

ANALYSIS OF SUPERPOWER NUCLEAR STRATEGY:

Compellence as a Competing

Paradigm to that of

Deterrence

by

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ABSTRACT

This thesis centers on that aspect of superpower strategic nuclear systems that lies beyond pure deterrence. Much has been offered under the rubric of deterrence, but little analysis of compellence has been attempted. Considering the widespread criticisms of deterrence theory, this is surprising. A comprehensive look at nuclear strategy from the conceptual framework of compellence helps clarify the limits of deterrence and indicates that deterrence and compellence are increasingly interrelated.

To demonstrate these assertions, this dissertation provides a quantitative and qualitative analysis of intercontinental nuclear systems. The thesis is that nuclear strategy in the United States and the Soviet Union from 1970-1986 may be described at least equally well by compellence rather than deterrence. By looking closely at technological capabilities, the real capability of these nuclear systems can be more accurately determined. This analysis includes an assessment of how these nuclear systems could interact in combat, based on a Soviet correlation of nuclear forces model. This is the first time in the West that this model has been used for this purpose. It provides a unique Soviet perspective on nuclear strategy.

This dissertation begins with the theoretical basis of deterrence and compellence, and then establishes two models based on these two concepts which provide the conceptual framework for the dissertation. The second chapter examines the theoretical basis for arms control based on each paradigm. The next two chapters address alternately the American and the Soviet nuclear strategies, attempting to draw out the deterrent and compellent aspects therein.

The fifth chapter narrows the focus to the role of arms control in identifying actual nuclear strategy; to what extent are the superpowers attempting to achieve foreign policy objectives in SALT I, SALT II and START? The sixth chapter considers the NATO-Warsaw Pact relationship to determine to what extent the superpowers are using their respective alliance systems in their strategic interrelationship. The next three chapters analyze quantitatively and qualitatively the American and Soviet strategic nuclear force structures to determine a correlation of forces trend and develop some predictions as to the viability of each force structure in supporting its respective strategy.

The paradigmatic analysis of superpower nuclear strategy clearly portrays the limitations of deterrence as an explanation for international strategic behaviour. The compelling paradigm is shown as a reasonable alternative that in many ways better explains what has happened in superpower strategic relations from 1970-1986.

LIST OF ABBREVIATIONS

ABM	Anti Ballistic-Missile
ACDA	Arms Control and Disarmament Agency (United States)
ALCM	Air Launched Cruise Missiles
ASW	Anti-Submarine Warfare
CEP	Circular Error Probable
CMP	Counter Military Potential (See K)
CRS	Congressional Research Service
DIA	Defence Intelligence Agency (United States)
DOD	Department of Defence (United States)
EMT	Equivalent Megatonnage
FBIS	Foreign Broadcast Information Service
ICBM	Intercontinental Ballistic Missile
INF	Intermediate (range) Nuclear Forces
IRBM	Intermediate Range Ballistic Missiles
JPRS	Joint Publications Research Service (U.S. Congress)
K	Measure of the lethality of a nuclear warhead against hard targets
LCC	Launch Control Centers
MARV	Multiple Manoeuvring Re-entry Vehicles
MC	Nato document approved by the Military Committee
MIRV	Multiple Independently-targeted Re-entry Vehicles
MRV	Multiple Re-entry Vehicles (dispersed on one target)
NATO	North Atlantic Treaty Organization
NORAD	North American Air Defence
NSDM	National Security Decision Memorandum
NSDD	National Security Decision Document

NUWEP	Nuclear Weapon Employment Policy
OAR	Overall Reliability
PVO Strany	Soviet Air Defence System (Now called Voiska PVO)
RV	Re-entry Vehicle (Carries nuclear warhead)
SAC	Strategic Air Command (USAF)
SDI	Strategic Defence Initiative
SIOP	Single Integrated Operation Plan
SLCM	Submarine Launched Cruise Missile
SLBM	Submarine Launched Ballistic Missile
SNDV	Strategic Nuclear Delivery Vehicle
SRF	Strategic Rocket Forces (Soviet Union)
SSBN	Nuclear Powered Ballistic Missile
SSKP	Single Shot Kill Probability
SSN	Nuclear Powered Attack Submarine
TKP	Terminal Kill Probability
TNW	Tactical Nuclear Weapons
US	United States (of America)
USAF	United States Air Force
USGPO	United States Government Printing Office
USSR	Union of Soviet Socialist Republics (Soviet Union)
WTO	Warsaw Treaty Organization (Warsaw Pact)

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Chapter One

THE EVOLUTION OF STRATEGIC PARADIGMS

In one way or another, the United States and the Soviet Union, as superpowers, expect to influence other actors in the world society. Since the threat of force has always played a key role in generating expectations of international behaviour and perceptions of relative influence,¹ understanding the conceptual basis of nuclear strategy is of fundamental importance.

The key question since 1945 has been to what degree can nuclear weapons actually support political objectives. In practice, each superpower has political goals that in effect provide strategic direction to its armed forces and this highest level of strategic thought is called grand strategy in the United States, or military doctrine in the USSR. Military and nuclear strategy are in fact subsets or lesser orders of strategy imbedded in these higher orders.² The military strategies of the superpowers are intended to support their respective national policies and nuclear strategies are designed as their ultimate sanction. This dissertation will examine this complex relationship between security policy and superpower nuclear weapons with primary focus on the years 1970-1986, the period immediately prior to Gorbachev's dramatic and far reaching reforms.

¹ For traditional but solid analysis of this view see Martin Wight, Power Politics (London: Leicester University Press, 1978) or Georg Schwarzenberger, Power Politics: A Study of World Society (New York: Frederick A. Praeger, 1964).

² For an interesting and unique account of the various levels of strategy, see Edward Luttwak, Strategy: The Logic of War and Peace (Cambridge, Massachusetts: Howard University Press, 1987) pp. 69-71. While this dissertation accepts the notion of various levels of military/strategic thought or action, it does not accept Luttwak's breakdown per se.

Deterrence has been the primary rationale for superpower nuclear weapon construction for this period. Both the United States and the Soviet Union in the late 1960's accepted that the conditions of nuclear parity and assured destruction were overriding factors in their strategic inter-relationship, and yet between 1970 and 1986 each superpower created ever more massive levels of nuclear armaments. For example, in spite of a tremendous increase in Soviet nuclear power during this period, the number of United States warheads that could survive a Soviet first strike have increased fivefold.³ There have been several attempts to explain this phenomenology, but most analysis has been based on deterrent thinking and has been largely unconvincing. This dissertation will provide a paradigmatic approach that will examine the possibility that thinking based on compellence may be playing a far greater role in superpower nuclear strategy than has been generally acknowledged.

A paradigm is a theoretical construct that usually has an enduring group of adherents who explain its subject through a unique set of criteria which assist in puzzle solving. Its power is in its ability to identify a way of thinking about its subject, and different paradigms imply significantly different ways of thinking. This dissertation and its descriptions are therefore concerned primarily with the hermeneutics of deterrent and compellent thought processes, and thus they are not historical explications nor accounts of decision making per se.

This dissertation intends to construct, within the framework of the realist perspective of international relations, two competing strategic paradigms and determine their utility for assessing intercontinental strategic systems and their respective force structures. The deterrent

³ McGeorge Bundy in his excellent historical account raises this problem but offers no explanation. See his Danger and Survival (New York: Random House, 1988), p. 591.

paradigm appears to have been the dominant model for declaratory nuclear strategy in each superpower, but in recent years deterrence has come under increasing criticism as a paradigmatic construct or basis for nuclear strategy. More and more, strategic nuclear systems and policies have moved beyond limits that appear necessary for "pure" deterrence or assured destruction, toward a different paradigm that can be called compellence. An excellent analysis of deterrence has already hinted at this other paradigm's existence:

It is always attractive for diplomatic and foreign policy purposes to insist that the central objective of one's own forces is simply to deter but this cannot obscure the fact that they are available for some or all other uses of arms.⁴

This chapter will establish the deterrent and compellent paradigms then construct a conceptual framework necessary for the paradigmatic analysis of nuclear strategy. The second chapter in fact completes this formulation by examining the theoretical basis for arms control based on each paradigm. Subsequent chapters will proceed to apply this framework to American and Soviet nuclear strategy, the arms control dialogue, alliance nuclear strategy and finally to specific American and Soviet nuclear force construction and deployment patterns. The principle argument of this thesis is that deterrence and compellence may be closely interrelated and that the compellent paradigm may offer a more appropriate explanation of the thinking behind superpower nuclear strategy.

I. HISTORICAL DEVELOPMENT OF MODERN STRATEGY

To account for the shift in strategic thought that began in 1945, one must understand in what conceptual framework earlier strategists were operating. This section will explore the essence of strategic assumptions

⁴ Patrick M. Morgan, Deterrence: A Conceptual Analysis (London: Sage Publication, 1983), p. 30.

in the nineteenth and early twentieth centuries with particular emphasis on technology, and will then extrapolate on some continuities and discontinuities that are characteristic of the nuclear era.

Strategy can mean several things, but this study uses the definition provided by André Beaufre; it is "the art of applying force so that it makes the most effective contribution towards achieving the ends set by policy."⁵ Beaufre continues by stating that strategy must be considered as the art of the dialectic of two opposing wills either using or threatening to use force to further their political aims. The influence of the international environment inevitably provides certain constraints to this abstract dialectic, and a correct assessment of the international situation is therefore a vital element of strategy.⁶ How a given state perceives its milieu, then, largely determines its strategic approach, and in the modern age up to 1945 a "traditional" strategic style can be identified.

Politically and philosophically, the modern age of thought was heralded by Machiavelli who broke with the classical and Christian tradition of "imagined republics" to seek the "effectual truth of the thing."⁷ The modern age of thought changed the object of philosophy from abstract contemplation to more immediately practical ends, that of political success in which morality played a significantly reduced role. Thomas Hobbes furthered these notions by conceiving man as being constantly at war with every other man unless a common power exists "to

⁵ André Beaufre, An Introduction to Strategy (London: Faber and Faber, 1965), p. 22. This is an excellent introduction to the subject.

⁶ André Beaufre, An Introduction to Strategy, p. 26.

⁷ Nicolo Machiavelli, The Prince translated by Leo Paul S. de Alvarez (Irving, Texas: University of Dallas Press, 1980), pp. 93-95.

keep them all in awe."⁸ For Hobbes, therefore, a commonwealth or state must logically be in competition or at war with all others even though "battles" might take place infrequently. Furthermore, in such a state of total anarchy, "nothing can be unjust", and the major factor that inclines men toward peace is the fear of death.⁹

After Hobbes, two interpretations in modern thought have increasingly crystallized, and both have had a profound impact in Western political traditions. A tradition of optimism leads to the view of rational historical progress where greater adversity leads to greater expectation that man will overcome it. The opposite tradition of pessimism is however extraordinarily critical of irreversible historical progress through human harmony and rationalism.¹⁰ While the first tradition tends to idealism and utopianism, the latter, when coupled with the Hobbesian notion of perpetual human competition, can lead to pessimism and despair.¹¹ For the most part, international behaviour has been based upon the latter tradition, and throughout the modern age, strategy has tended to share the Hobbesian assumptions of state competition and anarchy.

International relations theorists have recently established conceptual paradigms as constructs that offer contending explanations of how nations interact. In the traditional or realist perspective, state

⁸ Thomas Hobbes, Leviathan (New York: Penguin Books, 1968), pp. 185-186.

⁹ Ibid., p. 188.

¹⁰ Jean Jacques Rousseau, On The Social Contract. Translated by Judith P. Masters (New York: St. Martin's Press, 1978), p. 46. "L'homme est né libre, et partout il est dans les fers." One interpretation is that man was born into the natural freedom of nature and has been enslaved by civilized society. See editor's comments, pp. 9-11.

¹¹ Sir Ian Clark, Reform and Resistance in the International Order (London: Cambridge University Press, 1980). To Clark, the tradition of optimism contributes to resistance to reform and the tradition of pessimism contributes to reform of the international system.

security is paramount and remains based on Hobbes' notion that no restraints exist except those based on fear and on Rousseau's notion that areas of common agreement are insignificant and short lasting.¹² Some analysts see no progress or major restructuring of the operative principles of international policies since 1815, particularly in the realm of strategic interaction.¹³ Traditional strategy has tended to base its assumptions on those of the realist tradition, and even during the peak of idealistic thought, strategy still focused on state-centric behaviour.¹⁴

The realist structure was largely put in place by Hans Morgenthau as a reaction to Wilsonian idealism in the United States. Morgenthau's concept of reality was based on the notion that each nation pursued its interests defined in terms of power such that the balance of power was an "inevitable and essential stabilizing factor in a society of sovereign nations."¹⁵ There are two assumptions in this conceptualization, firstly that conflict is a permanent feature of human society and secondly that power is the most important element in structuring the international system. The roots of these assumptions go back to Machiavelli and are so

¹² K.J. Holsti, The Dividing Discipline: Hegemony and Diversity in International Theory (Boston, Massachusetts: Allen and Unwin, 1985), pp. 24-25.

¹³ Ian Clark, Reform and Resistance in the International Order, p. 174.

¹⁴ Michael Banks, "The Inter-Paradigm Debate," in Margot Light and A.J.R. Groom, eds., International Relations: A Handbook of Current Theory (London: Frances Pinter, 1985), p. 7.

¹⁵ Hans J. Morgenthau, Politics Among Nations (New York: Alfred A. Knopf, 1965) gives an excellent historical review of the balance of power concept pp. 167-223. The citation can be found on p. 167.

deep that many still hold them to be universally valid.¹⁶

In this framework the emphasis on national interests results in the international community seeking to achieve an equilibrium or a balance that is conceived in terms of power. In the nineteenth century Britain successfully sought to create an effective balance of power in Europe so as to check her strongest rival and prevent any one continental state from becoming too "powerful." Since there is no clear evidence that the state system is in decline, and since a balance of power remains very much a condition of this system, wars in the final analysis only contribute to it.¹⁷ As each state is ultimately concerned with its own survival and is "unwilling to rely on the power and will of the international community as a whole to protect it," according to a respected historian, *raison d'état* and self-sufficiency tend to form the basis for strategic behaviour.¹⁸

The role of military force in a balance of power system is to contribute to those assets which the state can use to pursue unilaterally its avowed interests. While political power is seldom directly equivalent to military power, there is an obvious linkage between the two, and there is no evidence that this has significantly changed in the nuclear age.¹⁹ In reality the relationship between theory and practice is often blurred and the notion of national interest links realist theory to traditional

¹⁶ See C.R. Mitchell, "Conflict, War and Conflict Management," in Margot Light and A.J.R. Groom, eds., International Relations, p. 133, and Randolph M. Siverson, "War and Change in the International System," Ole Holsti, et al., Change in the International System (Boulder, Colorado: Westview Press, 1980), p. 227.

¹⁷ Hedley Bull, The Anarchical Society (New York: Columbia University Press, 1977), p. 198.

¹⁸ Michael Howard, War and the Liberal Conscience (New Brunswick, New Jersey: Rutgers University Press, 1978), pp. 134-135.

¹⁹ John Garnett, "The Role of Military Power," in John Baylis, et al., Contemporary Strategy: Theories and Policies (New York: Holmes and Meier Publishers, 1975), p. 55.

strategy in a very imprecise manner.²⁰ What is a virtue in politics is not necessarily of great assistance to strategy, and thus military strategy has been primarily a praxis, often left to military experts.

Those "strategists" that studied the application of force before the French revolution tended to reduce warfare to its technical characteristics, so that war was considered to be more an exact science than an art. The legacy of jurists such as Grotius and the human carnage of the Thirty Years' War made limited wars with restrained political aims the norm,²¹ but the French revolution and Napoleon once again changed the nature of wars. No longer was manoeuvre in itself sufficient to determine the outcome, but mass armies were required and decisive battles had to be won to achieve more open-ended aims. Clausewitz was the analyst that was best able to capture the essence of modern war. His philosophy emphasized the importance of the moral and political implications rather than the technical. His detailed understanding that the danger and demands of war placed a premium on moral qualities of endurance, resolution and "sang froid," all emanating from the willpower of a leader, had a "sympathetic audience among military men who by temperament have little patience with theoretical strategists."²²

The impact of Clausewitz on military strategy has been mixed because his massive and partially finished volumes have been effectively studied by few, yet cited as authoritative by many. One interesting study determined that, had the Germans properly studied and understood

²⁰ Alexander George, "Domestic Constraints on Regime Change in U.S. Foreign Policy: The Need for Political Legitimacy," in Ole Holsti, et al., Change in the International System, p. 234.

²¹ J.F.C. Fuller, The Conduct of War 1789-1961 (London: Methuen and Co., 1961), Chapter 1, "The Limited Wars of the Absolute Kings," pp. 15-25.

²² Michael Howard, preface to Roger Leonard Ashley, A Short Guide to Clausewitz on War (London: Weidenfeld and Nicolson, 1967), p. X.

Clausewitz, "the First World War might never have been unleashed."²³ Clausewitz held the view that abstract logic could approach a conceptual purity that reality could never achieve, and thus his heavy and unbalanced emphasis on absolute war and battle was open to misinterpretation. Clausewitz acknowledged the "friction" of war which meant in part that:

The object of war in the abstract...the disarming of the enemy, is rarely attained in practice, and it is not a condition necessary to peace.²⁴

The greatest impact of Clausewitz's philosophy of war is its linkage to realist thought, the logical extension of which is the statement, "if you wish for peace, understand (or prepare for) war."²⁵ While some analysts deny the close relationship of politics and war established by Clausewitzian philosophy,²⁶ the utility of military power to support a state's political goals became an accepted part of traditional strategic thought by the twentieth century.

In the twentieth century, however, the technological level of weapons produced by the industrial age outstripped the ability of man to cope with their strategic implications. For Sun Tsu and Clausewitz the weapons themselves were not important, but for Fuller and Douhet they had become perhaps the most significant part of strategic thought. In World War I, few military leaders were properly able to appreciate the cycle of

²³ Jehuda L. Wallack, The Dogma of the Battle of Annihilation: The Theories of Clausewitz and Schleiffen and their Impact on the Conduct of Two World Wars (London: Greenwood Press, 1986), p. 204.

²⁴ Carl Von Clausewitz, cited in B.H. Liddell Hart, Strategy (New York: Praeger Publishers, 1967), p. 247.

²⁵ B.H. Liddell Hart, Deterrent or Defence (New York: Frederick A. Praeger, 1960), p. 247.

²⁶ Anatol Rapoport rejects the Clausewitzian or political paradigm of war as being the only or best one. He establishes three views of war: political, eschatological, and cataclysmic in his introduction of Carl Von Clausewitz, On War (London: Routledge and Kegan Paul, 1908; Penguin Books edition, 1968), pp. 11-80.

technology, and as a result, strategy was moribund and millions of lives were sacrificed to no effect. In World War II, French strategic thinking based on the power of the defence in 1914-1918 was overcome by new modes of thought that had more appropriately assimilated the modern technology. More than ever in the twentieth century the "development of warfare has been closely related to the process of historical change."²⁷

The concept of strategy has become more complex as kingdoms have grown into nation states, and international competition has expanded to include almost every facet of human endeavour. In the eighteenth century strategy merely referred to the science of "military movement beyond the visual circle of the enemy, or out of cannon shot" - a range that would approximate 1,000 yards.²⁸ The closest concept to our present notion of strategy was that of a "campaign plan" up to the nineteenth century when Jomini described strategy as "the art of properly directing masses upon the theatre of war."²⁹ Strategic thinking has been changing to more closely reflect the increasing power of technology and the greater complexity of state ambitions.

Traditional strategic thought, such as it can be defined, is then really a sum of several threads of thinking deeply rooted in Western intellectual tradition. With the advent of nuclear weapons, however, again technology to a degree preceded strategic thought, and analysts disputed the degree of continuity with what this study has called traditional or pre-nuclear strategy. The marriage of the bomber and nuclear weapons, however, soon made it abundantly clear that the

²⁷ Richard A. Preston and Sydney F. Wise, Men in Arms, Second Edition, (New York: Praeger Publishers, 1970), p. 8.

²⁸ Jay Luvaas, Frederick the Great on the Art of War (London: Collier-MacMillan, 1966), p. 306.

²⁹ Ibid.

technological discontinuities required a deeper review of strategy to determine what political goals could be achieved by nuclear weapons. The conduct of World War II had demonstrated the propensity for war to "create its own logic" such that war goals expanded and developed their own momentum.³⁰ It had become evident that nuclear weapons could raise serious challenges to a state achieving the object of war, to achieve "a better state of peace - even if only from your own point of view."³¹ If the opponent had nuclear weapons, the prospect of any retaliation made it quite problematic for the initiator to achieve his goals.

Nuclear weapons rendered practicable Douhet's notion that one state could punish another without having first to destroy its traditional armed forces. This created a problem for strategic thought in that the relevance of traditional strategy became extremely problematic. One result is a literature "rich in highly technical analysis of the strategic balance, but relatively weak in empirically based theory dealing with the underlying concepts."³² Perhaps strategic thought has been pushed by the technological shock of the nuclear age to over-compensate somewhat by focusing unduly on technology lest strategy be left behind once again. The revolution in strategic thought heralded by the nuclear age was summed up neatly by Brodie:

³⁰ Russel F. Weigley, "Military Strategy and Civilian Leadership," in Klaus Knorr, ed., Historical Dimensions of National Security. (Lawrence, Kansas: Allan Press, 1976), p. 68. See also Wendell J. Coates, "Clausewitz's Theory of War: An Alternative View," Comparative Strategy 5 (November 4, 1986), pp. 351-373.

³¹ Liddell Hart, Strategy, p. 351.

³² And fortunately so. See A.J.R. Groom, "Strategy," in Margot Light and A.J.R. Groom, eds., International Relations, p. 141. Leon Wieseltier called deterrence a counter-factual proposition that does not admit of proof, see his Nuclear War Nuclear Peace (New York: Holt, Rinehart and Winston, 1983), p. 75.

