "surgical" precision.'  
Stockholm International Peace Research Institute. *SIPRI Yearbook 1981*, p. 23.



**ICBMs: the MX**

As the diagram shows, Soviet ICBMs have improved markedly in accuracy during the 1960s and 1970s, and there is every reason to suppose that the Soviet Union will continue to improve the counterforce capabilities of these missiles. This, of course, has engendered the fear that a 'window of vulnerability' could develop in which the Soviet Union might contemplate a pre-emptive first strike using its increasingly accurate missiles against the American ICBMs. As explained in Chapter II, the United States aims to counter the growing threat of Soviet ICBMs by deploying the MX missile.

The improving accuracies of ballistic missiles. Source: Stockholm International Peace Research Institute. *SIPRI Yearbook 1980*.

The missile is specifically designed to be sufficiently accurate for a threat against Soviet ICBMs and similar 'hard' targets. In the words of Zbigniew Brzezinski (President Carter's National Security Adviser), the MX missile will:

... reduce Soviet incentives to initiate an attack against our forces by giving us an ability to respond in kind.'

Quoted by Scoville, H. *The MX: Prescription for Disaster*, p. 139. The MIT Press. Cambridge, Mass 1981.

... the MX is intended to be a high yield, highly accurate missile capable of destroying Soviet intercontinental ballistic missile (ICBM) launchers. 1,400 of them. To do this effectively the 2,000 MX weapons must destroy the launchers before the Soviet missiles are en route to targets in the US. Simple logic leads to the conclusion that the MX is a first strike weapon. There is no other logical mission for a system which is designed with the power and accuracy to destroy ICBM launchers.'

*The Defense Monitor*, p 1 Volume X, Number 6 1981

Source: Adam Suddaby, *The Nuclear War Game*, (London: Longman, 1983), p. 225.

FOOTNOTES

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## CHAPTER SEVEN

### NUCLEAR ARMS CONTROL: PAST HISTORY, FUTURE PROSPECTS

Disarmament is not primarily a technical matter; it deals with the sociology of personal perceptions and human institutions. Wars are inspired not only by rational cost-benefit analyses of preemptive first strikes versus mutually assured destruction but involve the desire to protect one's resources and one's way of life or may even be caused by religious fervor. The prevention of many such wars fall under the injunction that if you want peace prepare for war. In a world with MAD, preparation for war may be equivalent to preparing for a Götterdämmerung. This dictum no longer can be accepted simplistically. DIETRICH SCHROEER, SCIENCE TECHNOLOGY AND THE NUCLEAR ARMS RACE, (NEW YORK, 1984), p. 403.

The figures presented in the previous two chapters outlining the size and scope of the nuclear strategic arsenals of both the US and USSR, provide an ominous outlook for world survival if the situation is not altered quickly. The follow-on or future plans for new weapons development, or technological refinements of both the US and USSR's nuclear arsenals make it abundantly clear that efforts at achieving significant arms reduction have, by and large, failed, while the nuclear strategic arms race continues plodding on, ever upward. As Leslie H. Gelb notes:

...while these developments are worrisome, they have not changed the basic reality of the nuclear age, which dawned 40 years ago. In a nuclear war there are only losers. Soviet and American leaders know this and have gone out of their way ever since the Cuban Missile Crisis of 1962 to avoid direct confrontation.

However, considering the awesome and lethal nature of the present day nuclear strategic arsenals on both sides, compared to those present during the Cuban missile crisis, little, if any comparison, can be perceived. Gelb asks a very relevant and poignant question of the leaders in both Moscow and Washington: "Can they manage these mounting nuclear threats?"<sup>2</sup> In the absence of any significant nuclear strategic arms limitation agreement between Washington and Moscow the question becomes quite problematical.

The key point that must be remembered about this situation is that nuclear weapons are not an abstract theory; but a reality that the world can ignore only at its own peril. Significant nuclear arms control reduction between the superpowers appears to be the only practical solution to ameliorating this world threatening situation.

In the absence of a significant nuclear arms agreement between the US and the USSR, both superpowers are continuing to develop and deploy more lethal and more technologically sophisticated nuclear weapons while attempting to stave off a direct confrontation that could lead, inadvertently, to a nuclear holocaust.

Central to their situation is the fact that:

As a civilization we cannot unlearn the possibility and technique of building nuclear weapons. Moreover, as long as at least one government--or, potentially, even a group consisting of a few key individuals--expects relative advantage from possessing such weapons, we cannot readily make massive reductions in the strategic arsenals already on hand. Therefore, if we wish to reverse the nuclear weapons acquisition process, or even bring it into long term stability, we shall have to devise new political institutions for the management of the strategic weapons regime.

However, before this can begin, a political climate, more amenable to conducting significant nuclear strategic arms limitation negotiations must be created first. The confrontational aspect of East-West relations since 1945 has been exacerbated by the deep political differences which have separated each country and have led to high levels of mutual mistrust and fear. Changing this situation is of paramount importance if any significant progress is to be made regarding arms reduction.

How to change the present negative political climate is the subject of considerable debate. Some see this being accomplished by increasing efforts to reduce tensions by developing areas of mutual interest that would stress long-term improvement in political relations, recognizing, at the same time, that there remains continuing serious differences on major issues between the superpowers. Others have chosen a tougher stance which favors the continued increasing of pressure on the Soviet Union in an attempt to force long-term changes in Soviet political attitudes by confronting it on fundamental issues and by seeking to isolate it politically and economically. The latter approach, historically, has achieved little, if anything, in US dealings with the Soviets. The former appears to offer greater promise.

Despite the lack of a suitable political climate, debate on nuclear strategic arms control has grown steadily over the past few years. More and more the rest of the world is recognizing that resolution of the nuclear arms race is the most important international issue in the world to-day. No longer is it considered to be one

exclusively between the US and the USSR. Most of the world realizes that any nuclear war would most probably encompass the entire globe, thus threatening the lives of the entire world's population.

In order to understand better the complex issues which have to be resolved, it is necessary first to examine the structure within which past nuclear arms limitation negotiations have operated. Once the key issues are defined, then SALT I, the ABM Treaty, SALT II, and the START Proposals will be examined to outline the nuclear arms limitation process and how it has functioned. The successes and failures will be examined in order to determine why and how they occurred, as well as what changes must occur if future negotiations are to be more productive.

For purposes of discussion arms control will be defined as "...the effort to 'manage' the nuclear confrontation by mutual agreement in ways designed to lessen the likelihood of nuclear war."<sup>4</sup> The arms control process is defined as one which "...seeks to constrain the size and nature of nuclear arms and their delivery systems to stabilize the strategic relationship."<sup>5</sup>

Since the late 1950's, both arms control and the arms control process have focused primarily on approximately one half-dozen international agreements and proposals. These include the:

- . SALT I Treaty
- . Anti-Ballistic Missile Treaty (ABM)--which is currently being placed in jeopardy by President Reagan's Star Wars or SDI program, which potentially could lead to its abrogation.
- . SALT II Treaty
- . START Proposals put forth by President Reagan and which are directed at offensive strategic nuclear systems.

- . A comprehensive test ban on nuclear testing.
- . Limitations on anti-satellite weapons (ASAT).

In addition, there are a host of others which are directly or indirectly associated with curbing the nuclear arms race (see Tables 7:1 and 7:2 for a more comprehensive list).

Some of the significant aspects of the nuclear strategic arms control issue to be examined are:

- . the status of the US-Soviet strategic relationship;
- . the basic objectives of nuclear arms control;
- . the approaches to arms control agreements;
- . "Linkage" of arms control to other political or military objectives;
- . the approach to the negotiating process.

6

#### I. The Status Of The US-Soviet Strategic Relationship

Any nuclear arms proposal negotiated by the US and the USSR must be assessed in terms of its impact on both the present and future superpower military relationship. Historically, during previous strategic arms limitation talks, when either the US or the USSR has had, or has been perceived to have, a militarily or politically exploitable level of strategic superiority, success in achieving nuclear arms control agreements has been thwarted.

Difficulties abound when one attempts to compare or assess the nuclear strategic balance between the US and the USSR. The primary asymmetries in the makeup of their respective nuclear deterrents, as well as their attitudes acquired over centuries of radically different historical experience, military doctrine, political ideology, economic

TABLE (7:1)

Major Steps in Contemporary Arms Control	
	Dates
"Open Skies" and "Bomber Banfire" proposals	1955
Moratorium on Atmospheric Nuclear Testing	1958-1961
Antarctic (Military-Free Zone) Treaty	1959
Hot Line Agreement (Revised 1971)	1963
Limited Nuclear Test-Ban Treaty Only underground tests allowed France and China continue to abstain	1963
Outer Space Treaty Prohibits orbiting weapons of mass destruction	1967
Treaty for the Prohibition of Nuclear Weapons in Latin America	1967-1968
Nuclear Nonproliferation Treaty (NPT) Defines classes of sovereignties (weapons and nonweapons states) Numerous significant nonsignatories	1968
Seabed Arms Control Treaty	1971
Agreement updating Hot Line for satellite technology	1971
Nuclear Accidents Pact (U.S.-USSR)	1972
Agreement on Prevention of High-Seas Incidents (U.S.-USSR)	1972
Biological Weapons Convention Disarmament, Destruction, and Prohibition Significant loopholes remain	1972
SALT (U.S.-Soviet Strategic Arms Limitation Talks) First tentative contacts	1965
Originally planned opening of negotiations	1963
Negotiations opened	1969
First agreements (SALT I) signed and ratified	1972
ABM Treaty (Still in force; Amended by Protocol in 1974) Interim Agreement on Strategic Weapons Expired 1977 Subsequently followed tacitly by both sides	
Protocol amending and strengthening ABM Treaty	1974
Vladivostok Accords (Guidelines for SALT II agreement)	1974
SALT II Agreements signed (to expire in 1985)	1979
Withdrawn from submission for U.S. Senate ratification	1979
Threshold Nuclear Test-Ban Treaty (U.S.-USSR) Set 150-kiloton limit on size of underground tests Not ratified by U.S. Senate Terms tacitly observed by both sides	1974
Peaceful-Nuclear-Explosions (PNE) Treaty (U.S.-USSR) Set 150-kiloton limit on size of peaceful underground explosions Provides for limited on-site inspections Not ratified by U.S. Senate	1976
Convention Banning Modification of the Environment 32 signatory governments, including U.S. and USSR Prohibits military or hostile use of modifications Not ratified by U.S. Senate	1977

Source: William H. Baugh, *The Politics of Nuclear Balance: Ambiguity And Continuity In Strategic Policies*, (New York: Longman, 1984), p. 205.

TABLE (7:2)

Multilateral arms control agreements signed since 1959  
(After Stockholm International Peace Research Institute, 1981.)

Signed (In force)	Treaty*	Number of Parties	Important Nonsigners <sup>b</sup>
1959 (1959)	<i>Antarctic Treaty.</i> Prohibits military activity in the Antarctic area; a follow-up to the International Geophysical Year of 1958.	21	
1963 (1963)	<i>Limited Test Ban Treaty.</i> Prohibits nuclear explosions in the atmosphere, in outer space and under water.	112	Peoples Republic of China, France <sup>c</sup>
1967 (1967)	<i>Outer-Space Treaty.</i> Prohibits all military activity in outer space, including the moon. Military bases on the moon seem undesirable because of the transit time, and strategic weapons on satellites have a time window for launches that is too narrow.	82	
1967 (1968)	<i>Treaty of Tlatelolco.</i> Established Latin America as an area free of nuclear weapons.	22	Argentina, Brazil, Cuba
1968 (1970)	<i>Non-Proliferation Treaty.</i> Prohibits the acquisition of nuclear weapons by nonnuclear weapons states; the nuclear weapons states must help NNWS with peaceful uses of nuclear energy, and must work toward disarmament (see Chapter 14).	114	Argentina, Brazil, France, India, Israel, Pakistan, People's Republic of China, Saudi Arabia, South Africa, Spain
1971 (1972)	<i>Sea-Bed Treaty.</i> Prohibits placement of nuclear weapons and other weapons of mass destruction on or below the ocean floor. An extension of the international freedom of the seas. It does not forbid SLBM subs or ground-moored mines or submarine detection systems.	70	
1972 (1975)	<i>Biological Weapons Convention.</i> Prohibits the development, production and storing of bacteriological weapons (see Chapter 11).	91	
1977 (1978)	<i>Environmental Modification Convention.</i> Prohibits the hostile use of technologies to modify the environment.	31	

\*Many of these treaties try to limit some regional nuclear proliferation.

<sup>b</sup>Important nonsignatories as of December 31, 1990.

<sup>c</sup>France has conducted no above-ground nuclear tests since 1974.

Source: Dietrich Schroerer, *Science Technology And The Nuclear Arms Race*, (New York: John Wiley & Sons, 1984), p. 348.

development, relations with allies as well as potential adversaries, reflect many underlying differences between the two countries.<sup>7</sup>

In general, the asymmetries in strategic forces can be related to certain geographic, military, technical, and bureaucratic differences between the two countries, which have been expanded upon earlier. As a result of many of these asymmetries, it is not surprising that the structure and capabilities of the respective nuclear forces of the two superpowers differ significantly. It is also not surprising that:

...within the United States there has been a continuing controversy about the status of the strategic balance. The inherent complexity of the problem, particularly when coupled with the strong political emotions surrounding it in both countries, has been a major factor in the difficulty in negotiating mutually acceptable arms control agreements.

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During the 1970's, the period during which the SALT I and SALT II Treaties were negotiated, the approach to strategy and arms control reflected the acceptance by both the US and the USSR that a rough "parity" existed between them. When all of the asymmetries in their respective nuclear forces were considered, both accepted the fact that meaningful superiority was not attainable. President Nixon, during his campaign, called for a policy of "sufficiency." What this meant essentially was that the level of nuclear strategic forces to be maintained by both sides must be adequate to ensure deterrence, with no advantage accruing to the Soviet Union if it undertook a preemptive first strike. Also, by maintaining "essential equivalence" in perceived forces on both sides there would be no appearance of inferiority.<sup>10</sup> However, in spite of the fact that the SALT I Interim

Agreement sought to cap the massive buildup in Soviet strategic forces that had begun in the mid-1960's, and the SALT II Treaty formalized the status of parity between the two sides by establishing equal aggregate ceilings on strategic delivery systems and a series of equal subceilings on various components of the strategic forces; the 1970's saw a major buildup in potentially destabilizing US and Soviet forces.

#### US

- . Early 1970's, MIRV'ed a large portion of its land and sea-based missiles.
- . Late 1970's developed long-range, high-accuracy cruise missiles (essentially enabled the US to MIRV its strategic bomber force with ALCM's and assured itself of the capability to penetrate Soviet air defenses).

#### USSR

- . Early 1970's completed the large-scale strategic buildup started in the mid-1960's.
- . Late 1970's moved rapidly to introduce MIRV's on its land and sea-based missiles. Land-based ICBM's continued to be the mainstay of the Soviet nuclear strategic deterrent.

The US viewed this situation as very destabilizing due to the threat that large numbers of Soviet ICBM's posed to US fixed targets. Despite all this, both sides recognized that without SALT I and SALT II, and the limits they imposed, that both superpowers were capable of building considerably larger and more threatening forces during this period.

The 1980's saw President Reagan take the position that the USSR had achieved an unacceptable "margin of superiority." He called for significant increases in the US nuclear strategic forces to redress this perceived imbalance before he would consider entering into any

future strategic arms agreements. Consequently, these views were inherent in the US position put forth in the proposed START negotiations. The USSR continued to insist that nuclear strategic parity still existed. US strategic doctrine was altered in order to broaden the concept of extended deterrence which emphasized the capability to conduct a nuclear war and ultimately to prevail.

Later, in March 1983, President Reagan announced that his administration deplored the concept of deterrence based on mutual assured destruction and called for a major scientific effort to develop an effective nationwide ballistic missile defense that could ultimately eliminate the strategic role of nuclear weapons. "This approach, which has been widely challenged on technical, military, and arms control grounds, would reorient the longstanding U.S. 'offense-dominated' nuclear strategy to a 'defense-dominated' strategy. Continued US inflexibility regarding its SDI program does not augur well for both past and future arms control commitments and proposals with the Soviets, as well as their already stormy nuclear strategic relationship. As William H. Baugh notes:

Indeed, the management of the strategic nuclear weapons regime over the past two decades demonstrates what seems on the surface to be a major paradox: weapons quantities and destructive capabilities have moved almost monotonically upward during a period in which the numbers and scope of arms control agreements expanded significantly. Moreover, neither governments nor publics appear to enjoy even the limited sense of security perceived 20 years ago. 11

#### B. The Basic Objectives Of Nuclear Arms Control

The US National Academy of Sciences, in a recent publication

Nuclear Arms Control: Background And Issues, outlines the objectives of nuclear arms control very succinctly. The underlying objective is "...to increase the stability of the military relationship of the nuclear powers thus reducing the risk of nuclear war."<sup>12</sup> Taking it a step further it also notes that "the objective of stability can be divided into two separate, and sometimes conflicting concepts 'arms race stability' and 'crisis stability.'<sup>13</sup> Arms race stability, the Academy points out "is achieved by stopping or moderating the competition in nuclear arms. This competition increases the risk of war by introducing more threatening weapons and by making more nuclear weapons available for expanded roles and missions."<sup>14</sup> Crisis stability, on the other hand "is achieved by eliminating the incentive for either side to launch a preemptive counterforce attack in an effort to obtain military advantage by significantly blunting the other side's capacity to retaliate."<sup>15</sup> Such a counterforce attack would in all probability be most likely to occur at the time of a serious political crisis or military confrontation especially when escalation to a nuclear war might be judged to be a real possibility.

Stability and predictability are two significant goals of arms control. Consequently any such agreements which establish mutual constraints on the size, number, and qualitative aspects of nuclear arsenals, or ban certain activities, help ensure arms race stability. As a follow-on, limiting existing forces and defining a clear framework within which future forces are constrained helps to make the future US-Soviet military relationship more predictable. What all of this leads to is an overall reduction in pressure and stress on both sides

to pursue developments and deployments "based on worst-case assessments of the other sides unconstrained future capabilities."<sup>16</sup> Such stability, it is argued, can help lessen international tension and the risk of war. Also, by undertaking measures which ensure the survival and effectiveness of retaliatory strategic forces in the face of a preemptive counterforce attack, crisis stability, or the reduction of the risk of nuclear war in a crisis, can be lessened. It also can be increased by both sides deploying more survivable retaliatory systems and by eliminating highly vulnerable strategic systems that are tempting targets. It also should be noted that:

A high level of crisis stability does not eliminate the possibility of military engagements escalating into nuclear war, but it does reduce pressure to preempt if nuclear war appears imminent by reducing the perceived need to use vulnerable weapons before they are destroyed.

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Both sides, based on the asymmetries of their respected nuclear arsenals, are moving in this direction to maintain or heighten crisis stability. The current fear is that present trends in technical developments could increase the future vulnerability of both sides' strategic forces and impede their ability to penetrate defenses to reach targets. Such potential developments can only decrease crisis stability.

The process of negotiating nuclear arms limitations between the superpowers involves issues that affect the very survival of both sides. However, once concluded, and assuming each adheres to the tenets of the agreements, the process can result in the building of an understanding and confidence between the US and the USSR. The resulting atmosphere of constructive co-operation in helping to reduce

the risk of nuclear war can also significantly reduce international political tensions.

C. The Approaches To Arms Control Agreements

Arms race stability as well as crisis stability have both been enhanced in nuclear arms control agreements. Five general approaches, as outlined by the Academy of Sciences, have been utilized, to varying degrees, to move nuclear arms control negotiations from the talking stage to the treaty stage. They are as follows:

- Limits on various types of weapons or other measures of nuclear military power.
- Freezes: A freeze would stop all new activity in the area covered. A comprehensive nuclear freeze would prohibit the further testing, production, and deployment of all new nuclear weapons and delivery systems.
- Restructuring: In seeking crisis stability, restructuring proposals can be inconsistent with arms race stability if they encourage or require major new nuclear arms programs to replace existing nuclear systems, such as the replacement of fixed land-based ICBM's with larger numbers of small, mobile, single warhead missiles.
- Reductions: Even if modernization is permitted or encouraged, substantial reductions in measures of overall nuclear power tend to enhance arms race stability. Substantial reductions could also reduce the risk of nuclear war by limiting the options available to both sides. Also, very large reductions could reduce crisis stability by making a preemptive attack more credible. In addition,

with extremely large reductions, there would also be the problem that relatively small numbers of delivery systems that might be unaccounted for by the verification system could be judged a significant factor in assessing overall crisis stability.

- Bans: By completely prohibiting an entire class of nuclear weapons systems, including the elimination of existing stockpiles and the halt of future development, production, and deployment, a dramatic contribution could be made to both arms race and crisis stability if the proposed uses for the weapons or weapons-systems posed a significant present or future threat. To date, complete bans have generally been proposed for systems that do not yet exist. The call for a ban on the deployment and use of anti-satellite weapons illustrates how difficult it is to impose such a ban once a weapon has been tested.

A comprehensive test ban on all nuclear explosions... amounts to a freeze on future nuclear weapon developments rather than a ban on nuclear weapons. It would stop the deployment of new types of nuclear weapons, but it would not affect existing stockpiles or the ability to produce and deploy additional weapons of existing designs.

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- Special Stabilizing Measures Or Crisis Management Measures: Among these would be

- improved communications to reduce the probability of a nuclear war occurring by accident or miscalculation.
- Establishing of permanent groups on both sides to exchange information and resolve problems on a continuing basis.
- Measures taken to reduce the vulnerability of retaliatory systems and to build more time into the decision making process.

- Establishing special operating zones in which SSEN's could operate freely without encountering threatening anti-submarine warfare activities. 21

#### D. Verification

Given the heightened levels of mutual suspicion and mistrust, any nuclear arms agreement that affects vital US national security interests will not be acceptable without adequate provisions to ensure that the Soviet Union is adhering to each and every clause in the agreement. The reality is, however, that none of the systems designed to monitor compliance with a treaty are 100% fool-proof. Consequently, the question becomes, How much verification does a particular agreement require? The Reagan Administration has made it be known that it is extremely unhappy with the verification methods agreed to under the SALT II Treaty. Consequently, the Administration is going to require more stringent verification methods in any new nuclear arms control agreement. The SALT Agreements established satellite monitoring as the internationally accepted means of verification. Satellite monitoring systems along with other technical systems such as radars, radio antennas located outside the country under surveillance are now generally referred to as National Technical Means (NTM), and have now become the accepted procedures for monitoring compliance of nuclear arms control proposals or agreements. While the US has oftentimes predicated their approval of certain arms control proposals on provision for "on-site" verification, it is not considered to be a panacea for all verification problems. A case in point concerns the verification of the MIRV ceilings in SALT II. It is argued by some

experts that "...even very intrusive on-site inspection by itself would have been much less effective than National Technical Means used in conjunction with the counting rules for launchers."<sup>22</sup>

#### E. Record Of Compliance

In response to a Senate request, President Reagan submitted a report to Congress on January 23, 1984 stating that among other treaty violations that it was not complying with two provisions of SALT II:

- . missile telemetry encryption
- . a rule governing ICBM modernization.

In addition, the USSR is accused of violating the ABM Treaty by constructing a large phased-array radar at Krasnoyarsk, as well as the Threshold Test Ban Treaty (violating the nuclear testing yield limits). The Soviets have denied all charges and made its own charges of US violations of existing agreements. The US accusations, according to the Arms Control Agency, do not hold up under close scrutiny. In addition, its argument is weakened by the fact that the SALT II Treaty was never ratified by the US Senate so the USSR feels governed only by the Treaty's "political" and not its "legal" obligations.

#### F. Political Or Military "Linkage"

This is considered in the US to be a "fundamental issue in the development and negotiation of arms control agreements to the extent to which they should be 'linked' to other political or military considerations."<sup>23</sup> In reality, it concerns the extent to which arms control negotiations can be isolated from other political and military

activities. During the Kissinger era, linkage was put forth as a policy in attempts to secure USSR cooperation in areas where little or none existed. The Soviets rejected outright the concept of rewards given for good behaviour or withheld for bad behaviour. Both sides now seem to negotiate from the position that arms control agreements should stand on their own merits despite periods of heightened or reduced tensions. Considering the global military links that the US has around the world it seems inevitable that given the high political visibility of arms control negotiations that some linkage may creep into such negotiations in the future.

#### 2A. The Negotiating Process

The major difficulty in designing and negotiating a nuclear arms control agreement lies in the fact that it must satisfy both the political and military establishments of the US and the USSR and that it is mutually advantageous. Attempting to achieve these ends has proven to be a long, slow and difficult process. This can readily be seen when examining the background to the SALT II Treaty. The negotiations spanned a period close to seven years, despite the fact that the basic objectives and framework were decided upon early in the process.

The Reagan Administration chose a new negotiating stance in pursuing nuclear arms agreements. Its approach:

"...was to design proposals to optimize perceived legitimate U.S. interests without regard to their negotiability from the Soviet perspective. The administration argued that if the U.S. positions were right the Soviet Union might be persuaded; if the Soviet Union could not be persuaded, the United States would be in the strongest bargaining position

in dealing with Soviet counterproposals. The concept of negotiability was rejected as a criterion in judging the acceptability of arms control proposals.

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Coming to the bargaining table in a strong position both domestically as well as internationally is important. Also, prospects for successful negotiations dim considerably if either side has, or is perceived to have, nuclear superiority in the military area under discussion.

The use of "bargaining chips" or military assets which can be traded as bargaining chips against present or future components of an adversary's forces can sometimes play a significant role in negotiations. However, they must have real military significance. It has been argued that US plans during the late 1960's and early 1970's to deploy an extensive ABM system contributed to the Soviets agreeing to sit down and negotiate the ABM Treaty in 1972.

Each of the seven underlying issues, which have been briefly outlined, must be considered when examining the previous nuclear arms limitation negotiations. Each is significant in its own right and interpreted differently by both superpowers. Compromise is essential if a successful agreement is to be concluded. The realities that have become evident over the years during various sets of nuclear arms reduction negotiations between the US and the USSR, are as evident today as they were at the beginning of the SALT I negotiations. Noel Gayler, a former US Navy Admiral (ret.), explains why negotiations have been so difficult to conclude. He notes:

In all our negotiations, past and present, both we and the Russians have been hung up on the following three issues.

1. What is fair and equal? Neither side will stand still for unilateral disarmament, nor should it. But we Americans talk about equal effectiveness in terms of weapons systems, while the Russians talk about equal security, and the way they define their security needs is unacceptable to us.
2. What is verifiable? We are tremendously concerned about the potential for Russian cheating. They are equally concerned that our proposals for inspection inside the Soviet Union might be a cover for espionage.
3. How do you classify weapons, and what weapons do you count? For example, is the Russian Backfire bomber capable of intercontinental range, as our military contend, or is it a medium-range aircraft, as the Russians insist? Do you count as "strategic" those long-range weapons that cross oceans (our idea) or any weapons that can reach Soviet soil no matter where they start from (their idea).

25

The negotiating environment during the SALT period was further complicated by the very distinct negotiating styles of the US and the USSR and the pronounced asymmetries in the makeup of their respective nuclear strategic deterrents. However, the confrontational nature which characterized their bilateral relations during the post 1945 period accounted for much of the mutual fear, mistrust, and misperceptions that both brought to the negotiation table. Overall, these factors made the negotiating process more difficult and protracted but did not preclude agreements in certain areas under discussion which both found mutually advantageous.

Obstacles that impeded quick resolution of nuclear arms control issues were to be found on both sides. The Soviet negotiating style is one case in point. If during the course of the talks a unilateral concession was made to the Soviet negotiators for purposes of attempting to generate a positive atmosphere, the Soviet side would

quickly accept it, but under no circumstances would it volunteer to reciprocate with a concession of its own. Edward N. Luttwak, in commenting on this aspect of Soviet negotiating style notes that:

It is not that Soviet diplomats are necessarily tougher than Western negotiators or even that their conduct is a symptom of inflexibility. It is merely a question of method. Soviet negotiators insist on treating each issue quite separately, making the best bargain they can in each case. They do not try to smooth the path to agreement by yielding on lesser points for the sake of the common interest in the outcome of the negotiations as a whole.