Thus far the chief purpose of our military establishment has been to win wars. From now on its chief purpose must be to avert them. It can have almost no other purpose.³³

II. STRATEGIC PARADIGMS IN THE NUCLEAR AGE

The nuclear revolution has led to the elevation of the notion of deterrence through technology as the ultimate source of state security in the nuclear age. Although the theoretical base of deterrence has a sound deductivist logic, as a strategy for the superpowers it has become increasingly inappropriate, and as a consequence, traditional strategic thought has reappeared:

One reason why the periodic "great debates" about national security policy have been so inconclusive is that the participants often argue from different premises - one side from the point of view of deterrence, and the other side from the point of view of defence.³⁴

The nature of the above citation from Snyder suggests that there are at least two ways of viewing the security problem and that these views may not be compatible. This section will develop this notion into two paradigms that provide two distinct views of nuclear strategy, one based on deterrence and the other based on compellence. Before describing the nature of each paradigm, however, it is necessary to establish more precisely what a paradigm is and to account in greater detail for the increased emphasis on technology in the nuclear age.

³³ Bernard Brodie, The Absolute Weapon: Atomic Power and World Order (New York: Yale Institute of International Studies, 1946), p. 76. More recent works also note the revolution in strategy caused by nuclear weapons, see The Harvard Nuclear Study Group, Living With Nuclear Weapons (Cambridge, Massachusetts: Harvard University Press, 1983), pp. 30-32.

³⁴ Glenn H. Snyder, Deterrence and Defence (Princeton, New Jersey: Princeton University Press, 1961), p. 4. The gap between theory and strategy is also a main theme of Alexander George and Richard Smoke, "Deterrence and Foreign Policy," World Politics, 41 (January 1989), p. 180.

1. Paradigms as a Research Tool

The growth of knowledge has been fostered in part by scientific discoveries, and often these discoveries have been related to scientific revolutions in history, the overturning of existing theoretical beliefs in favour of new ones. Following David Hume, who questioned the validity of positivist induction - the prevalent logic of science - Karl Popper proposed a system of negative induction implying that no longer could science infer from the specific to the general.³⁵ By claiming that any scientific statement could be subject to falsification by future empirical testing,³⁶ Popper was in part proposing an alternative paradigm of knowledge. A paradigm is thus a way of structuring thought as well as a coherent set of beliefs that tends to accumulate over time.

According to Thomas Kuhn, major scientific breakthroughs are usually accompanied by paradigm shifts, and his conclusion was that those achieving great discoveries had already shed the limitations to thought established by older paradigms. For Kuhn, a new paradigm must appear to better explain the world, to be aesthetically more suitable to the problem at hand and to offer a mystical kind of future promise.³⁷ To be accepted as a paradigm, a theory must seem better than its competitors, yet need not and seldom does explain all of the facts with which it is confronted.³⁸ A paradigm can also precede theory in a sociological sense; it can be concrete and observable as a form of professional or scientific

³⁵ Karl R. Popper, The Logic of Scientific Discovery (London: Hutchison and Company, 1968), p. 30.

³⁶ Ibid., p. 47.

³⁷ Thomas S. Kuhn, The Structure of Scientific Revolutions (London: University of Chicago Press, 1970), pp. 153-156.

³⁸ Ibid., p. 17.

achievement or accomplishment.³⁹ Kuhn also described what happens when a paradigm is stretched too far; the results are conceptual inconsistency, absurdity, misexpectation, disorder, complexity and confusion.⁴⁰ Eventually, such a paradigm collapses because of the inadequacy of its own structure rather than falsification, and a new paradigm takes its place.

As different paradigms encompass competing ways of viewing the world, they can provide a unique tool that can help the analyst penetrate to the essence of the problem and better explain contending points of view. Strategic thinkers in the nuclear age have been charged with lacking "the rudiments of precision" and in some cases having no relevance.⁴¹ Another criticism of strategic thinking is that it derives from a scientific pursuit of rational considerations and that "its power can be applied only in the solution of problems, not in their formulation."⁴² This study intends in part to address these criticisms and will attempt to provide greater precision to the analysis of the nuclear conundrum.

2. The Problem of Technology

In the modern age, scientists and technologists together have become one of the most potent groups in all history.

³⁹ Margaret Masterman, "The Nature of a Paradigm," in Imre Lakatos and Alan Musgrave, Criticism and the Growth of Knowledge (Cambridge: Cambridge University Press, 1970), pp. 65-66. This a brilliant little book.

⁴⁰ Ibid., p. 83.

⁴¹ Joseph E. Schwartz, "Strategic Thought: Methodology and Reality," in Charles A. McCoy and John Playford, eds., A Political Politics: A Critique of Behaviouralism (New York: Thomas Y. Crowell, 1967), p. 55.

⁴² Anotol Rapoport, "Critique of Strategic Thinking," in Naomi Rosenbaum, ed., Readings on the International Political System (Englewood Cliffs, New Jersey: Prentice Hall, 1970), pp. 215-226.

After Descartes based his own philosophy on the discoveries of Galileo, philosophy has seemed condemned to be always one step behind the scientists and their ever more amazing discoveries, whose principles it has striven arduously to discover *ex post facto* and to fit into some overall interpretation of the nature of human knowledge.⁴³

The above passage applies equally to the philosophical relationship between strategic thought and the technological advance of weaponry, thus indicating the substantive impact technology has had on our modern society. Since knowing and making have become practically synonymous, "technology is the ontology of the age."⁴⁴ Political doctrines of today are driven by the need to be technically efficient, and all is then converted to a technical problem that correct technique can solve. The state therefore exploits doctrines to support its own ends; power is technique, and complex intellectual constructs such as national strategy no longer have any usefulness beyond justification.⁴⁵ Particularly in the United States technological mastery for its own sake appears so strong that the men who undertake it "still identify what they are doing with the liberation of mankind."⁴⁶

The implications of this technological momentum on nuclear strategy are profound for they indicate that the strategist is more closely tied to technology than ever. One study suggests that technology is so far ahead

⁴³ Hannah Arendt, The Human Condition (Chicago: University of Chicago Press, 1958), p. 294.

⁴⁴ George Grant, "The Computer does not impose on us the ways it should be used," in Abraham Rotstein, ed., Beyond Industrial Growth (Toronto: Massey College, 1977), p. 128. This is a brilliant article.

⁴⁵ See Jacques Ellul, The Technological Society (New York: Alfred A. Knopf, 1967), pp. 282-284.

⁴⁶ George Grant, Technology and Empire (Toronto: House of Anansi, 1969), p. 27. Philip Green also rejects the proposition that science is neutral, see his "Science, Government and the Case of Rand," World Politics, 20 (January 1968), p. 325.

of thought that the ends of products must be adapted to suit the means, a process labelled "reverse adaptation."⁴⁷ Operating within the concept that healthy things grow, a given system manipulates the needs it serves and strongly influences the political processes that create and expand missions necessary for its survival and growth. If this were true, in the domain of nuclear strategy, strategists would be seeking uses for products they had never anticipated.

Nuclear strategy for the superpowers is increasingly tied to technological developments, and no immediate alternative appears available. Only non-violent resistance avoids the position where "tout retard technologique risquerait d'apparaître comme une faiblesse stratégique dont l'adversaire pourrait profiter de façon décisive."⁴⁸ Advocates of this approach claim that non-violent means of deterrence are more compatible with Clausewitz than nuclear deterrence which mistakenly tends to see war and defence in purely military or technological terms.⁴⁹ Clausewitz indeed relegated technology to a lesser order of importance, but, as previously noted, technology has significantly changed the nature of warfare leaving Clausewitz's work somewhat dated.⁵⁰ The real problem

⁴⁷ Langdon Winner, Autonomous Technology (London: MIT Press, 1977), pp. 238-260.

⁴⁸ Christian Mellon, et al., La Dissuasion Civile: Principes et Méthodes de la Résistance non violente dans la Stratégie Française (Paris: Fondation pour les Etudes de Defense Nationales, 1985), p. 10. It should also be noted that the smaller countries judged to be most secure are those with strength, Yugoslavia and Switzerland. See Reneo Lukic, La Dissuasion Populaire Yougoslavie (Paris: Centre Interdisciplinaire de Recherches sur la Paix et d'Etudes Stratégiques, 1984), p. 41.

⁴⁹ Anders Boserup and Andrew Mack, War Without Weapons: Non-Violence in National Defence (New York: Schocken Books, 1975), pp. 170-180.

⁵⁰ Michael I. Handel, "Clausewitz in the Age of Technology," Journal of Strategic Studies 9 (June/September 1986), p. 83.

in modern strategy is technological change which prevents a definitive solution in terms of some perceived condition of stasis,⁵¹ which creates strong pressures to pursue technical research as an end in itself. This is the ontological dilemma of technology.

In sum, the technological arms competition between the superpowers has grown to the point that military superiority is essentially a function of national technological supremacy, and some have called this strategic contest a war.⁵² While the advocates of technological pursuit strongly favour increased emphasis on technology to overcome the Soviet Union, others abhor the power of the war machine.⁵³ The increasingly unmitigated reliance on technique has led us to a complicated present, but nihilistic philosophy "tells us very little about what can be done to guide and direct the technological innovation along socially beneficial lines."⁵⁴ We are thus trapped in a situation wherein the seriously contradictory views expressed above epitomize two dominant streams of thought within which our strategic paradigms can be found.

3. The Deterrent Paradigm

Essentially this paradigm accepts the premise that nuclear weapons have created a revolution in arms such that traditional strategic thought

⁵¹ Raymond Aron, The Great Debate, Theories of Nuclear Strategy (New York: Doubleday and Company, 1965), p. 43.

⁵² Stefen T. Possony and J.E. Pournelle, The Strategy of Technology: Winning the Decisive War (Cambridge: University Press of Cambridge, 1970), pp. 11-12.

⁵³ See Ibid., p. 51, for the former view. See Anotol Rapoport, The Big Two: Soviet-American Perceptions of Foreign Policy (New York: Pegasus, 1971), p. 210 for the latter view.

⁵⁴ Melvin Kranzberg, Testimony before the Subcommittee on Science, Research and Development, U.S. House of Representatives, Historical Aspects of Technology Assessment (Washington, D.C.: USGPO, 1970), p. 385.

can no longer apply and deterrent thought has replaced it. Because we have no empirical evidence to falsify the tenets of deterrence at the strategic nuclear level, doctrine and beliefs have an increased role in creating reality.⁵⁵ As a consequence, any paradigm must be somewhat artificial and subjective, and the following models are not intended to be definitive solutions but heuristic tools designed to improve our understanding of the process of strategic thinking. To construct the paradigm of deterrence, this section will first review the concept, the strategy and the requirements for deterrence. Then, it will address the underlying assumptions and relevant criticisms of deterrence as an explanatory model.

The concept of deterrence is not new, but in the nuclear age its use has been greatly extended. The basic theory of deterrence, however, is simply a relationship involving a distinctive type of influence openly based on the threat of sanctions where one party aspires to prevent another party from initiating a specified action.⁵⁶ By threatening to make this action sufficiently costly to the potential initiator, the deterrer hopes to make the costs outweigh the gains and therefore preclude any incentive on the part of the deterree from initiating it. In traditional strategy, deterrence was imbedded in overall military posture, but offensive air power and nuclear weapons now allow such great and unacceptable pain to be inflicted on an adversary that deterrent and

⁵⁵ Robert Jervis, The Illogic of American Nuclear Strategy (Ithaca, New York: Cornell University Press, 1984), p. 22. See also David Allan Rosenberg, "U.S. Nuclear Stockpile, 1945-1950," Bulletin of the Atomic Scientists, 38 (May 1982), p. 30.

⁵⁶ Phil Williams, "Deterrence," in Contemporary Strategy: Theories and Policies, pp. 69-70.

defence values can be clearly separated.⁵⁷ With this separation, the threat of unacceptable damage or deterrence could be applied to a defensive situation rather than forcible military denial by pure defence. This is workable so long as the deterrent is absolutely effective. Nuclear weapons can be an effective deterrent, but because their use would be fatal to so many, military strategy tends to be limited primarily to the threat of their use - the diplomacy of violence.⁵⁸

The contemporary strategy of deterrence therefore relies on the threat of using weapons of massive destruction without actually having to use them. Should the other side have the same capability, however, the result is a situation where either power can destroy the other. As long as a nation is secure in its ability to retaliate and destroy what the opponent values most, deterrence strategy maintains that both will be deterred from attacking, producing a stable situation known as mutual assured destruction (MAD). Deterrence as a strategy creates a distinction between those weapons intended for defence (first use) and those weapons intended for deterrence (second strike), but modern technology has blurred this distinction over time with smaller and more accurate warheads.⁵⁹ There is a danger that, as a strategy, deterrence is being driven by technology; the concept of deterrence reigns, but it rules neither

⁵⁷ Good classical discussions of the concept of deterrence can be found in T.C. Schelling Strategy of Conflict (Cambridge, Massachusetts: Harvard University Press, 1960); Glenn Snyder, Deterrence and Defence, p. 11; and Bernard Brodie, Strategy in the Missile Age (Princeton, New Jersey: Princeton University Press, 1965), pp. 269-273.

⁵⁸ Thomas Schelling, Arms and Influence (London: Yale University Press, 1967), pp. 33-34. This is an excellent review of theory.

⁵⁹ David Owen, "Effective Deterrence," in Frank Barnaby and Geoffrey Thomas, The Nuclear Arms Race - Control or Catastrophe? (London: Frances Pinter, 1982), p. 38.

strategy nor tactics.⁶⁰ In its purest form a deterrent strategy simply invokes a sanction of retaliation or retribution if a certain action takes place; the aim is to prevent that action from taking place by threatening to initiate a process in risk-taking that would engulf both parties in mutually devastating nuclear war.

The requirements to achieve a basic deterrent strategy are generally considered to be fourfold; the will to fight, a commitment worth fighting for, the capability to fight and a clear communication to the adversary of all of the above. The will to fight is an important component of a nation's war potential.⁶¹ It is closely linked to commitment in an effort to enhance the credibility that the deterrent will be initiated if a specified action takes place. An unequivocal commitment is generated by having evident interests, troops in place or by unambiguous policy statements such that a given state's intentions are very visible and explicit. At times, however, perhaps "too much attention is given to making commitments credible and not nearly enough to understanding what prompts an adversary to challenge them."⁶² The capability to inflict unacceptable levels of damage is essential to supporting an effective deterrence strategy, but this requirement is "not nearly as demanding" as

⁶⁰ Janice Stein, "Deterrence in the 1980's: A Political and Contextual Analysis," in R.B. Byers, Deterrence in the 1980's: Crises and Dilemma (Bechenham: Croom Helm, 1985), p. 45.

⁶¹ Klaus Knorr, The War Potential of Nations (Princeton, New Jersey: Princeton University Press, 1956), p. 3. See also chapter four where the author suggests that, up to a point, will can be substituted for capability.

⁶² Richard Ned Lebow, "Deterrence Reconsidered: The Challenge of Recent Research," in Catherine McArdle Kelleher, et al. Nuclear Deterrence: New Risks, New Opportunities (London: Permagon-Brassey's, 1986), p. 140.

some theorists assert.⁶³ So long as populations are hostage to the effects of nuclear weapons, a deterrent strategy based on assured destruction does not require thousands of warheads; about four hundred is probably enough.⁶⁴ The communication of the above to the adversary is perhaps the most important requirement, for deterrence essentially operates in men's minds.⁶⁵ As the probability of the outcome is a key variable in calculating projected gains or losses,⁶⁶ a clear perception of the likelihood of retaliatory action is vital to the establishment of effective deterrence.

What the essential requirements for deterrence do not demand is superiority in numbers or even matching the adversary weapon for weapon. In the nuclear age, "the potential deterrent value of an admittedly inferior force may be sharply greater than it was before," and there is a point at which "each unit of additional damage threatened brings progressively diminishing increments of deterrence."⁶⁷ Extended deterrence to protect one's allies however implies a requirement to avoid giving the adversary a position of escalation dominance, the ability to

⁶³ McGeorge Bundy, "The Unimpressive Record of Atomic Diplomacy," in Gwyn Prins, ed., The Choice: Nuclear Weapons Versus Security (London: Chatto and Windus, 1984), p. 53.

⁶⁴ Alain C. Enthoven and K. Wayne Smith, How Much is Enough? (New York: Harper and Row, 1971), pp. 207-210; and David T. Johnson and Barry R. Schneider, eds., Current Issues in U.S. Defence Policy (New York: Praeger Publishers, 1976), pp. 141-143. See also Wolfgang K.H. Panofsky, "The Mutual Hostage Relationship between America and Russia," Foreign Affairs 52 (October 1973), pp. 109-118.

⁶⁵ Robert Jervis, et al., Psychology and Deterrence (London: John Hopkins Press, 1985), Introduction. This book provides a first rate review of the present state of deterrence theory.

⁶⁶ Richard Rosecrance, "Strategic Deterrence Reconsidered," in Christoph Bertram, ed., Strategic Deterrence in a Changing Environment (London & Gower and Allanheld, Ossonum, 1981), p. 7.

⁶⁷ Bernard Brodie, Strategy in the Missile Age, pp. 275-276.

gain some advantage by threatening higher levels of conflict.⁶⁸ While this concept can create nuclear requirements at theatre level, at the strategic/intercontinental level assured destruction remains all that the deterrence strategy requires. As incremental additions to nuclear strategic power only contribute marginally to increased deterrence, the essential requirements of the deterrent paradigm may not be that extensive.

Several underlying assumptions are fundamental to the deterrent paradigm, but the primary one assumes that the power of nuclear weapons precludes major war as a policy option. Deterrence theory has thus replaced the traditional theory of war, and its specific conditions must be assumed wherever deterrence theory is applied. This means that superpower relations are assumed to remain essentially bipolar and relatively static.⁶⁹ It is also presumed legitimate to infer from the specific to the general so that immediate or contingent deterrence can apply to general strategy.⁷⁰ Another fundamental assumption of deterrence theory is that the capacity to destroy the opponent is a necessary and sufficient condition to prevent him from initiating an aggressive act.⁷¹ The strategy of deterrence further assumes rational decision-making by each nation such that the choice to act or not act is based on sufficient

⁶⁸ For an excellent explanation of escalation dominance, see Herman Kahn, On Escalation: Metaphors and Scenarios (New York: Frederick A. Praeger, 1965), pp. 23-25. For a rebuttal see Anatol Rapoport, "The Sources of Anguish," Bulletin of the Atomic Scientists 21 (December 1965), pp. 35-36.

⁶⁹ Edward Thompson, "Deterrence and Addiction," in Frank Barnaby and Geoffrey Thomas, The Nuclear Arms Race - Control or Catastrophe?, p. 71.

⁷⁰ Patrick Morgan, Deterrence: A Conceptual Analysis, p. 31. See also Michael McCwire, "The Dilemmas and Delusions of Deterrence," in The Choice: Nuclear Weapons Versus Security, p. 82.

⁷¹ Anatol Rapoport, Strategy and Conscience (New York: Harper and Row, 1964), p. 187.

information and an accurate assessment of possible gains or losses. Other assumptions of the deterrence model are that population and industry are sufficiently important to warrant threatening them as the means of inhibiting unacceptable activity by an adversary, that the use of any nuclear weapons would probably escalate to strategic war, and that this risk of escalation would deter provocative behaviour.⁷² These assumptions form the framework of the deterrence paradigm. Since this paradigm has held a dominant position with Western academics and policy-makers for over forty years, ample criticism of it has accumulated.

The major criticism of the deterrence paradigm is that it cannot adequately explain much of what happens in international relations, and it is no longer appropriate either as a theory of state behaviour or as a strategy of conflict management.⁷³ While the essence of deterrence theory is deductive and abstract pertaining to a very narrow range of specific circumstances, it has been expanded as a normative-prescriptive theory, with the result that the theory's prescriptions are limited in scope, utility and accuracy by the simplifications inherent in the number of abstractions in its deductivist methodology.⁷⁴ The concept of rational unitary actor decision-making has been rejected as an appropriate model for state governments, now considered to be complex bureaucracies which in reality do not necessarily function within the prescribed postulates of

⁷² Keith B. Payne, Nuclear Deterrence in U.S.-Soviet Relations (Boulder, Colorado: Westview Press, 1982), pp. 11-12. In a rigorous attack on the assured destruction paradigm, the author compares the deterrence paradigm to classical strategy.

⁷³ Robert Jervis, et al., Psychology and Deterrence, p. 203. See also Keith Payne, Nuclear Deterrence in U.S.-Soviet Relations, p. 7.

⁷⁴ Alexander George and Richard Smoke, Deterrence in American Foreign Policy: Theory and Practice (New York: Columbia University Press, 1974), pp. 72-81.

rationality in deterrent situations.⁷⁵ To some, the limitations inherent in the deterrent paradigm are referred to as an "intellectual straitjacket"⁷⁶ or "intellectual tranquilizer"⁷⁷ imposing a rigid framework on strategic thinking preventing its natural evolution. One dilemma of the deterrence paradigm is that superpower survival depends on mutual interdependence through vulnerability, yet this is "fundamentally at variance" with what is perhaps the central assumption of deterrence, that one's enemy would attack if no deterrent exists.⁷⁸ Other criticisms reflect that deterrence is not fully effective and not only could it fail, as a strategy it could result in greater insecurity over time.⁷⁹

Increasingly, deterrence is subject to attack as being dogmatic and based on obsolete assumptions.⁸⁰ As these attacks are so widespread, one wonders why an alternative paradigm has not yet been accepted. One

⁷⁵ See Graham Allison, Essence of Decision (Boston: Little Brown and Company, 1971), p. 6; Janice Stein and Raymond Tanter, Rational Decision Making: Israel's Security Choices, 1967 (Columbus: Ohio State University, 1980), p. 62. See also Graham Allison, et al., "The Owls Agenda for Avoiding Nuclear War," The Washington Quarterly (Summer 1986), pp. 45-58.

⁷⁶ Hedley Bull, "Future Conditions of Strategic Deterrence," Adelphi Paper 160 The Future of Strategic Deterrence (London: International Institute for Strategic Studies, 1980), pp. 16-17.

⁷⁷ Michael MccGwire, "Deterrence: The Problem - Not the Solution," International Affairs (Winter 1985/1986), p. 58.

⁷⁸ Janice Stein, "Deterrence in the 1980's," p. 40.

⁷⁹ Richard Rosecrance, Strategic Deterrence Reconsidered. Adelphi Paper 116 (London: International Institute for Strategic Studies, 1975), p. 33. See also Dennis Bobrow, "Cool Heads and Hot Weapons," in Catherine McArdle Kelleher, et al., Nuclear Deterrence: New Risks, New Opportunities, p. 98, and Raymond Aron, The Great Debate: Theories of Nuclear Strategy, p. 210.

⁸⁰ Fred Iklé, "Can Nuclear Deterrence Last Out the Century?" Foreign Affairs 51 (January 1973), pp. 267-85. See also Philip Green, Deadly Logic: The Theory of Nuclear Deterrence (Ohio: Ohio State University Press, 1966), p. 271.

analyst described these criticisms as resembling Thomas Kuhn's puzzles in science "that accumulate until they provoke a paradigm shift."⁸¹ It is the theme of this dissertation that the compelling paradigm may offer reasonable alternative heuristic criteria to the deterrent model.

4. The Compellent Paradigm

Although this paradigm recognizes that nuclear weapons are significantly different from previous arms, it has strong links to the traditional strategic pattern in that it offers an account for aggressive as well as defensive strategic action. As deterrence relates to defence, compellence relates to offence. Whereas defence and offence form the heart of traditional military strategy based on the use of force if necessary in support of national objectives, deterrence and compellence form the basis for nuclear strategy based on threats and coercion to ensure compliance in support of national goals. This study will focus on the pure compelling aspects of this paradigm to clearly differentiate it from the deterrent paradigm while recognizing both as abstract forms. This section will describe the concept of compelling action, the strategy of compellence, the requirements to fulfil it and then outline the assumptions inherent in this paradigmatic construct.

In theory, the concept of compellence is as simple as that of deterrence. While deterrence threatens a retaliation that hurts to prevent or deter an act that is not desired, compellence threatens pain or force to induce or compel an act that is desired. In general,

⁸¹ Patrick Morgan, Deterrence: A Conceptual Analysis, p. 220. See also Janice Stein who calls for a wholly new paradigm to integrate the political and military dimensions of national security, "Deterrence in the 1980's," p. 53.

The threat that compels rather than deters often requires that the punishment be administered until the other acts, rather than if he acts. This is because often the only way to become committed to an action is to initiate it.⁸²

A compellent threat then is used in an aggressive manner; "it is designed to persuade the opponent to give up something of value."⁸³ The distinction between compellence and forcible offence is essentially that of threat; "to be coercive, violence has to be anticipated and it has to be avoided by accommodation."⁸⁴ Compellence in the nuclear age can be separated from offensive action in the same way that deterrence is conceptually different from defence.

The strategy of compellence in a situation where both major adversaries are equipped with nuclear weapons logically implies a degree of competition; it is inconceivable that a superpower would knowingly surrender any clear advantage to an opponent in an endeavour as vital as war.⁸⁵ Even though each side has a secure assured destruction capability, a compellent strategy seeks to exploit asymmetries in nuclear arsenals in a way that one analyst compares to a form of strategic mercantilism, the seeking of comparative advantage.⁸⁶ To exploit the shared interest of avoiding mutual devastation in war to induce the adversary to make

⁸² Thomas Schelling, Arms and Influence, p. 70. For an earlier version of the same concept, see Schelling, The Strategy of Conflict, p. 196.

⁸³ Glenn Snyder, Deterrence and Defence, p. 40.

⁸⁴ Thomas Schelling, Arms and Influence, p. 2.

⁸⁵ John Alger, The Quest for Victory (London: Greenwood Press, 1982), p. 1.

⁸⁶ Michael Mandelbaum, The Nuclear Revolution (Cambridge: Cambridge University Press, 1981), pp. 123-124. Mandelbaum presents in a clear way a convincing argument that almost exactly parallels the compellent thought process.

concessions is a key element in compellent action.⁸⁷ A coercive nuclear threat that aims to compel a country to do what it is morally at liberty not to do could even be considered nuclear blackmail.⁸⁸ In Schelling's view, all conflict situations that contain a cooperative element are essentially bargaining situations, and since both sides wish to win and at the same time avoid nuclear war, coercive bargaining is theoretically equivalent to ordinary bargaining.⁸⁹

When the nature of compellent bargaining is coupled with the notion of anticipated violence, the concept of time looms as a significant element in compellent strategy. While a deterrent commitment can be relatively precise and last indefinitely, a compellent threat tends to be more open-ended and needs a finite deadline to be effective.⁹⁰ In specific case studies, compellence has proven more measurable than deterrence;⁹¹ however, as a result of the constraints of time, a national strategy of compellence comparable to that of deterrence becomes problematic. But even if a state seeks to pursue compellent activity on specific occasions, this strategy would still place similarly high demands on a state's military forces because the greater the probability of

⁸⁷ Robert Jervis, The Illogic of American Nuclear Strategy, p. 30.

⁸⁸ Jeff McMahan, "Nuclear Blackmail," in Nigel Blake and Kay Pole, eds., Dangers of Deterrence: Philosophers on Nuclear Strategy (London: Routledge and Kegan Paul, 1983), p. 30.

⁸⁹ Glen Snyder and Paul Diesing, Conflict Among Nations (Princeton, New Jersey: Princeton University Press, 1977), pp. 196-209.

⁹⁰ Thomas Schelling, Arms and Influence, p. 72.

⁹¹ Bruce Russett, "Deterrence in Theory and Practice," The Jerusalem Journal of International Relations (June 1986), p. 216.

victory in war, the greater the probability of compellent success.⁹² It is evident that a compellent strategy requires forces that, similar to those of traditional strategy, can be used for aggressive and defensive missions and that these requirements significantly exceed those needed for deterrence.

In attempting to enforce a compellent strategy, the will to act is far more evident because the initiator must make the first move, and therefore his commitment is usually more obvious than in the case of a deterrent posture. Because the compellent actor seeks to impose his will in the coercive bargaining process, some form of advantage is required, and in terms of nuclear strategy this translates into an effective damage-limiting capability and the threatened ability to fight nuclear war at levels short of intercontinental exchange. A damage-limiting capability includes all forms of defence against nuclear attack⁹³ and fast and accurate counterforce capabilities⁹⁴ such that the adversary could have doubts about his assured destructive abilities in crisis situations. Even if an effective damage-limiting capability were not in place, a compellent strategy could threaten action at lower levels implicitly accepting the attendant risk of mutual destruction. But clearly, credibility would be

⁹² Walter J. Petersen, "Deterrence and Compellence: A Critical Assessment of Conventional Wisdom," International Studies Quarterly 30 (September 1986), p. 281. In this sound article Petersen emphasizes that compellent success avoids war.

⁹³ Compellence places a premium on defence. See Colin S. Gray, "The Transition from Offence to Defence," The Washington Quarterly 9 (Summer 1986), p. 61. Some insist that defences are required for deterrence as well but this notion of deterrence goes beyond this study's deterrent paradigm. See Keith Payne, "The Deterrence Requirement for Defence," The Washington Quarterly 9 (Winter 1986), p. 151.

⁹⁴ By this, counterforce against ICBM as well as other forms of nuclear strength are included. For one approach that decries the dangers of offensive oriented strategy see Stephen Van Evera, "The Cult of the Offensive and the Origins of the First World War," International Security 9 (Summer 1984), p. 106.

greater if flexible and controllable forces were to exist at all levels.⁹⁵ These strategies are often labelled "war fighting deterrence" strategies, and their stated requirements are significantly greater than those necessary for finite or minimum deterrence.⁹⁶

Another stringent requirement for a compellent strategy is communicating exactly what is wanted and assuring the adversary that the compellent threat is clearly limited. If a threat is ambiguous and permits more flexible interpretation, it may be perceived as being open-ended, but if a threat to a status-equal is explicit and compels an action, it may appear so provocative and threatening that the recipient would doubt the ultimate intent could be limited.⁹⁷ Assurances that must accompany a compellent action are harder to demonstrate in advance, but the threat and the proffered avoidance must give the adversary credible options.⁹⁸ Should the combination of threat and assurance work, then the compellent action must be controllable so that it can be stopped.

The compellent paradigm assumes primarily that war is still a policy option in spite of the power of nuclear weapons, and therefore traditional strategy with some important modifications is still a valid guide to international behaviour. This paradigm is supported by some psychological research that describes patriarchy in modern society as the main cultural determinant to war in that pressures to achieve actually result in

⁹⁵ See Colin S. Gray, Nuclear Strategy and Strategic Planning (Philadelphia: Foreign Policy Research Institute, 1984), pp. 79-86. In this rather general book, the author describes a strategy which is capable of compellent action.

⁹⁶ Herman Kahn, Thinking About the Unthinkable in the 1980's (New York: Simon and Schuster, 1984), p. 43. See also p. 33 for a description of increased requirements for multi-stable deterrence (at all levels).

⁹⁷ For an excellent discussion on threats and warnings, see Glen Snyder and Paul Diesing, Conflict Among Nations, pp. 213-219.

⁹⁸ Thomas Schelling, Arms and Influence, pp. 73-75.

aspirations to dominance, not parity.⁹⁹ Compellence is built on the foundation of Machiavelli, Hobbes and Clausewitz; it has a coherent traditional logic that has endured as the basis of realist thought.¹⁰⁰

The concept of military advantage is an essential component of compellence, and the traditional assumptions imbedded in its realist logic are principally that an advantage in force relates to an advantage in international politics.

There is no real security in being just as strong as a potential enemy; there is security only in being a little stronger. There is no possibility of action if one's strength is fully checked; there is a chance for a positive foreign policy only if there is a margin of force which can be freely used.¹⁰¹

Compellence assumes a significant continuity with pre-nuclear strategic logic, and as Herman Kahn describes:

...more than ever there are lessons in the application of the nuclear threat as 'a continuation of politics/policy by other means' and as an instrument for advancing the national interest by deploying forces, though some important caveats and modifications are needed.¹⁰²

Not only is war not yet obsolete, but war could occur. Therefore, realistic military preparations and a perceived superiority should prove useful in coercive bargaining or combat situations. Because nuclear war could lead to self-destruction, this paradigm also implicitly assumes that conventional war or limited nuclear use does not necessarily lead to total nuclear war. As the risk of escalation remains, however, it does not seek

⁹⁹ Charlene Spretnak, "Naming the Cultural Forces that Push Us Toward War," Journal of Humanistic Psychology 23 (Summer 1983), pp. 104-114.

¹⁰⁰ Colin S. Gray, Nuclear Strategy and Strategic Planning, p. 43.

¹⁰¹ Nicolas J. Spykman, America's Strategy in World Politics: The United States and the Balance of Power (New York: Harcourt Brace and Company, 1942), p. 21.

¹⁰² Herman Kahn, Thinking About the Unthinkable in the 1980's, p. 84. See also p. 95 for a discussion on the continuities with traditional strategy.

nuclear or major war, only the advantages that stem from being in a better position to risk war.

Compellence is concerned not merely with staving off threats to the very existence of the state, but primarily "for protecting a variety of lesser interests and exerting political pressure on others."¹⁰³ Behind this linking of military force to political pressure lies the realist assumption that power is a major determinant of international relations.

Never in history has it happened that a nation achieved superiority in all significant weapons categories without seeking to translate it at some point into some foreign policy benefit.¹⁰⁴

Although nuclear compellence as a strategic paradigm includes deterrence, it also involves making threats that portend the risk of war to force an adversary to act; therefore, it requires a force structure and a mode of thought significantly different from that of the deterrence paradigm.

III. A FRAMEWORK FOR PARADIGMATIC ANALYSIS

The deterrence and compellent paradigms in theory both rely primarily on the psychological impact of threats, but the nature of these threats and the force requirements they generate differ greatly. Knowledge of the operating paradigm is important, especially in a crisis, when there is significant reluctance to embark on new modes of thought. As Moltke found in the 1914 crisis, staying with the established strategic plan was easier than changing it even though it was outdated.¹⁰⁵ The importance of

¹⁰³ Lawrence Martin, The Two-Edged Sword: Armed Forces in the Modern World (London: Weidenfeld and Nicolson, 1982), p. 21.

¹⁰⁴ Henry Kissinger, "NATO, The Next Thirty Years," in Christoph Bertram, ed., Strategic Deterrence in a Changing Environment, p. 107.

¹⁰⁵ Richard Ned Lebow, Between Peace and War: The Nature of International Crisis (London: John Hopkins University Press, 1981), pp. 236-237.

paradigms is highlighted by the fact that in a crisis modes of action are "a function of cultural, organizational and personal behaviour patterns established long before the onset of any crisis."¹⁰⁶

This section will meld the previously established paradigmatic constructs into a framework for analysis of superpower strategic interaction. The following framework is divided into three levels of assessment: The strategic intentions to determine the aim of a given strategy, policy or act; the threat of force and the perceptions of that force used to support the achievement of these aims; and, the actual correlation of nuclear forces that create the ultimate threat.

1. The Strategic Intention

Notwithstanding the emphasis that each paradigm places on communication, the real strategic intentions embodied in any policy, act or strategy are rarely so clear as to eliminate all doubt. Increasingly, declaratory strategy has become separated from operational strategy; hence the importance of also examining the explicit and implicit threats as well as the actual nuclear forces. In fact, only after a thorough examination of all issues can a final determination of probable intention achieve any degree of reliability. It may well be that strategic intentions are not uniformly held by various components of a given government, and the resultant strategy is a compromise or a locus of competing perceptions. This section will examine the variable of declared or official policy to determine, to the extent possible, the degree to which it reflects operational policy and to establish which paradigm best explains these strategic intentions.

¹⁰⁶ Ibid., p. 335.

A major problem for analysis is that often strategy can be "muddled" so that a clear idea of the objective is not evident.¹⁰⁷ The notion that nuclear weapons are political not military weapons means they "serve vital political objectives on a continuous basis, perhaps thus obviating the need for discrete and explicit utilization."¹⁰⁸ This notion implies that nuclear weapons lack credibility to support specific policy options but recognizes that the very existence of these weapons provides an unspecified level of support. Such argument best fits the deterrence model, but the counter argument that "it would be absurd to believe that such powerful means of destruction can be wholly and permanently divorced from political conflicts" tends to fit in the compellent paradigm.¹⁰⁹ The perceived utility of nuclear weapons to support policy initiatives is thus a subtle but important tool for analysis.

Some worthwhile research into the nature of deterrence and compellence has helped clarify one distinction between the two paradigms; its

findings suggest that initiators threaten to use military force to change the status quo under conditions that are significantly different from the conditions under which they will initiate threats to defend the status quo.¹¹⁰

The intent to maintain or to change the status quo thus becomes a

¹⁰⁷ Sir John Slessor, The Great Deterrent (London: Cassell and Company, 1957), p. 196.

¹⁰⁸ Barry Blechman and Stephen Kaplan, Force Without War (Washington, D.C.: Brookings Institution, 1978), p. 49. This is an important work. See also D.W. Heister, "Nuclear Proliferation: A Cause for Optimism," International Relations (May 1985), p. 225.

¹⁰⁹ Lawrence Martin, "Limited Nuclear War," in Michael Howard, Restraints on War (Oxford: Oxford University Press, 1979), p. 119.

¹¹⁰ Walter J. Petersen, "Deterrence and Compellence: A Critical Assessment of Conventional Wisdom," p. 282. All powers could have some status quo objectives, see Barry Buzan, People, States and Fear: The National Security Problem in International Relations (Brighton, Sussex: Wheatsheaf Books, 1983), p. 178.

reasonable indicator of strategic intentions. Generally, a threat that deters supports the status quo, and a threat that compels seeks to change the existing status quo.

The political value of what is at stake is also of fundamental importance, perhaps more so than the visible degree of commitment.

Given the overwhelming incentive each contestant has under an effective nuclear balance to avoid general nuclear war, there is effectively no level of commitment of prestige or troops, which will be assumed to be equivalent to an irrevocable commitment. If this is the case, the chief part of any assessment of the strength of a contestant's commitment to an objective must be a process of political evaluation focused on the value of the objective.¹¹¹

A key aspect of assessing political advantage or value associated with a given strategy relates to the fact that "the strategic competition is only the symptom of a much deeper and broader political struggle."¹¹² As a consequence, national self-respect and prestige can suffer from a policy which "deliberately accepts a permanent inferiority in nuclear striking power."¹¹³ The underlying values are a key variable in determining what objectives are really being pursued in any given situation.

The most important variables for analyzing strategic intentions of declaratory policy are the perceived utility of strategic nuclear weapons to support national policies, the degree to which the goal appears to

¹¹¹ Stephen Maxwell, Rationality in Deterrence, Adelphi Paper 50 (London: International Institute for Strategic Studies, 1968), p. 18. The greater the value in question the greater the resolve. This is why deterrence of a nuclear attack on a nuclear armed state's homeland is assumed more credible, the incentive to retaliate is exceedingly high. This highlights the problems of "extended deterrence."

¹¹² Edward Luttwak, Strategic Power: Military Capabilities and Political Utility (Washington, D.C.: Centre for Strategic and International Studies, 1976), p. 6. See also Paul Huth and Bruce Russett, "What Makes Deterrence Work?" World Politics 36 (July 1984), p. 500. The higher the values, the greater the credibility of extended deterrence.

¹¹³ Glen Snyder, Deterrence and Defence, pp. 117-118. See also Barry Blechman and Stephen Kaplan, Force Without War, p. 5.

accept or reject the status quo, and the underlying political values implicitly at stake in a given policy or act. Careful analysis of these variables appears to offer the greatest promise of differentiating and identifying various aspects of deterrent and compellent behaviour.

2. The Threat of Force

This section is concerned with examining only those variables that can help identify deterrent or compellent behaviour in the explicit or implicit threat to use force to achieve a given policy goal. In the construction of the two paradigms earlier in this study, it was evident that both rely on the ultimate military sanction.

Certainly the superpowers have demonstrated great restraint in the application of force against one another, but the quantity and nature of their respective threats has not always been so reserved. Since deterrence threats are more enduring, one might expect an increase in the frequency of threats to represent an increase in compellent behaviour. Some research shows that the greater the disparity in military strength between two adversaries, the more dampened the physical use of force will be and the greater the peaceful resolution of conflicts, but as parity is reached "the utility of threats decreases."¹¹⁴ The degree of superpower reliance on strategic threats, however, has not necessarily declined with parity. As compellence is more applicable to specific situations, it is reasonable that a greater number of different threats in a given period may be one indicator of increased compellent behaviour.

¹¹⁴ Robert Art and Robert Jervis, "When will force be used?" in Robert Art and Robert Jervis, International Politics: Anarchy, Force, Political Economy and Decision-Making (Toronto: Little, Brown and Company, 1985), p. 210.

To differentiate between the two paradigms also requires an examination into the nature of the threats themselves, and the best way to do this is to extend threat logic to the fight and see what implications can be drawn. In Clausewitz's theory of war, deterrence, or more properly defence, was grounded on the threat of war not retaliation, but retaliation in fact inevitably leads to a response which is by definition war.¹¹⁵ Threats to retaliate are usually and primarily deterrent threats, but threats to initiate an attack are usually and primarily compellent threats. Logic demands that if an actor is going to initiate an attack, the first and more important objective must be to limit damage to himself by attacking the enemy's retaliating forces.¹¹⁶ By this logic a counterforce threat is primarily a compellent rather than a deterrent threat. Thus, to threaten an opponent's strategic nuclear forces implies greater utility for the compellent function, and to threaten an opponent's population and urban industrial base implies greater utility for the deterrent function. Since retaliation, however, invokes war, there is some deterrent utility in damage limitation as well, but clearly the compellent paradigm places a premium on counterforce and defensive capability.

Armed force in the nuclear age still provides the essential underpinning for the international political system between states, but the absence of warfare has fed the belief that war would be hard to control which has led to some doubts as to whether it could "serve useful

¹¹⁵ Wendel Coates, "Clausewitz's Theory of War: An Alternative View," Comparative Strategy 5 (November 4, 1986), p. 368.

¹¹⁶ Herman Kahn, On Thermonuclear War (Princeton, New Jersey: Princeton University Press, 1961), p. 165.

national purposes."¹¹⁷ If war cannot be controlled, then total ideological demands for victory will lead to total war,¹¹⁸ and if war can be controlled, one remains "accessible to coercion" concerning decisions effecting that control.¹¹⁹ While the former characterization suits the deterrent paradigm, the latter fits the compellent, especially when a possible war is calculated. The extent of controlled or limited war notions is therefore an appropriate indicator of paradigmatic thought.

If a deterrent does not work, the ex poste facto incentives rapidly assume the nature of compellence, for the defender either has to compel the aggressor to withdraw or be compelled to accept a new status quo.¹²⁰ Some analysts believe that the greatest likelihood of nuclear war will occur when one superpower attempts to compel the other to give up some recent gain.¹²¹ One major difficulty in examining the threat is the problem of terminating war in such a way that does not "ultimately rely upon pushing the enemy beyond a threshold of unendurable pain and thereby compelling him to stop."¹²² Certainly the theoretical basis for compellence should provide greater scope for war termination concepts than deterrence based on assured destruction.

¹¹⁷ Lawrence Martin, Strategic Thought in the Nuclear Age (London: Heinemann, 1979), p. 17.

¹¹⁸ Michael Howard, Restraints on War (Oxford: Oxford University Press), p. 13.

¹¹⁹ Bernard Brodie, Strategy in the Missile Age, pp. 293-294. Controlled nuclear war concepts can be based on just war and proportionality criteria, see Joseph S. Nye, Nuclear Ethics (New York: The Free Press, 1986), pp. 49-51.