26

The Russian passion for secrecy poses another serious obstacle to concluding a nuclear arms control agreement. The Soviets' continued refusal, even after many years of apparently intimate negotiations on nuclear strategic forces, to divulge any significant information regarding the technical aspects of their weapons and weapons systems, the structure of their forces, their force-building plans, nuclear strategy and doctrine, made progress during negotiations considerably more difficult. In addition, Soviet secrecy impeded the scope of arms control by making verification very difficult as well as ambiguous at times. As Luttwak rightly points out: "Arms control without high-confidence verification is a contradiction in terms."

27

The United States, also, has complicated the nuclear arms control negotiations by consistently misusing arms control while pursuing an abstract goal of "strategic parity." When this concept was challenged, the White House was quick to redefine it as "essential equivalence" which, in reality, was equally as vague. Luttwak correctly points out that "neither set of words has any meaning in the reality of weapons or forces. Neither set of words can define negotiating objectives."

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It is essential, if arms control negotiations are to be fruitful, that negotiated limitations are defined very precisely. However, the US has consistently tolerated ambiguities in its hurry to conclude an agreement for its own sake. As a result "...a new and entirely artificial source of U.S.-Soviet tensions has been created."<sup>29</sup> These tensions have prevented the confidence building which is so essential in creating a proper negotiating climate for subsequent nuclear arms limitation negotiations.

#### B. THE SALT I NEGOTIATIONS (1969-1972)

On July 1, 1968, on the occasion of the signing of the Nuclear Non-Proliferation Treaty, President L.B. Johnson announced that the US and the USSR had agreed to begin strategic nuclear arms negotiations. Later, on August 19, 1968, the Soviet Union informed the US that it was prepared to begin negotiations on September 30. However, the following day the Soviet Union invaded Czechoslovakia and the US postponed the talks.

President Richard Nixon responded favorably to a renewed Soviet proposal to begin nuclear strategic arms talks and hopefully to work towards improving US-Soviet relations. The Nixon administration recognized both the value of restraining the current nuclear arms race, especially the rapid growth in the Soviet's nuclear arsenal, as well as in stabilizing the nuclear strategic balance between the superpowers. Subsequently, after nine months of intensive preparation the Strategic Arms Limitation Talks began in Helsinki on November 17, 1969.

The Nixon administration entered the SALT-I negotiations primarily concerned with two principal developments that the US hoped the negotiations would address and alleviate. They were: (1) A buildup of Soviet "modern heavy" ICBM's (at that time the SS-9) that could eventually pose a severe counterforce threat to the survivability of the American force of 1000 Minuteman silo based ICBM's, and (2) A prospective widespread deployment by both the United States and the Soviet Union of ABM systems that could reduce the effectiveness of second strike retaliatory forces.<sup>30</sup>

The United States felt that these developments could destabilize the strategic nuclear balance in a crisis situation by creating confidence in a first-strike advantage that could result in the destruction of a major portion of the other superpower's strategic forces. In addition, it was also feared that along with an ABM system they could reduce the effectiveness of second strike retaliation by the opponents surviving ballistic missiles. The US was deeply concerned with the instability created by the compressed warning time factor during a crisis, as well as with the ongoing nuclear arms race which was gaining both momentum and size in both the US and the USSR. It was felt that a widespread deployment of an ABM system by both superpowers would only trigger a further increase in nuclear strategic offensive weapons in order to retain a reasonable level of confidence in the ability of ballistic missiles to penetrate such ABM systems.<sup>31</sup>

During the SALT I negotiations perhaps the most significant difference in their perspectives about the talks concerned the

definition of the systems to be covered by the agreement. The USSR sought to define as "strategic" any US or Soviet weapon system capable of reaching the territory of the other side. To accept this definition would have meant that the US would have had to include all its forward-based systems, primarily, medium-range bombers based in Europe or on aircraft carriers. Conversely, it would have excluded Soviet intermediate-range missiles and aircraft that were aimed at Western Europe, but could not reach the continental United States. The US definition held that "strategic" weapons were only those that had an intercontinental range, and therefore, all of its forward-based forces should not be counted since they were designed and deployed to counter Soviet medium-range missiles and aircraft aimed at the US' NATO allies.

The deadlock was broken when it was mutually agreed to concentrate on a permanent treaty to limit ABM systems but at the same time to agree to interim limitations on offensive systems that would be incorporated into a future comprehensive treaty. The Interim Agreement on Strategic Offensive Arms was signed by President Nixon and General Secretary Brezhnev on May 26, 1972 in Vienna at the same time that the ABM Treaty was agreed upon and signed. The Interim Agreement on Strategic Offensive Arms was to remain in effect for five years until 1977, and was intended primarily as a holding action. Ostensibly, SALT I, for the first time, called for a ceiling on the numbers of deployed strategic weapons, and established a Standing Consultative Commission to deal with possible violations of the agreed upon terms.

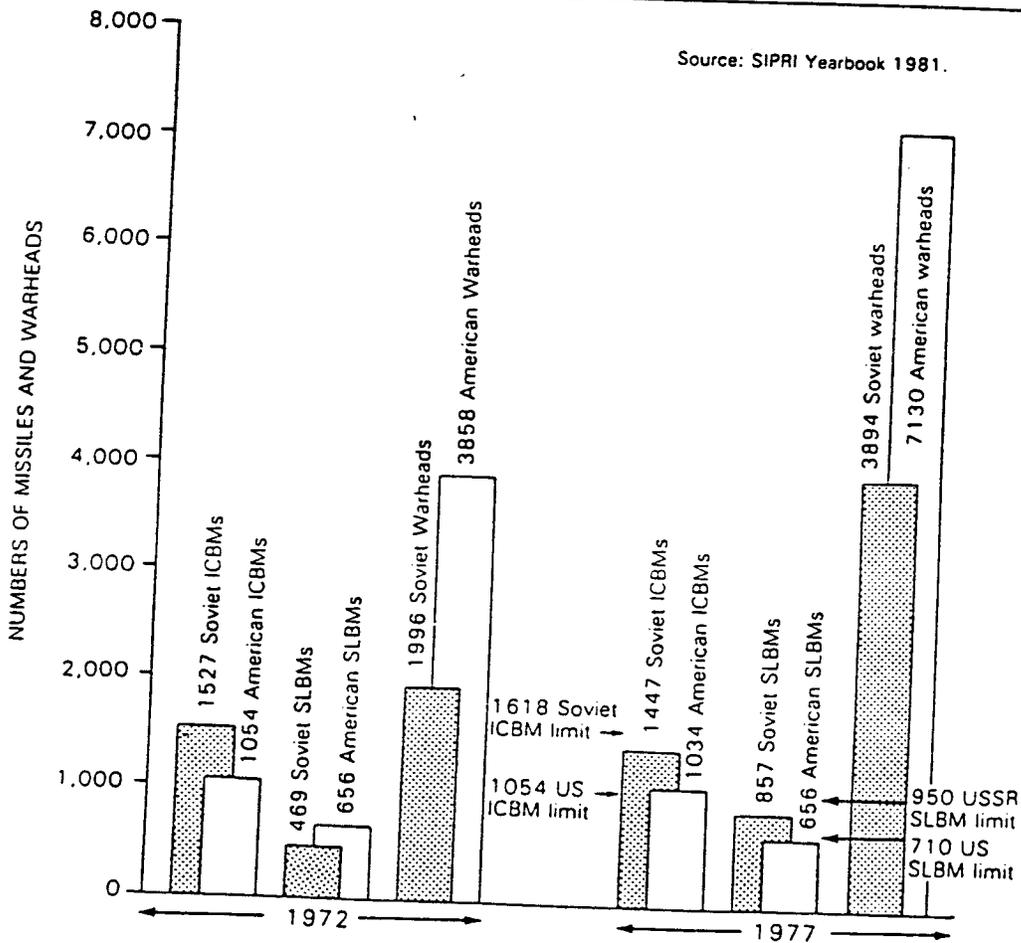
See Table 7:3 which outline the SALT I Interim Agreement. It was signed by the respective Soviet and US representatives on May 26,

# The SALT I Interim Agreement

TABLE (7:3)

**The effects of The SALT I interim agreement**

	LEVELS IN 1972		CEILINGS PERMITTED BY SALT I		LEVELS IN 1977	
	USA	USSR	USA	USSR	USA	USSR
Number of ICBMs	1054	1527	1054	1618	1054	1447
Number of SLBMs	656	469	710	950	656	857
Number of independently targetable warheads on missiles	3858	1996	no limit		7130	3894



Because SALT I made no provision to limit or control the MIRVing of missiles, by 1977 the number of independently targetable warheads on American and Soviet missiles had increased by 180 and 200 percent respectively.

Source: Adam Suddaby, *The Nuclear War Game*, (London: Longman, 1983), p. 80.

1972 in Helsinki, Finland after some 30 months of long and tedious negotiations by both sides.

It provided a freeze for five years on the total numbers of fixed land-based ICBM's and SLBM's. Each, respectively, were allowed an upper limit of 1054 and 1618 ICBM's, and 710 and 950 SLBM's. Except for the US, the USSR had not yet reached its upper limits at the time of signing SALT I. From Table 7:3 it can be seen also that the USSR was accorded a three-to-two superiority in ICBM's and a four-to-three superiority in SLBM's. This was granted to the USSR in order to compensate it for the United States' advantage in long-range bombers, as well as MIRV'ed missiles, and also due to the inability of both sides to reach an agreement on how to take into consideration US theatre nuclear forces based in Europe.<sup>32</sup> It is important to note that a serious weakness in the agreement concerned the fact that no provision was included to control the MIRV'ing of missiles on both sides. Unquestionably, this omission would later come to be viewed as one of the most destabilizing facets of the nuclear arms race. As Suddaby points out "...by 1977 the number of independent targetable warheads on American and Soviet missiles had increased by 180 and 200 percent respectively."<sup>33</sup> While the agreement was a beginning, it did have potentially serious limitations. The primary emphasis was placed on quantitative limits on both sides without restricting qualitative improvements such as MIRV (developed and exploited by the US and both equalled and refined later by the USSR). There is no doubt that technological advancements could quickly upset the nuclear balance without disturbing the quantitative levels. The irony of the situation

is, that such technological advancements ultimately lead to a heating up of the nuclear arms race, something which the SALT agreement was trying to stabilize or reduce.

The problem of verification was of deep concern to both parties consequently the Interim Agreement also formalized the principle of verification by National Technical means (NTM). These means included all sources of technical intelligence in space or outside the boundaries of the country being monitored. Limitations were stated in terms of "launchers" which could be verified by existing intelligence collection systems rather than in terms of total missiles, which could not be directly verified by National Technical Means solely.<sup>34</sup>

### C. The Anti-Ballistic Missile (ABM) Agreement

Both sides agreed to restricting ABM sites to two for each party. One was to be located in the national capital of each country, while the other was to be situated at a site no closer than 1300 Km from the first site. In addition, each site was limited to no more than 100 interceptor missiles and launchers. When the treaty was submitted to the US Senate for ratification it passed quickly 88-2.

The Interim Agreement on Offensive Missiles, while not a treaty, was required to be submitted to the US Congress for approval according to a 1961 law which established the Arms Control and Disarmament Agency. Considerable discussion was held prior to voting on the bill. The key argument of the critics was that the agreement provided the USSR with 50% more ICBM's than the US (1618 vs 1054) and a 4:1 superiority in deliverable payload (assuming only ICBM's and SLBM's

were counted). Supporters of the agreement were quick to point out that the US possessed four times as many long-range strategic bombers, and when this fact was considered, both powers possessed roughly equal deliverable payloads. Also the US nuclear arsenal contained considerably more warheads than the USSR.

Agreement was reached in May, 1972. However, public comments and official debates raged on regarding who won or lost on the agreement. President Nixon, in briefing a number of Congressional leaders stated that "...neither side won nor lost by the agreement, rather both sides won and the whole world won."<sup>35</sup> Nixon and Kissinger felt that SALT I marked a mutual step by the US and USSR towards increased strategic stability and a significant improvement in Soviet-American relations.

Secretary of Defense Melvin Laird viewed the SALT I Agreement in the light of "putting the brakes on Soviet strategic force momentum and allowing the US to maintain a strong strategic position."<sup>36</sup> However, despite this support of the agreement both he and Thomas Moorer, Chairman of the Joint Chiefs of Staff, urged the Nixon administration to support the development of new strategic weapons systems.

Senator Henry Jackson, Admiral Elmo Zumwalt Jr. and Paul Nitze together criticized the numerical advantages accorded the USSR by the SALT I agreement. They argued that quantitative advantages in missiles would be translated into effective political utility by the USSR. Essentially their fears arose from the fact that the USSR had large "throw-weight" missiles--SS-18s which could deliver 18-22 MT warheads

and were in the process of developing its own MIRV capability and would be expected to deploy them on their land-based and sea-based missiles.

Out of this heated discussion emerged an amendment to the Interim Agreement on Offensive Missiles put forth by Senator Henry Jackson. It stipulated that any future arms agreement should "not limit the US to levels of intercontinental strategic forces inferior to the limit for the USSR." When presented to the Senate the amendment was accepted by a 56-35 margin. In effect this put restrictions on negotiations of future SALT agreements.

Looking back it becomes clear that President Nixon and Henry Kissinger (Nixon's National Security Advisor and later Secretary of State) charted the negotiating path to be pursued by the US, as well as determining the shape and variety of options to be put forth. Together they controlled the SALT process. Such a situation resulted in considerable in-fighting among the many interest groups involved i.e. the State Department, the Pentagon, ACDA, the Joint Chiefs of Staff and many others.

Henry Kissinger, in his memoirs, makes an interesting comment regarding the Soviet role in the SALT negotiations:

...experience has shown that the Soviet bureaucracy may be structurally incapable of originating a creative SALT position. If Dobrynin was to be believed, each Soviet department was confined to issues in its jurisdiction. Thus the Foreign Ministry was not entitled to a view of strategic programs, which were within the competence of the Defense Ministry. Allegedly, the Defense Ministry could not comment on diplomatic proposals...In this view overall goals emerge from the Politburo or perhaps the General Secretary's personal office. This, Dobrynin claimed, was easier to do in response to an American proposal than as a Soviet initiative; the Soviet bureaucracy is apparently no exception to

the rule that no one likes to volunteer for the role of having proposed a concession. Thus Soviet proposals tend to be formalistic and outrageously one sided. I know no instance in which a breakthrough did not result from an American initiative. 37

As mentioned earlier, trying to achieve a strategic balance was far more difficult than what appears as a simple mathematical exercise. Both sides had separate views on what constituted a balance as well as very different asymmetries in the makeup of their respective nuclear strategic deterrents. Some of the complexities of the SALT negotiations which made reaching a quick solution are outlined by Kissinger. He notes that:

Once the numbers game had started, even equal aggregates became controversial--in spite of the fact that we were far from achieving them. Our missiles were smaller, hence they carried fewer warheads. Pentagon analysts thus came up with a new definition of equivalence: equal throw-weight. (All this was in the absence of any American program to correct the deficiencies.) Throw-weight, too was a largely theoretical measurement depending, for its impact, entirely on where it was set. If the throw-weight ceiling was at our level, the Soviets would either have to reduce their existing strategic force to something like a fifth of ours or else tear it down and rebuild it in our image--a highly improbable outcome of SALT. If it was set at the higher, Soviet, level, it would be meaningful only if we dismantled our force and rebuilt it in the Soviet image. Or else we could double the number of our Minutemen, achieving something like a two-to-one advantage. 38

In retrospect, as mentioned earlier, the MIRV technology was developed primarily to offset the Soviet's possession of an ABM system. Once SALT agreed to only two sites for both countries (both later abandoned by the US) its relevance became questionable. However, once the genie was out of the bottle it became clear quickly that both would develop and deploy MIRV'ed missiles. The enormity of the

instability that MIRV would create, and did create, particularly in increasing overall nuclear warhead numbers, began to be realized on both sides very shortly after the SALT I agreement was signed. Henry Kissinger was reported to have said that not removing the MIRV concept when it was still possible (during the SALT I negotiations) was a grave error. He alluded to this fact in 1974 (when both the US and USSR had deployed MIRV'd missiles), he stated:

My own view was that limiting Soviet MIRV's was paramount and that there could be no harm in accepting by agreement the ceilings that the Pentagon had established in its own published five year projections and had no plans to exceed (and indeed, given the Congressional mood, would be lucky to reach). This meant in practice that I favored extending the 1972 Interim Agreement for a few years--with its disparity in numbers of total missile launchers--provided the Soviets accepted a reciprocal inequality in numbers of land-based ICBM's with MIRV's.

39

Clearly, by 1974, many people in the Nixon administration were questioning the value of SALT in terms of limiting nuclear weapons. The public at large had every reason to feel perplexed. The SALT agreement was supposed to control or reduce the nuclear threat instead the weapons stockpiles were growing. Clearly, it had lost most of its glitter. Upon reflection of SALT I in 1974 Henry Kissinger noted that:

SALT turned into an end in itself; for its opponents, it was a danger to be combatted at any cost. SALT was no longer a part of a broader, coherent security policy or an overall strategy. Thrust upon itself, it became an orphan and a victim, ground down between a liberal idealism unrelated to a concept of power and a conservative dogmatism unleavened by a sense of proportion or strategy.

40

It is also interesting to note that the SALT I negotiations were the only set of major East-West talks which took place without

significant European participation and input. Such a situation could only make the Europeans feel even more dependent on the US nuclear umbrella to defend their security since SALT I appeared to address solely US-USSR security and defense problems.

#### D. THE SALT II NEGOTIATIONS (1972-1979)

When the SALT I agreements finally concluded at the Moscow summit talks in May 1972, the Nixon administration

...implicitly endorsed the conclusion or assumption that through SALT--especially in the ABM Treaty--US-Soviet strategic doctrines had converged in stressing and acknowledging the importance of preserving mutual confidence in the survivability and efficacy of retaliatory deterrent forces. 41

The second phase of the Strategic Arms Limitation Talks began November 21, 1972 in Geneva, where all future negotiations were to be held. Whereas SALT I imposed quantitative limitation on weapons, the major thrust of the SALT II talks was to reach agreement on qualitative measures for arms control. Unquestionably, most experts are in agreement that this is the most difficult to achieve. The key problem here is one of verification. While SAMOS satellites can easily verify the number of missile launchers, they are unable, however, given present technology, to determine whether missiles are fitted with single, MRV or MIRV warheads. Once again this illustrates the importance of 'on-site' verification which the Soviets, to date, have steadfastly refused to accept.

In June 1973, Presidents Nixon and Brezhnev signed an agreement on the prevention of nuclear war as well as a communique pledging the

two sides to reach a SALT II agreement within the year. However, before this could be accomplished the Watergate scandal in the US had forced the resignation of President Nixon on August 8, 1974.

In the early years after the signing of SALT I, the nuclear strategic environment on both sides implied that the "spirit" or intent of SALT I was being quickly eroded. The US was faced with the problem of contending with the USSR MIRV'ing all of their land-based missiles with new improved warheads with greater accuracy. Should such a scenario occur, US nuclear strategists foresaw all of the land-based ICBM's in the US being at risk in the early 1980's.

By 1973, as Kissinger notes, the US was well aware of an ambitious on-going missile development plan in the USSR. It included three new missiles (they referred to them as "modernized models (SALT I did not prevent the modernization of existing ICBM's provided the dimensions of the silo were not increased by more than 15%). They were:

1. The SS-17 "light" ICBM (replacement for the SS-11)--to carry 3-4 warheads.
2. The huge SS-18 (replacement for the SS-9)--to carry 8 warheads.
3. The SS-19 (hot-launch) considered to be the most formidable of the new weapons. It was smaller than the SS-18 but its overall characteristics put it in the "heavy" missile class which the Soviets were limited to 308 by SALT I. 42

The USSR also developed a new supersonic strategic bomber, the Backfire, with a range of 5500 miles (with mid-air refuelling) which then could attack most US targets. If based in Cuba, only 90 miles

from the US mainland, it could also strike, with ease, the entire US mainland.

However, it was not only the Soviets who were developing and deploying new nuclear strategic weapons and weapons systems.

The US was developing a sophisticated new warhead--the Manoeuvrable Re-Entry Vehicle (MARV) which was designed not only to be independently targetable (like MIRV) but also to maneuver in the last stage of its re-entry. Additional weapons systems either under development, testing or deployment were:

- The MX ICBM
- The single warhead (Mobile) Midgetman ICBM.
- A new air-launched ICBM
- A new class of long-range cruise missiles.
- A new supersonic bomber, the B-1 (long-range)
- A ATB or stealth bomber (virtually impervious to radar detection)
- A new class of submarines--the TRIDENT (with its extremely accurate TRIDENT 11-D-5 SLBM)

However, the one new weapons system that caused the most controversy during the SALT II negotiations was the cruise missile, which the US was in the advanced stages of developing and testing. It unquestionably was destabilizing as far as concluding an arms control agreement. The cruise missile is subsonic, long-range, highly accurate, difficult to detect by radar and virtually impossible to verify, i.e. one model was designed to fit in a submarine torpedo tube. The Soviets, then lagging behind in cruise missile technology reacted by calling for the US to count any cruise missiles deployed against its limit of 2400 strategic vehicles. The US, as expected, vetoed the demand.

Kissinger concluded by all this that:

the Soviets were using the quantitative freeze to engage in a qualitative race. It was now mathematically predictable he pointed out in 1974 that by the middle Eighties at the latest our Minuteman land-based missile force would be vulnerable to a Soviet strike.

43

To accomplish this, the Soviets would have to MIRV all or most of their land-based ICBM's.

Vice-President Gerald R. Ford became President upon the resignation of President R.M. Nixon and called for the SALT II negotiations to continue in hopes of achieving a long-term agreement. The relative positions of the two sides still differed widely on a number of fundamental issues. Primarily these were:

- . Limits on Soviet heavy missiles, for which there were no US counterparts
- . The existence of US and NATO forward based systems, for which there were no Soviet counterparts
- . MIRV's

In October, 1974 Presidents Ford and Brezhnev met at Vladivostok in the USSR and signed an Agreement In Principle, which was not legally binding, but which was intended to be a statement of goals towards which both sides would vigorously strive for (see Table 7:4 which outlines the key points of the agreement and its overall effects).

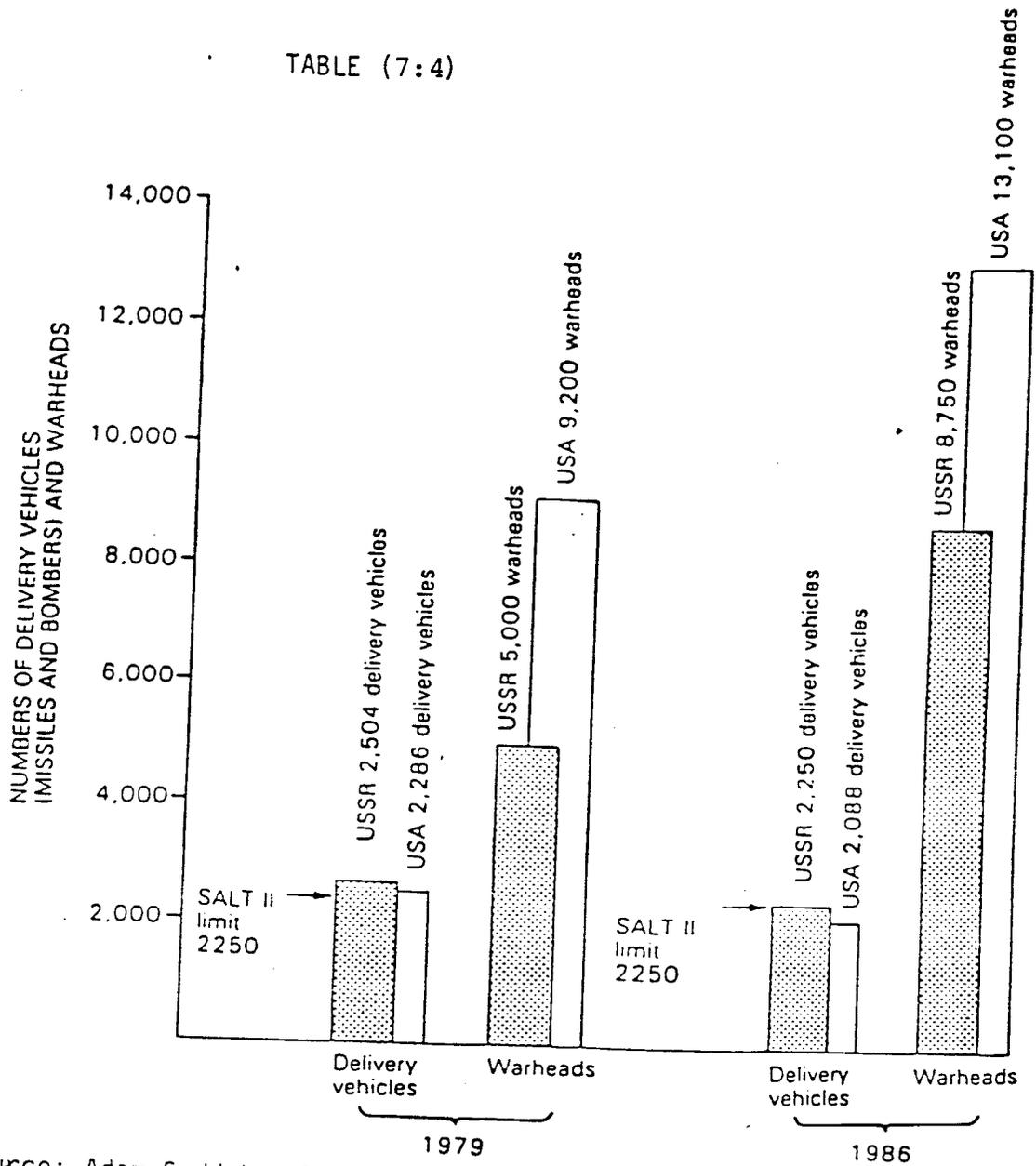
These significant differences were resolved in principle at a meeting in Vladivostok between Presidents Ford and Brezhnev in November 1974. There, both leaders agreed to a strategic offensive arms treaty, which was to last for ten years and which contained the following agreements:

- . Equal aggregate limits of 2400 on strategic nuclear delivery systems (ICBM and SLBM launchers and heavy bombers)

THE EFFECTS OF THE 1979 SALT II TREATY

Under the terms of the SALT II Treaty, the United States was to dismantle 33 bombers or missiles, and the Soviet Union some 254. However, in spite of this, there is likely to be a significant increase in the number of nuclear warheads deployed by both sides. This is because of the disappointingly high numbers of missiles which are 'allowed' to be MIRVed. As a result, the numbers of warheads in the American and Soviet nuclear arsenals are expected to increase by roughly 50 to 70% by 1985. Furthermore, since there are no significant 'qualitative' restrictions, both sides are 'allowed' to continue improving the accuracy and explosive yield of the warheads on their current missiles, thereby greatly improving their lethality.

TABLE (7:4)



Source: Adam Suddaby, The Nuclear War Game, (London: Longman, 1983), p.

- . Equal aggregate limits of 1320 on MIRV'ed systems
- . A continuation of the ban on construction of new land-based ICBM launchers (which de facto implied a ban on additional Soviet heavy ICBM's)
- . Limits on the deployment of new types of strategic offensive arms
- . Incorporation of the elements of the Interim Agreement on verification
- . Inclusion of mobile ICBM's and air-launched strategic missiles with the overall ceiling

In essence, the US had withdrawn its demand for reductions in Soviet heavy missiles in exchange for a Soviet withdrawal of its demand for inclusion or compensation for US and NATO forward based systems.

44  
With the resumption of negotiations in Geneva in early 1975, it was readily apparent that both the US and the USSR disagreed on two major issues which had not been resolved at Vladivostok. These were:

- . Whether cruise missiles, which the US planned to use in large numbers as armaments on its B-52 heavy bombers were to be treated as individual weapons or be included in the overall aggregate totals.
- . Whether the new Soviet Backfire bomber should be considered a heavy bomber and counted in the 2400 aggregate totals.

These issues were never settled during the Ford Administration.

Once again, public and congressional debate over the pros and cons of the new agreement raged throughout the US. Neither proponents nor opponents were satisfied. Senator Jackson again led the opponents. He argued vociferously that the Soviets would be able to threaten the survivability of the American ICBM force if they chose to MIRV 1300 strategic vehicles allowed under the terms of the agreement.