¹²⁰ Richard Rosecrance, The Future of the International Strategic System (San Francisco, California: Chandler Publishing, 1972), p. 134.

¹²¹ Colin Gray and Keith Payne, "Victory is Possible," Foreign Policy 39 (Summer 1980), p. 27. This shallow article is overstated.

¹²² Ian Clark, Nuclear Past, Nuclear Present: Hiroshima, Nagasaki and Contemporary Strategy (Boulder, Colorado: Westview Press, 1985), p. 87.

This highlights the first aspect of the nature of threat - its duration and the assurances that accompany it. As noted earlier, a deterrent threat is a relatively open-ended commitment and although the probability of its initiation may be low the expected damage is exceedingly high. A compellent threat is more likely to be contingent, but, since the threatened violence is usually less, the probability of its use must be higher for the initiator cannot be inhibited from its initiation or the threat will have no credibility. In each case, the adversary must have received believable assurances or else no meaningful bargaining can take place. Coercion depends on a subjective feeling which one is trying to create in the opponent's mind, generated from fear and respect, and it is possible to convey a stronger message than intended.¹²³ The critical dimension of strategic policy is political, and in the end, the necessarily vague perceptual factors may count for more than the weapons themselves.¹²⁴

Perceptions created through communicating threats and assurances are vital to ensuring the success of threats; they must be understood for what they are and neither exaggerated nor undervalued. What may seem a reasonable demand to one party may be perceived as the start of a series of threats the aim of which may go far beyond the initial stated objective. One always sees a threat to oneself more seriously than one pointed the other way.¹²⁵ With the coercive diplomacy involved in both paradigmatic constructs, it is the leaders' beliefs that really matter,

¹²³ Bernard Brodie, Strategy in the Missile Age, p. 397.

¹²⁴ Edward Luttwak, Strategic Power: Military Capabilities and Political Utility, p. 16.

¹²⁵ Mary Midgley, "Deterrence, Provocation and the Martian Temperament," in Nigel Blake and Kay Pole, eds., Dangers of Deterrence: Philosophers on Nuclear Strategy, p. 29.

not rationality according to detached analysis.¹²⁶

The key variables pertaining to a paradigmatic analysis of threats include the quantity and the nature of the threats as well as the perceptions associated with a given policy or action. The nature of the threat itself offers good potential for recognizing the operative paradigm in a given policy.

3. The Correlation of Nuclear Forces

The final level of analysis is more concrete in that the nuclear force structures can be readily identified and can be more easily measured. Each superpower has established a huge arsenal of nuclear firepower that each feels necessary to back up its explicit and implicit nuclear threats in its quest to emerge from this competition as the new centre of gravity in the world.¹²⁷ In addition to the concept of balance, however, the correlation of nuclear forces also refers to the potential interaction of strategies in conflict, and the degree to which a nuclear posture is able to engage in war fighting may be a significant measure of the degree of compellence in nuclear strategy.

The first variable is the quality of the nuclear forces themselves. The demands for deterrence on weapons accuracies and yields are fairly simple, with the most important qualitative factor in the deterrent paradigm being survivability. On the other hand, the requirements for compellence call for far greater accuracies and specific yields for

¹²⁶ Richard Betts, "Elusive Equivalence: The Political and Military Meaning of the Nuclear Balance," in Samuel Huntington, The Strategic Imperative (Cambridge, Massachusetts: Ballinger Publishing Company, 1982), p. 117. See also Henry T. Nash, Nuclear Weapons and International Behaviour (Leyden, Netherlands: A.W. Sijthoff, 1975), p. 69.

¹²⁷ James Trapier Lowe, Geopolitics and War (Washington, D.C.: University Press of America, 1981), p. 551.

specific purposes requiring tailored or special nuclear effects. Since the credibility of use must be higher, the technological demands of fighting with and controlling these weapons are more "exigent."

The problems associated with designing nuclear strategy to do more than deter a major nuclear strike calls for a more complex system than simply assured destruction but may offer correspondingly greater reward, by way of leverage on world politics.¹²⁸

A second aspect of the correlation of nuclear forces is the proximate relative balance between the superpowers; if one holds a definite advantage in numbers one may be able to better support compellent behaviour. So long as states are primarily preoccupied with their survival, however, they will seek to maintain some kind of balance which in some degree regulates and reduces to order the political conditions that may lead to war.¹²⁹ This notion of balance does not equate to stability; it is only one factor contributing to it. Studies tend to show that additional actors and that conflict of interest among them can contribute to general stability which implies the continued existence of all the major actors.¹³⁰ There is, however, no clear empirical evidence that can support the hypothesis that the strategic weapons balance between the superpowers can influence the outcomes of conflict situations.¹³¹ Many factors contribute to the relative equilibrium of geopolitical

¹²⁸ Lawrence Martin, "The Determinants of Change: Deterrence and Technology," The Future of Strategic Deterrence, Adelphi Paper 161 (London: International Institute for Strategic Studies, 1980), p. 18.

¹²⁹ Martin Wight, Power Politics (London: Leicester University Press, 1978), p. 184.

¹³⁰ André Beaufre, Deterrence and Strategy (London: Faber and Faber, 1965), p. 81 argues that a third party introduces an element of stability to a dyadic relationship, and Harrison Wagner, "The Theory of Games and the Balance of Power," World Politics 38 (July 1986), p. 574 finds that constant sum systems are stable in spite of conflict.

¹³¹ Barry Blechman and Stephen Kaplan, Force Without War, p. 132.

forces, but no theory ties them all together.¹³² The balance of nuclear forces is only a key factor when one side has a clear preponderance of weapons. If overall numbers are high and increasing, however, this would tend to fit the compellent paradigm as each nation seeks advantage; if overall numbers are low and stable, this would fit the deterrent paradigm.

A more promising variable is the prospective utility of these nuclear forces in war, as only a combined quantitative and qualitative analysis can determine the probable outcome of nuclear use in specific scenarios. Actual power is more difficult to measure than potential power because power is relational and as soon as war is engaged the relative forces are constantly changing.¹³³ Assuming counterforce attacks, in some situations a given state's relative advantage could actually increase if its adversary attacks first.¹³⁴ If a state's relative ability to fight a nuclear war improves over time, compellence may be enhanced, and it may be that each superpower has developed increased counterforce capabilities for these reasons.

To assist in the correlation of nuclear forces analysis, a numerate Soviet method provides, for the first time, a Soviet conceptualization of the interaction of the nuclear balance.¹³⁵ This tool is important not only because it provides an excellent method for analyzing nuclear force deployments, but it also offers a unique insight into the way the Soviet

¹³² Ciro E. Zoppo, On Geopolitics: Classical and Nuclear (The Hague: Martinus Nijhoff Publishers, 1985), p. 9.

¹³³ Klaus Knorr, On the Uses of Military Power in the Nuclear Age (Princeton, New Jersey: Princeton University Press, 1966), p. 18; see also p. 111.

¹³⁴ Edward Luttwak, Strategic Power: Military Capabilities and Political Utility, p. 62.

¹³⁵ This model is described in more detail in chapters seven and eight. It has only recently appeared in the West and has, before now, not been applied to strategic nuclear forces in a comprehensive way.

Union may view the nuclear problem. A careful examination of the interaction of, as well as the quality and quantity of nuclear forces, should reveal whether they are more appropriate for simply securing the assured destruction of the deterrent paradigm, or they are increasingly able to obtain some advantages for the compellent paradigm.

IV. CONCLUSIONS

The paradigmatic approach to nuclear strategy is a heuristic tool to help disclose the operating mechanisms of how strategic nuclear weapons were thought to support superpower foreign policy. The deterrent and compellent paradigms are artificial constructs that have different requirements in theory to effect their desired consequences. The thesis of this dissertation is that the compellent paradigm, by encompassing both deterrence and compellence, more closely reflects this strategic thought process than the popular and accepted deterrent paradigm.

As a code of beliefs and a way of structuring thought, a paradigm establishes a mode of thinking consistent within itself. It provides heuristic criteria based on the superpower nuclear relationship from 1970, the date parity was generally acknowledged, until 1986, the date it became clear that strong winds of change were blowing in the U.S.S.R. Although this historical context predates the major changes of the late 1980's, it nevertheless covers a very important era in the ambiguous superpower relationship. From détente to strident competition, this period emphasizes the considerable importance of analyzing the deterrent and compellent approaches to nuclear strategy.

While deterrence is used to justify vast nuclear arsenals, as a strategic paradigm it is under a great deal of stress and is starting to display the inconsistency and confusion of a paradigm stretched too far.

A consensus is gradually building that deterrence theory "is wrong or inappropriate for a period characterized by essential equivalence."¹³⁶ Deterrence does not recognize that nuclear weapons can be used effectively to project foreign policy as they are deemed too powerful to be credible for anything other than defending vital national goals.

Compellence, on the other hand, is very much concerned with projecting influence with nuclear power if necessary. The compellent paradigm acknowledges nuclear weapons may be used, and limited war is a possibility that the compellent actor appears ready to risk to achieve his aim. Clearly, a state with an appropriate war fighting force posture would have an advantage in a compellent situation if it was seeking limited objectives against a defender whose force structure was based on a deterrent paradigm.

This study has established a framework for paradigmatic analysis that will allow analysis of a given strategy, policy or act to determine to what degree it correlates with either paradigm. All that awaits is to apply this framework on a comprehensive basis to superpower relations in recent years. Since prevailing theory holds that deterrence and compellence are distinct, and since the deterrent paradigm excludes compellent action while the compellent paradigm does not exclude deterrent considerations, empirical indications of both compellent and deterrent behaviour would demonstrate the greater utility of the compellent paradigm. If this proves to be the case, then there may be much more interaction between deterrence and compellence than heretofore realized.

¹³⁶ Colin Gray, Strategic Studies: A Critical Assessment (Westport, Connecticut: Greenwood Press, 1982), p. 21.

Chapter Two

ARMS CONTROL THEORY IN A PARADIGMATIC PERSPECTIVE

Superpower nuclear strategy and modern arms control have become so inextricably intertwined that it is now virtually impossible to assess one without the other. While nuclear strategy, as we have seen, is really an extension of politics by an admixture of military means, arms control is a continuation of politics by a mutual restraint on military means.¹ It is international politics that cements the link between these two concepts. As a consequence, arms control forms a significant component of superpower national strategy and hence must have an important place in any paradigmatic strategic analysis.

Much of the discussion of arms control theory, however, has served to keep nuclear strategy and arms control as separate intellectual activities. The reason for this is directly related to the fear of nuclear war and the popular characterization of arms control as "good" in that it contributes to peace, and nuclear strategy as "bad" in that it exacerbates the potential for war. Over the years, peace movements in Western society have created a strong impetus for disarmament that has compounded perceptions of arms control issues and complicated the pursuit of strategic arms control.

This chapter will review the theoretical development of arms control in the nuclear age as it relates to the paradigms of deterrence and compellence. The first part provides the conceptual background necessary to understand the growth and the content of arms control theory, and the following two parts analyze this theory from the perspective of deterrent

¹ Kenneth Booth, "Disarmament and Arms Control", in John Baylis, et al., Contemporary Strategy, p. 89. Booth deliberately uses Clausewitz's phraseology to show the political nature of arms control.

and compelling strategies. Since nuclear arms control and superpower military strategy are so interdependent, this chapter effectively completes the establishment of the respective strategic paradigms to permit the subsequent comprehensive examination of superpower strategic policy.

I. ARMS LIMITATION THEORY

The evolution of arms limitation theory has for the most part been a Western process that has concentrated on improving state security primarily via negotiations and bargaining to restrain force structure developments which threaten the international system. Thus, many of the systemic factors that affected the formulation of strategic thought have also affected the construction of the theory to limit armaments. Arms limitation as is used in this study refers to any efforts to restrain or limit national armaments and is inclusive of disarmament and arms control. The notion of disarmament has played a significant role in international relations for it has provided the theoretical foundation upon which arms control has rested. While disarmament refers to the reduction or abolition of armaments, arms control is generally accepted as

restraint internationally exercised upon armaments policy, whether in respect of the level of armaments, their character, deployment or use.²

Disarmament is based on the idealistic concept that without weapons there would be no war, but arms control is based on more pragmatic concerns. Arms control theory must therefore acknowledge the "real clashes of interest and the brutal power relationships which actually exist."³ In

² Hedley Bull, The Control of the Arms Race (London: Weidenfeld and Nicolson, 1961), p. ix.

³ Kenneth Booth, Strategy and Ethnocentrism (London: Croom Helm, 1979), p. 18.

the nuclear age, the eventual abolition or at least the control of nuclear weapons is generally regarded as an essential component in avoiding the devastation of nuclear war. Because disarmament is the broader of the two concepts and because it is the intellectual antecedent of arms control, it will be discussed first.

1. Disarmament Theory

As a concept, disarmament is perhaps as old as war itself, but most analysts point to the Rush-Bagot Treaty of 1817 as the first pertinent example of a successful disarmament treaty.⁴ It has helped establish the world's largest undefended border, and it epitomized the values of disarmament that later developed into the rising tide of liberalism of the late nineteenth century.

The inability of strategic leaders to account for their failures during World War I gave great popular support to the concept of disarmament. The high loss of life for no evident purpose made it the war to end all wars. The League of Nations was formed and disarmament negotiations became an accepted part of European diplomacy. Naval arms limitation was initiated in 1921, and in 1928 a major treaty, the Kellogg-Briand Pact, outlawed war.

The advocates of disarmament established ethical, social, economic, military and political grounds to support their cause. War was not considered beneficial or necessary, and weapons were the root of international tensions and war, because they, by definition, had to be directed towards another state. To prepare for war in general was not

⁴ United States Arms Control and Disarmament Agency, Arms Control and Disarmament Agreements (Washington, D.C.: USGPO, 1980 edition), p. 3. An even earlier example of arms control was the agreement between Rome and Carthage after the second Punic War to ban elephants.

possible; one had to prepare for a specific war because detailed and complex staff plans required an enemy.⁵ The disarmers became strongly identified as idealists who believed a better world was close at hand. They believed that the practical difficulties of disarmament could be overcome but that progress towards universal disarmament was blocked by bureaucrats and militarists who held narrow and false logic.⁶ These concerns have continued into the nuclear age as "ban the bomb" and "peace" movements display similar intellectual characteristics although they still remain in a minority position. What has prevented disarmament from gaining greater political acceptability is its dissonance with the realist point of view, that power is a significant factor in world politics.

The inability of a disarmed Europe to cope with Hitler in the 1930s highlighted the tension between defence or deterrence on the one hand and cooperation or appeasement on the other. Armaments were not the cause of World War II, they were but the symptom of deep political conflict.⁷ Britain and France, in attempting to manage the revival of German power, in retrospect, erred by placing too much trust in appeasement and cooperation. The Western powers eventually threatened war to prevent Hitler from invading Poland, yet at the time had no military plans nor the forces to bring such a war to a successful conclusion.⁸ The high level of disarmament and the spirit of international cooperation after World War I was insufficient in itself to prevent another even more devastating war

⁵ Salvador de Madriaga, Disarmament (New York: Coward-McCann, 1929), p. 14.

⁶ Philip Noel-Baker, The First World Disarmament Conference 1932-1933 And Why It Failed (Toronto: Pergamon Press, 1979).

⁷ Philip Towle, Arms Control and East-West Relations (London: Croom Helm, 1983), p. 175.

⁸ Fred Charles Iklé, Every War Must End (New York: Columbia University Press, 1971), p. 117.

'within one generation. One can disarm, but the knowledge of weapons remains, and political instability and conflict creates incentives to re-arm such that the central premise of disarmament theory is proven fallacious.⁹ The experience of the 1930s seemingly demonstrated at least some of the dangers of cooperation, prepared the ground for the advocates of deterrence through strength after World War II, and added a complex dimension to the arms control and disarmament debate.

Disarmament thought in the nuclear age has concentrated primarily on the abolition of nuclear weapons because of the cataclysmic consequences of their use. If all nations were to disarm, clearly serious consideration of the feasibility of some form of "far-reaching international organization is probably essential to the control of war."¹⁰ Because the international state system is so well entrenched, however, it is unlikely that the superpowers will completely disarm in the near future or allow any international organization the degree of power necessary to prevent or control war. Disarmament proponents recognize the long term nature of their utopian proposals and regard the reduction of the reliance on nuclear weapons as an important first step to be followed by abolition of nuclear weapons and then a reduction and abolition of conventional weapons. The technical details of dismantling missiles and warheads are not the problem; the problem is one of political will, trust, and the

⁹ This is the theme of Hedley Bull in The Control of the Arms Race. See also Robin Ranger, Arms Control in Theory and Practice 1958-1981 (Kingston, Ontario: Center for International Relations, 1981), p. 5.

¹⁰ Coit Blacker and Gloria Duffy, eds., International Arms Control: Issues and Agreements (Stanford, California: Stanford University Press, 1984), pp. 342-344.

organization of the world community.¹¹ Unilateral disarmament was discredited by the events leading up to World War II, so general or negotiated disarmament approaches came to the fore in the 1950's.

The harsh climate of the cold war conditioned or even distorted the practice of disarmament negotiations in the United Nations Eighteen Nation Disarmament committee in Geneva. World wide aspirations for disarmament were never higher, but the political and technological basis for it were never so lacking. The result was that neither superpower was able to reject disarmament without a severe propaganda defeat, nor could it accept an agreement without seriously jeopardizing its national security - the result was psychological warfare.¹² In this climate, agreement was impossible and discussion in the United Nations disarmament committee became "a perfunctory affair."¹³ The antagonisms of the Cold War ran so deep that they sustained themselves into the 1980s through a unique language focused on a narrow way of interpreting global relations that affected superpower relations in general and East-West arms control and disarmament in particular.

One impact of the lack of East-West dialogue is the fact that discussion of strategic studies and disarmament during this period was concentrated in Western academia. David Singer distinguished three approaches among this community that variously sought first to address

¹¹ David Lynch, "Dismantling Nuclear Missiles: Military Logistics 3 (January/February 1987). The United States for example could probably dismantle 4000 warheads in one year. See also de Madriaga, Disarmament, p. 48.

¹² John Spanier and Joseph Noguee, The Politics of Disarmament (New York: Frederick Praeger, 1962), pp. 5-6. See also Robert W. Malcolmson, Nuclear Fallacies: How We Have Been Misguided Since Hiroshima (Kingston, Ontario: McGill-Queen's University Press, 1985), p. 114.

¹³ Hedley Bull, Arms Control: A Stocktaking and Prospectus, Adelphi Paper 55 (London: International Institute for Strategic Studies, 1969), pp. 15-16.

either the tensions, the political conflicts or the armaments themselves.¹⁴ It is quite possible that this theoretical debate has not had as great an impact on policy as has been presumed, essentially because the actual development and deployment of strategic systems remained in the hands of military professionals throughout this period.¹⁵

As a consequence of the failure to make any significant progress towards East-West disarmament, arms control came increasingly to be regarded as a more practical theoretical alternative. One result of this process was the expansion of the concept of arms control to include reductions in weapons. Originally arms control denoted internationally agreed rules limiting the arms competition rather than attempting to reverse it, but it now has an expanded meaning to include arms limitation and even disarmament.¹⁶ The notion that arms control in theory could eventually lead to disarmament still holds some allure, but for the most part disarmament theory in its pure form is not considered reasonable or achievable by most of the strategic community. Richard Barnet has penned a suitable epitaph:

Fifteen years of apocalyptic warnings of atomic annihilation have deadened us to the significance of the arms race, for the mind, like the hand, can become calloused. Words like "survival" and "devastation" no longer evoke any response but apathy.¹⁷

¹⁴ David Singer, Deterrence, Arms Control and Disarmament: Towards a Synthesis in National Security Policy (Columbus: Ohio State University Press, 1962), Chapter 7.

¹⁵ See Roy Licklider, The Private Nuclear Strategists (Ohio: Ohio State University Press, 1971), p. 166, and Donald Snow, National Security: Enduring Problems of U.S. Defence Policy (New York: St. Martin's Press, 1986), pp. 189-190.

¹⁶ Jozef Goldblat, Arms Control Agreement: A Handbook (New York: Praeger Publishers, 1983), p. xiii.

¹⁷ Richard Barnet, Who Wants Disarmament? (Boston, Massachusetts: Beacon Press, 1960), p. 1.

2. Arms Control Theory

While disarmament theory sought to achieve absolute global security, the central objective of arms control theory has been to enhance the specific security of a given state or states. Thus military strategy must be interpreted in the broadest sense so that the goals of arms control and of military strategy are substantially the same.¹⁸ Arms control then is far more limited in scope than is disarmament, and arms control theory is critical of the assumption that complete disarmament should be the objective of arms control policy. This section will establish the goals of arms control and then address some specific concepts of the theory to include the need for confidence building measures, the impact of technology, the role of verification and the significance of limited war.

The proponents of arms control portray it as an alternative means to military strategy, the goal of both being greater security. The essential objectives of arms control are to enhance national security, to release economic resources for worthier endeavours and to contribute to the demise of war as a means of conflict resolution.¹⁹ The central assumption of arms control theory is that the world would be more secure if a controlled or reduced level of armaments existed. The resultant logic suggests that a balanced, controlled level of armaments is the best way of providing

¹⁸ Thomas Schelling and Morton Halperin, Strategy and Arms Control (New York: Twentieth Century Fund, 1961), p. 141-142. This work plus the two books by Bull and Brennan cited in the following footnote are excellent and together they have set the standard for arms control theory.

¹⁹ Hedley Bull, The Control of the Arms Race, p. 3. See also Donald Brennan, "Setting and Goals of Arms Control," in his Arms Control, Disarmament and National Security (New York: George Braziller, 1961), p. 40. For the view that military spending is an unproductive burden on society, see Lloyd Dumas, "Military Spending and Economic Decay," in Lloyd J. Dumas, The Political Economy of Arms Reduction: Reversing Economic Decay (Boulder, Colorado: Westview Press, 1982), pp. 1-26.

greater security at the lowest risk and cost.²⁰ Because arms do contribute to tensions, arms control can contribute to the regulation of international behaviour, thus reducing the probability of international crises and the threat of escalation to or during nuclear war.²¹

These objectives of arms control overlap those of disarmament considerably. Disarmament specifically seeks to curtail manufacture of weapons, to prevent the proliferation of nuclear weapons, to prevent new areas of the world from becoming the scene of deployment of nuclear weapons, to prevent the outbreak of nuclear war and to limit the effects of nuclear war if one does break out.²² The key difference is that arms control recognizes that national interests preclude immediate disarmament and stresses the importance of recognizing the potential of joint interest between political adversaries. As a result of less ambitious theory, arms control is more feasible and consequently has had far greater political acceptance.

Because arms control theory is more closely related to strategy, the concept of balance has emerged as central to arms control.

It was recognized in the negotiations of the League of Nations period, and it has been recognized in recent negotiations, that any general reduction would have to preserve an agreed balance, replacing a balance at a higher quantitative and qualitative level with one at a lower level.²³

²⁰ Edward Luttwak, "Why Arms Control Has Failed," Commentary 65 (January 1978).

²¹ Coit Blacker and Gloria Duffy, eds., International Arms Control: Issues and Agreements, p. 336.

²² Albert Legault and George Lindsay, The Dynamics of the Nuclear Balance (London: Cornell University Press, 1976), p. 209.

²³ Hedley Bull, "Arms Control and the Balance of Power," in Ernest Lefever, ed., Arms and Arms Control (New York: Frederick Praeger, 1962), p. 46.

The notion that arms control could and should contribute to a stable strategic balance grew from the fear of nuclear instability generated by the strategic analyses of the 1950s.²⁴ This requirement to achieve strategic stability has furthered the thought that arms control negotiations could be separated from the political relationship between the superpowers because arms control in the West became viewed as a search for "limited technical solutions." As this Western view has not been shared by the Soviet Union,²⁵ considerable difficulty in achieving success between the superpowers has hampered arms control in practice.

Arms control is primarily concerned with formal negotiations, but in practice, unilateral actions and tacit or informal understandings may be equally or more important. In the international sphere the line between what is legally binding and what is not has less significance;²⁶ therefore, all possible avenues to achieve one's aim should be pursued. As a consequence, arms control relies on trust and faith that extend beyond the letter of treaties, highlighting the criteria for acceptability which include applicable limitations, methods of verifying compliance and the consequences of violation.²⁷

²⁴ Robin Ranger, Arms Control in Theory and Practice 1958-1981, p. 22. See also Albert Wohstetter, "The Delicate Balance of Terror," Foreign Affairs 37 (January 1957), pp. 211-34, and his influential Rand studies, Selection and Use of Strategic Air Base, Rand Report R266, 1954, and Protecting U.S. Power to Strike Back, Rand Report R290, 1956.

²⁵ Robin Ranger, Arms and Politics 1958-1978: Arms Control in a Changing Political Context (Toronto: MacMillan, 1979), p. 3.

²⁶ Roger Fisher, "Constructing Rules that Affect Governments" in Donald Brennan, ed., Arms Control Disarmament and National Security, p. 67.

²⁷ Robert Bowie, "Basic Requirements for Arms Control," Daedalus (Fall, 1960), p. 712.

Raising the idea of arms control to prominence in strategic thought has provided a constant reminder of the two edged nature of armed force, and established the importance of not needlessly provoking dangerous reactions in the behaviour of others.²⁸

The achievement of sufficient trust to rely on tacit arms control is not as simple in practice as it may sound in theory. No verification of compliance can achieve absolute effectiveness, and thus the inherent intentions of one's opponent can never be fully known. It is possible that a state could temporarily pursue arms control due to the economic imperative of limiting defence expenditures and not be philosophically committed to the spirit of a given negotiation. Arms control theory therefore creates tension between the perceived level of tacit understanding and the hard requirements deemed necessary for national security.

In sum, arms control seeks greater security for a given state through the incremental and often tacit achievement of restraint on weapons programmes. Nuclear arms control policy should therefore complement nuclear strategy as both share the same goals, hence there is a significant political connection between the two. If the apparent objectives of each are seen as inconsistent by the adversary, then confidence is reduced that arms control is not being pursued for propaganda or political purposes.

To instil confidence that one's arms control policies really intend to promote international security, the notion of confidence building measures has been introduced. These measures are primarily political and psychological rather than military, and they endeavour to reduce mistrust

²⁸ Lawrence Martin, The Two Edged Sword: Armed Force in the Modern World (London: Weidenfeld and Nicolson, 1982), p. 66.

through improved transparency and communication.²⁹ While confidence building measures are useful to facilitate progress on reducing conventional forces in central Europe to preclude a surprise attack option to either side, according to some analysts, they are no substitute for arms control at the strategic nuclear level.³⁰ Others feel that confidence building measures are the only way to achieve reduced political tensions and arms control breakthroughs in all possible strategic situations.³¹ The central thrust of confidence building is to improve communication or strategic dialogue³² thereby reducing mutual fear of surprise attack. In Europe in the mid-1980s, important confidence and security building measures have facilitated such progress on arms control issues such that the distinction between them has eroded.

While arms control theory initially tended to concentrate on the capabilities of weapons systems, confidence building measures address specific intentions or fears such as surprise attack. As strategic surprise in the nuclear age could determine the outcome of a conflict,³³ the result is high states of readiness and serious strains on arms

²⁹ Stephen Larrabee, "Introduction," in Stephen Larrabee and Dietrich Stobbe, eds., Confidence Building Measures in Europe (New York: Institute for East-West Security Studies, 1983), p. 26.

³⁰ Istvan Farago, "Confidence Building Measures in the Age of Nuclear Overkill," in Stephen Larrabee and Dietrich Stobbe, eds., Confidence Building Measures in Europe, p. 56.

³¹ Dan Caldwell, "Arms Control and Deterrence Strategies," in R. B. Byers, ed., Deterrence in the 1980's: Crises and Dilemma (Bechenham: Croom Helm, 1985), p. 191.

³² Jeremy Stone, Strategic Persuasion: Arms Limitation Through Dialogue (New York: Columbia University Press, 1967), stresses communications as a component of strategic dialogue to achieve success in arms control.

³³ Patrick Morgan, "The Opportunity for Strategic Surprise," in Klaus Knorr and Patrick Morgan, eds., Strategic Military Surprise: Incentives and Opportunities (New Brunswick, New Jersey: Transaction Books, 1983), p. 240.

control.³⁴ Because nations with high propensity to use force are relatively appreciative of the advantages of doing so and relatively insensitive to the costs,³⁵ the superpowers, each perceiving the other as having such propensity, are deeply suspicious of one another. Given the human stubborn attachment to old beliefs and an equally stubborn resistance to new ones, there is a tendency "to pay greater attention to signals that support current expectations about enemy behaviour."³⁶ Confidence building measures are a means to break down strong perceptual barriers and to instil an awareness of how the other side views a given action.

Arms control theory also depends to a degree on the technology of weapons systems. If strategic weapons are vulnerable, greater impetus exists to expand the quantity of weapons systems, but if both forces are invulnerable then a stable equilibrium exists where there is no need to increase offensive forces. The advent of relatively invulnerable ballistic missile firing submarines is one example of a technological innovation that on balance probably contributes more to stability than it does to the arms race. While in the 1950s and the 1960s a widespread consensus supported the contention that nuclear weapons systems, especially large and easily verifiable nuclear delivery systems, should be the focus of arms control,³⁷ increasingly technological momentum threatens

³⁴ Jack Nunn, The Soviet First Strike Threat: The U.S. Perspective (New York: Praeger Publishers, 1982), p. 254.

³⁵ Klaus Knorr, Military Power and Potential (Lexington: D.C. Heath, 1970), pp. 137-150.

³⁶ Roberta Wohlstetter, Pearl Harbour: Warning and Decision (Stanford, California: Stanford University Press, 1962), p. 392.

³⁷ George Rathjens, "Changing Perspectives on Arms Control," in Franklin Long and George Rathjens, eds., Arms, Defence Policy and Arms Control (New York: W.W. Norton, 1976), p. 202.

to make early arms control achievements irrelevant. The decision to deploy MIRV warheads has been cited as an example of such a process that overtook the SALT I negotiations.³⁸ Modern small and mobile nuclear delivery systems further contribute to concerns that the measures available to verify arms control agreements may not be adequate in the future.

Verification of arms control achievements has become a significant component of arms control, particularly since the development of national technical means coincided with the articulation of arms control theory. Earlier efforts in the 1950s to achieve arms limitations stumbled over the issue of on-site inspection to confirm compliance, but space based surveillance is now capable of monitoring with confidence much, although by no means all, of the weapons related activities of the superpowers to the degree that much uncertainty is reduced.³⁹ Progress in arms control has become directly linked to verification ability, but in recent years the technical standards of verification have risen as this issue has become highly politicized. As a result, the SALT II agreement, which included many specific measures to enhance verifiability such that one observer called it "an historic accomplishment in verification," ran into political difficulties.⁴⁰ Clearly no arms control agreement can be established and no verification technique can work if the superpowers have

³⁸ Bruce Russett, The Prisoners of Insecurity: Nuclear Deterrence, the Arms Race and Arms Control (New York: W.H. Freeman, 1983), p. 79.

³⁹ See Kosta Tsipis, David Hafemeister and Penny Janeway, Arms Control Verification: The Technologies that Make it Possible (Washington: Pergamon-Brassey's, 1986). See also Ted Greenwood, Reconnaissance, Surveillance and Arms Control, Adelphi Paper 88 (London: International Institute for Strategic Studies, 1972), p. 2.

⁴⁰ William Kincaide, "Challenges to Verification: Old and New," in Ian Bellamy and Coit Blacker, eds., The Verification of Arms Control Agreements (London: Frank Cass, 1983), p. 23.

a tendency to exploit ambiguities in these agreements or if the political relationship between negotiating partners is not solid.⁴¹

One final aspect of arms control theory that deserves brief mention is the notion that constraint on war, including limited nuclear war, is really a form of arms control. Because absolute or unlimited nuclear war probably can serve no useful political purpose and may even end politics, Clausewitzian logic demands limited war.⁴² Any limitation in war is based on a tacit bargain between participants, and the frequently made distinction between conventional and nuclear weapons appears to be the most obvious and the easiest form of tacit arms control.⁴³ Unilateral restraint of any kind prior to and during war, in theory, can serve to signal intentions and could form the basis of tacit bargains that could allow for de-escalation and war termination. In the event that deterrence failed and major war between the superpowers developed, however, the success of tacit arms control would be problematic. For a number of reasons including that of psychological denial, nuclear strategy in practice has not allowed for the termination of war.⁴⁴

Among the various approaches to arms limitation in general, modern arms control offers such sufficient prospects that it is now an important part of strategic interaction between the superpowers. Arms control theory

⁴¹ Michael Krepon, "Verifying Arms Control Treaties," in Thomas Perry and Diane Demille, eds., Nuclear War: The Search for Solutions (Vancouver, British Columbia: Physicians for Social Responsibility, 1985), pp. 190-192.

⁴² Kenneth Booth, "Unilateralism: A Clausewitzian Reform" in Nigel Blake and Kay Poole, eds., Dangers of Deterrence: Philosophers on Nuclear Strategy (London: Routledge and Kegan Paul, 1983), pp. 52-53.

⁴³ John Spanier, Games Nations Play (New York: Holt, Rinehart and Winston, 1978), p. 220.

⁴⁴ Clark Abt, A Strategy for Terminating Nuclear War (Boulder, Colorado: Westview Press, 1985), Chapter 8.

has evolved from the idealistic notions of disarmament and has become far more politically acceptable. Advocates of arms control are however divided among themselves; according to one study, moderate arms controllers propose a minimum level of nuclear weapons and skeptical arms controllers support more sophisticated nuclear force structures to pursue flexible nuclear options.⁴⁵ These two views of arms control in some ways parallel the two paradigms established in chapter one, and an assessment of the implication of these two paradigms on arms control theory is now in order.

II. THE DETERRENT PARADIGM AND THE IMPLICATIONS FOR ARMS CONTROL

As the dominant strategic paradigm, deterrence can be expected to be closely connected with arms control theory. During the past forty years, deterrence and arms control have shared much of the same intellectual attention, but the two concepts appeared to have drifted apart with the "failure" of arms control in the late 1970's and early 1980's.⁴⁶ Arms control negotiations that lead to reductions cannot however be viewed as an end in themselves, "but must be judged in terms of their impact on the character of the strategic relationship."⁴⁷ This section will use the three levels of analysis established in chapter one to clarify what one might expect from arms control when viewed from the deterrent paradigm.

⁴⁵ R.B. Byers and Stanley C.M. Ing, eds., Arms Limitation and the United Nations, Polaris Paper 1 (Toronto: Canadian Institute of Strategic Studies, 1982), p. 4.

⁴⁶ Leslie Gelb, "A Glass Half Full," Foreign Policy 36 (Fall 1979), pp. 21-32.

⁴⁷ Richard Burt, "Reducing Strategic Arms at SALT. How Difficult? How Important?" in Christoph Bertram, ed., The Future of Arms Control: Part I, Beyond SALT II, Adelphi Paper 141 (London: International Institute for Strategic Studies, 1977), pp. 13-14.

1. Strategic Intentions

To discover the real aim of anything is of fundamental importance; the "de quoi s'agit-il" query by Foch is still the most important strategic question.⁴⁸ Arms control theory that aspires to enhance a state's security in a deterrent framework must adopt or at least be compatible with the assumptions and objectives of the deterrent paradigm. In the framework for analysis the key variables to analyze strategic intentions included the perceived political utility of nuclear weapons, the degree of support for the status quo and the underlying political values at stake.

The deterrent view of arms control would logically hold that the current levels of nuclear weapons, having minimal political utility, should be eminently controllable and probably reducible. If nuclear war has no military meaning because of mutual destruction, then it can have no political meaning, and the inescapable conclusion must be that the "macro-limitations inherent in war itself" preclude it as an option.⁴⁹ Senior officials in private have often acknowledged that war between the great powers "just doesn't make sense" as nothing can be gained commensurate with the loss.⁵⁰ What this line of thought encourages is the notion that arms control at any cost is preferable as long as mutually assured destruction is maintained. An important factor which contributes to an

⁴⁸ Philip A. Cowl, The Strategists Short Catechism: Six Questions Without Answers (Denver, Colorado: United States Air Force Academy, 1978), p. 4.

⁴⁹ Ian Clark, Limited Nuclear War (Oxford: Martin Robinson, 1982), p. 240. See also Gerald Segal, "Strategy and Survival" in Gerald Segal, et al., Nuclear War, Nuclear Peace (New York: St. Martin's Press, 1983), p. 28.

⁵⁰ Thomas Powers, Thinking About the Next War (New York: Alfred A. Knopf, 1982), p. 16. The analysis in this book is weak, but this point is valid.

optimistic view of the scope for arms reduction is the tendency to neglect the complex inertia of national weapons acquisition processes.⁵¹ One result is that at times arms control proposals can lack the benefit of a clear theory of security⁵² and become an end in themselves.

The second variable, the degree of support for the status quo, should logically be relatively high in a deterrent strategy of arms control. Deterrence inherently implies resistance to change in the status quo, and thus arms control initiatives along these lines seek to preserve an existing balance. Naval arms control agreements in the 1920s and 1930s remained effective until Japan elected to change the status quo in 1934 by beginning a naval arms race in the Pacific that served to undermine deterrence. Advocates of a balance of strategic weapons sometimes confuse this concept with the balance of power; what deters is not a balance of power or equal forces per se, it is a strong or powerful status quo power, willing to fight to maintain it.⁵³

The underlying political values in a deterrent arms control perspective are of fundamental importance, and they are inherently defensive in nature. The deterrent model does not imply a desire to upset an existing balance for it holds that the shared value of avoiding nuclear catastrophe is by far the most important variable. While some advocates of arms control reflect disarmament values, for the most part, arms controllers in the West have accepted the ultimate utility of nuclear deterrence. Even those who hold strong aversion to the first use of

⁵¹ Graham T. Allison and Frederic Morris, "Armaments and Arms Control: Exploring the Determinants of Military Weapons," Daedalus (Summer 1975).

⁵² Lawrence Freedman, "Europe Between the Superpowers," in Gerald Segal, et al., Nuclear War Nuclear Peace, p. 106.

⁵³ Philip Towle, Arms Control and East-West Relations, p. 22.

nuclear weapons also support the maintenance of mutual assured destruction.⁵⁴

With respect to strategic intentions, an arms control policy compatible with a deterrent paradigm could be expected to stress significant reductions of nuclear weapons and define security in terms of maintaining the status quo. To seek a balance of strategic weapons at relatively low levels would fulfill these requirements.

2. The Threat of Force

Since arms control policies in themselves do not introduce threats, the key question here is to what degree do arms control policies condition existing deterrent threats? There are those that believe that nuclear weapons, by their very nature, are "more useful as an instrument of deterrence than of compellence."⁵⁵ The arms control problem in this level of analysis is directly related to technical capability, for the deterrent model requires a threat that is credible yet does not create alarms or tensions on behalf of the adversary.

Arms control to a certain extent seeks to limit the threat to that which is deemed legal, fair and necessary. In World War II, Britain and Germany initially showed marked reluctance to use strategic bombing even though by then it was considered legally acceptable to bomb civilians.⁵⁶ By the previously established definitions, this reluctance was both a form

⁵⁴ McGeorge Bundy, et al., "Nuclear Weapons and the Atlantic Alliance," Foreign Affairs 60 (Spring 1982), p. 764.

⁵⁵ Samuel Huntington, "The Renewal of Strategy," in Samuel Huntington, ed., The Strategic Imperative (Cambridge: Ballinger Publishing Company, 1982), p. 35.

⁵⁶ Geoffrey Best, "How Right is Might? Some Aspects of the International Debate About How to Fight Wars and How to Win Them 1870-1918," in Geoffrey Best and Andrew Wheatcroft, eds., War Economy and the Military Mind (London: Croom Helm, 1976), p. 133.

of deterrence and a form of arms control, but in either sense it must be judged a failure as the Germans were not deterred and strategic bombing became an accepted mode of warfare. A major problem for strategy is that deterrence and its failure are "fundamentally different options,"⁵⁷ and strategic planning must attempt to

take into consideration the fact that the kinds of attack which, for purposes of deterring war, it is most appropriate to threaten, are not the same as the kinds of attack which, for purposes of waging a war or surviving one, it is most appropriate to carry out.⁵⁸

The need to limit the threat yet retain credibility sets up a tension within which arms control, in a deterrent paradigm, seeks a technological compromise that the adversary would not consider aggressive or destabilizing. The central assumption implicit in this compromise is that limited technical solutions to specific problems of strategic stability could be negotiated between politically antagonistic superpowers, the result being a divorcing of arms control from politics which "flows naturally from the mechanistic model of deterrence."⁵⁹ The most obvious limitation in this paradigm, that no strategic forces should threaten counterforce, is now "an article of faith" within much of the Western strategic community.⁶⁰ The belief that stable mutual assured destruction requires no great accuracy, no strategic defences and survivable systems, stems from technical stability analysis, the intent of which is to

⁵⁷ Christoph Bertram, "Security Without Order: Nuclear Deterrence and Crisis Management in the 1980's," in Roman Kolkowicz and Neil Joeck, eds., Arms Control and International Security (Boulder, Colorado: Westview Press, 1984), p. 6.

⁵⁸ Hedley Bull, The Control of the Arms Race, p. 209.

⁵⁹ Robin Ranger, Arms Control in Theory and Practice 1958-1981, p. 24.

⁶⁰ Richard Burt, "The Relevance of Arms Control in the 1980's," Daedalus (Winter 1981), p. 162.

achieve a balance through arms control that each superpower can accept. Few analysts attempt to shift the emphasis of arms control away from a technical search for numerical solutions and equivalent capabilities by focusing on intentions and confidence building measures.⁶¹

The deterrent paradigm implies an arms control policy to limit nuclear threats to levels of assured destruction capability on either side. It regards nuclear weapons as so powerful that a credible deterrent exists even if the probability of its use is low.

3. The Correlation of Nuclear Forces

The final level of analysis addresses how strategic forces would interact in war and builds directly on the notion of stability which conditions the threats to deter. In the deterrent model, the primary role of arms control is to generate a safe dyadic relationship wherein neither party has incentives to strike first with nuclear weapons.

Arms control goes directly to the correlation of strategic nuclear forces and attempts to balance the various forms of control or restraint against one another. For example, missile silo survivability is a function of missile accuracy and yield of the warhead as well as the hardness of the silo itself, and any change in one variable leads to a different technical solution. The factor which has the greatest influence on the stability of mutual deterrence is the weapon for weapon exchange rate in the counterforce role; the greater the ability to destroy opposing

⁶¹ One exception is Alton Frye, "Confidence Building Measures in SALT: A PAR Perspective," in Jonathan Alford, ed., The Future of Arms Control: Part III, Confidence Building Measures, Adelphi Paper 149 (London: International Institute for Strategic Studies, 1979), p. 14-22.

weapons, the greater the instability.⁶² What becomes apparent in detailed stability analysis is that minimum deterrence occurs in a region of great instability because small changes in numbers of weapons or even perceptions of potential changes can give one side a significant advantage. The uncertainties inherent in minimum deterrence require a margin which provides a measure of insurance to cover for technological advances, increases in numbers of weapon systems or violations of arms control agreements. As the only means of restoring the balance after its disruption by one superpower remains the counteraction of the other, this margin must be sufficient to allow time for the other superpower to monitor and verify the destabilizing action and to initiate an appropriate response.⁶³

Consequently, arms control is under pressure to establish a stable equilibrium of weapons in greater numbers than required for assured destruction, and this margin is in part determined by the ability of each superpower to monitor the other's weapons programmes. An upper limit to this margin is reached when improvements in nuclear weapons and delivery means tend to be of diminishing importance in the stability equation.⁶⁴ Arms control in the deterrent paradigm seeks a controlled balance at the lowest level possible where neither side has any incentive to build additional weapons for their security.