Senator Jackson's argument further illustrates how the technology factor, which never remains static, affects the arms control process. It can result in an arms control agreement being both desirable and feasible at one point in time and quickly changing due to a technological breakthrough such as the MIRV and the cruise missile concepts. This appears to have been the situation which occurred after the Vladivostok accord was agreed to. After the signing of the SALT I agreement, both the US and USSR developed, tested and began deploying several new and improved weapons systems.

Jimmy Carter, upon being elected President of the United States, called for a continuation of the SALT negotiations with hopes of a speedy conclusion. As time wore on, President Carter expanded his crusade to eliminate human rights abuses taking place in the USSR. The Soviets, by this time, had already totally refused to even consider linkage (as earlier propounded by Nixon and Kissinger) to provoke concessions or agreements from them, particularly on issues like human rights, which they considered to be internal issues which, they felt, did not concern the US.

On the political scene a number of former policy makers including Paul Nitze, Daniel Graham, Fred Ikle and George Keegan argued that the Soviets were using the SALT agreements to achieve nuclear superiority over the US. To redress this situation they called for the deployment of the B-1 bomber and the MX missile system as soon as possible. Carter's reaction indicated that he was unconvinced of the new Soviet threat. So on July 1, 1977, he cancelled the B-1 bomber

program due to its excessive costs and proposed developing and deploying ALCMs on the B-52 and FB-111 bombers.

President Carter then sent his Secretary of State, Cyrus Vance, to Moscow in March, 1977, with two proposals for arms control. One was a "deferral option" encompassing the agreed broad elements (ceiling and subceiling) of the Vladivostok accord but deferring for the time being attempts to solve the issues related to the Backfire Bomber, cruise missiles, and mobile ICBM's. The Carter administration strongly endorsed the "comprehensive" proposal. Unlike the Vladivostok accord the comprehensive proposal of 1977 was intended to have a major impact on the structure of each side's strategic nuclear forces. It called for:

- . Major reductions in the overall aggregate ceiling on strategic nuclear vehicles (2400 to 1800-2000)
- . Reduction in Soviet modern large ballistic missiles (800 to 300 to 150)
- . A sub-ceiling of 550 MIRV'ed ICBM's
- . A sharp limit on flight testing (to 6 per year) of ICBM's
- . A ban on the development, testing, and deployment of new types of ICBM's as well as mobile ICBM's 45

It was felt by Secretary of Defense Harold Brown that such limitations would deal with a key source of instability i.e. ICBM improvements and he saw ultimately that "deterrence could then be achieved with higher confidence, fewer forces more stability and probably lower costs...arms control, thus can make defense planning more effective and efficient in reaching national objectives." <sup>46</sup> The second proposal put forth by the Carter administration was referred to

as a Fall-Back Position--along the lines of the Vladivostok accords.  
It called for:

- . Deferring the Backfire and cruise missile issue until SALT III. Initially the Soviet Union angrily rejected both proposals as being inconsistent with its understanding of the Vladivostok Accord.

Finally, after almost seven years of hard bargaining an agreement was reached that accommodated both the Soviet's desire to retain the Vladivostok framework and the US desire for more comprehensive and detailed limits in SALT II. This agreement was signed by Presidents Carter and Brezhnev in Vienna on June 18, 1979. It was composed of:

- . A TREATY that would be in force through 1985
- . A Protocol which would last three years and which dealt temporarily with certain unresolved issues to be considered further in SALT III
- . A Joint Statement Of Principles that set guidelines for the SALT III negotiations

In addition there were separate statements which were associated with the SALT II Treaty that placed quantitative and qualitative limits on the Soviet Backfire bomber. The Treaty also established a framework of equal ceilings and subceilings and qualitative constraints within which the strategic systems would evolve and future reductions could take place. <sup>47</sup> The Treaty was designed to remain in force until the end of 1985.

Part two of the agreement was a protocol designed to remain in effect throughout 1981 and called for:

- 1) The prohibition of flight testing and the deployment of ICBM's from mobile launch platforms.

This provision was sought by the US to keep the USSR from deploying the SS-16

- 2) The prohibition of the deployment of land-based or sea-based long-range cruise missiles with a range of more than 600Km
- 3) A ban on the testing and deployment of air-to-surface missiles.

Part three of the agreement consisted of a joint statement of principles for the SALT II negotiations:

- Both parties agreed to pursue further negotiations concerning additional quantitative and qualitative limitations to resolve issues covered by the protocol and to bring up any other relevant topic that they wished
- The USSR agreed to build only 30 Backfire bombers per year and to limit the upgrading of its capabilities

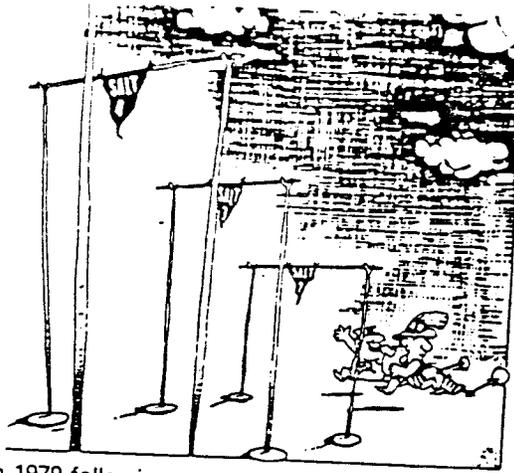
48

It was felt by the US State Department that even though these limitations were not included in the treaty that they did have the same legal force as the rest of the SALT II agreement. Consequently, should the USSR choose to violate these understandings, then the US felt it could withdraw from the treaty. (See Table 7:5 for a summary of the effects on the 1979 SALT II agreement.)

Even before the ink was dry on the documents and Presidents Carter and Brezhnev had an opportunity to sign them, heated discussion broke out both in Congress and among concerned interest groups. President Carter outlined the administration's position in an address he gave in February, 1979, at the Georgia Institute of Technology, saying in part:

...Because this carefully negotiated and responsible arms control agreement will make the world safer and more secure, it is in our national interest to pursue it even as we continue competition with the Soviet Union elsewhere in the world.

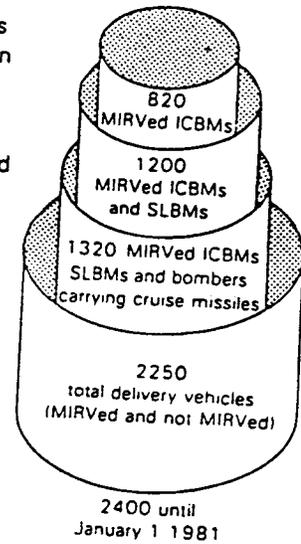
49



# The SALT II Treaty

The SALT II Treaty was eventually signed in 1979 following many years of negotiations. Its principal features were as follows.

1. Initially, both sides were to be limited to an aggregate ceiling of 2,400 ICBMs, SLBMs and heavy bombers. This ceiling was to be lowered to 2,250 on 1 January 1981.
2. No more than an aggregate total of 1,320 MIRVed ICBMs and SLBMs and bombers fitted to carry cruise missiles were to be deployed by either side. Of these, no more than 1,200 could be MIRVed ICBMs and SLBMs. MIRVed ICBMs were limited to 820.
3. In addition, there were limits to the number of MIRVed warheads on ICBMs and SLBMs (high in both cases) and to the numbers of cruise missiles which could be carried by heavy bombers. There were also to be ceilings on the throw-weight and launch-weight of ICBMs.
4. Finally, the Treaty instituted a ban on the testing and deployment (but not the development) of new ICBMs – with one exception on each side, and bans on various heavy ICBMs, ASBMs (air-launched ballistic missiles), the launching of ballistic missiles from surface ships, the sea bed or internal waters and systems for delivering nuclear weapons from the earth's orbit. All these measures were to be verified by 'national technical means' which meant by satellite reconnaissance and surveillance, and by other means.



The more important ceilings instituted by SALT II are shown below, alongside the actual strategic nuclear strengths of the USA and USSR at the time of signing in 1979. In addition, there are included estimates of projected nuclear forces in 1986.

**SALT II and its effects**

TABLE (7:5)

	FORCE LEVELS IN 1979		MAXIMUM LEVELS PERMITTED BY SALT II		POSSIBLE FORCE LEVELS IN 1986	
	USA	USSR			USA	USSR
MIRVED ICBMS	550	608	820	1,200	550	820
MIRVED SLBMS	496	144			640	380
BOMBERS CARRYING CRUISE MISSILES	—	—		1,320	120	—
UNMIRVED ICBMS	504	790			502	380
UNMIRVED SLBMS	160	806		2,250	—	570
OTHER STRATEGIC BOMBERS	573	156			225	100
TOTAL DELIVERY VEHICLES	2,283	2,504			2,037	2,250
TOTAL WARHEADS	9,200	5,000			13 100	8,750

(Adapted from Smith, D. *The Defence of the Realm in the 1980s*. Croom Helm, 1980, p 220)

Source: Adam Suddaby, *The Nuclear War Game*, (London: Longman, 1983), p. 81.

His support for the SALT II agreement was based on the following points. SALT II he said would:

- 1) Establish limits on building new types of weapons and the improvement of existing strategic arms.
- 2) Set equal ceilings on all major intercontinental strategic nuclear delivery systems.
- 3) Impose an upper limit on the number of warheads that would be placed on ICBM's and SLBM's.
- 4) Limit expansion of the arms race.
- 5) Place significant limits on programs that the Soviet Union might, in the absence of SALT II, develop.
- 6) Require the reduction of approximately 250 Soviet missiles or bombers.
- 7) Forbid any interference with efforts to verify compliance with the agreement.
- 8) Continue the process of improving relations with the Soviet Union.
- 9) Enable the US to save as much as \$30 billion over the next decade.

50

Two significant groups in the US opposing ratification of the SALT II accords were quite vocal. The arch-conservative group basically viewed SALT II as a treaty giving the USSR asymmetrical advantages in strategic military forces which, they argued, US allies could interpret as US military weakness. Eugene Rostow, in his capacity as Chairman of the Executive Committee of the Committee on the Present Danger, (one of the principal groups opposed to SALT II) argued:

There is no case...for SALT II as a step toward peace. The record is clear that the first SALT I agreement on the limitations of offensive strategic weapons contributed to an intensification, not a lessening, of tensions between the US and the USSR

throughout the world. The rapid Soviet buildup of new and advanced strategic weapons under the SALT I agreement gave rise to charges of 'deception', 'breach of faith' and indeed 'breach of agreement'...There is no reason to believe that the process of continued negotiations with the Soviet Union could change this pattern. 51

Rostow's views typified very much the basic feelings of conservative critics in general. They harboured a deep-seated mistrust of the Soviets and in particular their sincerity in adhering to the specifics of the SALT-I and II agreements. They also perceived that a nuclear strategic imbalance already existed and SALT II would exacerbate it. Their criticism of the SALT II agreement was based primarily on the following points which they felt would affect the US-USSR nuclear strategic balance;

1. It would grant the Soviet Union important military advantages.
2. Restrict the development of significant US strategic arms designed to rectify the American-Soviet imbalance.
3. Fail to bring about substantial military savings for the United States.
4. Reduce the stability of the strategic nuclear balance.
5. Not be verifiable.
6. Increase the Soviet drive for expansionism.
7. Mark a significant decline in American power. 52

Paul Nitze was particularly concerned by the provision providing the USSR with a numerical advantage in modern large ballistic missiles (MLBM's). He noted that:

The Soviets are building some 300 very large missiles with seven times the power of our Minuteman III, our largest MIRV'd missile. As the treaty has worked out, the Soviet Union is permitted 300 of them. We are permitted none. 53

Opponents of the MLBM's argued that the Soviet arsenal of their MLBM's could eliminate in excess of 90% of the US land based missile force in one blow.

Another group of opponents included Senators McGovern, Proxmire and Hatfield who questioned its utility since it did little to curb the arms race. Senator McGovern, in voicing his objection, concluded that:

...the design of this treaty is not to achieve the best arms control framework, rather our diplomats have been told to negotiate around and protect the Pentagon's wish list for a whole new crop of strategic weapons.

54

At the end of 1979, while the debate over the efficacy of the SALT II treaty went on, the Soviet Union invaded Afghanistan. President Carter in response asked the Senate to delay, indefinitely, consideration of the agreement.

Ronald Reagan, during his 1980 campaign for the Presidency claimed that the SALT II treaty was "fatally flawed" and that it "legitimized the arms race". He went on to warn the American public of the slippage in overall nuclear strategic capability vis-à-vis the USSR, which had occurred he argued during previous administrations, in particular President Carter's. He called for massive defense spending to redress the situation. His objective for all intents and purposes appeared to be one of quickly building up US defenses to close the nuclear strategic gap that he perceived to exist between itself and the USSR. During this period, Reagan argued that until this buildup in defenses was well underway, nuclear arms control would be a matter of keeping up appearances limiting damage, of buying time and of laying the ground for possible agreement later.

However, President Reagan must achieve or at least seem genuinely committed to achieving a synthesis in what Alton Frye calls "the dialectic of hope and fear" that drives the quest for national security. Without such a synthesis Talbot argues:

...a dovish administration is almost sure to find its arms-control policies in political jeopardy while a hawkish one will discover its military programs in trouble both on the home front and on what should be the friendly territory of the Alliance. 55

The Reagan administration's posture toward arms-control has been difficult to pin down precisely. Its degree of sincerity and commitment must be questioned based on its actions to date.

The significant influence of the Committee On The Present Danger, and its philosophy, on the Reagan administration should not be underestimated, when an attempt is made to comprehend the vitriolic nature of President Reagan's anti-Soviet rhetoric. A deeper understanding of the Committee's intentions and ideals and how deeply they have become entrenched in the Reagan administration, helps to put the administration's real intentions, regarding nuclear arms control, in perspective.

E. The Influence On US Arms Control Thinking By The Committee On The Present Danger

The Committee On The Present Danger (CPD) was founded in March 1976 by James Schlesinger, Eugene Rostow, and Paul Nitze, all dedicated hawks regarding arms control and any US-USSR accommodation as anathema to one another. The key leaders were Nitze and Rostow. The stated purpose of the CPD was to make recommendations that apply to American nuclear arms levels vis-a-vis the USSR. CPD writings argue that:

The principal threat to our nation, to world peace and to the cause of human freedom is the Soviet drive for dominance based upon an unparalleled military buildup...The Soviet Union has not altered its long-held goal of a world dominated from a single centre - Moscow.

56

The members cite the fact that there is a crucial moral difference between the superpowers with America considered superior because of its support for widespread freedom. The ultimate goal of the USSR is seen to be the worldwide triumph of communism. They visualize a Soviet grand strategy, backed by the Soviet's military might ready to take over the free world. Militarily they concede first place to the Soviets, in most areas of nuclear strategic weapons systems, and threatening to exceed US superiority in others. Lewis Rothlein points out:

What makes the CPD newsworthy is that one of its members, Ronald Reagan, became president of the United States, and at least 60 others have been appointed to his administration.

57

"The organization strives to be independent of political influences so Ronald Reagan took what he called 'an involuntary leave of absence' when he became president. Until that point he was an active member (as was his Vice-President George Bush). As Dr. Helen Caldicott points out:

Many of the people on the Committee On the Present Danger were transferred into the Reagan administration after his election. They were all strident critics of SALT II and they debated this agreement.

59

The following list of members and their close association either within or outside of the Reagan administration clearly illustrates how the CPD's goals and ideals ultimately would play an important role in the

Reagan administration's policies with regard to US-Soviet relations and arms control. Some of the more important members were:

- Henry Fowler, former Secretary of the Treasury under President Johnson
- Lane Kirkland, President of the AFL-CIO
- David Packard, former Deputy Secretary of Defense under Nixon
- Paul Nitze, negotiator for intermediate nuclear forces in Europe
- Eugene Rostow, former head of the Arms Control and Disarmament Agency
- Richard Allen, former National Security Adviser to President Reagan
- Richard Pipes, former adviser on Soviet Affairs to President Reagan
- Jeffrey Kemp of the National Security Council
- Fred Iklè, Under Secretary of Defense for policy
- Richard Perle, Assistant Secretary of Defence for International Security Policy
- William Casey, head of the CIA
- John Lehman, Secretary of the Navy
- Jeane Kirkpatrick, Ambassador to the United Nations
- Colin Gray, Arms Control Agency Advisory Committee
- George Schultz, Secretary of State, and a founding member of the Committee On the Present Danger
- W. Allen Wallis, top assistant to Secretary Schultz.

60

With all of the above people sharing many of the same views, their influence on President Reagan, and his policies, must be considered persuasive. Oddly enough, as tough as President Reagan has presented his views regarding US-Soviet relations, the CPD feels that

he has not been tough enough. Again, Rothlein, citing CPD writings notes:

'If the United States remains No. 2, it will face increasing Soviet pressures backed by military superiority. US survival would be in jeopardy and the nation would face a series of unacceptable choices between defeat and submission.'

61

With reference to the subject of nuclear arms talks the CPD so states that it believes:

the Soviet objective has been to extend its gains... while encouraging maximum restraint upon U.S. programs.

62

The CPD looks upon the US as entering such talks with fairness in mind, but that revolutionary purposes guide the Russians. To achieve their goals, the Soviets will go to any lengths, including cheating on treaties, given the opportunity. Consequently, incontrovertible verifiable compliance to such treaties is considered to be the bottom line in any such negotiations.

The importance of what has just been pointed out concerns the fact that a great many past and present active CPD members, who as recently as 1980 supported these tenets, are now officials in the Reagan administration. In addition, it tends to make even more relevant the cynical conclusion drawn by Strobe Talbot in his book Deadly Gambits: The Reagan Administration and the Stalemate in Nuclear Arms Control concerning the seriousness of the Reagan administration in concluding a significant nuclear arms reduction agreement. As Talbot notes:

The new U.S. leadership (Reagan) was determined to change not just the name of the game in nuclear arms control (from SALT to INF and START) but the rules and objectives as well. For three years, the Reagan

administration attempted to redefine both what was possible and what was desirable in arms control. Some officials questioned the desirability of any agreement that entailed accommodation with America's principal adversary and limitation of America's military options. If forced to keep up the appearance of playing the old arms-control game, they believed, the U.S. might more freely acquire and deploy new pieces on its side of the board and position itself, if necessary, to make winning military moves against the Soviet Union.

63

The belief that the US had slipped militarily into second spot behind the Soviets played a significant role in the US posture towards any nuclear arms control talks. Talbot makes another significant point in noting that:

In every administration since Kennedy's American military planners and political leaders have worried about the loss of superiority by the U.S., the achievement of equality, or parity, by the Soviet Union, and the danger that unless the U.S. improved its defenses the Soviets would pull ahead in the future.

64

President Reagan set the tone of his administration's position regarding arms control at a news conference in March, 1982 in which he stated "'The truth of the matter is that on balance the Soviet Union does have a definite margin of superiority.'"

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President Reagan viewed the previous SALT rounds of negotiations as significant factors in contributing to American military inferiority and felt that if that trend continued it would result in the US being permanently locked into second place. Because of this intolerable situation Reagan set out on a course designed to redress the nuclear imbalance and suspend bilateral negotiations until it was completed. It was felt that only when the US had achieved equality of a "margin of safety" could nuclear arms control talks

resume with the Soviets. Reagan was determined to negotiate from a position of strength. However, Strobe Talbott presents a disturbing observation about how the Reagan administration approached the serious issue of Soviet-US nuclear arms control negotiations. He notes:

...as they sought to practice the art of the possible, they were less certain of what they would settle for; their instincts differed, and their lack of experience showed. They relied to an unprecedented extent on lower levels of the government. That is why this book is largely the story of bureaucratic battles at the second, third, and even fourth echelons of government. That is where policy was made, unmade, and remade. 66

It was from these lower echelons that Richard Perle, Assistant Secretary of Defense for International Security Affairs (ISA) emerged. For it was Reagan who saw to it that ISA was expanded, reorganized, and renamed with Richard Perle at the helm. He now became the Assistant Secretary of Defense for International Security Policy (ISP).

As Talbot notes, as a result of the above changes:

Perle ended up having more impact on policy in arms control than any other official in the U.S. government, an achievement that was all the more remarkable in that he held a third-echelon job. Part of his success was that he was as personally charming, intellectually brilliant, and politically well connected as he was ideologically self-assured and therefore unyielding...he was able to fill the partial vacuum of experience, expertise, and interest in arms control that existed at the highest levels of the government, including on the part of his ultimate superior, Reagan, and his immediate superior, Defense Secretary Weinberger. 67

Perle, unquestionably, had the admiration and support of President Reagan and other key administration members on the issue of arms control and in what direction they should be headed.

His principal opponent in the bureaucracy was Richard Burt, a defense intellectual who earlier covered national security affairs for The New York Times. Alexander Haig, Secretary of State put him in charge of the Bureau of Politico-Military Affairs or PM--the State Department's own in-house mini-Pentagon. Like Perle, he was equally ambitious, and sought to gain control over the Interagency Groups or IG's, that were to guide the National Security Council on arms control. His approach to arms control was considerably more moderate than Perle's and based on utilizing a "back channel" to the Kremlin via the Soviet Ambassador to Washington. He, like Haig, preferred the Kissinger style of reaching an accommodation on nuclear arms control. The difference in styles is aptly summed up by Talbot who points out that:

While Burt made it his goal to reestablish the close linkage between arms control and defense, Perle was determined to separate arms control from the vicissitudes of American domestic politics and to postpone further agreements with U.S.S.R. until the US had greatly improved its leverage by dint of a unilateral buildup. He and like minded officials he once remarked were going 'to teach the nation a lesson in the virtues of supply-side arms control.'

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His views regarding arms control fit neatly into the set of principles and ideals expounded upon by the Committee On The present Danger and they were shared equally by President Reagan. Despite all this, President Reagan carried on as if his administration was deadly serious about achieving a significant nuclear arms reduction agreement.

Despite the advice of his Secretary of State Alexander Haig, that the US would be worse off militarily if the constraints on Soviet

missiles in SALT II were relaxed; Reagan's only response was to declare that the US would not contravene the terms of agreement covered under SALT II, if the Soviets so responded. It was hoped that this stop-gap measure would hold in place until the US could increase its defenses to match a perceived Soviet superiority. Then it was felt, they would be in a position to negotiate a significant arms reduction agreement. Central to this plan was the securing of funds from Congress to finance development and deployment of the MX missile system and the B-1 bomber plus an assortment of other nuclear weapons systems.

The SALT II agreement, though not ratified by the US Senate, was, as mentioned, mutually agreed upon to be adhered to by both sides. However, arms buildups on both sides quickly began to erode this understanding. The US began deployment of GLCM's in Western Europe while the Soviets began utilizing telemetry codes when testing new ICBM's and SLBM's, again contravening the mutual understanding. In addition, the USSR began developing two new types of ICBM's, (SS x 24, and the SS-x-25) while only one was allowed, and, most serious to the US, was the construction of a large phased-array radar facility in Central Siberia (Krasnoyarsk) which contravened the SALT I agreement limiting such ABM defenses.

Public concern was growing about the sincerity of the Reagan administration to conclude a nuclear arms limitation agreement. The situation was not helped by some high government officials--Secretary of Defense Caspar Weinberger--who, in particular, openly discussed the possibility of conducting a limited nuclear war and prevailing.

#### F. THE US START PROPOSALS

In May, 1982, in hopes of reviving the stalled talks, President Reagan outlined his new proposal for Strategic Arms Reduction Talks (START) in an address at Eureka College. In order to understand the objectives of the proposals it is necessary, first, to examine the Reagan administration's assessment of the nuclear strategic situation in 1982. The START proposals were put forth based on the promise that the United States was strategically inferior to the Soviet Union. Consequently, the US argued that it must first restore the nuclear strategic balance as well as provide for a necessary margin of safety. Any nuclear arms control agreement therefore became dependent on either the US completing its military buildup to achieve "essential equivalence" or achieving this situation at lower levels through a restructuring of nuclear forces on both sides.

Supporters of President Reagan's view of the current nuclear strategic balance argued that the US began to lay behind the USSR during the 1970's when the United States exercised unilateral restraint in its nuclear strategic programs. They pointed out that once the \* programs for the Poseidon SLBM and Minuteman III ICBM were completed in the first half of the 1970's, the US cancelled or stretched out a series of new follow-on strategic programs:

- . The B-1A Bomber program was cancelled.
- . The cruise missile program was cut back.
- . Construction of the Ohio-class Trident SSBN's was delayed.
- . Deployment of the new MX ICBM was stretched out.

However, the Reagan administration argued that in contrast to the restraint it showed, the Soviets:

- . Introduced three new MIRVed ICBM's (SS-17, SS-18, and SS-19) which markedly increased the Soviets' throw-weight advantage.
- . Introduced 4 new SLBM's (the SS-N-8, SS-N-7, SS-N-18, and under development was the SS-NX-20).
- . Introduced three types of Delta-class SSBN's as well as the new large Typhoon SSBN.
- . Introduced the Backfire bomber; and had under development, the Blackjack bomber.

The overall results of this massive Soviet modernization program, both quantitative as well as qualitative, could only be viewed (as the Reagan Administration argued) as concrete evidence that the USSR had achieved nuclear strategic superiority over the United States. The Reagan Administration thus came to view itself to be in a dangerous nuclear strategic situation that could only be rectified by either unilateral rearmament or by a new approach to arms control.<sup>70</sup>

In outlining the US position regarding the START proposals President Reagan noted that negotiations should concentrate on the most destabilizing nuclear systems which it defined as ballistic missiles, especially those with MIRV's. The US rejected the SALT II Treaty since it felt that it did not contain real reductions nor did it sufficiently restrict certain Soviet systems such as the Backfire bomber and heavy missiles. In essence, the US START proposals concentrated on limiting specific areas of Soviet strength such as its ICBM's which the US viewed as the most threatening to deterrence. Bombers were not to be subject to the same restrictions as ballistic missiles because they are

not as destabilizing and they must penetrate Soviet air defenses. (See Table 7:6 for an outline of the effects on both the US and the USSR if the US START proposals were to be agreed upon.)

The START negotiations began in Geneva, Switzerland in June, 1982, and comprised five rounds of negotiations.

#### G. THE UNITED STATES START POSITION

##### Round 1 (June-July 1982)

A two-phased approach to negotiations was put forth. During phase 1 each side would reduce total ballistic missile RV's to 5000, of which no more than 2500 could be on ICEM's. Total missile launchers were not to exceed 850. During phase 2, direct and substantial reductions in Soviet missile throw-weight (currently 5.6 million kilograms) were proposed to result in a figure below the current US level (1.8 million kilograms).

##### Round 2 (October-November 1982)

Discussions not revealed.

##### Round 3 (February-March 1983)

A draft treaty was tabled on confidence building crisis management measures. It required both sides to provide prior notification of all missile test launchers, as well as any exercises involving more than 50 bombers in a 24 hour period and any significant increase in submarine activity at sea.

In addition, the US tabled what it referred to as the "basic

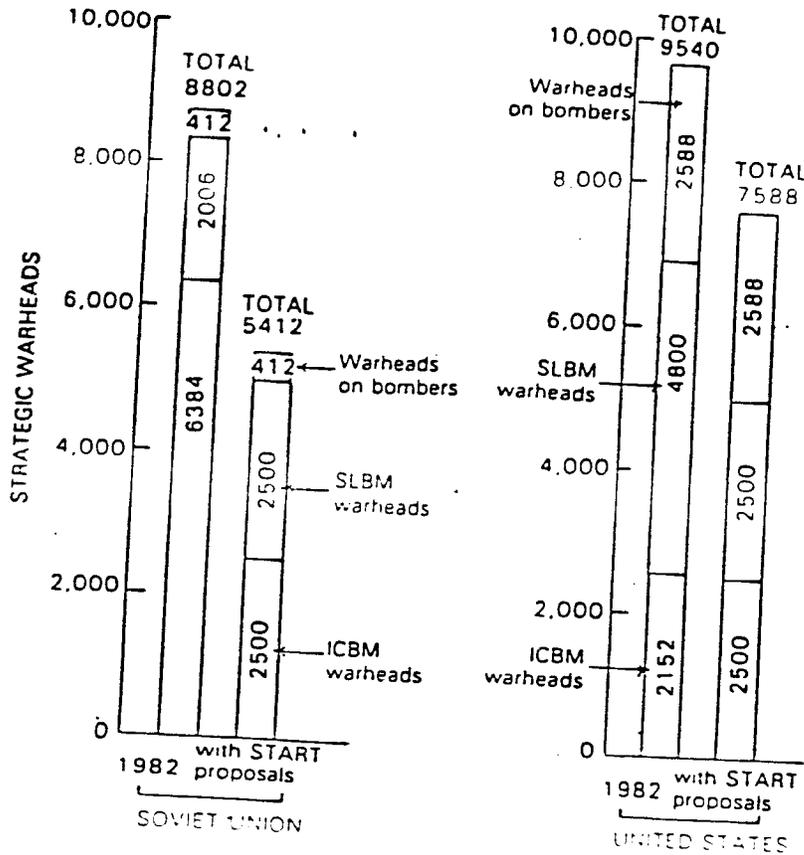
## PRESIDENT REAGAN'S START PROPOSALS

The President finally unveiled his specific proposals for START in a speech at Eureka College, Illinois in May 1982:

"The main threat to peace posed by nuclear weapons today is the growing instability of the nuclear balance. This is due to the increasingly destructive potential of the massive Soviet buildup in its ballistic missile force.

Therefore, our goal is to enhance deterrence and achieve stability through significant reductions in the most destabilizing nuclear systems, ballistic missiles and especially inter-continental ballistic missiles, while maintaining a nuclear capability sufficient to deter conflict, underwrite our national security and meet our commitment to allies and friends." *President Reagan, Commencement Address at Eureka College, Illinois, 9 May 1982.*

TABLE (7:6)



Numbers of strategic nuclear warheads in 1982 - and the effects of the START proposals. Source: Stockholm International Peace Research Institute. *World Armaments and Disarmament. SIPRI Yearbook 1982*, p. 269. Taylor and Francis Ltd, London.

He proposed a two part programme initially to:

... reduce significantly the most destabilizing systems - ballistic missiles - the numbers of warheads they carry, and their overall destructive potential.

At the end of the first phase of the START reductions, I expect ballistic missile warheads - the most serious threat we face - to be reduced to equal ceilings at least a third below current levels. To enhance stability, I would ask that no more than half of those warheads be land-based." *ibid.*

It was later made clear that the President had in mind that total ballistic missile warheads (on SLBMs and ICBMs) should be reduced on both sides to 5,000. Within this level, the President proposed a further limit of no more than 2,500 warheads on either SLBMs or ICBMs.

Source: Adam Suddaby, The Nuclear War Game, (London: Longman, 1983), p. 237.

elements" of a START agreement. Apart from what was outlined earlier, it added "collateral restraints" on Soviet MIRVed ICBM's and heavy missiles of 210 and 110 respectively. It also stated that cruise missile restrictions were open to discussion, but that all types of cruise missiles, not only long-range ones, were to be included.

#### Round 4 (June-July 1983)

The US tabled a draft treaty offering to drop the 850/2500/210/110 restrictions in favor of a direct throw-weight restriction on missiles of "x" million Kilograms which would have to be a "reasonable" number though not necessarily as low as the current US level of 1.8 million Kilograms.

The US offered to set the launcher limit between 850 and the Soviet proposal of 1200. In addition, each side would be restricted to 400 heavy bombers (including Bear, Bison and Backfire on the Soviet side and B-52 and B-1 on the US side but not the FB-111). Also, there was to be a ban on all telemetry encryption.

#### Round 5 (October-November 1983)

The US proposed the establishing of a working group to examine a new arms reduction formula known as "build-down." Essentially this plan called for the dismantling of existing missile warheads as new ones were introduced. Variable ratios were to be used depending on the specific type of weapon system being introduced. The first formula presented to the Soviets suggested the following ratios: 2:1 for MIRVed ICBM's, 3:2 for SLBM's, and 1:1 for single RV ICBM's. In

addition, the formula called for a 5% annual reduction in the aggregate of missile warheads until each side reached 5000.<sup>71</sup>

During this round of negotiations, no precise formula for incorporating bombers and cruise missiles was presented to the Soviets, although, the US did delineate how one could work. It would be based on a launch-platform instead of an aggregate weapon basin. The US did not prepare any systems for the "build-down" approach to affect its cruise missile deployments or SLBM's. It did, however, put forth a proposal for a second build-down in "destructive capacity" or throw-weight to take place concurrently with other weapons build-down proposals. The Soviets rejected the build-down proposal or any working group to study it.

#### H. THE USSR'S START POSITION

A look at the Soviet position with regard to the START proposals illustrates how far apart both sides were in determining not only whether negotiations were to proceed on the basis of nuclear strategic parity (the Soviet's contention) or US nuclear strategic inferiority (the US' position). The Soviet position clearly indicated that it was not prepared to explore entirely different approaches to arms control as set forth by the US. The USSR believed that any START agreement should be based on "equality and equal security" first, and negotiations should be a follow-on to what was achieved by the SALT I and SALT II agreements. The Soviets appear to feel comfortable only when negotiating within a structured framework such as that developed during the ten years negotiating SALT I and II. Consequently their

draft treaty indicated a close resemblance to the SALT II framework, though it did involve a 20-25% cut in SALT II limits and sub-ceilings. They exhibited their traditional suspicious reaction to the US proposals alleging that they had the intention of forcing deep cuts in their nuclear strategic forces and threatening to undermine the state of nuclear strategic parity that was codified by the SALT II treaty. The Soviet proposals indicated clearly that because of the asymmetries in both the US and the USSR's nuclear strategic arsenals and the relative importance that each attached to the various components of them, that the USSR's proposals diverged considerably from those put forth by the US.

#### Round 1 (June-July 1982)

The Soviets put forth some general principles of agreement. Some specific proposals made were: a three staged 25% reduction in the SALT II limits and sub-limits (see Round 3); a proposed freeze on new deployments; a limit of between 4-6 new submarines of the US Trident and Soviet Typhoon types; and a ban on all cruise missiles with ranges above 600 Km. Also proposed was a substantial reduction to equal levels of "nuclear changes" (i.e. nuclear weapons).

#### Round 2 (October-November 1982)

The USSR stated that its START proposal was contingent on no buildup of US forward based systems. It also proposed confidence building measures and a working group to examine such measures.

Round 3 (February-March 1983)

The Soviets proposed a draft treaty laying out all specific limits. The three phases were as follows:

Phase One

- . Reduction to 2250 delivery vehicles (ICBM's, SLBM's, and heavy bombers) by 1985.
- . Reduction to SALT II MIRV'ed sub-limits (aggregate of 1320 MIRVed missiles and bombers equipped for long range ALCM's, 1200 MIRVed missiles, and 820 MIRVed ICBM's) by 1985.

Phase Two

- . Reduction to 2000 delivery vehicles and 750 MIRVed ICBM's by 1987.

Phase Three

- . Reduction to 1800 delivery vehicles by 1989. There would be sub-limits of 1200 on MIRVed missile launchers and heavy bombers equipped to carry long-range ALCM's. In addition, there would be a limit of 1,080 of MIRVed missiles and a limit of 680 on MIRVed ICBM's.

Round 4 (June-July 1983)

The USSR elaborated on its draft treaty, dropped its limits on the Typhoon and Trident as well as a ban on ALCM's.

Round 5 (October-November 1983)

Nothing new was presented--the Soviets primarily reacted to US proposals and statements. It agreed to a working group on confidence-building measures which was to begin meeting shortly. <sup>72</sup>

Overall, the Soviet's reaction and reply to President Reagan's START proposals was negative. It called for the continuance of the SALT II process instead of approaching nuclear arms reduction from a fresh new angle. Soviet emphasis on reducing, somewhat, the ceilings

and sub-ceilings on various kinds of launchers or delivery systems was rejected by the US. Essentially, critics of the Soviet proposals emphasized the necessity to bear in mind the asymmetries of the two superpowers respective nuclear strategic arsenals when measuring the balance or imbalance that exists. For example, the Soviet Union has more ballistic missiles with larger payloads and more megatonnage. However, to offset this advantage the US has more warheads with greater accuracy and major advantages in the operating effectiveness of its submarine and bomber forces. These facts alone resulted in the US rejecting the Soviet START proposals. The negotiating process was further complicated by the Soviet's insistence on including the INF negotiations with the proposed START negotiations, something the US was determined to avoid.

In reflecting on President Reagan's zero-option speech on INF in November 1981, his Eureka College speech on START in May 1982; as well as his speech on January 16, 1984, Strobe Talbott notes that even though they were:

...filled with suggestions of his willingness to modify the U.S. negotiating position, neither in the preparations for the speech nor in its follow-through was there a determination of the next move to make at the table in Geneva, or even whether to make one at all. Once again, Reagan showed himself unable to engage decisively in the policymaking process. The struggle continued within the ranks of his administration over what he had meant, what he wanted, and how it should be translated into proposals for the negotiations and into general strategy for the conduct of Soviet-American relations.

The struggle had both ideological and bureaucratic components which was further complicated by the various philosophers regarding how best to deal with the Soviets:

The combatants their interests, and their tactics were the same: the State Department, particularly Richard Burt, fought for compromise against the Pentagon, particularly Richard Perle, while the National Security Council staff, particularly Robert McFarlane, tried to arbitrate, reconcile, synthesize. Now, as before, the result was not so much synthesis as further paralysis.

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The Soviets, recognizing the apparent US bureaucratic inertia claimed "it was deeds that are needed, not verbal exercises."<sup>75</sup> Overshadowing all of this was a new worry for the Soviets, the deployment of Pershing II's and Tomahawk GLCM's in Europe to counter the Soviet's deployment of SS-20 missiles against Western Europe. This move by Reagan, albeit with the approval of the NATO countries, further exacerbated already very tense relations between the US and USSR. It is somewhat ironical when one considers the US arguments for placing 572 Pershing II ballistic missiles and Tomahawk GLCM's in Western Europe which left, seemingly, little room for compromise. After all, in reality, as Strobe Talbott, points out, they were:

...intended largely as political symbols. There was no vital military mission for them that could not be performed by other weapons already committed to NATO.

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However, despite growing public pressure, predominantly in Western European countries against the deployment of the Pershings, the respective European countries (NATO members) felt honour-bound to preserve a united front against the Soviets. On December 8, at the

conclusion of Round 5, the Soviets issued a statement that read, in part:

...In view of the deployment of new US missiles in Europe...changes of the global strategic situation make it necessary for the Soviet side to review all problems under discussion at the START negotiations. Therefore no date for a resumption of the negotiations has been fixed.

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Thus the stalemate continued and the nuclear arms control issue slipped precipitously into a state of paralysis once again.

President Reagan chose this hiatus to press onward with his campaign to secure funds for the MX missile program amid growing public and congressional discontent.

The American Catholic Bishops prepared and issued a pastoral letter on the moral and theological dimensions of nuclear deterrence. Its importance lies not so much on the fact who issued it, but rather on the fact that the issue was now becoming so important that public interest groups were beginning to surface and voice their opinions. In their letter, the Catholic Bishops concluded that:

Stability requires a willingness by both sides to refrain from deploying weapons which appear to have a first-strike capability.

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The MX missile would certainly add a destabilizing dimension to the already complicated nuclear strategic arms balance. It is a highly accurate ICBM weapon carrying the new Mark 21 re-entry vehicle with multiple warheads, which would unquestionably be perceived by the Soviets as a first-strike weapon...one they would have to counter and eventually improve on.

Should the MX program receive congressional approval, then it would accomplish little more than heighten existing tensions and result in a speeding up of the arms race, which, historically, has not increased the feelings of security on either side, but rather has increased world fears of a nuclear holocaust. In view of this, and in the absence of any arms reduction negotiations taking place, it is reasonable to argue that "...the superpowers might be all the more likely to have their most destructive weapons on a hair trigger in a crisis."<sup>79</sup>

As mentioned earlier, when the first SALT negotiations began, that rather than them being looked upon as one set of talks to establish controls over a volatile situation, that they should be considered as part of an ongoing process. However, by the end of 1984 this process has temporarily been halted.

Senator Edward M. Kennedy, a strong advocate of arms control, during a 1984 speech, noted very poignantly not only the necessity of nuclear arms control, but also the immediacy of concluding such an agreement as quickly as possible. In it he pointed out that:

Ronald Reagan has an historic opportunity. His administration has proved that it has the will to build nuclear weapons; let it now prove that it also has the wisdom to control them. The beginning of that wisdom is neither an obsessive fear of the Soviet Union, nor a naive trust in its intentions. Instead of pursuing phantoms of suspicion, or the illusions of permanent good will, we must see the Soviets as they are, bargain with them realistically, and seek agreements that advance both our national interest and our most basic common interest in avoiding mutual extinction....We cannot afford the cost of delay until the next decade--the cost in money, or in risk, or the cost in national spirit. 80

With the prospects of concluding a significant nuclear arms reduction agreement in the immediate future extremely remote, it is necessary to turn our attention to what may be referred to as crisis management in the nuclear age. Both superpowers recognize that without effective nuclear arms control procedures any bilateral confrontation either between the superpowers directly or between their respective spheres of influence, potentially, could deteriorate into a nuclear holocaust. How the superpowers react to such confrontations or crises and avoid allowing them to devolve into a nuclear confrontation is critical in the absence of a significant nuclear arms reduction agreement.

### 3. CRISIS MANAGEMENT IN THE ABSENCE OF NUCLEAR STRATEGIC ARMS CONTROL

Coral Bell, in an article entitled "Crisis Analysis", notes that "the study of crises, and of crisis diplomacy that results either in war or in the avoidance of war, is as old as diplomatic history"<sup>81</sup> The realities of the nuclear age have made the ultimate fate of the world dependent to a great extent on how serious crises between the superpowers are handled. In the aftermath of the Cuban missile crisis of 1962 President Kennedy's Secretary of Defense, Robert McNamara, reportedly stated that "there is no longer any such thing as strategy,<sup>82</sup> only crisis management."

For definitional purposes, Oran Young's definition of a crisis in international politics is relevant for the discussion at hand. He defines it as follows:

...a set of rapidly unfolding events which raises the impact of destabilizing forces in the general international systems substantially above normal (i.e. average) levels and increases the likelihood of violence occurring in the system.

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The fact is, that there are some people in the world who point out with some degree of self assurance, that the world has managed to survive for 40 years, despite the ever growing nuclear arms race and confrontations between the US and USSR and that such a situation can continue. The reality is that such thinking, in the absence of firm crisis management procedures in place to avoid a nuclear holocaust, can only be considered as irrational. Such was the conclusion of the Nunn/Warner Working Group On Nuclear Risk Reduction who concluded that:

With but few exceptions, the United States and the Soviet Union have been able to avoid confrontations entailing the risk of nuclear war. There are compelling reasons, however, for concern about the two nations' ability to avoid a nuclear crisis in the future."

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The overall scope of the problem is widening. Increasing numbers of situations and circumstances that could deteriorate and become volatile enough to threaten an outbreak of nuclear war, that neither side may have anticipated or intended, are growing. Other nuclear powers or terrorist groups could likewise precipitate such actions.

The current nuclear powers cannot claim exclusive rights over the theories and practical application of nuclear energy. Nuclear proliferation is becoming a serious problem throughout the world. It is extremely destabilizing to say the least. (See Appendix C which outlines the prospects in the near future, for horizontal nuclear

proliferation.) At the present moment, in addition to the five nuclear powers, India and Israel are assumed to have not only the ability to build nuclear weapons but may also have limited covert stockpiles. Pakistan and South Africa are also suspected of either having nuclear weapons, or are very close to developing the capability to build them. Four other countries are considered to be working on nuclear projects to develop and build nuclear bombs. They are: Argentina, Brazil, South Korea, and Taiwan. In addition other countries such as Germany, Japan and Sweden possess the financial technological and industrial potential to fabricate nuclear weapons but they presently lack only the political will to do so. <sup>85</sup> The Nunn/Warner working group makes known its deep concern over the spreading of nuclear know-how, equipment and materials. It notes that the prospect of nuclear terrorism could become a reality and concludes by stating that:

In our view, the dangers implicit in this partial catalogue of potential nuclear flashpoints indicates the necessity of the two great powers initiating discussions aimed at establishing an explicit and comprehensive system for the prevention and containment of nuclear crises... 86

It is of paramount importance to recognize that it is essential for the top-level political authority to retain absolute control over any military moves, particularly those which may include the potential use of nuclear weapons. This is not always a simple matter since in a crisis situation the changes in alert-states, as a crisis intensifies, may result in rapid changes in the rules of engagement. Such a situation could result in the top-level political hierarchy finding

itself hard-pressed to co-ordinate some critically important standing orders with its overall crisis management strategy. <sup>87</sup> To avoid such a situation arising it is important that top level political and national command authorities have at their disposal:

1. full data on existing and programmed rules of engagement, and
2. specified staff officers capable of quickly identifying appropriate modifications of rules of engagement in order to better meet crisis management requirements. <sup>88</sup>

The moves and counter moves by both sides may continue to escalate the crisis with both sides increasing their forces alert states even higher. While one side views its actions as precautionary only, the other, quite legitimately, could see it as a threat. The real fear is that such action-counter action moves by both powers could quite easily make the hair-trigger environment even finer and threaten one side to launch a pre-emptive attack. "Each nation might not want war but might feel driven to hit first rather than second." <sup>89</sup>

John Steinburner expresses a similar concern when pointing out the danger that emerges from the fact that "...an opponent's command system may be regarded as the target of greatest opportunity in the event of war." <sup>90</sup> Steinburner goes on to note that:

...both nuclear establishments...are subject to potentially fatal stress under crisis conditions... If war should ever appear unavoidable military commanders on both sides charged with executing their assigned missions would inevitably seek authority to initiate attack whatever prior security policy may have been...The pressures on political leaders at that point would be extreme... <sup>91</sup>

A decision to launch nuclear weapons could be forced on a reluctant political leader in Washington or Moscow.

...if the escalating crisis generates three beliefs in his mind, whether or not these beliefs correctly reflect the situation."<sup>92</sup>

These are:

1. A belief that the crisis has got out of control that co-operation in crisis management has broken down and cannot be restored;
2. A belief that war has become virtually inevitable, that it is time-urgent to decide what to do; and that one's choice is restricted to accepting a first-strike or going first oneself; and
3. A belief that there is a premium on going first.<sup>93</sup>

There is no question that any future success in achieving some degree of effective control and management of confrontations will require a significant degree of US-USSR co-operation. Both must work together to discuss problems of crisis stability in order to identify the types of force postures and force movements that may threaten crisis stability and to come up with remedial measure.<sup>94</sup>

A. The Nunn/Warner Working Group On Nuclear Risk Reduction, mentioned earlier, has proposed a series of steps, that if agreed upon by both the US and USSR, would help to contain any escalation of a serious confrontation. The emphasis is on quick communications between the senior political leaders of both countries when such a crisis arises. The following key points form the framework of the Nunn/Warner Group On Nuclear Risk Reduction's proposals for crisis reduction and management:

1. The US and USSR might agree to set up separate nuclear risk reduction centres in their respective capitals. They would maintain a 24-hour watch on any events with the potential to lead to a serious nuclear confrontation or incident. Direct links including communication channels and organizational relationships must be

established between the relevant political and military authorities.

2. A step beyond the above might involve exchanging liaison officers to the counterpart risk reduction centres in each capital. A further extension of this proposal might result in jointly manned centres in both the US and USSR.
3. An alternative suggestion looks at establishing a single centre staffed by civilian and military representatives from the two countries at some neutral site. The intent would be to lessen mistrust and help to foster closer co-operation between the US and USSR.
4. Each centre would be staffed by a series of watch officers reporting through normal military and political channels. Should an emergency arise, procedures would be in-place to ensure that the designated representatives would have direct access to each nation's highest political authority.
5. Direct communications links would be set up between the two centres. Both print and facsimile channels would be employed with consideration given to establishing voice and even teleconferencing facilities.

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The Nunn/Warner Group concludes that the establishment of these centres could contribute significantly to a reduced risk of nuclear incidents. They could be used for a range of functions, most of which would take place routinely in normal times, and would be designed to reduce the danger of nuclear terrorism, to build confidence between the two sides and to avoid the build-up of tensions that could lead to confrontation. The establishing of these nuclear risk reduction centres, it is hoped, would help to defuse crises before they became unmanageable and threatened use of nuclear weapons.

In reality, both superpowers tend to view their mutual relationship as one comprising a long-term competition in which short term actions are looked upon as ultimately leading to a long-term

advantage. However, in the nuclear age this can lead to a very destabilizing atmosphere.

There is no doubt that crisis management can play a useful role in helping to defuse super-power confrontations that potentially could lead to a nuclear showdown. However, despite its capabilities or intentions, crisis management, in the absence of some orderly nuclear arms reduction process taking place, is ultimately destined to fail. In the case of nuclear strategic arms control the practical purpose of such negotiations is to reduce the risk of nuclear war. Political settlements of the nuclear arms control issues (elimination of the causes of conflict and the nuclear arms race) is the preferred approach. However, as Dr. Barry M. Bletchman points out:

So long as such broad accommodations do not appear feasible, however, limits on armaments offer practical means of at least containing the risk of war. In effect, arms control offers to alleviate the symptoms leaving treatment of the disease itself to others.

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#### B. Treating The Disease

The continuing upward spiral in the nuclear arms race threatens everything that crisis management is trying to control. It might buy some time, but it definitely is not the solution to a very serious problem. A more immediate concern is the threat of the present nuclear strategic arms race possible taking a quantum leap into the high frontiers of outer space. Should this occur, then, it would make the conclusion of a nuclear arms reduction agreement even more improbable.

Many point the finger at who is responsible to achieve these goals. However, Senator Kennedy rightfully points out:

...in the final analysis, the responsibility rests with Ronald Reagan. In the truest sense, he himself must be the arms control czar--for only the President can end the internal debate and set state on an effective policy....We need a strategy to shelter the world from nuclear war--not with false defensive systems, but with true arms control safeguards. We need to build, steadily and patiently, a process of peace.

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Four immediate actions must be agreed upon by both the US and the USSR to reduce the possibility of a nuclear war occurring. First, both nations must reaffirm their commitment to the ABM Treaty. Second, the limitations posed by the SALT II Agreement must be extended beyond the expiry date at the end of 1985, third an anti-satellite agreement must be concluded as quickly as possible, and fourth, a comprehensive nuclear test ban agreement must be signed by the superpowers. Without these commitments the nuclear arms race juggernaut will continue to plod on moving ever-closer to the edge of the abyss.

FOOTNOTES

CHAPTER SEVEN

1

Leslie H. Gelb, "Is The Nuclear Threat Manageable?", The New York Times Magazine, (March 4, 1984), p. 26.

2

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## SUMMARY AND CONCLUSIONS

If we, and the Russians, continue to deploy ever more capable and time sensitive nuclear weapons systems, we will both be forced to develop fully automated decision systems which will have integrated strike-enabling capabilities. When this happens, it will no longer be accurate to describe a war started by computer error as 'accidental.' It will be inevitable, and logical consequence of our mutual stupidity.

US Rear Admiral (ret.)  
Eugene Carroll

The post World War II era was a troubled time for both the US and the USSR. As Adam Ulam notes the Soviet Union struggled to counter the predominant position of the West and ultimately to prevail. In attempting to do so, Ulam notes, the USSR utilized "...the power of nationalism and anti-imperialism"<sup>1</sup> to consolidate and expand its own empire. Ulam concludes "...that Moscow's efforts were not designed merely to destroy what remained of the old world order, but to prevent any system of international stability from coming into being."<sup>2</sup> US policies inevitably came to clash with those of the Soviets. However, as each sought to extend its influence throughout the world according to the respective world view each possessed, an extremely antagonistic relationship developed. The United States exacerbated the antagonism by attempting to export, as a recent American author points out:

...the international version of our domestic Great Society programs where we presumed that we knew what was best for the world in terms of social, political, and economic development and saw it as our duty to force the world into the American mold--to act not so much the World's policeman as the World's nanny. 3

Interjected into this clash between the two superpowers was the nuclear weapons factor. Over time, it became the most significant factor in their mutual relations. As the lethality of their respective nuclear deterrents grew to awesome levels; prudence gradually came to replace opportunism, especially when a potential superpower confrontation appeared imminent.

Considering the fact that nuclear weapons have existed in the military arsenals of some countries (in particular the US and USSR) since 1945 and have not been used since, the basic reality of the nuclear age has not changed, it is the same now as it was then. In a nuclear war there are only losers. Perhaps this explains why, since the Cuban missile crisis, both the US and USSR have gone to great lengths to avoid a direct confrontation. The doctrine of mutual deterrence has managed so far to keep use of these weapons in check. But the important question is, how long can this volatile and critical situation be kept under control by both sides in order to avert a nuclear holocaust.

With arms reduction negotiations having broken down altogether the war of words between the two superpowers has intensified. The absence of such talks is, in itself, destabilizing, in that the pace of the arms race is unquestionably picking up. Both sides have announced their intention to pursue the development of a new generation of weapons such as: anti-satellite weapons, new missile warheads with improved accuracies, improved anti-submarine warfare capabilities and

defense systems against ballistic missiles. Should one side or the other make a significant breakthrough in one or more of these areas, it could give that side a decided advantage over the other, which conceivably could be used to achieve its demands. It is fair to say that the barriers to nuclear war are presently being besieged in Soviet American relations. As Leslie H. Gelb points out: "Nuclear war would not occur in a vacuum. The conditions for conflict and confrontation exist now and practically nothing is being done by either side to mitigate them."<sup>4</sup>

All of this brings into serious question whether the increasing tensions and lack of serious arms reduction talks are leading both sides into a situation that may be beyond control. It is difficult to dispute Leslie Gelb's observation that:

Some wars in history have begun by fanatics and madness knowing they would perish in the end. But in most cases wars have started by some kind of deliberate decision to protect or spread values and power and to survive, always to survive. The main contribution of the nuclear age to this calculus of war is to throw into sharp relief the question whether war and survival are compatible any longer.<sup>5</sup>

Since 1949 the nuclear strategic arms race between the US and the USSR has grown astronomically while defying any solution to end it. By 1984, with the nuclear arms race continuing, and no negotiations between the superpowers taking place, manageability is becoming a big question mark. Time is becoming a precious commodity for the US and the USSR as they grapple for a mutually agreed upon solution. The potential scenarios which both the US and the USSR must face are chilling to say the least. A brief survey of these scenarios

reveal how limited the options are and how unintentionally a global nuclear war could be initiated.

- A. A presently non-nuclear nation such as Libya acquires the capability to produce nuclear weapons and puts one (or more) in the hands of terrorists who use it (them) thus invoking a massive retaliation from one of the superpowers.
- B. A regional conflict in which both superpowers have opposing interests escalates and results in a nuclear confrontation between the US and the USSR.
- C. A human or technological error resulting in a missile(s) being launched due to reduced reaction time, which cannot be coped with.
- D. Superpower hostilities towards each other ultimately degenerate into open warfare including use of nuclear weapons.

Few, if any, analysts of these scenarios seriously believe that should a nuclear confrontation break out, that it could be limited. Likewise, most analyses tend to discount scenarios depicting the superpowers initiating such a war. However, even though nuclear war by design has become an insane possibility in a world of overkill, nuclear war by miscalculation is a frighteningly real possibility.

To avoid such a possible situation where such weapons are even considered for use, the current nuclear weapons situation must be defused, and quickly. It is exacerbated even more when one considers the heightened levels of mistrust and misperception which exist on both sides.

Day by day the nuclear strategic arms race continues to grow monotonically thus becoming increasingly complex to manage and

control. The mounting pressures continue to place added stress on the command, control and communication functions both superpowers rely on to respond, in kind, if and when a perceived threat becomes a real threat. In reality those control functions are the central nervous systems of the nuclear deterrents of both the US and the USSR. As William Arkin and Richard Fieldhouse point out:

Tying all the weapons, test ranges, surveillance, and early warning systems together is a vast communications network of wires, submarine cables, radio stations, and satellites. Satellites, now only two decades old link the entire globe with instantaneous communications...The largest communications system in the world is that of the United States. The Defense Communications System, a peacetime and crisis operations network, serves 3161 locations in seventy-five countries and islands. Nearly two-thirds of it is overseas. It combines many lesser networks comprising 35 million miles of circuits, operated by 15,000 people. Every command centre, headquarters, submarine, missile silo, or bomber constantly receives messages from it. 6

The nuclear infrastructure of both superpowers depend extensively on large complex computers to analyze voluminous amounts of data in order to keep nuclear war planners apprised of minute developments to establish and alter targeting priorities and select options if and when nuclear hostilities break out.

In reality while the electronically dominated nuclear infrastructure provides mountains of technical information it supplies no answers. In fact, it raises a very important question. Do these systems primarily support decisionmakers and nuclear weapons systems or do they actually dominate them?