⁶² G.D. Kaye, "Arms Control and the Strategic Balance," Defence Research Analysis Establishment Memorandum No. M21 (Ottawa: Department of National Defence, 1970), p. 14.

⁶³ Ibid., pp. 6-8 and p. 19.

⁶⁴ Bernard Brodie, "Technical Change, Strategic Doctrine, and Political Outcomes," in Klaus Knorr, ed., Historical Dimensions of National Security Problems, p. 263.

4. The Implications for Arms Control

The prevailing theory of arms control appears to be very compatible with the theory of deterrence. Deterrence refers to a very specific theoretical relationship that has been applied to a far broader range of policy situations⁶⁵ than would be the case if deterrence had not come to be accepted as the dominant strategic model. Arms control, to a large degree, has developed within this conceptual environment and thus shares many of the assumptions that underlie the deterrent paradigm. As a consequence, many of the similarities are highlighted or reinforced, yet some of the incompatibilities are camouflaged or ignored.

In the West, arms control and deterrence theory have resulted in complex technical constructs, the aim of which is to achieve balance, stability and mutual assured destruction. The emphasis on technology rather than political will was strongly reinforced by technical trends in the 1960s, but the effectiveness of this approach has been much less in the 1980s. Deterrence and arms control, by focusing heavily on the need to achieve such a balance, have served to complement each other and emphasize the compatibility of the two concepts. Both share similar notions as to the usefulness of nuclear weapons and both lend themselves to sustaining the status quo.

What has eluded attention, however, is that aspect of arms control theory which is potentially less compatible with the deterrent paradigm. Arms control theory provides for restraint on the use of arms to prevent a war from escalating, and since war has not yet been eliminated as a policy option between states, in theory it allows for limited nuclear war. Controlling escalation in this kind of war places a premium on flexible

⁶⁵ R.B. Byers, "Deterrence Under Attack: Crisis and Dilemma" in R.B. Byers, ed., Deterrence in the 1980's: Crisis and Dilemma, p. 12.

offensive and defensive weapons systems that are inconsistent with the deterrent paradigm, in the sense that what is required for national security may not be equal to that required for arms control. What exacerbates this tension is the fact that arms control theory precludes a safe and stable, minimum or finite, deterrent option. The degree of margin required for the appropriate level of stability is then open to interpretation and confusion. The result is, on the one hand, strong efforts by moderate arms controllers to limit offensive capabilities and abolish defensive systems or, on the other hand, a conceptual stretching of "deterrence" by skeptical arms controllers to encompass nuclear force capabilities beyond those necessary for assured destruction purposes.

Although the above inconsistencies exist, the compatibilities between arms control theory and deterrent theory are profound and their shared fundamental assumptions are more important. The limitation of national strategy to defensive motivations inherent in the deterrent paradigm contributes to an enhanced role for arms control in national policy, and if both superpowers shared these motivations, arms control could be expected to be a dynamic and fruitful process. Unfortunately, however, in spite of official recognition that nuclear weapons have a role limited to deterrence, "the propensity grows to use them for political purposes and to make them the measure of international power and status."⁶⁶

III. THE COMPELLENT PARADIGM AND THE IMPLICATIONS FOR ARMS CONTROL

If the requirement for compellence is a component of national strategy, arms control policy can be expected to pursue a more competitive path. As the compellent paradigm includes greater scope for threat

⁶⁶ William Kaufmann, The 1986 Defence Budget (Washington, D.C.: Brookings Institution, 1985), p. 22.

utilization for those aggressive purposes often attributable to great power behaviour, arms control, when viewed from this perspective, would logically stress the usefulness of force or its threatened use, to attain foreign policy goals other than those of national defence.⁶⁷ This section will again apply the previously established three levels of analysis to determine the implications of arms control theory from the perspective of the compellent paradigm.

1. Strategic Intentions

In the framework for paradigmatic analysis established in the previous chapter, the strategic intentions of superpower declaratory policy provide a positive indication as to which mode of thought might be motivating strategic behaviour. The political utility of nuclear threats, the degree of support for the status quo and the underlying political values at stake are the key variables that enable a distillation of potential compellent intentions.

According to arms control theory, the achieving of a given state's security depends on national military strategy and arms control; both are alternative means to achieving national policy. In contradistinction to the deterrent perspective that nuclear weapons are not politically or militarily useful, however, the compellent view holds that they can support foreign policy. Despite several disclaimers of declaratory policy, "the history of nuclear development over the past three decades has been one of consistent attempts to make nuclear weapons usable."⁶⁸ This trend has been reflected in arms control proposals by the superpowers

⁶⁷ Richard A. Falk, "Arms Control, Foreign Policy and Global Reform," Daedalus (Summer 1975), p. 37.

⁶⁸ Desmond Ball, in Roman Kolkowicz and Neil Joeck, eds., Arms Control and International Security, p. 23.

over the years in that each proposal on the surface looks very appealing yet each contains a "joker" that results in its inevitable rejection by the other side. This "joker" serves a dual function:

to compel a rejection of the whole plan and thus place the onus for deadlock on the other side, and to protect the vital interests of the proposing side.⁶⁹

The result is that a state can appear to be pursuing arms control for altruistic motivations yet really be working to enhance its interests by increasing its nuclear advantage.

Compellence implies an effort to alter a status quo situation, and arms control can theoretically be used to change the existing balance of forces. William Kincaide in an important article has noted a strategy that he calls arms control through arms coercion where unilateral build-ups and threats are designed to achieve more favourable arms control agreements.⁷⁰ Because this requirement implies a competitive strategy in which stability plays a reduced role, this form of approach accounts for those strategic analysts who firmly believe that a strategic nuclear posture and its guiding doctrine should be designed for time of war.⁷¹ Increasingly, arms control is being affected by the perception that the superpowers are locked in a quest for nuclear superiority where they seek to manipulate the risk of war for political objectives.⁷²

⁶⁹ John Spanier and Joseph Noguee, The Politics of Disarmament, pp. 5-6. See also John Garnett, "Disarmament and Arms Control Since 1945," in Lawrence Martin, ed., Strategic Thought in the Nuclear Age, p. 215.

⁷⁰ William Kincaide, "Arms Control or Arms Coercion," Foreign Policy 62 (Spring 1986), p. 24.

⁷¹ Colin Gray, The MX ICBM and National Security (New York: Praeger Publishers, 1981), p. 106.

⁷² Barry Blechman, "Do Negotiated Arms Limitations Have a Future?" Foreign Affairs 59 (Fall 1980), pp. 111-112.

The final and perhaps the most important variable, the political values at stake, can also indicate which paradigm is operating. In the compellent paradigm, arms control is conceived as another arm of strategic policy, and national interest becomes a key variable:

if the position of one's country can be improved militarily, economically or politically by a disarmament policy, then it will be pursued.⁷³

A linkage of domestic policy and arms control is thus possible as it is easier to make proposals which promote one's interests to gain domestic support. Arms control therefore can be a political process and, like any important political process, its main objective can be to prevail or to achieve gains. It is quite understandable that the fear of "appearing to give anything away in an area where political emotions run so high and the stakes are genuinely so great" contributes to the politicization of arms control.⁷⁴ If two powers adopted a similar approach with no restraints, a reliable political basis for arms control concessions would not exist,⁷⁵ and arms control negotiations would become a competitive forum.

In a compellent paradigm, arms control goals would plausibly include proposals specifically designed to enhance a state's national interest even if, or especially if, these were at the expense of one's competitor. In such an environment a stable balance is not the ultimate goal, superiority is. What prevents the achievement of superiority is the adversary's strategy, and the compellent actor would logically attempt to seek a "balance" that would maximize his advantage to the highest degree

⁷³ Kenneth Booth, "Disarmament and Arms Control," p. 109.

⁷⁴ Alan F. Neidle, ed., Nuclear Negotiations: Reassessing Arms Control Goals in U.S.-Soviet Relations (Austin, Texas: University of Texas, 1982), p. xx.

⁷⁵ Christoph Bertram, "Rethinking Arms Control," Foreign Affairs 59 (Winter 1980/1981), p. 353.

possible.

2. The Threat of Force

When threats become part of arms control, it is likely that compellent, not deterrent, behaviour is behind it. One major problem with pursuing arms control in a competitive framework is that compellent threats "usually breed resentment, rejection and counter threats,"⁷⁶ and thus are not conducive to the normal interpretation of bargaining or arms control negotiations, but bargaining it is.

As the compellent paradigm accepts a greater continuity between peace and war, there is a propensity toward accepting nuclear war fighting technology that has significant ramifications on the nature of stability. Operational effectiveness of weapon systems is a more important variable, and thus stability is a far more dynamic concept. The increased counterforce and damage limiting capabilities required for compellent strategy mean that stability is closely related to their utility in war. Both the United States and the Soviet Union have made continual efforts to improve their counterforce capability while officially supporting the need for stability.⁷⁷ The Soviet Union, for example, has never acknowledged that submarine launched ballistic missiles (SLBMs) are less destabilizing than intercontinental ballistic missiles (ICBMs), and appears to possess a perception of strategic stability significantly different from that of the

⁷⁶ William Kincaide, "Arms Control or Arms Coercion," p. 26.

⁷⁷ See Jeffrey Porro, "Counterforce and the Defence Budget," in William Kincaide and Jeffrey Porro, Negotiating Security (Washington, D.C.: Carnegie Endowment for International Peace, 1979), p. 68; and Paul Stockton, Strategic Stability Between the Superpowers, Adelphi Paper 213 (London: International Institute for Strategic Studies, 1986), pp. 26, 83.

United States.⁷⁸ Arms control equilibrium in the compellent view appears to be more closely linked to the notion of technical predictability, thereby increasing expectations from confidence building and verification measures.

In the deterrent paradigm technological developments are considered problems that need restraint before the strategic equilibrium becomes unstable, but in the compellent view technological advances are benefits that are sought to gain strategic leverage or military advantage. They may be bargained away, but only in return for something else of value. The compellent view is more comfortable with technical progress and recognizes that arms control restraints cannot be expected "to halt innovation or prevent the military application of advances in scientific and technological developments."⁷⁹ In part, this is due to the inability of governments to control effectively the bureaucratic weapons procurement process,⁸⁰ and to the fact that technology is forcing the superpowers to change their nuclear strategies to make better use of new capabilities.⁸¹ Strategic nuclear forces are now perceived very widely as the "ultima ratio" of a superpower,⁸² and as such deserve a central and privileged place in arms control negotiations. In the compellent model, nuclear

⁷⁸ Richard Burt, "The Relevance of Arms Control in the 1980's," p. 163; and Paul Stockton, Strategic Stability Between the Superpowers, p. 27.

⁷⁹ Farooq Hussain, The Future of Arms Control: Part IV, The Impact of Weapons Test Restrictions, Adelphi Paper 165 (London: International Institute for Strategic Studies, 1981), p. 50.

⁸⁰ John Steinbruner and Barry Carter, "Organization and Political Dimensions of the Strategic Posture: the Problem of Reform," Daedalus (Summer 1975), p. 149.

⁸¹ Frank Barnaby, The Automated Battlefield (London: Sidgwick and Jackson, 1986), pp. 149-151.

⁸² Colin Gray, "The Future of Land Based Missile Systems," in Christoph Bertram, ed., Strategic Deterrence in a Changing Environment (London: Gower and Allenheld, Osmun, 1981), p. 94.

weapons can only be reduced or dismantled when the perceived benefits of mutual reductions exceed the potential for political leverage on a long term basis.

One technological innovation that increases pressure for greater numbers of offensive systems is the concept of strategic defence. If strategic defence could be limited to the defence of nuclear systems and not be extended to protect cities, then it could help stabilize mutual assured destruction. Unfortunately, the technology knows no such bounds; it can be applied to area ballistic missile defence (BMD) and, if accompanied with bomber and cruise missile defences, can erode the whole concept of strategic nuclear deterrence.⁸³ Carefully limited defences can reinforce the deterrent paradigm, but expanded defences involve an alternate mode of thinking that represents a total break with the past concept of deterrence. In spite of an Anti Ballistic Missile (ABM) treaty signed in May 1972, both superpowers have expressed a preference for increased defensive measures.⁸⁴ Since the compellent paradigm places a premium on expanded defence, arms control in such a paradigm could be expected to lead to eventual implementation of strategic defences.

The compellent threat of force has profound implications for arms control because it causes a rejection of the deterrent concept of achieving a relatively harmonious stable strategic balance between rival superpowers. As long as one side fears that the other seeks to attain a first strike capability, deterrence will become unstable and pressures

⁸³ George Lindsay, The Strategic Defence of North America (Toronto: Canadian Institute of Strategic Studies, 1986), p. 37.

⁸⁴ Magnus Clarke, "Nuclear Deterrence and SDI," Arms Control 6 (September 1985), p. 178.

will mount for defensive systems.⁸⁵ The technological impetus behind the superpower competition permits the expansion of damage limitation and counterforce systems which serve to better support the flexible nuclear strategies necessary to back compelling threats.

3. Correlation of Nuclear Forces

In this level of analysis the compelling quest for advantage leads to significantly different arms control prospects than the deterrent search for stability. In the compelling paradigm arms control seeks more security by having better or more nuclear weapons than the adversary, the aim of which is to gain a potential bargaining advantage through a superior military position.

In theory, arms control can be applied to check the technological momentum of the adversary in specific areas or freeze forces at advantageous levels. It can be used to maintain the balance of agreed strategic systems while permitting improvements in other systems not covered by agreements. Although technological progress is so rapid that quantitative restrictions are no longer adequate for arms control,⁸⁶ numbers of weapons still appear critical to a superpower "balance of resolve."⁸⁷ Both superpowers appear to believe that

⁸⁵ Robert S. McNamara, "Reducing the Risk of Nuclear War: Is Star Wars the Answer?" Millennium: Journal of International Studies 15 (Summer 1986), p. 139.

⁸⁶ Christoph Bertram, The Future of Arms Control: Part II, Arms Control and Technological Change: Elements of A New Approach. Adelphi Paper 146 (London: International Institute for Strategic Studies, 1978), p. 1.

⁸⁷ John Spanier, Games Nations Play, pp. 183-193.

an appearance of inferiority in nuclear weapons brings great political damage. It follows that they believe - although they do not say this - that an appearance of superiority brings great political advantage.⁸⁸

These trends provide greater scope for a competitive interpretation of arms control that permits technological developments to become a recipe for unlimited expansion even during major strategic arms limitation achievements.⁸⁹

Since arms control can affect preparations for possible nuclear war, it may also be used as a partial tool to create or expand a compelling threat. The possibility exists that arms control could be pursued in bad faith to achieve deception, the foundation of all warfare,⁹⁰ but this cannot succeed as a long term strategy due to the extensive nature of modern verification means. It is also possible to use geopolitical asymmetries as levers to generate military advantages in specific areas; thus one side may favour one weapon system while the other may abhor it. The competitive search places a premium on strategic calculations as arms control and nuclear strategy require careful integration to achieve a coordinated effect. For coercive limited war to achieve its aim, it requires more detailed prior planning than forms of total war,⁹¹ and for compelling arms control to produce an advantage, it requires more calculations than for deterrence.

⁸⁸ Sverre Lodgaard and Frank Blackaby, "Nuclear Weapons and Arms Control," in Marek Thee, ed., Arms and Disarmament: SIPRI Findings (Oxford: Oxford University Press, 1986), p. 328.

⁸⁹ John Simpson, "New Nuclear Weapon Systems and Concepts for Limiting Nuclear Warfare," in William Gutteridge and Trevor Taylor, The Dangers of New Weapon Systems (London: Macmillan Press, 1983), p. 128.

⁹⁰ Sun Tsu, The Art of War, translated by Samuel Griffith (Oxford: Oxford University Press, 1963), p. 60.

⁹¹ Charles Fairbanks, "War-Limiting," in Klaus Knorr, ed., Historical Dimensions of National Security Problems, p. 219.

Because arms control agreements affect the correlation of nuclear forces, they impact directly on the potential interaction of strategic systems in war. To achieve comparative strategic advantages, a given nation may attempt to reduce specific weapon systems that it finds most threatening, or it may seek to channel arms competition into areas where it has a natural advantage. In the compellent paradigm arms control can become a weapon with which to attack the opponent's strategy, but to achieve results careful integration with military strategy is required. In this situation arms control becomes simply a tool to discredit or to thwart the opponent's strategic credibility over time.

4. The Implication for Arms Control

Nuclear strategy and arms control both strive to enhance national security, but the former in the compellent paradigm has ambitions that extend beyond defence. Thus the latter, by virtue of their shared strategic objective, also has political motivations that include the potential to impose one's will in certain situations. Because compellence emphasizes competitive aspects not evident in deterrence, cooperative behaviour tends to receive less emphasis.

The major implication for arms control in a compellent framework is the degree of self interest implied by its strategic intentions, making national interest a significant factor in arms control negotiations. The competitive expectations in this model imply a clear lack of willingness to maintain a stable balance or the status quo evident in the deterrent paradigm.

The search for advantage logically requires military superiority as an ultimate goal, but this Kantian logic is not as inconsistent with arms control theory as it appears. Arms control theory provides for restraint

of arms to contribute to the national security of a given state, but does not necessarily require equal restraint from negotiating states. While the notion of mutual restraints comes primarily from the impact of deterrent thought on arms control, the constraints on compellent arms control stem from the competitor's strategy. Arms control then becomes a bargaining contest where the compellent actor seeks to maximize his gain. This form of arms control requires political direction that subordinates the values of arms control in itself to the strategic interests of the state. It follows that such a strategy would only sincerely pursue arms control negotiations when prospects for success were relatively high and would stubbornly cling to its "jokers" when conditions were otherwise.

Arms control in a compellent strategy also acknowledges that specific technological advantages can be militarily and politically useful. It assumes, in consonance with the themes of the Intriligator-Brito research model, that arms races do not necessarily lead to war and disarmament does not necessarily lead to peace.⁹² The use of arms control negotiations to gain political and military advantages is not only a moral and political responsibility, it does not necessarily contribute to an increased risk of war. Clearly this compellent position is incompatible with the deterrent paradigm, and the two views of arms control described as the moderate and the sceptical are merely reflections of paradigmatic incommensurability.

IV. CONCLUSIONS

Arms limitation theory adds considerable texture to the paradigmatic landscape of strategic relations between the superpowers. The idealistic notions of universal disarmament retain a small but dedicated group of

⁹² Thomas Mayer, "Arms Races and War Initiation: Some Alternatives to the Intriligator-Brito Model," Journal of Conflict Resolution 30 (March 1986), p. 25.

supporters whose ideas have helped shape modern arms control theory that simply seeks restraint on arms policy. Arms control has substantially the same aims as national military strategy, to enhance state security, but as its scope is far more limited than disarmament, it has become more politically useful. This combination has made modern arms control a central part of superpower interaction, but tendencies within the arms control community reflect at least partially the two strategic paradigms, deterrence and compellence.

Since arms control theory has been developed within the deterrent framework, it is very compatible with the deterrent paradigm in most respects. The focus on a stable minimum nuclear balance has been the dominant theme of deterrent arms control, the central objective being the shared avoidance of nuclear catastrophe. If threats were limited to defensive or deterrent levels, arms control could play a major role in national policy, and balanced nuclear force structures could be achieved at minimum quantities.

Compellent strategy results in a more competitive form of arms control, the major aim of which is to achieve comparative advantage. It accepts possible restraint in war fighting means but not in strategic ends. Because the compellent state in a sense is forced to accept constraints on its nuclear forces by strategic competition, it seeks to maximize its advantage to the degree possible. These factors fuel the technological impetus toward counterforce capable and damage limiting systems. Arms control can be compatible with compellence if it becomes politically responsive to a national compellent strategy and seeks to protect those national interests that may require the projection of nuclear threats.

Arms control can therefore be used in flexible ways to support at least two contending strategic approaches to war. As a major component of international politics, arms control theory contributes to these two paradigms and completes their theoretical formulation. The next two chapters will now analyze each superpower's nuclear strategy before returning to a detailed discussion of nuclear arms control in practice.

Chapter Three

NUCLEAR STRATEGY IN THE UNITED STATES

Victory in global war and the development of nuclear weapons in 1945 propelled the United States to superpower status, and the world began to pay closer attention to American ambitions. American strategic analysts for the most part viewed nuclear weapons as a revolution in destructive capability, and deterrence soon became the concept that framed the declaratory strategy of the United States. In the complex American political system, extensive open debates on nuclear strategy have markedly increased the volume of strategic material over preceding historical periods, but most of the debate accepts the concept of deterrence as its fundamental objective. In spite of this production of strategic thought, however, the action policy of how the United States intends to use nuclear weapons to support its foreign policy is far from clear.

This chapter examines the United States' nuclear strategy in an attempt to identify any elements of compellence that may exist. The framework for the paradigmatic analysis established in chapter one provides the tools to accomplish this task. The first section describes American strategic culture, a necessary and useful starting point for this analysis. The following sections deal with the general periods of massive retaliation, flexible response and more recent evolutions of "realistic" or "countervailing" deterrence. Although the primary focus of this dissertation is on the period 1970-1986, the earlier American experience with nuclear strategy is extremely relevant. The analysis will focus primarily on the objectives and threats embedded in the nuclear strategy of the United States; detailed quantitative analysis of the correlation of nuclear forces will be left to later chapters.

I. UNITED STATES STRATEGIC CULTURE

Strategic culture refers to a set of acquired beliefs, attitudes and behavioural patterns that condition the patterns of strategic thinking. While it evolves over time, it does not reflect specific policy, but rather represents a more permanent view resulting in and stemming from a socialization process. Embedded within the concept of strategic culture one finds the fundamental assumptions governing the constitution of military power and the ends it is designed to serve. Clearly the military behaviour of most societies has reflected to a high degree their political culture.¹ Strategic culture is therefore simply a subcomponent of a nation's political culture.