Both the US and the USSR (in particular) have ensured that nuclear weapons remain under the firm control of their political

leaders who have the sole authority to order them to be used. However, if present trends continue in the field of electronic control of the respective nuclear deterrents of the US and the USSR, then ultimate human control over nuclear weapons deployment may become questionable. This, it is argued, must not be allowed to occur. However, the facts are, as William Arkin and Richard Fieldhouse note very ominously:

In the next ten years very high-speed integrated circuits will be a hundred times faster and more compact than to-day's systems. As systems become smaller and faster, the ability of humans to manage the whole nuclear apparatus at a central location diminishes. The process places Herculean demands on its human creators, who are unable to assimilate and comprehend such oceans of information. Ultimately, this will lead to changes in the way nuclear weapons are controlled because it decentralizes and automates greater amounts of analysis and decisionmaking. 7

The present trend does not augur well for increasing manageability and control by the political decisionmakers. In reality, it becomes the war planners rather than the policy makers who will be best served by these developments.

From the very beginning of the first serious attempt by the superpowers to engage in nuclear strategic arms talks (SALT I), the basic premise was that the nuclear arms race could be controlled instead of eliminated. By 1984 what few agreements had been concluded seem destined to be abrogated by one or both of the superpowers (The ABM Treaty is a case in point). What clearly is needed is a reduction in the levels of mistrust and vitriolic rhetoric and a firm commitment by both the US and the USSR to bring a halt to the nuclear arms race and agree to begin a real process of nuclear strategic arms reduction.

One of the first concrete steps both must agree to is the signing of a comprehensive nuclear test ban agreement. Since any new weapons systems must first be tested before deployment it would, in effect, bring about a halt to development of new nuclear weapons. Considering the levels of mutual mistrust and the asymmetries in the nuclear deterrents of both the US and the USSR, this would, indeed, be considered a big step and an indication of a strong political will by both sides to begin the arduous task of reversing the nuclear arms race.

However, as Gelb points out: "It is a political law of nature not to take big steps and make big compromises in the absence of trust. It is equally difficult to agree on something large and dramatic when the subject is as complicated as this one."<sup>8</sup>

President Reagan's call for "deep cuts" in his START proposal negotiations with the Soviets could be construed as a big step. It called for a one-third cut in missile warheads from 7,500 to 5,000 and a cut in missiles totals from 1,750 to 850, no more than half of which could be land-based missiles. The main thrust of this proposal was to increase the ratio of warhead to potential targets or missiles from 3:1 to 6:1. Thus making it easier for war planners to argue that a first-strike might be possible. However, it is highly unlikely that the Soviets, who have concentrated most of their nuclear strategic defense spending on large land-based missiles (70% of its nuclear arsenal), will acquiesce to such measures. As it turned out, President Reagan himself drastically altered his own proposal. Also, it is difficult at this time to foresee a common ground amenable for

meaningful negotiations to take place considering the current high level of vitriolic rhetoric flying around between the Americans and the Soviets.

Should some breakthrough occur and talks do resume, then one of the first priorities should be to immediately work towards ensuring that the ABM Treaty is adhered to by both superpowers, thus preventing a potentially more deadly nuclear arms race in outer space. This would have the effect of stopping the development and deployment of Reagan's "Star Wars" defense and its ultimate Soviet counterpart. With this in place negotiations to reduce existing nuclear strategic force levels could continue.

In the absence of any other well-thought out set of measures to reduce arms levels it is reasonable to study carefully the components of the "Strategic Build-Down" concept as recently outlined by Strobe Talbott and Alton Frye. The potential for its success would be increased dramatically if a comprehensive nuclear test ban was signed first. Such a move would be an indication of an increased level, of mutual trust, so essential if any nuclear arms reduction plan is to be successful.

Its appeal lies primarily in its reasonable and even-handed approach to serious arms reduction. Negotiations could begin without demanding both sides to agree on the final composition of strategic missile forces. Consequently, both sides would maintain the broad freedom to balance its forces as it saw fit. Put succinctly by Frye, this proposal "tries to harness the momentum of force modernization to the declared goal of arms reductions." <sup>9</sup> The proposal offers to

build-down ballistic missile warhead inventories from the current 8,000-9,000 range on each side to 5,000 by eliminating more than one warhead for each warhead newly deployed. The six key points in the proposal are as follows:

1. Each warhead installed on a new land-based missile (ICBM) with multiple independently targetable re-entry vehicles (MIRV's) would oblige a party to eliminate two existing warheads.
2. New warheads on submarine-launched ballistic missiles (SLBM's) or small, single-warhead ICBM's would force reductions at a lower ratio, perhaps three for two.
3. If a side were not modernizing and introducing new warheads--a highly unlikely contingency in the next few years--it would have to make annual reductions at an agreed percentage rate, possibly five percent.
4. The President would also apply the build-down principle to deployment of new bombers (though not directly to individual weapons carried on bombers), reducing bomber forces to levels well below those permitted under the 1979 Strategic Arms Limitation Treaty (SALT II).
5. The United States would also accept limits on the number of air-launched cruise missiles each aircraft would carry and on the aggregate number of such missiles deployed.

And finally:

6. The extent of reductions in missile throw-weight would be balanced against the reductions in bomber carrying capacity through a formula measuring potential destructive capacity.

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Unquestionably, the USSR would be more affected by the missile warhead reductions than the US, while the US would be more affected by the reduction in bomber carried weapons. Consequently, it is imperative to have a reasonably precise measurement to allow trade-offs

that each side could accept and feel secure with. The strengths inherent in these proposals are to be found in the overall objective. The program is designed to achieve a level of "balance" between the two forces rather than "superiority" by one side or the other. The creation of stability is another important feature since neither side would have the capacity or incentive to launch a first-strike against the other.

Despite the possibilities that the "Build-Down" concept presents for both the US and the USSR, the Reagan administration does not appear to be ready for serious nuclear arms limitation talks. Part of the reason may be due to the current asymmetries and imbalance in their respective nuclear deterrents. The Soviets, having completed testing of most of their new generation of nuclear weapons, are about to begin deploying them during 1985 and 1986 (SS-X-24 and SS-X-25 ICBM's--both mobile-, New Typhoon class SSBN, SS-NX-23 SLBM, AS-15 long-range cruise missile, SS-NX-24 SLCM). The US, in contrast, is still in the testing stage for many of its new generation of nuclear weapons systems (MX-ICBM, Midgetman ICBM, Trident II D-5 SLBM, B-1, and Stealth Bombers, and new long-range cruise missiles). Also, not fully deployed, is its new Navstar navigational system which will be responsible for dramatic increases in accuracy for many of its new nuclear weapons systems. All 18 satellites, which will comprise the network, will not be fully deployed until 1989 or 1990. When the system is implemented, it will result in launched missiles, using Navstar, to land their warheads to within 15-30 meters of their designated target. The Soviets are not expected to achieve such

accuracy levels for some time. The new US Trident submarine with its Trident II D-5 SLEB will utilize the Navstar navigational system. However, deployment is not expected until 1989 or 1990. It is because of these imbalances in the US and Soviet nuclear deterrents that the paper argues that the Reagan administration is dragging its feet on nuclear strategic arms control negotiations. Until these systems are deployed it remains questionable whether President Reagan will agree to serious nuclear strategic arms negotiations.

Until each side is satisfied that nuclear strategic parity exists between them, it is highly unlikely that significant progress can be achieved in nuclear arms control. This situation is further complicated by the fact that both superpowers appear to approach the issue from the position that parity means having "just a little bit more" than your adversary.

However, first of all, both sides must return to the bargaining table. This may prove to be a difficult task considering the current state of US-Soviet relations. Two views of the mistrust and antagonism which characterize the relationship that exists between the US and the USSR are expressed very succinctly by a Soviet citizen and a US Congressman. Andrei Konchalovsky, a Soviet film director, views the conflict as one "between two people who are kicking each other in an elevator that is falling down the shaft."<sup>11</sup> Meanwhile, a perceptive member of Congress, in commenting on the difficulties getting the two sides back to the negotiating table, notes, pessimistically "...this is difficult to achieve when one considers 80% of the people don't trust

the Russians and 70% don't trust the Reagan administration to be serious about arms control."<sup>12</sup>

By the end of 1984, East-West relations were as frigid as they had been in many years. Again, American mistrust of the Soviets and their intentions continued to provide a significant impediment to sitting down, once more, at the bargaining table. In contrast, the Soviets, equally mistrustful of the Americans, were understandably reluctant to resume negotiations with any administration which it considered to be the most hostile of modern times.

Regardless, it is important to emphasize that without a total commitment and the political will on both sides to achieve success, future negotiations are doomed to fail. Outwardly, both sides appear to be fighting off the strangulation effect of the "Prisoner's Dilemma" (outlined earlier). Neither side seems to know what, in the absence of mutual trust, can take its place to provide the security both sides seek from any arms limitation agreement. Such a situation undoubtedly helps to keep the nuclear arms race on the treadmill that it has been on for many years.

The choices that the US and USSR appear to face, should they refuse to agree to begin serious negotiations to significantly reduce nuclear arms are few. Both are compelled to seriously ask themselves, as Alton Frye points out:

Would they prefer to confront each other in the next decade with thousands of additional warheads on their strategic launchers? Or would they find greater security in exploiting the momentum of modernization to impose reductions to a warhead level below that of 1983? Build-down provides a mechanism to make that choice real.

In essence the two superpowers are faced with a nuclear dilemma which must be resolved very soon. Either both superpowers agree to resume serious negotiations to significantly reduce their respective nuclear arsenals to more manageable levels, thus producing an environment conducive to mutual co-existence; or they must face the only other possible alternative, that of mutual co-extinction and an end to civilization as we know it today.

The Bulletin Of Atomic Scientists, has, since 1947, graphically displayed in its publication what is referred to as the Doomsday Clock. It provides a grim reminder that the nuclear world we live in is an infinitely precarious place. It currently stands at three minutes away from the midnight of annihilation. What the clock tries to convey is a reminder that "...planning for any kind of future involves a major, largely unspoken, assumption: that the world we know is actually going to be here twenty five years hence."<sup>14</sup> For as Len Ackland, editor of the Chicago-based bulletin notes '...to think about the future at all is an act of faith, based on the optimistic assumption that the hands of the clock can be pulled back, if only a little.'<sup>15</sup>

The urgency of resolving this volatile and sensitive situation is further highlighted by a US Navy report listing 381 mishaps involving nuclear weapons or dummy training warheads between 1965 and 1977. A further 247 incidents occurred since 1977. The most serious are referred to by the Pentagon as "Broken Arrows" defined as incidents in which rupture of a nuclear weapon leading to a leak of radiation has occurred. There are reportedly have been 32 such "Broken Arrows" since 1945. Former Pentagon officials revealed to Reuters News Agency

in 1980 that a B-52 Bomber crashed over North Carolina in 1961 releasing two 40 megaton atomic bombs. One became snagged in a tree releasing five of six interlocking safety switches <sup>16</sup>. One must conclude that fate can be tempted just so long.

Fear, of what the ultimate consequences of an all-out nuclear war would be, has played a significant role in one being avoided to date. Unfortunately, fear alone cannot be relied upon indefinitely to prevent nuclear war. The lack of significant public protest, especially in North America, against the nuclear problem, has resulted in a relatively lukewarm commitment by the US government to achieving a meaningful nuclear arms reduction agreement.

It appears that until the issue captures the public's attention like the anti-Vietnam war movement did, that the US Government will continue to give other issues higher priority. The USSR recognizing only strength, will not bargain seriously unless it feels strategically equal to its adversary and feels that more advantages than disadvantages may result from negotiating, than from staying away from the bargaining table. In the US, shaking the public out of its predominately lethargic state regarding this critical issue is of paramount importance if the government is to gain the political will to defuse the situation. The facts are chilling but must be faced. There are at present some twenty thousand megatons of nuclear explosive power currently being stockpiled with the numbers increasing daily. This cumulative destructive capability shared by the superpowers is sufficient to annihilate the entire world some 16 times over. The weapons in question are far different than any which preceded them.

They are, as Jonathan Schell points out, "psychological weapons whose purpose is not to be employed but to maintain a permanent state of mind--terror--in the adversary."<sup>17</sup>

In spite of the seriousness of the overall nuclear problem, it is difficult to comprehend how, as Schell observes:

At present most of us do nothing. We look away. We remain calm. We are silent. We take refuge in the hope that the holocaust won't happen and turn back to our individual concerns. We deny the truth that is all around us. 18

There is considerable evidence today that such apparent inaction by many people can be attributed solely to apathy. Authors Peter M. Sandman and JoAnn M. Valenti, arguing against this thesis propose that such people are "...perhaps so fearful that they cannot act" noting that "...certainly terror is capable of producing paralysis, and the threat of nuclear war is capable of producing terror."<sup>19</sup> Robert Jay Lifton, the psychiatrist who studied Hiroshima survivors prior to examining the ways in which Americans avoid facing nuclear reality coined the phrase "psychic numbing" which he defined as:

...the price paid for unwillingness to confront nuclear terror. [he goes on to point out that] Like the terror it masks, psychic numbing is immobilizing. The struggle not to feel saps the energy to act--certainly on nuclear issues. 20

Dr. Lifton presents a reasonably viable alternative and solution to "psychic numbing"--reassurance. He rejects the idea of reassurance being defined as putting forth empty promises that everything will be resolved, given time. Rather, he proposes communications which would be designed to reduce fear and consequently reduce the need to keep it

numbed. The four antidotes to numbing he proposes are: anger, love, hope and action. These concepts rather than terror are the keys, he argues, to mobilizing a massive popular movement against nuclear weapons.

A substantial increase in public awareness and involvement is essential to combine with the governmental processes in order to achieve a political solution. The first step must be a greater public realization of the harsh realities of international life--the realities of self-interest, fear, hatred and aggression which both sides possess. However, in addition, the world must concern itself with the immeasurably harsher new reality--the peril of extinction. By accepting and understanding these "realities" then the public will come to realize how imperative it is to pressure the government to achieve nuclear disarmament as quickly as possible. Presently, there is no clear definitive political solution to the disarmament problem, but one must be found quickly before it is too late. The problem is complex but certainly not unsolvable. But first of all the US and USSR must return to the bargaining table bringing with them the political will to be successful, but prepared to realize that:

If on one hand disarmament is not accompanied by a political solution then every clash of will between nations will tempt them to pick up the instruments of violence again and so lead the world back toward extinction. If, on the other hand, a political solution is not accompanied by complete disarmament, then the political decisions that are made will not be binding for they will be subject to challenge by force. And if, as in our present world, there is neither a political solution nor disarmament then the world will be held perpetually at the edge of doom and every clash between nuclear powers will threaten to push it over the edge.

In retrospect, the examination of East-West relations since 1945, can be viewed in terms of balance of power politics between the US and USSR. However, the critical difference in the post World War II period has been the development and stockpiling of nuclear strategic weapons by both sides. The awesome nuclear strategic power possessed by the US and USSR has put them both in a position of being capable of annihilating not only each other, but also the whole world. It is important to realize in 1984 that looking historically at the balance of power political system, it has never been able to ensure peace for an appreciably long period of time. Traditionally, it has attempted to maintain the independence and national security of states and one of the standard devices for achieving this has been warfare. However, today, the mere thought of nuclear war is unthinkable because of its worldwide consequences. Likewise, the prospect of a conventional war avoiding the interjection of nuclear weapons at some point is highly

conclude: "(They have) been dominated by the desire to institutionalize nuclear operating rules created by the superpowers to assure their freedom of movement, to secure advantages gained over the other side, and to appease public opinion."<sup>23</sup> It is hoped that public opinion will rebel against this cavalier attitude of the superpowers towards a problem which affects the entire globe.

It is only when all nuclear arms are controlled and heightened levels of manageability are re-established that a thaw can begin in East-West relations and the rest of the world can confidently look forward to a future.

FOOTNOTES

SUMMARY AND CONCLUSIONS

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## APPENDIX A

### GLOSSARY

#### A Compendium of Terms in Strategic Weaponry, Doctrine, and Arms Control

- ACCIDENTAL WAR. Hypothesized situation whereby nuclear war would occur without conscious decision by political authorities but as a result of some unauthorized or accidental event.
- ACTION-REACTION PHENOMENON (ARP). Form of analysis, based on Richardson processes, that hypothesizes that most arms race phenomena are explainable in terms of reactions to initiatives (actions) by the other party.
- ACTIVE DEFENSE. Systems, such as ABM's or interceptor aircraft, designed to interdict and destroy incoming strategic weapons before they reach their targets.
- ADVANCED TECHNOLOGY BOMBER (ATB). A manned bomber capable of eluding enemy radar detection because of design and materials. Also known as the "Stealth bomber."
- AEM. The Arsenal Exchange Model.
- AEROSPACE DEFENSE. An inclusive term encompassing all measures to intercept and destroy hostile aircraft, missiles, and space vehicles or otherwise neutralize them. See also Air defense; Antiballistic missile.
- AGGREGATE. The SALT II Treaty set quantitative limits on several aggregates of weapons. These included an initial ceiling of 2,400 on the aggregate of ICBM launchers, SLBM launchers, heavy bombers, and ASEMs; an aggregate sublimit of 1,320 MIRVed ICBM launchers, SLBM launchers, ASEMs, heavy bombers equipped to carry ALCMs with a range greater than 600 kilometers; an aggregate sublimit of 1,200 on launchers of MIRVed missiles; and a limit of 820 MIRVed ICBM launchers through 1985.
- AIRBORNE ALERT. A state of readiness designed to reduce reaction time and increase survivability by maintaining combat-equipped aircraft aloft on a continuing basis or during times of tension. See also Ground alert.

- AIRBORNE ANTI-BALLISTIC MISSILE SYSTEM (AABMIS).
- AIRBORNE WARNING AND CONTROL SYSTEM (AWACS). An air-based defense system carrying radar and navigation and communications equipment designed to detect, track, and intercept attacking aircraft.
- AIR-BREATHING FORCES. Designation for the nonballistic missile component of TRIAD; consists of bomber forces and cruise missiles.
- AIRBREATHING SYSTEM. Any delivery system that operates entirely within the earth's atmosphere. Manned aircraft and cruise missiles are examples.
- AIR DEFENSE. All measures to intercept and destroy hostile aircraft and cruise missiles or otherwise neutralize them. Equipment includes interceptor aircraft, surface-to-air missiles, surveillance devices, and ancillary installations.
- AIR-LAUNCHED BALLISTIC MISSILE (ALBM). A ballistic missile transported by and launched from land- or sea-based aircraft and/or lighter-than-air conveyances such as blimps, balloons, and dirigibles.
- AIR-LAUNCHED CRUISE MISSILE (ALCM). A cruise missile designed to be launched from an aircraft. See also Cruise missile.
- AIR-LAUNCHED MINIATURE VEHICLE (ALMV). A self-propelled explosive device launched from an airborne interceptor against an enemy's satellites.
- AIR-TO-AIR MISSILE (AAM). A missile used in aerial combat against enemy aircraft and cruise missiles.
- AIR-TO-SURFACE BALLISTIC MISSILE (ASBM). A ballistic missile launched from an aircraft against a target on the earth's surface.
- AIR-TO-SURFACE BALLISTIC MISSILE CARRIER. An airborne carrier for launching a ballistic missile capable of a range in excess of 600 km against a target on the earth's surface.
- AIR-TO-SURFACE MISSILE (ASM). A missile launched from an aircraft at a target on the earth's surface. In contrast to ASBMs, not a ballistic missile. This type includes air-launched cruise missiles (ALCMs).
- ALBM. See Air-launched ballistic missile.
- ALCM. See Air-launched cruise missile.
- ALLIANCE OR REGIONALLY ORIENTED (RELATED) SYSTEMS. Nonstrategic nuclear systems deployed by the U.S. and the USSR to carry out

responsibilities owed to their respective allies and to help maintain regional power balances. Such systems vary from long-range theater nuclear forces to battlefield nuclear weapons.

ALMV. See Air-launched miniature vehicle.

ANTI-AIRCRAFT DEFENSE. See Air defense.

ANTI-BALLISTIC MISSILE (ABM). Any missile used to intercept and destroy hostile ballistic missiles or otherwise neutralize them. Antiballistic-missile defense equipment includes weapons, target acquisitions, tracking and guidance radar, plus ancillary installations having the same purpose.

ANTI-BALLISTIC MISSILE TREATY. See ABM Treaty.

ANTISATELLITE (ASAT). As in antisatellite warfare.

ABM TREATY. One of four agreements known collectively as the SALT I agreements. Signed in Moscow on May 26, 1972, the treaty entered into force on October 3, 1972, and is of unlimited duration. The original terms limited each side to two ABM deployment areas (one national capital area and one ICBM silo launch area) with restrictions on the deployment of ABM launchers and interceptor missiles (100 per area) and ABM radars at these areas. A protocol to the treaty, signed in 1974, further restricted each side to only one ABM deployment area.

ANTISATELLITE SYSTEM (ASAT). A weapon system designed to destroy enemy surveillance and hunter-killer satellites.

ANTISUBMARINE WARFARE (ASW). All measures to reduce or nullify the effectiveness of hostile submarines.

AREA DEFENSE. Defense of a large geographic area, such as a city, as contrasted with the defense of a particular point, such as an ICBM silo.

ARMS CONTROL. Any measure limiting or reducing forces, regulating armaments, and/or restricting the deployment of troops or weapons that is intended to induce responsive behavior or is taken pursuant to an understanding with another state or states. See also Arms limitation; Disarmament.

ARMS CONTROL IMPACT STATEMENT (ACIS). Statement required to accompany proposals for new weapons systems assessing effect on arms control efforts by deployment.

ARMS FREEZE. Agreement to limit armaments at the level of actual deployments at a point in time.

- ARMS LIMITATION. An agreement to restrict quantitative holdings of, or qualitative improvements in, specific armaments or weapon systems. See also Arms control; Disarmament.
- ARMS STABILITY. A strategic relationship in which neither side perceives the necessity of undertaking major new weapon programs in order to avoid being placed at a disadvantage.
- ASAT. See Antisatellite system.
- ASBM. See Air-to-surface ballistic missile.
- ASBM CARRIER. A bomber or other aircraft equipped to carry ASBMs and launch them while in flight. Under SALT II, such aircraft are counted as heavy bombers.
- ASSURED DESTRUCTION (AD). A highly reliable ability to inflict unacceptable damage on any aggressor or combination of aggressors at any time during the course of a nuclear exchange, even after absorbing a surprise first strike.
- ASSURED SURVIVAL. Designation of the program, circa 1982, of those proposing an extensive strategic defense (ABM) system; chosen for its political contrast with "assured destruction," See High Frontier.
- ASW. See Antisubmarine warfare.
- ATB. See Advanced Technology Bomber.
- ATOMIC BOMB. A weapon based on the rapid fissioning of combinations of selected materials, thereby inducing an explosion (along with the emission of radiation).
- ATOMIC DEMOLITION MUNITION (ADM). Stationary nuclear explosives designed for military application, also known as nuclear land mines.
- ATTACK AIRCRAFT. See Strike aircraft.
- ATTACK SUBMARINE. A submarine designed to destroy enemy naval vessels (including submarines) and merchant shipping.
- AWACS. See Airborne Warning and Control System.
- B-1. A new U.S. supersonic strategic bomber with a 34,000-km payload capable of flying intercontinental missions without refueling.
- B-52. A strategic heavy bomber used in the U.S. Strategic Air Command (SAC) since 1955.
- BACK CHANNEL. Secret contacts between individual officials that circumvent the usual channels of communication between or within

governments. Negotiation of SALT I depended crucially on details worked out in a back channel between Henry Kissinger and high Soviet officials in Washington and Moscow, much to the frustration of U.S. SALT negotiators; in the last few days before signing, negotiations were in progress simultaneously in Moscow and Helsinki.

**BACKFIRE.** The NATO designation of a modern Soviet two-engine swing-wing bomber.

**BALANCE OF TERROR (BOT).** Term used to describe the mutual possession of second-strike capabilities by the United States and U.S.S.R.

**BALLISTIC MISSILE.** A pilotless projectile propelled into space by one or more rocket boosters. Thrust is terminated at some early stage, after which reentry vehicles follow trajectories that are governed mainly by gravity and aero-dynamic drag. Mid-course corrections and terminal guidance permit only minor modifications of the flight path.

**BALLISTIC MISSILE DEFENSE (BMD) SYSTEM.** A weapon system designed to destroy offensive strategic ballistic missiles or their warheads before they reach their targets. See also Antibalistic missile; Charged-particle beam; Laser.

**BALLISTIC MISSILE EARLY WARNING SYSTEM (BMEWS).** U.S. radar network in Greenland, Scotland, and Alaska, deployed in the early 1960s, to give about 20-minutes warning of Soviet missiles incoming by polar routes.

**BARGAINING CHIP.** Actual or projected weapons systems the purpose of which is to gain some form of concession in arms control negotiations.

**BATTLEFIELD NUCLEAR WEAPONS.** A term generally meant to refer to nuclear weapons used against enemy conventional and nuclear forces at close quarters (within 200 km).

**BEAN COUNTING.** Euphemistic nickname for process of making strategic force comparisons.

**BEAR BOMBER.** NATO designation for the TU-95 Soviet turboprop intercontinental bomber, first flown publicly in 1955.

**BISON.** NATO designation for the MYA-4 Soviet turbojet intercontinental bomber, first flown publicly in 1955,

**BLAST OVERPRESSURE.** The creation of enormous atmospheric pressure by nuclear weapons explosion; measured in pounds per square inch (psi).

**BMD.** See Ballistic missile defense system.

BOMB. A weapon dropped from a manned aircraft of any sort. Gravity is the primary force, but "smart" bombs can be guided electronically.

BOMARC. U.S. Air Force surface-to-air antibomber missile, now obsolete.

BREAKOUT. Escape from mutual assured destruction (MAD) into a new situation of strategic advantage or first strike (FS) capability, through some new weapons development.

BREEDER REACTORS. Reactors in which the process of fission enhances the concentrations of fissionable materials in the fuel or in a "jacket" covering the reactor, thereby producing more fuel than is used.

BUREAUCRATIC POLITICS (BP). A model of arms spending according to which programs grow steadily and incrementally over time.

BUS. See Postboost vehicle (PBV).

3

C 1. Command, Control, Communication and Intelligence.

CAPABILITY. The amount and kind of nuclear power a nation possesses.

CARRIER. Any vehicle designed to deliver weapons to a target or to stand-off release points. Aircraft, aircraft carriers, and submarines are examples. See also Stand-off.

CATALYTIC WAR. The possibility that a lesser power, either purposely or inadvertently, would draw the nuclear superpowers into a nuclear conflict.

CBM. See Confidence-building measures.

CD. See Committee on Disarmament.

CENTRAL INTELLIGENCE AGENCY (CIA).

CEP. See Circular error probable.

CHARGED-PARTICLE BEAM. An intense beam of subatomic particles, usually electrons, capable of destroying animate objects. Of potential BMD application.

CHECKHOV. NATO designation for a large, modern phased-array radar under construction in the Moscow area during the SALT I negotiations, and believed to be a part of the Moscow ABM defense system.

CHEMICAL-BIOLOGICAL WARFARE (CBW).

**CHOKER POINTS:** Areas of the world where maritime passage is easily blocked or constricted such as the Suez Canal.

**CIA.** United States Central Intelligence Agency.

**CIRCULAR ERROR PROBABLE (CEP).** A measure of the delivery accuracy of a weapon system. CEP is the radius of a circle around a target into which a weapon aimed at the target has a 50 percent probability of falling.

**CIVIL DEFENSE.** Passive measures designed to minimize the effects of enemy action on all aspects of civilian life, particularly to protect the population and production base. Includes emergency steps to repair or restore vital utilities and facilities.

**CM.** See Cruise missile.

**CMC.** See Cruise-missile carrier.

**COLD LAUNCH.** A "pop-up" technique that ejects ballistic missiles from silos or submarines using power plants that are separate from the delivery vehicles. Primary ignition is delayed until projectiles are safely removed from the missile container/carriers.

**COLLATERAL DAMAGE.** The damage to surrounding human and nonhuman resources, either military or nonmilitary, as a result of action or strikes directed against enemy forces or military facilities.

**COMBAT RADIUS.** The distance an aircraft loaded as required can fly from base to target and return employing exes, speeds, and altitudes most likely to guarantee success against armed opposition.

**COMMAND/CONTROL.** An arrangement of facilities, equipment, personnel, and procedures used to acquire, process, and disseminate information needed by decisionmakers in planning, directing, and controlling operations.

**COMMITTEE ON DISARMAMENT (CD).** A multilateral arms control negotiating body based in Geneva which is composed of forty states (including all the nuclear-weapon states). The CD is the successor of the Eighteen-Nation Disarmament Committee (ENDC, 1962-1969) and the Conference of the Committee on Disarmament (CCD 1969-1978).

**COMPELLENCE.** An attempt to influence the action or behaviour of an opponent by initiating an action or behaviour that can cease only if the opponent changes his action or behaviour.

**COMPOSITE MEASURES.** A class of measures of the capability of a total strategic arsenal, produced by calculations or transformations upon simple counts of the weapons or their characteristics according to simple theories, in order to overcome some of the difficulties of aggregating the properties of individual weapons across entire arsenals. Compare effects measures.

COMPREHENSIVE TEST BAN TREATY (CTBT). Proposed agreement to ban all nuclear testing.

CONDITIONAL VIABILITY. The situation in which a state can be destroyed with nuclear weapons, but the state with that capability refrains from doing so.

CONFERENCE ON SECURITY AND COOPERATION IN EUROPE (CSCE), which produced the Helsinki accords.

CONFIDENCE-BUILDING MEASURES (CBM). Political and/or military arrangements allowing potential adversaries to reduce the possibility of conflict caused by incorrect assessments of the other's military movements. Standard examples include notification of military maneuvers to low tactical levels close to national frontiers, prohibitions on live ammunition during military exercises and movements, and exchanges of observer personnel and liason.

CONTROLLED RESPONSE. Early Kennedy administration doctrine aimed at keeping the level of nuclear exchange low enough in a war-fighting environment to allow damage limitation in such a conflict.

CONVENTIONAL (FORCES, WAR, WEAPONS). Military organizations, hostilities, and hardware that exclude nuclear, chemical, and biological capabilities.

COOPERATIVE MEASURES. Arms control measures, either voluntary or negotiated, taken by one side to enhance the other side's ability to verify compliance with the provisions of the agreement.

CORRELATION OF FORCES. A Soviet phrase describing military, political, economic, and psychological factors bearing on the world situation, often in the context of claims that the correlation is shifting in favor of the Soviet Union and its allies.

COUNTERFORCE (CF).

COUNTERFORCE AND/OR COUNTERVALUE (CF/V).

COUNTERFORCE CAPABILITY. The ability to destroy enemy military forces. Generally used with reference to the destruction of an adversary's strategic nuclear weapon systems.

COUNTERFORCE STRATEGY. A strategy of using nuclear weapons to destroy the opponent's nuclear and general military forces. The main consequence of adopting such a strategy is the need for large numbers of extremely accurate nuclear weapons.

COUNTERFORCE STRIKE. An attack aimed at an adversary's military capability especially its strategic nuclear capability.

- COUNTERFORCE TARGETING. Aiming one's nuclear forces at an enemy's military capabilities (nuclear, conventional, or support).
- COUNTER-MILITARY POTENTIAL (CMP). Also lethality or K; a composite measure of the ability of a missile force to destroy a set of hard-point targets; subject to several aggregation problems.
- COUNTERVAILING (CVL). The Carter administration's version of flexible response or damage limitation strategic doctrine.
- COUNTERVALUE ATTACK. An attack aimed at urban-industrial targets, sometimes referred to as a "city-killing" attack.
- COUNTERVALUE STRATEGY. A strategy of targeting nuclear weapons on the opponent's cities and industrial areas. Compared to counterforce strategy, this strategy requires fewer and less accurate nuclear weapons.
- COUNTERVALUE TARGETING. Aiming one's forces at population centers, productive capacities and the like.
- COUPLING (STRATEGIC). The linking of a lower level of conflict to the use of strategic deterrent forces.
- CRISIS STABILITY. A strategic force relationship in which neither side has any incentive to initiate the use of strategic nuclear forces in a crisis situation.
- CROSS-TARGETING. Attack-planning tactic of assigning warheads from more than one missile to strike a given target, in order to minimize the effects of any missile malfunctions.
- CRUISE MISSILE (CM). A guided missile that uses aerodynamic lift to offset gravity and propulsion to counteract drag. A cruise missile's flight path remains within the earth's atmosphere. Cruise missiles fall into three categories: LRCMs, or long-range cruise missiles (over 3,000-3,500 km); MRCMs or medium-range cruise missiles (1,000-3,000 km); and SRCMs, or short-range cruise missiles (under 1,000 km).
- CRUISE MISSILE CARRIER (CMC). Any vehicle equipped for launching a cruise missile.
- CRUISE MISSILE RANGE. Under SALT II, the maximum distance that can be flown by the missile in its standard design configuration until fuel exhaustion.
- CV Countervalue.
- CYBERNETICIST. Also cybernetic view: A predisposition to interpret the foreign-policy moves of other governments as being manipulable, in the sense that we may be able to evoke desired responses by sending the correct signals. Compare essentialist and mechanist.

- DAMAGE LIMITATION.** A term used in nuclear-strategy debates to indicate a situation in which one side, believing an attack to be imminent, launches a preemptive strike with the objective of reducing the opponent's nuclear forces and therefore the severity of the expected attack.
- DATA BASE.** In SALT II the United States and the Soviet Union agreed on a Memorandum of Understanding listing, for each side, the numbers of strategic offensive arms subject to the Treaty limitations. It was to be periodically updated through the SALT Standing Consultative Commission (SCC).
- DEEP-CUT ARMS REDUCTION.** Significant decreases in the size of strategic arsenals.
- DEFENSE.** The military act of defending against an enemy attack, as contrasted with deterrence, which is the prevention of such an attack. Prior to the nuclear era, the same military forces tended to provide both deterrence and defense; those functions have now been somewhat separated or decoupled.
- DEFENSE IN DEPTH.** Protective measures in successive positions along axes of enemy advance, as opposed to a single line of resistance. Designed to absorb and progressively weaken enemy penetrations.
- DEFENSE INTELLIGENCE AGENCY. (DIA).** Organized under President Kennedy in 1961-62 to consolidate Army, Navy, and Air Force intelligence forces.
- DELIBERATE CONCEALMENT.** Measures such as camouflage, use of coverings, encryption of test telemetric information, or other means of limiting one side's ability to verify compliance with an arms control agreement through the national technical means (NTM). Under SALT II the United States and USSR agreed not to use deliberate concealment measures, although compliance with that agreement has been disputed.
- DELIVERY SYSTEM.** See Nuclear delivery system.
- DELTA-I, -II, -III.** Modified and enlarged versions of the Soviet Y-class nuclear submarine (SSBN). IOC's of the three versions were in 1972, 1973, and 1977, respectively.
- DELTA-CLASS SUBMARINE.** U.S. designation for the mainstay of the Soviet nuclear-powered SSBN fleet. Armed with 12-16 SLBMs, Delta submarines carry either single- or multiple-warhead missiles.
- DEPTH BOMB.** A nuclear device exploded underwater to destroy a nearby enemy submarine.
- DENSE. PACK.** A basing scheme for the MX missile, announced by the Reagan administration in 1982, under which the missile would be

clustered closely, relying on fratricide effects to limit the ability of attackers to destroy a significant fraction of the force.

DEPLOYMENT. Putting weapons and forces in place for military utilization. See also IOC.

DEPRESSED TRAJECTORY. Flight path of a ballistic missile fired at a much lower angle than the normal minimum-energy trajectory. Firing on a depressed trajectory reduces both the missile's flight time and the warning time of line-of-sight radars, thus increasing the threat to systems that depend on warning time for their security, such as alert bombers or dash-mobile ICBM systems.

DET WEAPONS. Directed Energy Transfer Weapons: Weapons relying on the directed transmission of energy, such as the light beam from a laser or a beam of charged or neutral particles from a particle beam weapon, to destroy a target, for example by heating and disabling an ICBM warhead in flight above the atmosphere.

DETENTE. General relaxation of tensions.

DETERRENCE. Any strategy whose goal is to dissuade an enemy from attacking. See Nuclear deterrence.

DETERRENCE ONLY. The strategic school of thought that believes the only utility of nuclear weapons is their deterrent effect.

DETERRENCE-PLUS. The strategic school of thought that advocates nuclear war fighting planning in addition to deterrent roles for nuclear weapons.

DEVELOPMENT. The process from laboratory research through engineering and field testing, by means of which a new weapons systems is prepared for production and deployment.

DIRECTOR OF DEFENSE RESEARCH AND ENGINEERING (DDR&E). In the U.S. Department of Defense.

DISARMAMENT. The reduction of a military establishment to some level set by international agreement. See also General and complete disarmament.

DISTANT EARLY WARNING SYSTEM (DEW or DEW Line). A radar system across northern Canada and Alaska, built in the 1950s to warn of Soviet transpolar bomber attack.

DOG HOUSE. NATO designation for a large phased-array Soviet radar. A Dog House radar tracks incoming reentry vehicles for the Moscow ABM defensive system.

- DOOMSDAY MACHINES (DM). A family of hypothetical machines devised by Herman Kahn. The ultimate deterrent device, they would destroy the planet upon warning of an attack.
- DUAL-CAPABLE SYSTEM. A system capable of delivering either conventional or nuclear warheads.
- DYAD. A strategic force structure with two "legs," as contrasted with the present triad. Abandonment of land-based missiles in response to ICBM vulnerability would be the most likely move to a dyad.
- ECM. See Electronic countermeasures.
- EFFECTS MEASURES. Outcome Measures: The simulated results of nuclear exchanges in actual war outputs. Relative to simple counts ("bean counting") and composite measures, they overcome most aggregation problems of assigning multiple attackers to multiple targets.
- ELECTROMAGNETIC PULSE (EMP). A brief, intense burst of electrical and magnetic fields from an exploding nuclear weapon; it can destroy or impair the performance of electronic equipment, including communications gear, computer memories, and some missile guidance systems.
- ELECTRONIC COUNTERMEASURES (ECM). A form of electronic warfare that prevents or degrades effective enemy uses of the electromagnetic spectrum. Jamming is a typical tactic.
- ENCRYPTION. The encoding of communications for the purpose of concealing information. In SALT II, the encryption of certain missile test data was prohibited. See also deliberate concealment.
- ENHANCED-RADIATION WARHEAD. Proposed explosive device based on fission fusion reaction with order of blast effects rearranged to maximize initial neutron radiation.
- ENHANCED-RADIATION WEAPON (ERW). A nuclear weapon designed to limit collateral damage by relying on radiation rather than blast to attack enemy ground forces. Also known as the neutron bomb.
- EQUIVALENT MEGATONNAGE (EMT). A measure of the destructive potential of a nuclear warhead against countervalue targets. The damage from a nuclear explosion does not increase in exact proportion to an increase in yield (see Yield). Equivalent megatonnage is computed as  $EMT = AY^{2/3}$  where N is number of warheads and Y is the yield of the weapon.
- ESCALATORY PROCESS. The hypothesized sequence by which the initial use of nuclear weapons could eventuate in general homelands exchange between the superpowers.

- ESSENTIAL EQUIVALENCE.** The term as currently used refers to approximate equality in the overall capabilities of opposing strategic offensive forces.
- ESSENTIALIST.** One who is inclined, as set out by William Zimmerman (1974), to describe Soviet foreign policy behavior as "flowing naturally from the nature of totalitarianism." Contrast with mechanist and cyberneticist.
- EQUIVALENT WEAPONS INDEX (EW Index).** A composite measure, due to Payne (1977), allowing for soft-point, soft-area, and hard-point targets.
- EURO-STRATEGIC WEAPONS.** Long-range theater nuclear forces currently assigned combat missions in the European theater of operations.
- EX POST-EX ANTE.** Dilemma in strategic planning posed because a strategy that might be optimal for deterrence could be undesirable should deterrence fail, has been raised as objection to M.A.D.
- EXPLORER I.** First US earth satellite, weighing 30.8 pounds, placed into orbit January 1, 1958 by an Army Jupiter C missile.
- EXTERNAL ENVIRONMENT.** Factors outside the domestic control of the nation-state that influence strategic doctrine.
- FACILITIES LIST.** In a nuclear exchange model, the list of weapons and their characteristics, and/or targets and their characteristics, on one side. An exchange is then modelled between two such lists.
- FALLOUT.** Radioactive particles carried into the upper atmosphere by a nuclear explosion that fall to earth downwind from the explosion, usually via rain.
- FB-111H.** So called "stretched" version of the FB111 fighter-bomber proposed as an alternative to the B-1 bomber.
- FBS.** Forward-Based Systems. A Soviet term referring to U.S. weapons such as aircraft based in Europe or on aircraft carriers so as to have sufficient range to deliver nuclear weapons against Soviet territory. In a major Soviet concession, such systems were excluded from the SALT I and II definitions of strategic offensive weapons.
- FIGHTER AIRCRAFT.** Tactical aircraft used primarily to gain and maintain air superiority.
- FIGHTER-BOMBER.** See Strike aircraft.
- FIREBREAK.** See nuclear threshold.
- FIRST STRIKE.** An attempted surprise attack, presumably against an opponent's nuclear forces in order to prevent retaliation.

- FIRST-STRIKE CAPABILITY.** The ability to destroy all or very nearly all of an enemy's strategic nuclear forces in a preemptive nuclear attack. See also Preemptive strike; Second-strike capability.
- FIRST-STRIKE STRATEGY.** A strategy adopted by a nuclear-weapon state whose nuclear weapons, being vulnerable to an attack, must be used before an attack is launched.
- FISSILE (or fissionable) MATERIAL.** Isotopes (variants) of certain elements - such as plutonium, thorium, and uranium - that emit neutrons in such large numbers that a sufficient concentration will be self-sustaining, continuing to produce increasing numbers of neutrons until it is damped down, explodes, or the material is exhausted.
- FISSION.** Splitting of atoms of unstable elements to produce a nuclear reaction; the simplest form of nuclear reaction.
- FISSION-FUSION.** Two-step atomic reaction where a fission "trigger" is used to initiate a fusion reaction wherein atoms of deuterium and tritium are fused together; the basis of the "hydrogen" and "enhanced-radiation" bombs.
- FISSION-FUSION-FISSION.** Atomic process used to produce multiple MT warheads; involves three-stage reaction wherein fission trigger initiates a fusion reaction, the heat and emitted neutrons from which cause a second fission reaction.
- FIXED ICBM LAUNCHER.** A nonmobile launcher, whether hardened or "soft," for an ICBM. The most familiar form of fixed launcher is a hardened ICBM launch silo.
- FLEXIBLE RESPONSE.** A strategy for controlling escalation whereby an enemy's escalatory step is met with a measured response designed to limit the intensity of the conflict to its lowest possible level while denying the enemy its political-military objectives.
- FLIGHT-TEST.** Under SALT II, an actual launch of a missile (as opposed to a static test) for any purpose, including development, demonstration, and crew training. Such launches were limited by the treaty.
- FOBS.** See Fractional Orbital Bombardment System.
- FORCE DE FRAPPE.** The French medium-range hydrogen bomber force on which development work was begun under the de Gaulle regime. Designed to provide an independent deterrent force against the Soviet Union, the force was begun under the belief that the U.S. nuclear "umbrella" was becoming less and less credible as the Soviets gained in nuclear strength.

**FORWARD-BASED SYSTEMS (FBS).** American nuclear weapons capabilities located outside the United States; specifically those forces stationed in Europe capable of attacking targets in the Soviet Union.

**FR.** Flexible Response.

**FRACTIONAL ORBITAL BOMBARDMENT SYSTEM (FOBS).** A missile that achieves an orbital trajectory but fires a set of retrorockets before the completion of one revolution in order to slow down, reenter the atmosphere, and release the warhead it carries into a ballistic trajectory toward its target.

**FRACTIONATION.** Division of a missile's payload into several warheads. Equipping a missile with MIRVs is one example, although the term is used here to designate very large increases in the number of warheads per missile, up to perhaps 24-30. SALT II limited fractionation to a maximum of 10 warheads per missile.

**FRACTRICIDE.** The destruction or neutralization of one nuclear weapon by another belonging to the same country or coalition. Blast, heat, and radiation all may contribute.

**FRATRICIDE EFFECT.** The premature detonation of incoming warheads caused by the heat and blast effects of previously exploded warheads.

**FREEDOM TO MIX.** The concept, as embodied in SALT II, that each side is free to determine the composition of its overall total strategic delivery systems, within the various aggregate limits and sublimits set by agreement.

**FROG (free rocket over ground).** NATO designation for an unguided Soviet surface-to-surface missile designed for battlefield use.

**FS.** First Strike.

**FUNCTIONALLY RELATED OBSERVABLE DIFFERENCES (FRODs).** The means by which SALT II provides for distinguishing between those aircraft capable of performing certain SALT-limited functions and those that are not. FRODs are differences in the observable features of aircraft that specifically determine whether or not they can perform the mission of a heavy bomber, whether or not they can perform the mission of a bomber equipped for cruise missiles capable of a range in excess of 600 km, or whether or not they can perform the mission of a bomber equipped for ASBMs.

**GALOSH.** Light, area ABM system deployed around Moscow.

**GAME OF STRATEGY.** A situation characterized by actors who interact, who have certain definable options or strategies open to them, whose choices jointly determine the outcome of the interaction, and who

receive definable costs and/or benefits as the payoffs of the outcome.

**GENERAL AND COMPLETE DISARMAMENT.** The goal established by the United Nations General Assembly in the field of disarmament. It involves disbanding armed forces, dismantling military establishments, eliminating stockpiles of nuclear, chemical, bacteriological and other weapons of mass destruction, and discontinuance of military expenditure according to an agreed sequence of balanced measures under strict and effective international control. The ultimate outcome would be that States would have at their disposal only those nonnuclear armaments, forces, facilities, and establishments as are agreed to be necessary to maintain internal order and to protect the personal security of citizens.

**GENERAL-PURPOSE FORCES.** All combat forces not designed primarily to accomplish strategic offensive or defensive missions. Tactical aircraft are an example. See also Strategic nuclear weapon systems.

**GET.** Greater than expected threat - method of assessing enemy threat developed by McNamara Defense Department involving estimation beyond projection of enemy capabilities in the National Intelligence Estimate and planning forces based on that estimate.

**GKO.** (Soviet) State Committee of Defense.

**GLCM.** See Ground-launched cruise missile.

**GOLF(G)-CLASS SUBMARINE.** NATO designation for a first-generation Soviet diesel-powered ballistic missile submarine carrying two or three SLBMs, with IOC in 1960.

**GOSPLAN.** (Soviet) State Planning Committee.

**GRADUATED AND FLEXIBLE RESPONSE.** A strategy based on capabilities to react to all levels of violence at a time, place, and with the means of the user's choosing.

**GRADUATED RECIPROCATION IN TENSION-REDUCTION (GRIT).** A scheme devised by the psychologist Charles Osgood (1962) under which a confrontation is progressively deescalated by each side unilaterally making small moves as long as the other side makes some appropriate response.

**GRAVITY BOMB.** See bomb.

**GROUND ALERT.** A state of readiness designed to reduce reaction time and increase survivability by maintaining combat-equipped aircraft and crews ready to take off quickly. It may be routine procedure or be practiced only during times of tension. See also Airborne alert.

- GROUND-LAUNCHED CRUISE MISSILE (GLCM). A cruise missile launched from ground installations of vehicles. See also Cruise missile.
- GROUND ZERO. The point on the earth's surface (i.e., the geographical coordinates) at which a nuclear weapon is detonated. For an airburst, it is the point on the earth's surface directly below the point of detonation.
- GRU. Main Intelligence Directorate of the Soviet General Staff.
- HARD SITE DEFENSE (HSD). An ABM defense designed specifically to protect ICBM silos or other hardened facilities from nuclear attack.
- HARD TARGET. A target protected against the blast, heat, and radiation produced by nuclear explosions. There are many degrees of hardening.
- HARDENING. Protection with concrete, earth, and other means so as to withstand the heat, radiation, and (especially) blast effects of nuclear attack. The term is most commonly applied to missiles housed in underground concrete silos fitted with armored blast doors.
- HARD-TARGET KILL CAPABILITY. The capacity to destroy a missile in a hardened (protected) container, such as an ICBM silo.
- HARD-TARGET KILL PROBABILITY. The likelihood of a specific strike destroying a target designed to withstand blast, heat, or radiation from a nuclear attack.
- HEADROOM ISSUE. The argument that the larger numeric limits allowed to the Soviets under SALT I would allow the Soviets to catch up with or surpass the United States once they matched U.S. technology; see Jackson amendment.
- HEAVY BALLISTIC MISSILE. For the purposes of SALT II, ballistic missiles are divided into two categories according to their throw-weight and launch-weight: light and heavy. Heavy missiles (ICBMs, SLBMs, and ASBMs) are those missiles that have a launch-weight or throw-weight greater than the launch-weight or throw-weight of the Soviet SS-19 ICBM.
- HEAVY BOMBER. The term used in SALT II to describe those aircraft included in the aggregate limitations of the agreement. See also Strategic bomber.
- HEN HOUSE. NATO designation for a large, phased-array Soviet radar type deployed on the periphery of the USSR for early warning of missile and air attacks.
- HIGH FRONTIER. A comprehensive proposal (Graham, 1982) for a major U.S. space exploitation and military space program, including a

several-tier strategic defense (ABM) system geared to achieving "assured survival."

HORIZONTAL PROLIFERATION. The spread of nuclear capabilities across states and/or nongovernmental entities.

HOT-LAUNCH SYSTEM. A system in which full ignition of the main engine of a ballistic missile occurs in its silo.

HOT LINE. The Washington-Moscow crisis communications link, first established in 1963 through undersea cables and revised in 1971 to use satellite links.

HOTEL (H)-CLASS SUBMARINES. NATO designation for a first-generation Soviet nuclear-powered ballistic missile submarine (SSBN) carrying three SLBMs, with IOC in 1960.

HUNTER-KILLER SUBMARINE. See Attack submarine.

HYDROGEN BOMB. See Thermonuclear weapon.

IAEA. See International Atomic Energy Agency.

ICBM. See Intercontinental ballistic missile.

ICBM VULNERABILITY. Susceptability to destruction in a counterforce attack, a situation brought about by the slow increase in ICBM warhead accuracies. See stability.

INDEPENDENT NUCLEAR FORCES. Nuclear forces not controlled by the U.S. or the USSR.

INERTIAL GUIDANCE. A system that measures acceleration and relates it to distances traveled in certain directions. Designed to steer ballistic missiles over predetermined courses, using data generated solely by devices in the missiles.

INITIAL OPERATING CAPABILITY (IOC). The point at which a weapons system is capable of being destroyed.

INITIAL RADIATION. Nuclear effect caused by emission of lethal gamma rays and neutrons while a blast is occurring; is primary effect of enhanced-radiation weapons.

INR. Bureau of Intelligence and Research, in the U.S. Department of State.

INTERCEPTOR. An air-defense aircraft designed to identify and/or destroy hostile airbreathing weapons systems such as bombers and cruise missiles.

INTERCONTINENTAL BALLISTIC MISSILE (ICBM). A land-based fixed or mobile rocket-propelled vehicle capable of delivering a warhead across intercontinental ranges. Once outside the atmosphere, ICBMs fly to a target on an elliptical trajectory. An ICBM consists of a booster, one or more reentry vehicles, possibly penetration aids, and, in the case of a MIRVed missile, a postboost vehicle (PBV). For the purposes of SALT II, an ICBM is considered to be a land-based ballistic missile capable of a range in excess of 5,500 km (about 3,000 nautical miles).

INTERCONTINENTAL BALLISTIC MISSILE (ICBM) SILO LAUNCHER. An ICBM silo launcher, a "hard" fixed ICBM launcher, is an underground installation, usually of steel and concrete, housing an intercontinental ballistic missile and the equipment for launching it.

INTERFERENCE. Under SALT II each party is to use its own national technical means (NTM) of verification to assure the other side's compliance with the treaty, and each undertakes not to interfere with such NTM. An example of such interference would be attacking or blinding reconnaissance satellites. See also deliberate concealment. NTM, telemetry, and verification.

INTERIM AGREEMENT OF OFFENSIVE ARMS (IOA). One of the major outcomes of SALT I; placed a five-year freeze on deployment of strategic launchers.

INTERMEDIATE-RANGE BALLISTIC MISSILE (IRBM). A ballistic missile with a range of 1,500 to 3,000 nautical miles (2,800-5,500 km). See also Ballistic missile.

INTERNAL ENVIRONMENT. The domestic factors that influence the formulation of strategic doctrine.

INTERNATIONAL ATOMIC ENERGY AGENCY (IAEA). The international organization belonging to the United Nations system charged, among other things, with monitoring the production and use of special fissionable materials.

INTERNATIONAL SECURITY AFFAIRS (ISA). (U.S. Department of Defense.)

INTRUSIVE MONITORING. The right of inspection to determine violations of agreements, usually by on-site methods and often without prior approval of inspection.

INVULNERABILITY. Goal of protecting forces from being destroyed by a counterforce attack. Measures to promote invulnerability include hardening, dispersal of forces, mobility, and concealment.

IRBM. See Intermediate-range ballistic missile.

J-5. Directorate Group in charge of plans and policy under the director of the Joint Staff, U.S. Department of Defense.

**JACKSON AMENDMENT.** The stipulation, attached by the U.S. Congress in its ratification of the SALT I agreements, that succeeding arms control agreements should seek, inter alia, equal numeric limits for both sides.

**JOINT STATEMENT OF PRINCIPLES.** The Joint Statement of Principles and Basic Guidelines for Subsequent Negotiations on the Limitation of Strategic Arms, one of the three parts of the SALT II agreements. (The other two were a treaty running through 1985 and a protocol running through 1981.) The Joint Statement of Principles set out general objectives for further (SALT III) negotiations.

K. See CMP or lethality.

**KILOTON.** One thousand tons (of TNT equivalent).

**LASER.** A device which produces an intense beam of light entirely of the same wavelength. Potential military applications include BMD and ASAT missions.

**LAUNCH.** Under SALT II definitions, a launch is a missile flight for any purpose, but does not include so-called pop-up tests, which are tests of the launcher and ejection mechanisms. See also flight-test and launcher.

**LAUNCH ON ASSESSMENT (LOA).** Launch of missiles, notably ICBMs, on warning of an incoming attack and assessment that the attack is serious enough to pose a major threat to the missiles and/or to the state. Compare with launch on warning and launch through attack (LTA).

**LAUNCH THROUGH ATTACK (LTA).** Firing tactics calling for launching missiles after some incoming warheads have arrived, thus precluding the possibility of launching on false warning, but avoiding riding out the complete attack and risking excessive missile losses and a weakened retaliatory capability.

**LAUNCH-ON-WARNING.** Retaliatory strikes triggered upon notification that an enemy attack is in progress, but before hostile forces or ordinance reach friendly soil.

**LAUNCH-WEIGHT.** The weight of the fully loaded missile itself at the time of launch. This would include the aggregate weight of all booster stages, and postboost vehicle (PBV), and the payload.

**LAUNCHER.** The equipment that launches a missile. ICBM launchers are land-based launchers, which can be either fixed or mobile. SLBM launchers are the missile tubes on a ballistic missile submarine. An ASBM launcher is the carrier aircraft with associated equipment. Launchers for cruise missiles can be installed on aircraft, ships, or land-based vehicles or installations.

- LETHALITY. Often called K or Kill-factor - force measurement derived from ratio of MTE and accuracy of delivery.
- LIGHT (BALLISTIC) MISSILE. Under SALT II, an ICBM other than a heavy ballistic missile (i.e., one with launch-weight and throw-weight not exceeding those of the Soviet SS-19).
- LIMITED NUCLEAR OPTIONS (LNO). Position generally associated with former Defense Secretary Schlesinger proposing development of nuclear force usage options at less than the level of general exchange.
- LIMITED STRATEGIC OPTIONS (LSO). Limited nuclear options (LNOs).
- LIMITED TEST BAN TREATY (LTBT). Signed in 1963, making it permissible to conduct nuclear tests underground only.
- LINKAGES. The concept that progress in SALT must be viewed in the context of overall Soviet foreign policy behaviour.
- LIQUID-FUEL SYSTEMS. Ballistic missile propulsion systems that rely on liquid fuel. Military ramifications include comparatively high maintenance costs and risk of accidents when compared with solid-fuel systems. See also Solid-fuel systems.
- LOITER TIME. The length of time an aircraft can remain aloft in any given location, pending receipt of further orders. Depends primarily on fuel capacity, consumption rates, refueling capabilities, and pilot fatigue. Loiter capabilities for missiles are a future possibility.
- LONG RANGE AVIATION. Soviet military bureaucracy in control of intercontinental and medium-range land attack bombers assigned strategic- and theatre-level missions.
- LONG-RANGE THEATER NUCLEAR FORCES. Comprises nuclear delivery systems with ranges exceeding 1,000 km but less than 5,500 km. Weapons typically included in this category are IRBMs, MRBMs, some types of SLEMs, and medium-range bombers and strike aircraft.
- LOOK-DOWN SHOOT-DOWN CAPABILITY. The radar capacity to track incoming forces from above and, based on that identification, to destroy the forces.
- LOW ALTITUDE DEFENSE (LoAD). U.S. ABM system proposed in the late 1970s and given initial Congressional approval for development funding in 1980; often proposed as an adjunct of the MX missile, especially in the dense pack basing mode.
- LONG RANGE AVIATION (LRA). The component of the Soviet armed forces responsible for operating the Soviet intercontinental bomber force.