In the United States, as in most democratic countries, a perceptible shift in strategic culture occurred with World War Two and the advent of the nuclear age. Throughout American history up to 1945,

...the United States usually possessed no national strategy for the employment of force or the threat of force to attain political ends, except as the nation used force in wartime openly and directly in pursuit of military victories...²

In American society however the concept of war was slowly changing from the view of war as a struggle for survival or conquest to an image of war as a "malfunctioning of the international system."³ A nuclear war would

¹ Carnes Lord, "American Strategic Culture", Comparative Strategy 5 (Number 3, 1985), p. 271. See also Kenneth Booth, Strategy and Ethnocentrism, pp. 14-15. Ethnocentrism in strategy is equated to being culture-bound. A good example of cultural impact can be found in Benjamin S. Lambeth and Kevin N. Lewis, "Economic Targeting in Nuclear War: U.S. and Soviet Approaches," Orbis, 27 (Spring 1983), p. 146.

² Russell F. Weigley, The American Way of War (London: Collier Macmillan Publishers, 1973), p. xix. See also Samuel Huntington, American Military Strategy (Berkeley, California: University of California, 1986), p. 16.

³ Anotol Rapoport, "Changing Conceptions of War in the United States," in Kenneth Booth and Moorhead Wright, eds., American Thinking About Peace and War (New York: Barnes and Noble, 1978), p. 67.

simply be an unmitigated disaster and the only political purpose of nuclear weapons had to be to deter their use. But these societal changes did not necessarily convince the strategic community that nuclear weapons could not be used in a more traditional sense. Drawing on its history and an increasingly sophisticated strategic studies community, the United States has produced a unique strategic culture that reflects the complexity of its make-up. Scientists, bureaucrats, military officers, politicians, industrialists and academics all form an active part of the United States strategic community.

An important factor in shaping the present American strategic culture is geopolitics. Due to its geographic insularity, the United States has faced few significant threats for most of its history. One observer even declared that compared to most great powers, the United States has had a "free ride" with respect to security until the twentieth century and, again, to a lesser degree, from 1945 until the Korean War.⁴ When a threat did appear, it was often distorted, and significant oscillations mark the history of American security policy resulting in a tendency to under prepare in peace and to exaggerate the danger in war.⁵ It is therefore a relatively new experience for the United States to assume global responsibilities or to feel threatened in peacetime. The effect of nuclear weapons and the ICBM has been to deprive the United States of an unquestionably secure military position that was based on its geographic

⁴ C. Vann Woodward, "The Age of Reinterpretation," in Arthur Waskow, ed., The Debate Over Thermonuclear Strategy (Boston, Massachusetts: D.C. Heath, 1966), pp. 1-2.

⁵ Colin S. Gray, "National Style in War: The American Example," International Security 6 (Fall 1981), p. 45.

location and a comparatively advanced technology."⁶ United States strategic culture to a certain degree reflects a longing for absolute security stemming in part from its past geographic insularity.

The second factor that shapes American strategic culture grows from its view of the international environment. American political leaders have tended to a relatively unsophisticated view of the role of military force in the international community. The United States, as a major economic power with little direct threat to its homeland, has been primarily interested in promoting its economic interests to achieve a favourable world order.⁷ The United States has tended to view war as a "great moral crusade" which was only necessary after the "failure" of diplomacy.⁸ In general, war and peace were viewed as separate conditions, and this tendency still permeates much of the United States strategic community. Increasingly, however, part of the American strategic elite has accepted a more Machiavellian view heralded by the realist school of international relations.

Nations which renounce the power struggle and deliberately choose impotence will cease to influence international relations either for evil or for good and risk eventual absorption by more powerful neighbours.⁹

The rise of the Soviet Union as a powerful and antagonistic rival has

⁶ Washington Center of Foreign Policy Research, Developments in Military Technology and Their Impact on United States Strategy and Foreign Policy (Washington, D.C.: USGPO, 1959), p. 3.

⁷ Donald E. Nuechterlein, America Overcommitted: United States National Interests in the 1980's (Lexington, Kentucky: University Press of Kentucky, 1985), p. 202.

⁸ George F. Kennan, American Diplomacy 1900-1950 (Chicago, Illinois: University of Chicago Press, 1951), p. 84, and Morton H. Halperin, Limited War in the Nuclear Age (New York: John Wiley and Sons, 1963), p. 19.

⁹ Nicholas J. Spykman, America's Strategy in World Politics (New York: Harcourt, Brace and Company, 1942), p. 446. For a recent but lackluster expression of the same thought see David C. Henderson, The Future of American Strategy (New York: Holmes and Meier, 1987).

reinforced this view and propelled the United States into its leadership role in defence of the "free" world. The American strategic culture probably reflects a synthesis of past naiveté and present realism in that power is held to be very important, but political ideals, to a degree, still guide strategic policy. A tension between those who believe power to be the most salient factor in international relations and those who feel political ideals to be more pertinent has marked the American polity, and to a degree the former tend to reflect a compelling view of nuclear strategy while the latter tend to reflect a deterrent view.

A third aspect of strategic thinking therefore relates directly to certain political values embedded in American political culture. The constitution of the United States, with its Anglo-Saxon heritage, combined a series of checks and balances that implied a certain distrust of the military.¹⁰ This bias is reflected in the myth of the citizen soldier and the perception that large standing forces, especially armies, were not required in peacetime. Another part of the Anglo-Saxon heritage is a strong reliance on the rule of law that permeates the entire political system giving it a high degree of openness, stability and moderation.¹¹ The law of proportionality, for example, makes it difficult for some politicians to accept nuclear first use. One student has even suggested that the concept of nuclear deterrence is incompatible with the ideological and political system of the United States.¹² The moral component of American foreign policy has provided a sense of optimism in

¹⁰ Donald M. Snow, National Security: Enduring Problems of U.S. Defence Policy (New York: St. Martin's Press, 1986), p. 21.

¹¹ John F. Dulles, "Challenge and Response in U.S. Policy," Foreign Affairs 36 (October 1957), p. 43.

¹² Martin Griffiths, "A Dying Creed: The Erosion of Deterrence in American Nuclear Strategy," Millennium: Journal of International Studies 15 (Summer 1986), p. 245.

that history appears equated with progress, but many American politicians and strategic theorists have lacked a deeper knowledge of diplomatic history or of the theory of international relations.¹³

The fourth factor to affect American strategic culture is the military history of the United States. The predominant historical influences stem from the impact of the American frontier and of the oceans that surround the North American continent. Few professional military were required, not that force was not important to American leaders, but that appropriate force could always be raised when it was required. By World War Two, the United States Army had never been defeated, and it won again primarily because it had a preponderance of material resources.¹⁴ Notwithstanding this effort, the United States economy never really lowered its level of civilian productivity, otherwise millions more men with weapons could have been raised.¹⁵ The overwhelming amount of resources available to the United States in the past has permitted its military to cling to the concept of "attrition" warfare when it no longer necessarily had the superiority in matériel or firepower to wage such a war.¹⁶ This is in part due to the narrow view of military officers who have tended to be apolitical and to concentrate on "pure" military matters. It took the Korean War before the United States strategic community "discovered" Clausewitz, and the military themselves began to

¹³ Colin S. Gray, Strategic Studies and Public Policy: The American Experience (Lexington, Kentucky: University Press of Kentucky, 1982), p. 77.

¹⁴ Russell F. Weigley, Eisenhower's Lieutenants (Bloomington, Indiana: Indiana University Press, 1981), pp. 729-730.

¹⁵ John K. Galbraith, The Affluent Society (Boston, Massachusetts: Houghton Mifflin Company, 1958), p. 172.

¹⁶ Edward N. Luttwak, "The American Style of Warfare and the Military Balance," Survival 21 (March/April 1979), p. 57-60. This persistence of an obsolete style of warfare is due to an understandable "cultural lag."

view the role of force in a larger context.¹⁷

Within the strategic community, an impressive continuity of these four concepts is evident. The United States holds a fundamental self-confidence in its ability to fight and a Manichean idea of security that make it natural to agree to relative unpreparedness and then to intervene massively once aroused.¹⁸ The bitter experience in Vietnam shook this faith, and civilian strategists in particular were accused of leading the government astray.¹⁹ The American strategic community however is a diverse grouping of individuals many of whom have alternately worked for academia and the government and thus have had access to classified information. As a result much more information is available about American strategic matters than in most other powers. This factor is probably more responsible than any other for maintaining strategic continuity among the bureaucratic elites in spite of a political system in which domestic experts tend to become political leaders.²⁰

The final factor contributing to strategic culture in the United States is the increasing mechanization of war that has challenged man's

¹⁷ John R. Elting, The Super-Strategists (New York: Charles Scribner's and Sons, 1985), p. 175.

¹⁸ John Shy, "The American Military Experience: History and Learning," The Journal of Interdisciplinary History 1 (February 1971), p. 221.

¹⁹ See Colin S. Gray, "What Rand Hath Wrought," Foreign Policy (Number 4, 1971-72), pp. 111-129, and Bernard Brodie, "Why Were We So (Strategically) Wrong?" Foreign Policy (Number 5, 1971-72), pp. 151-162. The counter argument is that the strategic community is far more complex. See Bruce L.R. Smith, The Rand Corporation: Case Study of a Non Profit Advisory Corporation (Cambridge, Massachusetts: Harvard University Press, 1966), p. 298.

²⁰ Colin S. Gray, "National Style in Strategy: The American Experience," p. 46.

sense of moral values.²¹ Technology permitted the United States to expand its frontiers and dominate a continental mass,²² and the "belief that America is the moral leader of the world through modernization still sustains even the most banal and ruthless of our managers."²³ The United States, more than any other power, relies on technological innovation to maintain its military power. The American concepts of escalation dominance and multiple levels of deterrence implicitly rely on flexible and precise weapons systems involving sophisticated technology.²⁴ It has now become a standard assumption in the United States that "many possibilities for controlled manipulation of the level of violence would actually exist in most situations."²⁵ Strong belief in the rationality of decision making and high confidence in reason are other assumptions in this American propensity to seek technological answers. American strategic culture is strongly influenced by a fundamental belief in the ingenuity of its scientists and the capability of its military equipment.

As a result of these factors, American strategic culture is imbued with the concept that the American military can combine superior fighting qualities with superior technology to meet any situation. Although the

²¹ John F.C. Fuller, Armament and History (New York: Charles Scribner's and Sons, 1945), p. xiv.

²² George C. Reinhardt and William R. Kintner, The Haphazard Years: How American Has Gone to War (Garden City, New York: Doubleday and Company, 1960), p. 232.

²³ George Grant, Technology and Empire, p. 27.

²⁴ Herman Kahn, On Escalation: Metaphors and Scenarios (New York: Frederick A. Praeger, 1965), p. 39 and p. 279. Political and technological forces are therefore constantly at play in American defence decision making, see Jonathan B. Stein, From H-Bomb to Star Wars: The Politics of Strategic Decision Making (Lexington, Massachusetts: Lexington Books, 1984).

²⁵ Richard Smoke, War: Controlling Escalation (London: Harvard University Press, 1977), p. 13. Emphasis in original.

American historical experience is unique, it should also be noted that the traditional American approach to strategic thinking shared more characteristics with its West European counterparts than is generally realized.²⁶ In the United States as well as in Europe, the linking of military and political considerations in American strategic culture was not forged until the polarization of the international community forced the United States to assume a global military leadership role.

II. THE ERA OF MASSIVE RETALIATION

In the late 1940's and 1950's the United States nuclear strategy envisaged the massive use of large yield weapons in the event of war with the Soviet Union. This period was marked for the most part by a United States nuclear military superiority in an era that became known as the "Cold War." Because of this advantage and the fact that the United States had used nuclear weapons in 1945 to compel the Japanese surrender, American nuclear threats had a considerable degree of credibility. This section will briefly examine the key elements of American nuclear strategy during this period when nuclear weapons were being introduced on a major scale. This analysis is based on the paradigmatic framework established in chapter one; the American strategic intentions, the use of threats and the correlation of nuclear forces will be examined in that order.

1. The Strategic Intention

The United States emerged from World War Two as the world's only nuclear power, but within three years the Soviet Union had demonstrated that it was not intimidated by that reality and that it intended to catch

²⁶ Kenneth Booth, "American Strategy: The Myths Revisited" in Kenneth Booth and Moorhead Wright, eds., American Thinking About Peace and War, p. 5.

up. The aggressiveness of the Soviet Union in Europe, the "loss" of China to communist revolutionary forces, and the North Korean invasion of South Korea combined to convince the United States that strong nuclear power was required to maintain a world order favourable to American interests.

In the 1950's the utility of nuclear weapons to support American policy appeared self-evident. Not only had they promptly succeeded in convincing Japan to surrender, but no other power could threaten the United States with the same magnitude of destructive power. Under Truman, a major study, that became known as NSC-68, concluded that the Soviet Union was now a "permanent" enemy and a major threat to the United States for the foreseeable future.²⁷ NSC-68 devoted a great deal of attention to war fighting considerations, and strategic elites were slow to grasp the deterring significance of countervalue retaliation.²⁸ Eisenhower, however, in his "new look" placed greater emphasis on nuclear weapons, and his Secretary of State, John Foster Dulles, declared that it was the decision of the United States "to depend primarily upon a great capacity to retaliate instantly by means and at places of our own choosing."²⁹ This strategy was designed to fill the gaps in the United States' policy

²⁷ Steven L. Rearden, The Evolution of American Strategic Doctrine: Paul Nitze and the Soviet Challenge (Boulder, Colorado: Westview Press, 1984), p. 21. Paul Nitze was a principle author of NSC 68; he is also one of the most influential "compellent" thinkers in the United States.

²⁸ NSC 68 recommended "a form of flexible response" according to John Lewis Gaddis and Paul Nitze, "NSC 68 and the Soviet Threat Reconsidered," International Security 4 (Spring 1980). See also George H. Quester, "The Strategy of Deterrence: Is the Concept Credible?" in R. B. Byers, ed., Deterrence in the 1980's: Crisis and Dilemma (Bechenham: Croom Helm, 1985), p. 72.

²⁹ New York Times, January 1954. According to George Quester, Eisenhower understood the need to firmly support massive retaliation to keep it credible, "Was Eisenhower a Genius?" International Security 4 (Fall 1979), p. 162.

of containment which was then only really protected by strong forces against attacks on the United States or on Europe.³⁰ Massive retaliation as a nuclear strategy was clearly intended to intimidate the Soviet Union and China from attempting further expansion, but it immediately raised questions of its credibility in all situations. Notions of graduated deterrence, primarily British in origin, encouraged the use of weapons graduated to the scale of attack and created pressures to expand the utility of nuclear weapons to the battlefield.³¹ In the United States nuclear weapons were increasingly being regarded as able and necessary to restrain the large conventional armies of the Soviet Union and China.

The core of the United States foreign policy in this period was containment.³² This policy was essentially based on a concept attributed to George Kennan that if the Soviet Union could be prevented from expanding, in due course it would decay from within.³³ At first glance this policy appears to support the status quo, but deeper analysis reveals an interpretation that containment also served as a means of expanding the role of the United States in the world.³⁴ For instance, an early United

³⁰ William Kaufmann, "The Requirements of Deterrence," in William Kaufmann, ed., Military Policy and National Security (Princeton, New Jersey: Princeton University Press, 1956), p. 12. This article was one of the first to criticize massive retaliation as a strategy.

³¹ Anthony Buzzard, et al., On Limiting Atomic War (London: Royal Institute of International Affairs, 1956), p. 7.

³² Robert E. Osgood, "Containment, Soviet Behaviour and Grand Strategy," in Robert E. Osgood, ed., Containment, Soviet Behaviour and Grand Strategy (Berkeley, California: Institute of International Studies, 1981), pp. 1-2.

³³ George F. Kennan, "The Sources of Soviet Conduct," Foreign Affairs 25 (July 1947), p. 581.

³⁴ George H. Quester, "The Impact of the Strategic Balance on Containment," in Terry L. Deibel and John Lewis Gaddis, eds., Containment: Concept and Policy (Washington, D.C.: National Defence University Press, 1986), p. 256.

States war plan from this period clearly aimed "to bring about a basic change in the conduct of international relations by the government in power in Russia."³⁵ To "contain" possible Soviet expansion, the United States in the 1950's expanded its influence globally by creating a string of alliances surrounding Communist territory wherever possible.

As the United States developed its nuclear arsenal in the early years, it clearly had tendencies that extended beyond deterrence. The United States was expanding its global influence, and the massive first use of nuclear weapons was considered useful to support these global objectives.

2. The Threat of Force

During this period the United States used explicit or implicit nuclear threats more often than in any other time in its history.³⁶ These threats generally were created by long range bombers that needed to penetrate to their targets to drop nuclear bombs; it was simply an extension of Douhet's concept that influenced Allied air strategy in World War Two. For the most part, the United States Air Force (USAF) had a free hand in the preparation of the first war plans based on massive use of nuclear weapons. Targeting was based on the strategic concepts developed in World War Two, and counterforce and countervalue targets were both included. General Lemay knew, however, that it was the first strike that counted, and he was deeply concerned with preventing the delivery of any Soviet weapons to the United States.³⁷ These plans gave priority to the

³⁵ See Anthony Cave Brown, DROPSHOT: The United States' Plan for War with the Soviet Union in 1957 (New York: Dial Press, 1978), p. 137.

³⁶ Barry Blechman and Stephen S. Kaplan, Force Without War, p. 47.

³⁷ Peter Pringle and William Arkin, SIOP the Secret U.S. Plan for Nuclear War (New York: W.W. Norton and Company, 1983), pp. 44-47 and p. 106.

destruction of Soviet nuclear capability followed by military targets and government control centers.³⁸

While the Air Force was thinking in terms of massive destruction, the Army was addressing the problems of limited war. Army leadership was far more sensitive to the impact of the Korean War, and to them that experience dispelled the notion of massive retaliation without political limits.³⁹ Some prominent Army generals took early retirement and spoke out against massive retaliation.⁴⁰ The concept of fighting limited wars developed momentum, and plans were made to test nuclear artillery as early as 1951.⁴¹ Even John Foster Dulles acknowledged that tactical nuclear weapons made defence against a conventional attack more feasible. Consequently it was possible to place "less reliance upon deterrence of vast retaliatory power."⁴² Since the United States could not achieve anything near the Soviet or Chinese levels of conventional forces, Eisenhower readily substituted cheaper nuclear weapons to deter any

³⁸ David Alan Rosenberg has done solid research in this area. See his "U.S. Nuclear War Planning, 1945-1960," in Desmond Ball and Jeffrey Richelson, eds., Strategic Nuclear Targeting (London: Cornell University Press, 1986), p. 35, and "The Origins of Overkill: Nuclear Weapons and American Strategy, 1945-1960," International Security 6 (Spring 1983), p. 17, and "A Smoking Radiating Ruin at the End of Two Hours," International Security 6 (Winter 1981/1982), p. 10.

³⁹ Maxwell D. Taylor, The Uncertain Trumpet (New York: Harper and Brothers, 1960), p. 24.

⁴⁰ Lynn Montross, War Through the Ages, 3rd edition (New York: Harper and Brothers, 1960), p. 997. The generals were Taylor, Gavin and Ridgeway, and their resignations had some impact on the 1960 Presidential election. See Russell F. Weigley, History of the United States Army Enlarged Edition (Bloomington, Indiana: Indiana University Press, 1984), p. 526.

⁴¹ Trevor N. Dupuy, The Evolution of Weapons and Warfare (New York: Bobbs-Merrill Company, 1980), p. 268. The Army Chief of Staff insisted on having nuclear capable artillery.

⁴² John Foster Dulles, "Challenge and Response in U.S. Policy," p. 31.

communist conventional expansion into West Europe or elsewhere. While massive retaliation remained the United States' declared nuclear strategy, there was considerable support for more flexible utilization of nuclear threats well before the United States itself faced a significant threat.

During this period certain nuclear threats were used to accomplish specific tasks. In 1945 the Secretary of State, James Byrnes, used atomic power as an implied threat to convince the Soviet Union to broaden the Romanian and Bulgarian governments.⁴³ This threat did not work, however, for at the time the USAF did not "have the strength to dictate political developments in those regions where the Soviets already enjoyed dominance."⁴⁴ A more credible threat to resort to nuclear weapons was used by Eisenhower after his election to end the stalling of the Chinese government in the Korean truce negotiations.⁴⁵ Although some felt that this nuclear threat did not have a decisive effect, no one doubts that this threat was made and that it was limited to the Korean negotiations.⁴⁶ During the 1956 Suez crisis, the use of nuclear weapons was first threatened by Khrushchev, but as soon as SACEUR made a counter threat, the Soviet Union remained silent.⁴⁷ In the 1958 crisis in Lebanon, the United State's nuclear threats helped preclude Soviet action. In addition to

⁴³ Deborah Welch Larson, Origins of Containment: A Psychological Explanation (Princeton, New Jersey: Princeton University Press, 1985), p. 336. The so-called "bomb in his pocket tactics" did not impress the Soviets.

⁴⁴ Harry R. Borowski, A Hollow Threat: Strategic Airpower and Containment Before Korea (London: Greenwood Press, 1982), p. 107.

⁴⁵ Dwight D. Eisenhower, The White House Years: Mandate For Change 1953-1956 (New York: Doubleday and Company, 1963), pp. 178-181.

⁴⁶ C.F. Barnaby and A. Boserup, Implication of Anti-Ballistic Missile Systems (London: Souvenir Press, 1969), p. 218. The authors claim that no evidence supports that this threat had a decisive effect.

⁴⁷ Bernard Brodie, War and Politics (New York: Macmillan, 1973), p. 393.

using nuclear weapons to deter a Soviet invasion of Europe, American nuclear threats have also been very contingent, a characteristic of compellent use.

Throughout the 1950's, conventional defence of Western Europe proved too expensive, and United States' strategy came to rely on nuclear first use to prevent Soviet expansion. In addition to their role as a substitute for conventional forces, nuclear threats were used for general intimidation and for specific compellence.