- LOOK-DOWN, SHOOT-DOWN. A phrase denoting a combined radar and air-to-air weapons capability for intercepting low-flying aircraft or cruise missiles. Such a capability is intended to overcome the limitations of conventional tracking radars and ground-launched anti-aircraft missiles in protecting against such low-level penetration.
- LOW. Launch On Warning.
- LRCM. See Cruise missile.
- LRTNF. See Long-range theater nuclear forces.
- MAD. See Mutual assured destruction.
- MANEUVERABLE REENTRY VEHICLE (MaRV). A ballistic missile warhead or decoy whose accuracy can be improved by terminal guidance mechanisms. See also Mid-course correction.
- MANHATTAN PROJECT. The code name of the research effort that created the first atomic reaction in 1942.
- MANNED PENETRATOR. Strategic bombers and tactical aircraft whose performance depends on pilots and/or crews.
- MARK 12A REENTRY VEHICLE. Replacement for the Mark 12 RV on a fraction of the Minuteman III ICBM force, beginning in 1979, and planned RV of the MX missile. It features higher accuracy and carries a warhead with an approximately doubled explosive yield.
- MARK 12A WARHEAD. Proposed replacement of MK 12 warhead on Minuteman III missiles; is purported to have hard-target kill capability.
- MARV. See Maneuverable reentry vehicle.
- MASSIVE RETALIATION. Strategic doctrine associated with the Eisenhower administration.
- MBFR. Mutual and balanced force reductions or mutual balanced force reduction. See Mutual force reduction.
- MECHANIST. One inclined to interpret the foreign-policy actions of other governments as being dictated by traditional power-balance politics; compare essentialist and cyberneticist.
- MEDIUM BOMBER. A multi-engine aircraft that lacks intercontinental range without in-flight refueling, but is suitable for strategic bombing under special circumstances. See also Strategic bomber.
- MEDIUM-RANGE BALLISTIC MISSILE (MRBM). A ballistic missile with a range of 600 to 1,500 nautical miles (1,100-2,800 km). See also Ballistic missile.

- MEGATON (MT). One million tons (of TNT equivalent).
- MEGATON EQUIVALENT (EMT). The area destructive power of a one Mt weapon derived by taking two-thirds of yield in MT's.
- MEGATONNAGE. Measure of the explosive power of a weapon or, in aggregate, of a total arsenal.
- MFR. See Mutual force reduction.
- MIDAS. An early U.S. strategic warning earth satellite system, first launched in 1961.
- MID-COURSE CORRECTION. An in-flight amendment to the trajectory of a ballistic or cruise missile, by any means whatsoever, for the purpose of improving accuracy. See also Terminal guidance.
- MILITARILY SIGNIFICANT. A phrase used in reference to the acquisition of superior counterforce or war-fighting capabilities.
- MILITARY-INDUSTRIAL COMPLEX. A term coined by President Eisenhower to describe the combined interests of the armed forces and the defense industry in obtaining new weapon systems.
- MINIMUM DETERRENCE. A strategy which relies on a relatively small strategic force to attack a finite number of enemy population centers in order to convince the enemy that it will use the force only in retaliation to an enemy first strike.
- MINIMUM DETERRENT (MD). A limited nuclear strike force.
- MININUKES. Small, low-yield nuclear devices, some with yields lower than those of large conventional (chemical) bombs.
- MINUTEMAN (MN). Solid propellant ICBM that is the backbone of U.S. force; current deployment is 450 single warhead MN 2s and 550 MIRVed MN 3s.
- MINUTEMAN INTEGRATED COMMAND AND CONTROL SYSTEM (MICSS). First system of firing and targeting computers for Minuteman ICBMs, housed in control centers hardened to withstand 7,000 PSI overpressure.
- MIRROR IMAGING. The assumption that the reasons an adversary does something arise from the same motivations that would cause one to do the same thing.
- MIRV. See Multiple independently targetable reentry vehicle.
- MISSILE GAP. A perceived gap in ICBM quantities in favor of the Soviet Union, which played a major role in the 1960 U.S. elections. In fact, while the Soviets had more MRBMs and IREMs at that time, neither side had many ICBMs, and the United States had more ICBMs than did the USSR.

- MISSILE EXPERIMENTAL (MX). A proposed U.S. ICBM that can be deployed either at fixed sites or as a mobile system.
- MISSILE SITE RADAR (MSR). In the U.S. Safeguard ABM system, an ABM radar designed to provide terminal tracking and guidance for Sprint and Spartan interceptor missiles.
- MOBILE LAUNCHERS. A surface vehicle by which land-mobile ballistic missiles can be moved into position, prepared for launch, and fired.
- MOBILE MISSILE. Any ballistic or cruise missile that depends partly or entirely on mobility to ensure prelaunch survivability. Carriers may be aircraft, ships, or motor vehicles.
- MOBILE TARGET. Any target in motion at the time it is attacked.
- MODERN ABM RADAR COMPLEX (MARC). Under the SALT I ABM Treaty, a circular area three kilometers in diameter within which ABM radars may be deployed. The MARC concept was introduced by the United States in July 1971 to meet Soviet objections against limiting ABM radars by number and type.
- MODERN LARGE BALLISTIC MISSILE (MLEM). Designation of large payload missiles covered in SALT II agreement.
- MOSS. NATO designation for a type of Soviet aircraft used for airborne early warning.
- MREB. See Medium-range ballistic missile.
- MRCM. See Cruise missile.
- MRV. See Multiple reentry vehicle.
- MULTIPLE AIM POINTS (MAP). The number of places from which the proposed MX system could be fired, thereby creating targets at which the Soviets would have to target weapons to ensure destroying the missiles in a first strike.
- MULTIPLE INDEPENDENTLY TARGETED REENTRY VEHICLE (MIRV). A missile payload comprising two or more warheads that can engage separate targets. See also Multiple reentry vehicle; Reentry vehicle.
- MULTIPLE REENTRY VEHICLE (MRV). A missile payload comprising two or more warheads that engage the same target. See also Multiple independently targeted reentry vehicle; Reentry vehicle.
- MUTUAL AND BALANCED FORCE REDUCTIONS (MBFR). See Mutual force reduction.
- MUTUAL ASSURED DESTRUCTION (MAD). The mutual capacity to inflict massive countervalue damage after absorbing a full-scale counterforce strike.

MUTUAL FORCE REDUCTION (MFR). Negotiations between nineteen NATO and Warsaw Pact countries begun in Vienna in 1973 to discuss the mutual reduction of forces and armaments in Central Europe.

MUTUAL HOSTAGE EFFECT. The situation in which the populations of the United States and the U.S.S.R can be destroyed by the thermonuclear arsenals of the other with no ability to protect against such an attack.

MYA-4. See Bison.

MYA-4 BISON. NATO designation for a Soviet four-jet long-range strategic bomber. First deployed in 1956, it has an estimated payload of 10,000 kg, a maximum speed of 900 km per hour, and a typical range of 6,000 nautical miles (11,200 km).

N + 1 PROBLEM. Additional difficulties created for the nuclear system when the present number of weapons states (N) is expanded (+1).

NATIONAL AVIATION. The Soviet military bureau responsible for Soviet aircraft intended for use against an enemy's maritime forces.

NATIONAL COMMAND AUTHORITY (NCA). The top national security decisionmakers of a country.

NATIONAL INTELLIGENCE ESTIMATE (NIE). Official U.S. government document expressing the consensus of the intelligence community regarding some subject of interest, e.g., projected Soviet strategic-force levels.

NATIONAL MILITARY COMMAND SYSTEM (NIM). Methods of unilaterally verifying compliance with arms control agreements through the use of observation satellites and other surveillance instruments. NIM were the only verification means formally accepted in the SALT negotiations.

NATIONAL SECURITY DECISION MEMORANDUM (NSDM).

NATIONAL SECURITY STUDY MEMORANDUM (NSSM).

NATIONAL TECHNICAL MEANS OF VERIFICATION (NTM). Assets that are under national control for monitoring compliance with the provisions of an agreement. NTM include photographic reconnaissance satellites and aircraft-based systems (such as radar and optical systems), as well as sea- and ground-based systems (such as radar and antennae for collecting telemetry).

NAVAHO. Early (1950s) and relatively unsuccessful U.S. cruise missile.

NAVIGATION SYSTEM USING TIME AND RANGING (NAVSTAR). A global positioning system of 24 satellites in synchronous orbits (i.e., remaining above fixed points on the earth's surface) providing nearly

continuous signals which may be monitored by receivers aboard ships and missiles. Four such signals plus orbital details from the satellites could allow a missile to determine its position to within about 10 meters in three dimensions and thus correct its flight path.

NEUTRON BOMB. See Enhanced-radiation weapon.

NEW TYPE OF ICBM. Under SALT II, each side was allowed only one new type of ICBM; specific criteria were established to distinguish a new type from an allowed modification of an existing type.

NIKE-AJAX. Early U.S. surface-to-air (SAM) antibomber defense missile.

NIKE-HERCULES. Successor to Nike-Ajax in 1958, this SAM had a range of 50-75 miles and could reach 100,000 foot altitudes; it carried a nuclear warhead.

NIKE-ZEUS. An early U.S. Army ABM system, nuclear armed. The Spartan portion of the later Safeguard ABM system was an improved Nike-Zeus.

NONCIRCUMVENTION. Under SALT II, both parties undertook not to circumvent treaty provisions through any other state or states or in any other manner. Similar provisions are commonly found in other arms control treaties, for example the Non-Proliferation Treaty (NPT).

NON-PROLIFERATION TREATY (NPT). International agreement signed in 1970 whereby non-nuclear signatories agreed not to produce nuclear weapons and nuclear signatories agreed not to aid efforts to obtain weapons.

NORTH AMERICAN AIR DEFENSE COMMAND (NORAD).

NORTH ATLANTIC COUNCIL (NAC). The permanent working group of NATO, with representatives of each NATO member state. The Council meets regularly at NATO headquarters in Brussels.

NORTH ATLANTIC TREATY ORGANIZATION (NATO).

NPT. See Nuclear Non-proliferation Treaty.

NSA. The U.S. National Security Agency, which is responsible for monitoring foreign communications and other signals.

NSC-68. The first comprehensive planning document on nuclear strategy, developed during the Truman administration.

Nth COUNTRY PROBLEM. The additional stability problems created in the global nuclear weapons regime when an additional state (an nth country) acquires nuclear weapons.

- NTM. See National technical means of verification.
- NUCLEAR-CAPABLE. See Dual-capable system.
- NUCLEAR DELIVERY SYSTEM. A nuclear weapon, together with its means of propulsion and associated installations. Includes carriers such as aircraft, ships and motor vehicles. See also Nuclear weapon.
- NUCLEAR DETERRENCE. A strategic doctrine based on the assumption that a potential aggressor can be dissuaded from provocative action or war by (a) the possession of nuclear forces sufficient to deny the enemy its political-military objectives at any level of conflict (counterforce deterrence), or (b) the possession of nuclear forces sufficient to launch a massive urban-industrial retaliatory strike (countervalue deterrence). See also Counterforce strategy; Deterrence; Mutual Assured Destruction.
- NUCLEAR DEVICE. Sometimes used to refer to a nuclear explosive that may (a) be intended for nonmilitary uses such as construction, hence a peaceful nuclear explosive, or (b) be too heavy and/or too cumbersome for delivery on military targets and hence is useful only for test purposes.
- NUCLEAR MATERIAL. See Fissile material.
- NUCLEAR NON-PROLIFERATION TREATY (NPT). The multilateral agreement officially known as the Treaty on the Non-proliferation of Nuclear Weapons, signed in London, Moscow, and Washington on July 1, 1968, and entered into force on March 5, 1970. The treaty prohibits: (a) the transfer by nuclear-weapon states to any recipient whatsoever of nuclear weapons or other nuclear explosive devices or control over them; (b) the assistance, encouragement, or inducement of any non-nuclear weapon state to manufacture or otherwise acquire such weapons or devices; and (c) the receipt, manufacture, or other acquisition by non-nuclear weapon states of nuclear weapons or other nuclear explosive devices.
- NUCLEAR PARITY. Rough equivalence between the nuclear forces of opposing countries. Equivalence can be defined in a number of ways: number of launchers; number of individually deliverable warheads; total deliverable explosive power; or throw-weight.
- NUCLEAR PROLIFERATION. The process by which one state after another comes into possession of some form of nuclear weaponry, and with it the potential to launch a nuclear attack on other states.
- NUCLEAR REACTOR. A mechanism fueled by fissionable materials that give off neutrons, thereby inducing heat. Reactors are of three general types: (a) power reactors, in which the heat generated is transformed into power in the form of electricity; (b) production reactors, which are designed primarily to increase concentration of certain fissionable materials, such as plutonium 239; and (c)

research reactors, designed primarily to produce isotopes (variants) for some materials and/or to induce radioactivity in others, for application in genetics, medicine, and so forth.

NUCLEAR REPROCESSING. The separation of radioactive waste (spent fuel) from a nuclear-powered plant into its fissile constituent materials. One such material is plutonium, which can then be used in the production of atomic bombs.

NUCLEAR SAFEGUARDS. Any number of ways to protect nuclear power or production reactors from accidental spillage of nuclear waste, from theft of nuclear materials, or from the diversion of these to unauthorized purposes, such as weapons production.

NUCLEAR TERRORISM. Terrorism is the systematic use of terror as a means of coercion. Nuclear terrorism involves the use or threatened use of nuclear weapons or radioactive materials by an actor, either state or nongovernment.

NUCLEAR TEST BAN TREATY. See Partial Test Ban Treaty.

NUCLEAR THRESHOLD. The point at which nuclear weapons are employed in war (also referred to as the firebreak).

NUCLEAR WEAPON. A bomb, missile, warhead, or other deliverable ordnance item (as opposed to an experimental device) that explodes as a result of energy released by atomic nuclei by fission, fusion, or both. See also Thermonuclear weapon.

NUCLEAR-WEAPON-FREE ZONE (NWFZ). A region or group of states from which all nuclear weapons are banned.

NUCLEAR-WEAPON STATE. A nation-state possessing nuclear weapons, whether fission, fusion, or both.

NWFZ. See Nuclear-weapon-free zone.

OBSERVABLE DIFFERENCES (ODs). Under SALT II, externally observable design features used to distinguish between heavy bombers capable of performing SALT-limited functions and those not so capable. See also functionally related observable differences (FRODSs).

OLDER HEAVY BALLISTIC MISSILE. Under SALT I, a large ICBM of a type deployed before 1964, such as the U.S. Titan and the Soviet SS-7 and SS-8 missiles.

OTHER LARGE PHASED-ARRAY RADARS (OLPAR). Under the SALT I ABM Treaty, non-ABM-associated radars that are capable of tracking large numbers of incoming ABM reentry vehicles for an ABM defense; minimum distances from ABM installations were stipulated.

OFFICE OF THE (U.S.) SECRETARY OF DEFENSE (OSD).

- OUTER SPACE TREATY.** A 1967 international agreement, signed by most of the world's governments, which internationalized outer space and banned the orbiting of "weapons of mass destruction," commonly interpreted to mean nuclear weapons.
- OVERKILL.** A destructive capacity in excess of that required to achieve stated objectives.
- PARITY.** Rough equivalence between the nuclear forces of opposing countries. Equivalence can be defined in a number of ways: number of strategic launchers, number of individually deliverable warheads, or total deliverable explosive power.
- PARTIAL TEST BAN TREATY (PTB).** The multilateral agreement officially known as the Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water, signed in Moscow on August 5, 1963, and entered into force on October 10, 1963. The treaty prohibits "any nuclear weapon test explosion, or any other nuclear explosion" in the atmosphere, in outer space, or under water (as its official title proclaims).
- PASSIVE DEFENSE.** Means, such as evacuation, planned dispersal, and sheltering intended to minimize destruction from a nuclear attack.
- PASSIVE PENETRATION AID.** A harmless device that helps a nuclear delivery system breach enemy defenses. Chaff and electronic countermeasures are examples. See also Active penetration aid; Penetration aids.
- PAYLOAD.** The ordnance delivered by any system, expressed in numbers of bombs, stand-off weapons, and missile warheads, and/or in terms of yield (kilotons, megatons).
- PBV.** See Postboost vehicle.
- PEACEFUL COEXISTENCE.** Public Soviet position that nuclear war is an inappropriate form of competition between the East and West.
- PEACEFUL NUCLEAR EXPLOSION (PNE).** A nonmilitary use of a nuclear demolition, e.g., for the purpose of digging canals or harbors, creating underground cavities, etc.
- PEACEFUL NUCLEAR EXPLOSIONS TREATY (PNET).** Comparison to TTBT outlawing peaceful detonations above 150 KT except with international observation and inspection.
- PENETRATING BOMBER.** Strategic bomber equipped to evade or escape detection by enemy air defenses through the use of penetration aids such as air-to-surface missiles or the ability to fly below enemy radar.

**PENETRATION.** The act of passing successfully through defenses in order to reach a target; applied to offensive weapons such as ICBM warheads.

**PENETRATION AIDS (PENAIDS).** Devices employed by offensive weapon systems, such as ballistic missiles and bombers, to increase the probability of penetrating enemy defenses. They are frequently designed to simulate or to mask an aircraft or ballistic missile warhead in order to mislead enemy radar and/or divert defensive anti-aircraft or antimissile fire. See also Active penetration aid; Passive penetration aid.

**PENETRATION CAPABILITY.** The ability of offensive (nuclear) forces to penetrate defenses.

**PERMISSIVE ACTION LINKS (PAL).** Electronic systems for the control of nuclear warheads whereby these can be armed only if positive action to this end is taken by a duly constituted authority, such as the President of the United States or the Supreme Allied Commander, Europe.

**PHASED-ARRAY RADAR.** A modern type of radar which scans an area by means of electronic changes rather than by mechanical movement; relative to mechanically-scanning radars, it is able to handle a heavier signal traffic, and is thus better suited to the demands of ABM defense.

**PLUTONIUM RECYCLING.** A process whereby plutonium in the spent fuel of reactors is separated from other fissile materials and reused either as reactor fuel (see Breeder reactors) or for atomic weapons.

**PNE.** See Peaceful nuclear explosion.

**POINT DEFENSE.** Defense of a limited geographical area or an individual target such as an ICBM silo; contrast with area defense, as of a city.

**POINT TARGET.** A target located by a single set of geographic coordinates on operational maps. Missile silos are representative.

**POLARIS.** The earliest class of U.S. atomic-powered missile-launching submarines.

**POLARIS SUBMARINE.** U.S. nuclear-powered ballistic missile submarine operational during the 1960s and 1970s. All U.S. Polaris submarines have been replaced by Poseidon SSBNs. See also Poseidon submarine; Trident submarine.

**POLICY REVIEW COMMITTEE (PRC).** One of two National Security Council Committees created under the Carter administration; unlike the Special Coordinating Committee, it had a relatively small role in SALT.

- POLITBURO.** The executive body which acts as the authority for the Central Committee of the Communist Party of the Soviet Union between the biannual meetings of the Central Committee; it is the most powerful Soviet decision-making body.
- POLITICAL-BUSINESS CYCLE (PBC).** A model of arms spending, according to which such spending is manipulated to promote the interests of office-holders. Compare with the bureaucratic politics (BP) model, with which it is not necessarily inconsistent.
- POSEIDON.** The second generation of U.S. SLBM-carrying submarines.
- POSEIDON SUBMARINE.** U.S. nuclear-powered ballistic missile submarine (SSBN) armed with 16 Poseidon C-3 or 16 Trident C-4 MIRVed SLEMs. The Poseidon submarine force currently forms the backbone of the sea-based component of the U.S. strategic triad. See also Submarine; Trident submarine; Triad.
- POSITIVE CONTROL.** Standard procedures that prohibit the accidental launch of ballistic missiles. Aircraft launched on warning return to base unless they receive coded voice instructions that can be authenticated.
- POSTBOOST VEHICLE (PBV).** Often referred to as a "bus," the PBV is that part of a missile's payload carrying the reentry vehicles, a guidance package, fuel, and thrust devices for altering the ballistic flight path so that the reentry vehicles can be dispensed sequentially toward different targets. Ballistic missiles with single RVs also might use a PBV to increase the accuracy of the RV by placing it more precisely into the desired trajectory.
- POSTLAUNCH SURVIVABILITY.** The ability of any given delivery system to breach enemy defenses and attack designated targets. See also Prelaunch survivability.
- PRECISION GUIDANCE.** A family of technologies, increasingly developed since the 1970s, which permits an attacking vehicle to home on its target by recognizing some distinctive signature associated with that target. Examples include terrain-following radar/computer systems (TERCOM) in cruise missiles, and bombs or missiles that home on a spot of laser light which another vehicle shines on the target.
- PREEMPTIVE STRIKE.** An attack launched in the expectation that an attack by an adversary is imminent and designed to forestall that attack or to lessen its impact. Usually refers to a strike on an adversary's delivery vehicles, weapon stocks, and other components of nuclear forces.
- PREFERENTIAL DEFENSE.** Selective defense of some portion of the silos in a missile field; since an attacker could not know in advance which silos were defended in what strength, he would have to launch a heavy attack against all the silos, thus depleting his strength.

- PRELAUNCH SURVIVABILITY.** The ability of any given delivery system to weather a surprise first strike successfully and to retaliate. See also Postlaunch survivability.
- PREPOSITIONED WEAPONS (PPW).** A seldom-discussed nuclear option under which weapons would be moved through the normal channels of commerce to hiding places in or near their targets during times of nominal peace; in time of war they would be detonated by remote control.
- PRESIDENTIAL REVIEW MEMORANDUM (PRM).**
- PREVENTIVE WAR.** Launching a first-strike attack in the belief that war is inevitable at some time in the future, and can be fought more favorably now than later. Compare with preemptive strike.
- PRISONER'S DILEMMA.** A game-theoretical situation the normal outcome of which is for players to engage in mutually inurious behaviour; often used to describe the dynamics of the arms race.
- PRODUCTION.** Manufacturing a particular strategic weapon in volume, following its development and testing.
- PROGRAM ANALYSIS AND EVALUATION (PA&E)** in the U.S. Department of Defense.
- PROLIFERATION.** Acquisition of nuclear weapons by previously nonnuclear states. Often used erroneously to refer to increases in the nuclear weapons stocks of existing nuclear powers.
- PROTOCOL.** An agreed addition or modification to a treaty: for example, the 1974 protocol tightening the SALT I ABM Treaty limits, or the SALT II Protocol setting certain limits more stringent than those of the Treaty itself, through 1981.
- PROTRACTED NUCLEAR WAR.** An ambiguous term referring to a continuing exchange of nuclear attacks, presumably short of massive countervalue exchanges.
- PSI OVERPRESSURE.** Pounds per square inch above normal atmospheric pressure, used as a measure of target hardness or blast resistance.
- PTB.** See Partial Test Ban Treaty.
- QUALITATIVE LIMITATION.** Restrictions on the capabilities of a weapons system, as distinct from restrictions on the numbers of such weapons (quantitative limits). Under SALT II, qualitative limitations were approached in quantitative fashion, for example by limiting the number of RVs on MIRVed missiles and by limiting ALCM with ranges greater than 600 kilometers.
- QUANTITATIVE LIMITATIONS.** Numeric limits on weapons systems in certain categories, as distinct from qualitative limits. Examples in SALT

II include the overall ceiling on strategic nuclear delivery vehicles and the various aggregate limits and sublimits.

QUICK-REACTION ALERT. Readiness procedures designed to reduce reaction times and increase the survivability of tactical aircraft, mainly in the NATO area. See also Ground alert.

RAPID RELOAD. The capability of a launcher to fire a second missile within a short time after an initial firing; cold launch facilitates rapid reload. See also launcher.

RADIOACTIVE MATERIALS. Those giving off Beta rays, Gamma rays or other forms of radiation. Radioactive materials may or may not be fissionable

RADIOLOGICAL WEAPON. A device, including any weapon or equipment, other than an explosive nuclear device, specifically designed to disseminate radioactive material so as to cause radiological damage to human and nonhuman resources.

RAPID RELOAD/REFIRE CAPABILITY. The ability of a delivery system to conduct multiple strikes. This characteristic is at present confined to aircraft, but land-mobile missiles and hard-site ICBMs have the potential. Submarines conceivably could be replenished at sea, but a significantly greater time lag would occur.

RECALL CAPABILITY. The ability to retrieve weapons and/or carriers after launch-on-warning. Recall may be directed by communications or occur spontaneously in the absence of authenticated orders to attack targets.

REENTRY VEHICLE (RV). That portion of a ballistic missile which carries the nuclear warhead. It is called a reentry vehicle because it reenters the earth's atmosphere in the terminal portion of the missile trajectory.

REM. An acronym for "Roentgen Equivalent Man," a measure of radiation exposure which indicates the potential adverse impact on human cells.

RESEARCH, DEVELOPMENT, TESTING AND EVALUATION (R,D,T&E). The developmental process of a weapons system from ideation to implementation (often referred to as "R&D").

RESIDUAL RADIATION. Contamination from fission reaction caused by return of radioactive by-products of nuclear blast into ecosystem.

RETROFIT. To upgrade existing weapons systems by installing state-of-the-art modifications.

RIDEOUT. The process of absorbing (riding out) an attack. Under assured destruction (AD) doctrine, one would first ride out a first strike, then launch a retaliatory second strike.

RV. See Reentry vehicle.

SA-5. NATO designation for an extensively deployed Soviet high-altitude surface-to-air (SAM) interceptor missile, also called the Tallin missile, once thought to be a possible ABM.

SAC. See Strategic Air Command.

SAFEGUARD. U.S. ABM system announced by President Nixon in March 1969 to defend ICBM fields; it was a major modification of the Sentinel light city-defense ABM system announced under the Johnson administration. Construction was begun on two Safeguard sites; under SALT I one site was abandoned. The second site was operated briefly before being shut down and dismantled.

SALT. See Strategic arms limitation talks.

SALT BACKSTOPPING COMMITTEE (SBC). A National Security Council group established under the Nixon administration and continued through the Ford and Carter administrations, it transmitted guidance on SALT issues and provided support to the SALT delegations.

SALT WORKING GROUP. NSC staff group supporting the Special Coordinating Committee (SCC) on SALT-related matters.

SAM. See Surface-to-air missile.

SATELLITE AND MISSILE OBSERVATION SATELLITE (SAMOS). Satellite system used for monitoring Soviet activities.

SATURATION ATTACK. The use of weapons en masse to overload enemy defenses and/or blanket areas that contain known or suspected targets.

SCC BACKSTOPPING COMMITTEE. An interagency group established under the Carter administration and operated largely by ACDA, to give staff support to the Standing Consultative Commission.

SEA-LAUNCHED CRUISE MISSILE (SLCM). A cruise missile launched from a submerged or surface ship.

SECOND STRIKE (SS). Also, the prefix for designation of Soviet land-based missiles.

SECOND-STRIKE CAPABILITY. The ability to mount a nuclear attack after a first strike by the opponent. For a strategy of deterrence, the object is to convince the enemy that, no matter what it does (in a first strike), you will retain the forces necessary to deny it its political-military objectives or its capability to deliver an unacceptably severe second strike. See also First-strike capability; First-strike strategy.

**SECOND-STRIKE COUNTERFORCE (SSCF).** As adopted by the United States under Secretary of Defense McNamara in 1962, a doctrine calling for counterforce targeting in second strikes, in order to control escalation and avoid city (countervalue) attacks. Unfortunately, the implied superiority necessary to carry out such a doctrine leads to very great budgetary demands and may be interpreted by an opponent as implying a first-strike intent.

**SECOND-STRIKE STRATEGY.** The determination to fire one's nuclear forces only after having absorbed an initial attack.

**SENSORS.** Devices used to detect objects or environmental conditions, such as radars and optical systems for detecting and tracking missiles and aircraft.

**SENTINEL.** The first U.S. ABM approved for deployment (by President Johnson in 1967). A light city-defense system, it was superseded by the Safeguard ICBM-defense ABM system announced in 1969, and was never deployed.

**SHALLOW-CUT ARMS REDUCTIONS.** Modest decreases in the size of nuclear arsenals at levels that do not materially affect destructive capabilities.

**SHELTER.** A revetment or other protective construction above ground, designed as a prelaunch shield for a nuclear delivery system and/or crew. Effective in varying degrees against atomic effects, depending on weapon yields and distances from ground zero. See also Silo.

**SHIPBORNE ANTI-BALLISTIC MISSILE SYSTEM (SABMIS).** No such system has yet been deployed.

**SHORT-RANGE ATTACK MISSILE (SRAM).** An air-to-ground missile with a nuclear warhead deployed on U.S. strategic bombers (FB-111 and B-52) since 1972. Its main purpose is to attack enemy aircraft defenses (for example, anti-aircraft missile sites) to enable the bombers to penetrate to their primary targets. Its maximum range is 160 km. See also Cruise missile.

**SHORT-RANGE BALLISTIC MISSILE (SRBM).** A ballistic missile with a range of less than 1,000 km. See also Ballistic missile.

**SILLO.** Underground facilities for a hard-site ballistic missile and/or crew, designed to provide prelaunch protection against atomic effects. High-yield precision weapons are needed to destroy the most durable construction. See also Shelter.

**SINGLE INTEGRATED OPERATIONAL PLAN (SIOP).** The U.S. plan for nuclear retaliation. If deterrence fails, it affords the President many options, regardless of circumstances.

**SINGLE-SHOT KILL PROBABILITY (SSKP).** The likelihood, expressed as a percentage, that a given strategic weapon will destroy its target once it has arrived at the target.

**SIR NEM.** A family of highly disaggregated nuclear exchange models developed for ACDA.

**SLBM.** See Submarine-launched ballistic missile.

**SLCM.** See Submarine-launched cruise missile.

**SMALL UNDERWATER MISSILE SYSTEM (SUM).** A plan proposed by Drell (1979) and Garwin (Drell and Garwin, 1981) for basing strategic missiles in a large number of small submarines which would cruise in the relatively secure waters above the continental shelf. It could be used as an alternative to land-based missiles in curing ICBM vulnerability.

**SNLV.** Strategic Nuclear Launch Vehicles.

**SOFT TARGET.** A target not protected against the blast, heat, and radiation produced by nuclear explosions. There are many degrees of softness. Some missiles and aircraft, for example, are built in ways that ward off certain effects, but they are "soft" in comparison with shelters and silos. See also Hard target.

**SOLID-FUEL SYSTEM.** A propulsion system that permits the launching of a ballistic missile with comparative swiftness. See also Liquid-fuel system.

(SOVIET) AIR DEFENSE (PVO).

(SOVIET) COMMITTEE OF STATE SECURITY (KGB).

(SOVIET) MILITARY-INDUSTRIAL COMMISSION (VPK).

(SOVIET) STRATEGIC ROCKET FORCES (SRF).

**SPECIAL COORDINATING COMMITTEE (SCC).** One of two NSC committees created under the Carter administration, it replaced the Verification Panel of the Nixon-Ford administrations. Unlike its predecessor, it dealt with non-SALT as well as SALT-related issues. See also Policy Review Committee.

**SPECTRUM DEFENSE.** The idea that nuclear weapons can be used to deter both nuclear and non-nuclear (conventional) military threats.

**SPENT FUEL.** Fuel that has been in use in a reactor for some time and thus has a changed composition and a diminished ability to give off neutrons.

**SRAM.** See Short-range attack missile.

- SRBM. See Short-range ballistic missile.
- SRCM. See Cruise missile.
- SS. Prefix for designation of Soviet ICBMs (for example SS-7, SS-13, SS-17).
- SS. U.S. designation for a diesel-powered attack submarine (or "submergible ship"). See also Submarine.
- SS-9. Heavy liquid-fueled Soviet ICBM, later replaced by the SS-18.
- SS-11. Liquid-fueled Soviet ICBM, the most numerous type in their arsenal at the time of SALT I.
- SS-13. First Soviet solid-fueled ICBM, roughly equivalent to the U.S. Minuteman I.
- SS-16. Fourth-generation Soviet ICBM, solid-fueled and capable of silo or mobile deployment, with or without MIRV; successor to the SS-13.
- SS-17. Fourth-generation Soviet ICBM, successor to the SS-11, deployable with or without MIRV; IOC in 1975.
- SS-18. Fourth-generation Soviet ICBM, MIRVable, successor to the SS-9 heavy missile; IOC in 1974.
- SS-19. Fourth-generation Soviet ICBM, follow-on to the SS-11 but with four or five times the throw-weight; MIRVable, IOC in 1974.
- SS-20. Soviet land-mobile IRBM, comprising the first two stages of the SS-16 ICBM; IOC in 1977. Because it can be converted readily to an SS-16 but is exempt from SALT limitations, it has caused serious concern in the West.
- SSB. U.S. designation for a diesel-powered ballistic missile submarine. See also Submarine.
- SSBN. U.S. designation for a nuclear-powered ballistic missile submarine. See also Submarine.
- SSG. U.S. designation for a diesel-powered cruise missile submarine. See also Submarine.
- SSGN. U.S. designation for a nuclear-powered cruise missile submarine. See also Submarine.
- SSN. U.S. designation for a nuclear-powered submarine. See also Submarine.
- SS-N-6. Soviet liquid-fueled SLBM, range 1,300 nautical miles, deployed on Yankee (Y-) class nuclear submarines.

- SS-N-8. Soviet SLBM with a range of 4,200 nautical miles, deployed on Delta-I-class nuclear submarines.
- SS-NX-17. First Soviet solid-fueled SLBM, employing a PBV and thus MIRVable.
- SS-NX-18. Soviet Liquid-fueled SLBM, MIRVable, with a range in excess of 4,000 nautical miles.
- SPARTAN. Long-range antimissile missile of the Safeguard system, with a range of about 400 miles and a megaton-range nuclear warhead.
- SPECTRUM DEFENSE. The concept that nuclear weapons can be used to deter a wide spectrum of military threats, both nuclear and conventional.
- SPRINT. Short-range antimissile missile of the Safeguard system; range 15-25 miles at altitudes from 5,000 to 100,000 feet; nuclear-armed, with a warhead in the 10-kiloton range.
- SPUTNIK 1. The first artificial earth satellite, launched October 4, 1957 by the Soviet Union.
- STABILITY. "Arms race" stability exists when neither side has strong incentives to improve existing weapons systems, introduce new ones, or add to existing force levels. Crisis stability exists when neither side has serious temptations to launch a first strike under crisis conditions, because even under such conditions the advantage inherent in a first strike is minimal. Weapons system stability exists when only weapons deemed to contribute to stability are deployed. Exactly which weapons so contribute and under what conditions, however, are matters of great dispute, which tend to betray the political and doctrinal leanings of the analysts making the proposals.
- STANDING CONSULTATIVE COMMITTEE (SCC).
- STAND-OFF (missile and carrier). Any system in which a conveyance of any sort delivers any missile to a designated launch point. The missile then proceeds to the target under its own power, while the transport returns to base.
- STAND-OFF LAUNCH. The firing of weapons, such as ALCMs and ASBMs, from outside an opponent's airspace or terminal defenses; a technique for extending the useful life of aircraft when penetration is difficult.
- STANDING CONSULTATIVE COMMISSION (SCC). A permanent U.S.-Soviet SALT commission established by the ABM Treaty to "promote the objectives and implementation" of the 1972 agreements. It meets regularly and deals with such issues as charges of noncompliance by one side or the other, e.g., by covering missile silos during construction work.

- STANDOFF LAUNCH.** The firing of ALCM's from outside Soviet air space.
- START.** See Strategic Arms Reduction Talks.
- STEALTH.** A family of technologies for reducing the probability that an aircraft will be detected by enemy sensors, such as radar; also the designation of a possible strategic bomber utilizing such techniques, to succeed the B-1.
- STRATEGIC.** Refers to a nation's overall military, economic, and/or political power and its ability to control the course of political/military events. Also refers to the central nuclear weapon systems of the U.S. and the USSR, i.e., ICBMs, SLBMs, and heavy bombers, which are intended for use primarily on an intercontinental basis. See also Strategic nuclear weapon systems; Tactical; Theater.
- STRATEGIC AIR COMMAND (SAC).** U.S. military bureau responsible for control of ICBMs and intercontinental bombers.
- STRATEGIC ARMS LIMITATION TALKS (SALT).** The discussions that began in 1970 between the United States and the USSR on the limitation of strategic armaments, now referred to as START. See also Strategic Arms Reduction Talks.
- STRATEGIC ARMS REDUCTION TALKS (START).** A series of negotiations begun during the Reagan administration intended to reduce offensive strategic weapon arsenals. See also Strategic arms limitation talks.
- STRATEGIC BOMBER.** A multi-engine aircraft with intercontinental range, designed specifically to engage targets whose destruction would reduce an enemy's capacity and/or will to wage war. See also Medium bomber.
- STRATEGIC DELIVERY VEHICLE.** Under SALT, a bomber or missile capable of delivering a nuclear weapon from the homeland of one party to the homeland of the other.
- STRATEGIC DOCTRINE.** As defined by Ermarth (1978), "a set of operative beliefs, values, and assertions that in a significant way guide official behavior with respect to strategic research and development (R&D), weapons choice, forces, operational plans, arms control, etc."
- STRATEGIC FORCES.** See Strategic nuclear weapon systems.
- STRATEGIC INTERCONTINENTAL CRUISE MISSILE (SICM).** A hypothetical but feasible weapon.
- STRATEGIC NUCLEAR OPERATIONS.** The use of nuclear weapons against an enemy's homeland so as to reduce the enemy's capacity and/or will to

wage war. Also includes actions to defend friendly assets from similar forays by foes.

STRATEGIC NUCLEAR PARITY. See Essential equivalence.

STRATEGIC NUCLEAR WEAPON SYSTEMS. Offensive nuclear weapon systems designed to be employed against enemy targets for the purpose of effecting the destruction of the enemy's political/economic/military capacity, and defensive nuclear weapon systems designed to counteract those systems.

STRATEGIC PARITY. A condition of a least rough balance or equality in U.S. and U.S.S.R. strategic nuclear capabilities.

STRATEGIC POWER. A nation-state's military, economic, and political power or ability to control the course of political-military events. Nuclear weapons systems are considered strategic because of their capabilities to damage or destroy an opponent's political system, economic resources, and military capabilities.

STRATEGIC ROCKET FORCES. Official designation of the ICBM component of Soviet strategic forces.

STRATEGIC STABILITY. A state of equilibrium that encourages prudence by opponents facing the possibility of general war. Tendencies toward an arms race are restrained, since maneuvering for marginal advantage is seen as meaningless.

STRATEGIC SUFFICIENCY. Nuclear doctrine of the early Nixon administration.

STRATEGIC WEAPONS. Those nuclear weapons systems capable of attacking targets in the homeland of an adversary.

STRATEGIC STABILITY. See Stability.

STRATEGY. The plan for use of nuclear weapons in a war-fighting situation.

STRENGTH/DISTANCE FUNCTION (SDF). The function describing the change (usually decline) of usable military or other power with distance from its home base; called "loss of strength gradient" by Boulding (1962).

STRIKE AIRCRAFT. Tactical aircraft used primarily for interdiction and close air support missions.

STRIP ALERT. See Ground alert.

SUBMARINE (SS, SSB, SSBN, SSG, SSGN, SSN). A warship designed for operations under the surface of the seas. The standard U.S. naval designation for a diesel-powered submarine (or "submersible ship")

is "SS." Nuclear-powered submarines are identified by the designation "N"; those armed with cruise missiles by the letter "G"; and those armed with ballistic missiles by the letter "B." See also Delta submarine; Polaris submarine; Poseidon submarine; Trident submarine; Typhoon submarine.

**SUBMARINE-LAUNCHED BALLISTIC MISSILE (SLBM).** Any ballistic missile transported by and launched from a submarine. May be short-, medium-, intermediate-, or long-range. See also Ballistic missile.

**SUBMARINE-LAUNCHED CRUISE MISSILE (SLCM).** Any airbreathing missile transported by and launched from a submarine. May be short-, medium-, intermediate-, or long-range. See also Cruise missile.

**SUBSONIC CRUISE ARMED DECOY (SCAD).** A stand-off weapon designed as a penetration aid for bombers; it carries a nuclear warhead and appears on radar screens as another bomber.

**SUFFICIENCY (SUF).** Strategic doctrine of the Nixon administration at the time of SALT I, under which rough parity in capabilities was sought but numerical inferiority was acceptable. Other conditions, which were difficult to specify, called for an adequate second-strike retaliatory capability, no incentive for the Soviets to strike first in a crisis, and the capability to inflict urban-industrial losses on the Soviet Union equivalent to what they could inflict on the United States.

**SUPER.** Superiority: Strategic doctrine calling for greater strategic forces than an opponent, sometimes a "margin of safety." The United States had superiority by virtue of its early nuclear monopoly, and that superiority extended until perhaps 1970. It is not clear that superiority in the contemporary strategic weapons regime necessarily implies a first strike capability.

**SUPPLIERS' CLUB.** A name used to refer to those countries that have the ability to make nuclear reactors and other essential equipment, and that have banded together to discuss policies for the sale of nuclear plants to other countries.

**SURFACE-TO-AIR MISSILES (SAM).** A missile fired from the earth's surface against aerial targets.

**SURGICAL STRIKE.** U.S. term used to indicate a selective attack with nuclear weapons in contrast to all-out first strike or retaliatory second strike. The desirability of being able to carry out a surgical strike is being used to justify the development and procurement of nuclear weapons with counterforce capabilities.

**SURVIVABILITY.** See Prelaunch survivability; Postlaunch survivability.

**SWARMJET.** An ABM concept in the High Frontier proposal, in which many small unguided rockets would be fired from a steerable launcher, to

- disable by impact an incoming warhead at low altitudes; in effect, it is a nonnuclear shotgun.
- SYSTEM. See Nuclear delivery system.
- SYSTEMS ANALYSIS (SA) in the U.S. Department of Defense.
- TAC. See Tactical Air Command.
- TACTICS. In general, the plans of immediate battlefield actions, or the detailed operational means of pursuing a strategy.
- TACTICAL. Generally, relating to battlefield operations. See also Battlefield nuclear weapons; Strategic; Theater.
- TACTICAL AIR COMMAND (TAC). U.S. military unit responsible for nonstrategic air operations both in North America and overseas.
- TACTICAL FORCES. See General-purpose forces.
- TACTICAL NUCLEAR DELIVERY VEHICLE. Nuclear weapon system designed to be employed against enemy targets in a limited conflict. Usually refers to vehicles of shorter range than those necessary for the conduct of strategic and theater operations.
- TACTICAL NUCLEAR WEAPONS. See Battlefield nuclear weapons.
- TARGETING. In strategic warfare, the selection of targets and their assignment to the weapons that are to attack them.
- TARGETING DOCTRINE. Principle governing the selection of targets to be attacked in the event of war, the allocation of weapons to those targets, and the order in which they will or can be attacked.
- TECHNOLOGICAL PRISONER'S DILEMMA. The difficulty of placing limits on R&D activity in the absence of effective verification techniques.
- TERCOM. Terrain comparison matching - guidance system designed for ALCM.
- TERMINAL GUIDANCE. In-flight corrections to the trajectory of a ballistic or cruise missile during its final approach to the target for the purpose of improving accuracy. See also Mid-course correction.
- TERRAIN CONTOUR MATCHING. A system that correlates contour-map data with terrain being overflown by ballistic or cruise missiles. The results provide position fixes at intervals. These can be used to correct inertial guidance errors and thereby improve accuracy. See also Mid-course correction.

- TEST AND TRAINING LAUNCHER. Under SALT II, an ICBM or SLBM launcher at a test range, used solely for test and training purposes.
- THEATER. A geographically limited (regional) area of military conflict. See also Strategic; Tactical; Theater nuclear forces.
- THEATER NUCLEAR FORCES (TNF). All nuclear forces not considered strategic. See also Alliance and regionally oriented (related) systems.
- THEATER (TACTICAL) NUCLEAR WEAPONS (TNW). Battlefield nuclear weapons planned for use in Europe but not for a homeland attack against the Soviet Union.
- THERMONUCLEAR WEAPON. Nuclear weapon (also referred to as the hydrogen bomb) in which the main part of the explosive energy released results from thermonuclear fusion reactions. The high temperatures required for such reactions are obtained with a fission explosion.
- THOR. Early U.S. liquid-fueled IRBM, with a range of about 1,750 miles and a payload of 1,500 pounds; deployed in Britain in 1959.
- THREE-TIER FRAMEWORK. The structure of the SALT II accords, consisting of a Treaty, a Protocol, and a Statement of Principles.
- THRESHOLD TEST BAN TREATY (TTBT). Agreement signed in 1974 limiting the yield of any underground weapons test to 150 KT.
- THROW-WEIGHT. Ballistic missile throw-weight is the useful weight placed on a trajectory towards the target by the boost stages of the missile. For the purposes of SALT II, throw-weight is defined as the sum of the weight of (a) the RV or RVs; (b) any PBV or similar device for releasing or targeting one or more RVs; and (c) any antiballistic missile penetration aids, including their release devices.
- TIME-SENSITIVE/TIME-URGENT TARGET. Any target that can move to avoid being struck. Includes weapons that can be launched or redeployed before hostile aircraft or missiles arrive.
- TITAN. Largest and oldest ICBM in U.S. arsenal; 54 of these multiple-megaton, liquid-fuel rockets are presently being phased out.
- TNF. See Theater nuclear forces.
- TRANSPORT ERECTOR LAUNCHER (TEL). Mobile vehicle capable of launching a missile.
- TRIAD. Refers to the basic structure of the U.S. strategic deterrent force, composed of land-based ICBMs, sea-based SLBMs and SLCMs, and manned bombers armed with bombs, SRAMs, and ALCMs.

TRIDENT. New U.S. missile-bearing submarines, scheduled for IOC in 1981.

TRIDENT SUBMARINE. The latest U.S. ballistic missile submarine. The Trident is armed with 24 Trident C-4 MIRVed SLEMs. This missile will be replaced by the MIRVed Trident D-5 SLEM in the 1980s, a measure that will provide the U.S. SSBN fleet with counterforce capabilities equivalent to those possessed by U.S. land-based ICBMs.

TU-26. See Backfire.

TU-95. See Bear.

TYPHOON. Soviet SSBN, possibly competitive with the U.S. Trident, first seen under construction in 1978.

TYPHOON SUBMARINE. U.S. designation for the latest Soviet SSBN. The Typhoon carries 20-24 MIRVed SLBMs capable of striking intercontinental targets from waters adjacent to the USSR.

UNACCEPTABLE DAMAGE. Degree of destruction anticipated from an enemy retaliatory strike sufficient to deter a nuclear power from launching a first strike.

UNCONDITIONAL VIABILITY. The condition in which a state cannot be effectively destroyed with nuclear weapons.

UNDERWATER LONG-RANGE MISSILE SYSTEM (ULMS). See Trident.

UNITED STATES ARMS CONTROL AND DISARMAMENT AGENCY (ACDA, also USACDA). A small agency housed within the U.S. Department of State, with reporting lines both to State and to the President. ACDA has played a major role in such negotiations as SALT.

UNITED STATES INFORMATION AGENCY (USIA).

UNITED STATES INTELLIGENCE BOARD (USIB). Submits National Intelligence Estimates (NIEs) to the President or the National Security Council. Members are representatives of the U.S. Air Force (A-2), Navy (Office of Naval Intelligence), and Army (G-2), the director of intelligence of the Nuclear Regulatory Commission, State Department (Assistant Secretary of State), Federal Bureau of Investigation, National Security Agency, and the director of the Defense Intelligence Agency; the USIB is chaired by the Director of Central Intelligence (CIA).

U.S. JOINT CHIEFS OF STAFF (JCS).

U.S. NATIONAL SECURITY AGENCY (NSA). Responsible for monitoring foreign communications and other signals.

U.S. NATIONAL SECURITY COUNCIL (NSC).

U.S. STRATEGIC AIR COMMAND (SAC).

VERIFICATION. Inspection and/or surveillance measures to determine compliance with arms-control agreements. See also Arms control; Arms limitation.

VERIFICATION PANEL. The senior committee in the Nixon NSC system responsible for U.S. SALT policies. Chaired by Henry Kissinger as the President's Assistant for National Security Affairs, the Panel included the Director of ACDA, the Deputy Secretary of State, the Deputy Secretary of Defense, the Chairman of the JCS, and the Director of Central Intelligence. A Verification Panel Working Group with representatives of those agencies prepared and coordinated detailed studies of specific SALT issues for consideration by the Verification Panel.

VERTICAL PROLIFERATION. The development and enlargement of a state's nuclear capacity in terms of further refinement, accumulation, and deployment of nuclear weapons.

VIABILITY. The capability of a nation-state to survive attack and remain an independent decision-making center. See also conditional viability and unconditional viability.

VLADIVOSTOK ACCORDS. Interim agreement on launcher limits to extend IOA, reached by President Ford and Secretary Brezhnev in 1974.

WAR-FIGHTING. Combat actions, as opposed to deterrence (which theoretically is designed to prevent rather than prosecute wars). See also Counterforce strategy.

WARHEAD. That part of a missile, projectile, torpedo, rocket, or other munition that contains either the nuclear or thermonuclear system, the high-explosive system, the chemical or biological agents, or the inert materials intended to inflict damage.

WEAPONS-GRADE MATERIALS. Radioactive materials suitable for the construction of a nuclear weapon.

WEAPON SYSTEM. See Nuclear delivery system.

WORST CASE. In estimates of future enemy military capabilities, the most extreme situation imaginable.

WORST-CASE ANALYSIS. Analytic method that involves looking for most dangerous outcome of a strategic situation and planning to counter that worst contingency.

YANKEE (Y)-CLASS SUBMARINE. NATO designation for a second-generation Soviet nuclear-powered ballistic missile submarine capable of carrying 16 SLBMs. Thirty-four Y-class SSBNs were deployed between 1968 and 1974.

**YIELD.** The energy released in an explosion. The energy released in the detonation of a nuclear weapon is generally measured in terms of the kilotons or megatons of TNT required to produce the same energy release (1 kiloton = 1,000 tons of TNT; 1 megaton = 1 million tons of TNT).

**ZERO OPTION.** Designation of a 1981 proposal by President Reagan that both NATO and the WTO withdraw all MRBMs and IRBMs from Europe. Given that at the time only the WTO had modern missiles of those types, the proposal was not taken very seriously.

## A NOTE ON SOURCES

Primary sources consulted in preparation of this glossary included Gerard Smith (1980), Doubletalk, and Thomas W. Wolfe (1979), The Salt Experience. Additional sources consulted include the following; detailed citations will be found in the References.

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Final responsibility for all definitions and usages, of course, rests with this author.

# APPENDIX B. THE "PRISONERS' DILEMMA" MATRIX AND EXPLANATION.

		Prisoner II	
		Confess	Not Confess
Prisoner I	Confess	5, 5	1, 10
	Not Confess	10, 1	1, 1

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The Prisoners' Dilemma, which is a special case of the theory of games of strategy, affords an excellent model for better understanding some of the difficulties associated with the question of security and safety in this world. In the usual formulation of the Prisoners' Dilemma, two prisoners have been caught and charged with some crime such as armed robbery. Lacking evidence, the district attorney realizes that he has a weak case against the two, whereupon he has the prisoners placed in separate cells and held incommunicado. He then offers each prisoner the following deal. "The evidence against you is not complete, so each of you has a choice of confessing or not confessing to the crime. If you both confess, your sentences will be five years each. If neither of you confesses, your sentences will be one year each. If one of you confesses, the one who confesses will get a light sentence of only half a year for helping us clear up this case, but the other will be dealt with harshly and receive a sentence of ten years." Because the prisoners are kept separated, each must make his own decision about confessing without information about what the other prisoner has decided.

In matrix above, the first number in each cell represents the possible sentence for Prisoner I and the second the possible sentence for Prisoner II. Obviously each prisoner's greatest preference is likely to be the half-year sentence, followed by the one-year sentence, and the five-year

sentence next. The least desirable outcome for each prisoner would be a ten-year sentence. "Rational" behavior, by definition, requires that a person strive exclusively for his first preference on a scale of preferences. In this case, a "rational" prisoner must strive exclusively for the payoff that maximizes his own self-interest without regard for the other party, that is, the half-year sentence. However, neither prisoner can escape the hard fact that the outcome for himself is also contingent upon what his partner in crime decides. In other words, the dilemma each has is how to reconcile the two self-interested "rationalities."

Ordinarily, individuals in such a situation proceed to communicate with each other in order to arrive at some collective action. Such is the central role that communication plays in the achievement of cooperation in human affairs. In our hypothetical Prisoners' Dilemma, however, communication is not possible, and each must consider other factors in arriving at his own decision to confess or not confess.

Each prisoner must consider two antecedent questions. First, what will be the other prisoner's probable behavior? Second, will that probable behavior have positive or negative consequences for oneself? These two questions are, in fact, the principal elements of trust.

"Trust" has been defined as consisting of at least two elements:

(a) predictability of another's behavior and (b) the positive or negative consequences of that behavior for the trusting individual.

Source: Ralph M. Goldman, "Political Distrust as a Generator of the Arms Race: Prisoners' and Security Dilemmas", as quoted in, Burns H. Weston, (ed.), Towards Nuclear Disarmament and Global Security: A Search for Alternatives, (Boulder, Colorado, 1984), pp. 90-92.

**Horizontal nuclear proliferation. The prospects.**

**EXISTING NUCLEAR WEAPONS STATES**



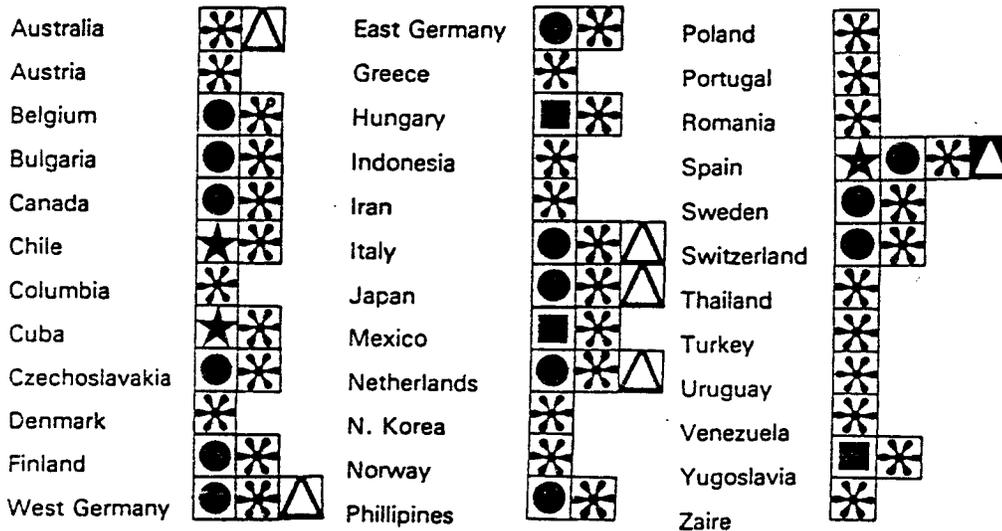
**POSSIBLE NUCLEAR WEAPONS STATES**



**NEAR NUCLEAR WEAPONS STATES**



**POTENTIAL NUCLEAR WEAPONS STATES**



**Key**

- non - Signatory to the NPT
- existing civilian nuclear power programme
- civilian nuclear power programme under construction or planned
- existing nuclear facilities (research reactors etc)
- existing facilities for enrichment and/or reprocessing
- planned facilities for enrichment and/or reprocessing

Source: Adam Suddaby, The Nuclear War Game, (London: Longman, 1983), p. 91.