3. The Correlation of Nuclear Forces

Until the Soviet Union detonated its first nuclear device, the United States was slow to develop its nuclear strike capability. By mid 1947 the United States had sufficient material for only 29 bombs, and their use required several days' work by the two bomb assembly teams at the Atomic Energy Commission, the agency that controlled all nuclear energy, including the early bombs.⁴⁸ Only 27 B-29 aircraft were modified to carry nuclear weapons, and they were never deployed to Europe. During the 1948 Berlin crisis when the United States deployed other B-29 bombers to Britain, Stalin probably knew that no real nuclear threat was being made.⁴⁹ Once the Soviets had clearly entered the nuclear arms race, however, Truman agreed to step up American nuclear weapons production and to develop thermonuclear weapons to keep ahead of the Soviet Union.⁵⁰

By 1950, the United States possessed an "overwhelming superiority" in strategic weapons, and by 1954, when Dulles declared his massive

⁴⁸ Harry R. Borowski, A Hollow Threat: Strategic Airpower and Containment Before Korea, p. 106.

⁴⁹ Ibid., pp. 125-128.

⁵⁰ Peter Pringle and James Spigelman, The Nuclear Barons (New York: Holt, Rinehart and Winston, 1981), pp. 87-88.

retaliation strategy, the American advantage was even greater.⁵¹ Less capable Soviet bombers faced long range one-way missions while more numerous United States bombers could forward deploy and had global range with air-to-air refueling.⁵² This situation lasted until 1957 when, with the launching of Sputnik, the Soviet Union threatened to develop ICBM's that could reach the United States in 30 minutes. The shock served to spur the American missile programmes, which had experienced significant cultural resistance in the early 1950's when compared with the bomber.⁵³ For the first time in its history the United States faced a significant nuclear threat, but it was to take several years for the Soviet military scientists to deploy effective ICBM's in significant quantities. By then the Americans were already deploying their own ICBM's.

The American efforts to outproduce and keep ahead of Soviet nuclear capable strategic forces implied a reluctance to rely on deterrence. Not only did the United States pursue military nuclear superiority, but they projected landing the first decisive blows in order to preclude Soviet retaliation.

4. The Implication of Massive Retaliation

The United States military adapted quickly to nuclear weapons, but maintained, for the most part, a strategy that followed logically from the American victory in World War Two. The United States intended to deter communist expansion by threatening the transgressor with near total

⁵¹ Harland B. Moulton, From Superiority to Parity: The United States and the Strategic Arms Race 1961-1971 (London: Greenwood Press, 1973), p. 11.

⁵² Ibid., p. 14.

⁵³ Edmund Beard, Developing the ICBM: A Study in Bureaucratic Politics (New York: Columbia University Press, 1976), pp. 220-224.

nuclear destruction when that nation could not destroy the United States. A lasting result of Eisenhower's "new look" was a strategic orientation around "a hope that nuclear weapons could be employed in such a way as to particularly favour the West."⁵⁴

By including as primary targets any potential means of Soviet nuclear response, this strategy implied a degree of war fighting. At the same time that massive retaliation was adopted as official policy, the American strategic community faced the spectre of limited war, noting that in practice, no war has been fought without some restraints.⁵⁵ Advocates of limited war proposed that if the means of deterrence were more "proportionate to the objectives at stake," it would "maximize the opportunities for effective use of military force as a rational instrument of policy."⁵⁶ In this period tactical nuclear weapons were introduced in Europe to deter a Soviet invasion and for use in the event of war. If war were to erupt, the United States clearly was planning to win and roll back communism wherever possible. The United States was prepared to interpret any Soviet move outside of its borders as the cause of war, and thus massive retaliation as a strategy to support the policy of containment appeared directed at curbing or changing what was perceived to be an expansionist Soviet policy. Massive retaliation contained more than just "elements of compellence"; it threatened nuclear intimidation generated by

⁵⁴ Lawrence Freedman, The Evolution of Nuclear Strategy (London: Macmillan Press, 1982), p. 84. This point is well made by Freedman.

⁵⁵ George H. Quester, Deterrence Before Hiroshima: The Airpower Background of Modern Strategy (New York: John Wiley and Sons, 1966), p. 180.

⁵⁶ Robert E. Osgood, Limited War: The Challenge to American Strategy (Chicago, Illinois: University of Chicago Press, 1957). See p. 242 and p. 26 for each quotation.

threats of massive first use to achieve deterrence.⁵⁷

III. THE ERA OF FLEXIBLE RESPONSE

As long as the United States maintained military superiority or at least nuclear superiority, the policy of massive retaliation could be supported. But increasingly senior American officials questioned the utility of such massive nuclear use in deterring relatively minor conventional military operations, and when the Soviets began to develop the ability to severely damage the United States, the concept of massive retaliation began to appear suicidal. The vulnerability of both countries to ICBM attack with nuclear warheads made assured destruction an emerging fact.

The election of Kennedy in 1960 provided the opportunity for the United States to review these important strategic concerns. The new administration soon decided on a new strategy and on 16 June, 1962, the Secretary of Defence, Robert McNamara, made this new policy public.

The United States has come to the conclusion that to the extent feasible, basic military strategy in a possible general nuclear war should be approached in much the same way that more conventional military operations have been regarded in the past. That is to say, principal military objectives, in the event of a nuclear war stemming from a major attack on the Alliance, should be the destruction of the enemy's military forces, not of his civilian population.⁵⁸

This section will focus briefly on the historical period where the superpowers reached near parity in strategic nuclear arms. The key elements of United States nuclear strategy will be analyzed from the

⁵⁷ The citation can be found in William H. Kincaide, "Arms Control or Arms Coercion," Foreign Policy 62 (Spring 1986), p. 28. See also Henry Kissinger, Nuclear Weapons and Foreign Policy (New York: W.W. Norton and Company, 1957), p. 200.

⁵⁸ Cited in William W. Kaufmann, The McNamara Strategy (New York: Harper and Row, 1964), p. 116.

paradigmatic perspective, examining the strategic intentions, the use of nuclear threats and the correlation of nuclear forces in that order.

1. The Strategic Intentions

For most of the period in question, about 1960-1970, the United States appeared to accept the inevitability of the Soviet accretion of nuclear power. This period included what may have been the zenith of American strategic thought where complex nuclear deterrence concepts were elaborated and stability concerns seemed paramount. To much of the strategic community, the reality of parity spelled the decline of nuclear weapons as a significant supporting element to foreign policy. Notwithstanding some rhetoric to the contrary, the utility of nuclear weapons appeared officially limited to strategic deterrence.⁵⁹ What needs to be further analyzed is exactly what was intended by "strategic deterrence."

For many observers, major war was now simply too dangerous to threaten with any degree of credibility, but they also noted with concern that military officers still aspired to seek victory for its own sake.⁶⁰ President Kennedy echoed these concerns and feared that the largest risk of nuclear war was from miscalculation, madness or accident.⁶¹ Robert McNamara, who had initially strongly supported counterforce developments,

⁵⁹ McGeorge Bundy, "The Future of Strategic Deterrence" in Christoph Bertram, ed., Strategic Deterrence in a Changing Environment (London: Gower and Allanheld, 1981), p. 113. Bundy clearly holds a deterrent perspective, but as evidenced by the following simple works, there was no doubt that USAF officers wanted to maintain strategic superiority. See General Curtis E. LeMay, America is In Danger (New York: Funk and Wagnells, 1968), p. 52, and General Thomas S. Power, Design for Survival (New York: Coward-McCann, 1965), p. 14.

⁶⁰ Bernard Brodie, War and Politics, p. 426 and pp. 490-493. See also Morton H. Halperin, Contemporary Military Strategy, p. 23. USAF officers in particular stressed the need to win a nuclear war.

⁶¹ Frank Barnaby, Nuclear Disarmament or Nuclear War (Stockholm: SIPRI, 1975), p. 9.

recanted his position somewhat. In part, this was due to the relatively unlimited financial and equipment resources called up by counterforce requirements, but also he deplored the "ineradicable tendency" to view security as being exclusively a military problem that could be solved exclusively with weapons.⁶² Even Henry Kissinger changed his earlier views about the utility of nuclear weapons to meet the spectrum of possible challenges,⁶³ when he noted the increasing pressures against using any nuclear weapons and the resultant psychological burden placed on Western political leaders.⁶⁴

In the 1960's the United States also shifted to a somewhat more defensive stance with respect to sustaining the global status quo. The dilemma of assured destruction initially convinced most analysts that

no major challenge to the existing status quo is likely, unless and until someone develops a winning strategy that can, in his opinion, overcome the dilemma.⁶⁵

Thus for the United States, a strategy that sought to maintain the status quo would require fewer resources than a strategy which could only respond to a small "fait accompli" by threatening to create a significant change in the status quo.⁶⁶ One consequence of this new strategic thinking was

⁶² See Robert S. McNamara, "The Dynamics of Nuclear Strategy," Department of State Bulletin, 57 (9 October 1967), p. 445, and his The Essence of Security (New York: Harper and Row, 1968), p. 142.

⁶³ Henry Kissinger, Nuclear Weapons and Foreign Policy, pp. 14-15. Here the author notes, in an influential work, the opportunities presented in limited nuclear use. Richard Nixon in his Memoires (New York: Grosset and Dunlap, 1978), p. 340, noted its impact on his thinking.

⁶⁴ Henry Kissinger, "Limited War: Conventional or Nuclear? A Reappraisal," Daedalus 89 (No. 4, 1960), p. 809. Kissinger now recommends conventional defence rather than limited nuclear use to maintain deterrence.

⁶⁵ Paul Kecskemeti, Strategic Surrender: The Politics of Victory and Defeat (Stanford, California: Stanford University Press, 1958), p. 254.

⁶⁶ Ibid., pp. 254-257. The complexities of this argument are well handled by Desmond Ball, Targeting For Strategic Deterrence, Adelphi Paper 185 (London: International Institute for Strategic Studies, 1983), pp. 8-13.

that in the Vietnam conflict, the United States restrained itself to an attempt to maintain the existing political conditions and never intended to achieve an overall victory.⁶⁷ Not everyone, however, was convinced that a purely defensive strategy was in order. Since the Soviet Union appeared to be waging political warfare against the United States, some observers felt that what was needed was a comparable offensive strategy. The difficulty was that an American strategic posture based on assured destruction and deterrence "spells failure of such a counter-offensive from the start."⁶⁸

In terms of the fundamental political values at stake, the United States also demonstrated a degree of ambivalence. To a degree there was a shift in strategic values in that the American people, partly out of fatigue with the Vietnam War, began to feel that maintaining a strategic military advantage as compared with settling for parity was not worth the additional costs.⁶⁹ On the other hand the strategy of controlled response, announced by McNamara in 1962, extended the notion of bargaining into the period after the inception of general nuclear war.⁷⁰ This concept implied acceptance of the need for some advantage to conduct this bargaining, and to a large degree the strategy of containment had already given the United States an important strategic edge. President Kennedy, according to one observer, set out to convince the Soviet Union "that it

⁶⁷ Harry G. Summers, On Strategy: A Critical Analysis of the Vietnam War (Novato, California: Presidio Press, 1982), p. 103. Such a victory would undoubtedly have been over North Vietnam.

⁶⁸ William R. Kintner and Joseph Z. Kornfeder, The New Frontier of War: Political Warfare, Present and Future (Chicago, Illinois: Henry Regnery, 1962), p. 159.

⁶⁹ Bruce Russett, The Prisoners of Insecurity: Nuclear Deterrence, The Arms Race and Arms Control (New York: W.H. Freeman, 1983), p. 106.

⁷⁰ Morton H. Halperin, Contemporary Military Strategy, p. 78.

can comfortably and honorably live within a balance of power which is decidedly in our favour."⁷¹

As the United States introduced the strategy that became known as flexible response, considerable divergences of strategic thinking began to emerge. The cost of maintaining the nuclear superiority desired by military officers was simply no longer politically supportable. The reality of assured destruction degraded the perceived utility of nuclear weapons at least among political and academic elites. In terms of attitudes towards the status quo and towards political values some ambivalence is evident. Clearly, a significant shift towards the deterrent paradigm took place this period, but strong elements of compelling thought remained imbedded in the prevalent concepts of "strategic deterrence."

2. The Threat of Force

The American use of nuclear threats from 1960 to 1970 tended to run much greater risks as the Soviets gradually reached parity. One could plausibly expect a major decrease in the use of military threats, but this did not appear to be the case.⁷² The number of nuclear related threats remained fairly constant, but the quality of these threats did change significantly.

One major impact of a controlled response strategy was a greater influence of counterforce targeting ideas. Deterrence of the Soviet Union remained the primary objective of nuclear threats, and the action policy to implement this strategy was contained in the Single Integrated Operation Plan (SIOP). The development of this plan was a "really new

⁷¹ Walter Lippmann, The Washington Post, 3 December, 1963.

⁷² Barry Blechman and Stephen S. Kaplan, Force Without War, p. 47.

departure" in United States military planning because it finally placed some restrictions on Strategic Air Command (SAC) which had planned all previous nuclear targeting.⁷³ This targeting plan produced in the early 1960's remained essentially unchanged in the early 1970's, when Nixon and Kissinger raised concerns that it limited the United States to only one massive strategic course of action.⁷⁴ Both counterforce and countervalue targets were included in the early SIOP; the counterforce targets, however, were those that required increased accuracy and more warheads. Planning for assured destruction tasks was directly linked to a target baseline based on where the principle of diminishing returns caused the effectiveness curve to level off.⁷⁵ According to McNamara, by 1968 the United States had greatly exceeded its stated requirement for assured destruction of the Soviet Union that required only 340-440 missiles.⁷⁶ Pressure for far greater numbers of missiles came from the military who wanted in excess of 2,400 Minuteman missiles to cover a growing military

⁷³ George B. Kistiakowsky, A Scientist at the White House (London: Harvard University Press, 1976), pp. 399-400. This was in spite of the United States Navy's desire to control its own targeting for Polaris.

⁷⁴ David Landau, Kissinger: The Uses of Power (Boston, Massachusetts: Houghton Mifflin Company, 1972), p. 151 and p. 258.

⁷⁵ A first rate source for this period is Alain C. Enthoven and K. Wayne Smith, How Much is Enough? (New York: Harper and Row, 1971), p. 207.

⁷⁶ Lynne Etheridge Davis, "Limited Nuclear Options: Deterrence and New American Doctrine" in Christoph Bertram, ed., Strategic Deterrence in a Changing Environment (London: Gower and Allanheld, Osmun, 1981), p. 61. See also Alain C. Enthoven and K. Wayne Smith, How Much is Enough?, p. 178, and Desmond Ball, Politics and Force Levels: The Strategic Missile Programme of the Kennedy Administration (London: University of California Press, 1980), p. 268.

target array.⁷⁷

A key element of military efforts to procure greater numbers of nuclear systems than required for assured destruction was to achieve operational flexibility. To deter provocation and encourage "acceptable" behaviour on the part of the Soviet Union required a capability to be able to fight and survive a war to the extent possible.⁷⁸ McNamara tried for seven years to get more flexible nuclear options, but was stalled by a bureaucracy that feared more flexible options would require more new forces.⁷⁹ Furthermore, in 1962 it became evident that the United States had such an advantage in flexibility and counterforce targeting that it appeared the Soviet technological capability for flexibility would forever remain inferior.⁸⁰ But to the degree that operational targeting flexibility existed in United States plans, it existed outside the SIOP and had been prepared on the initiative of the Joint Chief of Staff and major military commanders.⁸¹ Changes to American nuclear doctrine were evolutionary and while assured destruction remained its essential core,

⁷⁷ A.G.B. Metcalf, "The Minuteman Vulnerability Myth and the MX," Strategic Review 11 (Spring 1983), p. 7, noted that the original Minuteman programme sought 3000 missiles. See also Alain C. Enthoven and K. Wayne Smith, How Much is Enough?, p. 195. In the USAF, General Curtis LeMay wanted 2,400 while General Thomas Power sought 10,000 Minuteman missiles. The USN, however, accepted finite deterrence at lower numbers of missiles.

⁷⁸ Herman Kahn, The Nature and Feasibility of War and Deterrence (Santa Monica, California: Rand P-1888-RC, 1960), p. 39, and by the same author, Thinking About the Unthinkable (New York: Horizon Press, 1962), pp. 122-125.

⁷⁹ Henry Kissinger, The White House Years (Boston, Massachusetts: Little, Brown and Company, 1979), p. 217.

⁸⁰ Jerome H. Kahan, Security in the Nuclear Age: Developing U.S. Strategic Arms Policy (Washington, D.C.: Brookings Institution, 1975), p. 232.

⁸¹ Henry S. Rowen, "The Evolution of Strategic Nuclear Doctrine," in Lawrence Martin, ed., Strategic Thought in the Nuclear Age, p. 151. This article is an excellent review of its subject.

that core was a small percentage of the nuclear target array. Although the assured destruction mission had top priority, it did not necessarily mean that cities would be attacked first or even given the most weight of effort. It meant only that confidence in the ability to attack them must remain high in all conditions.⁸²

During this period the actual use of threats displayed an American propensity to view them as being useful in "guiding" Soviet actions. During the Berlin crisis in 1961, the United States deliberately communicated to the Soviet Union the American awareness of the Soviet strategic weakness to curb Khrushchev's bellicose behaviour.⁸³ The inability or the unwillingness of the United States to make use of or to press its military advantage may possibly have contributed to Khrushchev's decision to place missiles in Cuba and the resulting October 1962 crisis. The American deliberate threat of nuclear escalation during the Cuban missile crisis backed up conventional superiority in the Caribbean region and helped convince Soviet leaders to back down from the threat of war.⁸⁴ This

⁸² Ibid., p. 133.

⁸³ Richard Ned Lebow, "Clear and Future Danger: Managing Relations with the Soviet Union in the 1980's," in Robert O'Neill and D.M. Horner, eds., New Directions in Strategic Thinking (London: George Allen and Unwin, 1981), p. 224. This is an excellent book. See also Fred Kaplan, The Wizards of Armageddon (New York: Simon and Schuster, 1983), pp. 291-306. The U.S.S.R. had only 4 operational SS-6 missiles. This information was only available in 1961 from the Discoverer satellite programme.

⁸⁴ The danger of nuclear war during this crisis was real, greater than either leader could have wished. See McGeorge Bundy, Danger and Survival (New York: Random House, 1988), pp. 461-462. The United States had two thousand nuclear bombers and 200 ICBM's operational while the Soviet Union had 135 bombers and only a few ICBM's. See Philip Bobbitt, Democracy and Deterrence: The History and Future of Nuclear Strategy (London: MacMillan Press, 1988) p. 46. See also Richard K. Betts, "Elusive Equivalence: The Political and Military Meaning of the Nuclear Balance," in Samuel Huntington, ed., The Strategic Imperative: New Policies for American Security (Cambridge, Massachusetts: Ballinger Publishing Company, 1982), p. 115. Betts feels the nuclear threat made the difference. For a contrary view see Maxwell Taylor, Swords and Ploughshares (New York: W.W. Norton and Company, 1972), p. 280.

nuclear global alert was very specific and was directly linked to the strategic balance, for Soviet intermediate range missiles in Cuba would place much of the United States under the threat of direct nuclear attack. The nuclear alert during the Cuban missile crisis was a clear case of compellence where a specific Soviet action was demanded, but other threats also carried implications beyond deterrence, for the United States appeared to seek modification of Soviet behaviour.

The American use of threats has displayed persistent tendencies to counterforce targeting, flexible use and contingency. While political elites appeared to accept assured destruction logic, the American military, the USAF in particular, have clung to the view of nuclear weapons as instruments of war fighting not simply agents of deterrence.

3. The Correlation of Nuclear Forces

During this period both superpowers built impressive strategic nuclear arsenals. This section will focus briefly on the relative quality of strategic nuclear forces, the overall balance of numbers and the expected combat utility of these systems. A more detailed quantitative analysis will follow in chapter seven.

In general, the United States favoured having fewer high quality nuclear delivery systems than having larger numbers of less capable systems. The example of the Multiple Independently-targetable Re-entry Vehicle (MIRV) demonstrates the American emphasis on technological solutions. No operational requirement predated MIRV; it was a classic example of technology shaping a strategic decision.⁸⁵ As funds were cut and the numbers of Minutemen were reduced, the military bureaucracy was

⁸⁵ Ronald L. Tammen, MIRV and the Arms Race: An Interpretation of Defence Strategy (New York: Praeger Publishers, 1973), p. 81 and p. 107. MIRV was an offshoot of the penetration aid and space programmes.

quick to accept this solution as it would allow each missile to attack a number of different targets, sharply increasing their counterforce potential.⁸⁶ The success of MIRV demonstrates that the military had a significant influence on the bureaucratic milieu in Washington.⁸⁷ More importantly, MIRV passed the stringent test of McNamara's cost effectiveness analysis, and it provided the United States the technological means to deliver more nuclear firepower than the Soviet Union, even though the United States had fewer missiles.⁸⁸

By 1970, the United States had allowed the Soviet Union to deploy a greater number of ICBM's without attempting to maintain an exact numerical balance. This was a significant departure from 1963 when McNamara declared that "the damage-limiting capability of our numerically superior forces is, I believe, well worth its incremental cost."⁸⁹ The concept of ballistic missile defence and MIRV's reinforced this damage-limiting momentum because greater numbers of Soviet missiles could be threatened while even a partially effective defence could further blunt the retaliation. Soviet determination to reach parity and high costs precluded the United States from maintaining the degree of superiority

⁸⁶ Scilla McLean, How Nuclear Weapons Decisions are Made (London: Macmillan Press, 1986), p. 79. See also Alain Enthoven's testimony before the Hearings Before the Senate Preparedness Investigating Subcommittee of the Committee on the Armed Services, 1968 (Washington, D.C.: USGPO, 1968), pp. 140-148.

⁸⁷ Graham T. Allison and Morton H. Halperin, "Bureaucratic Politics: A Paradigm and Some Policy Implications," in Raymond Tanter and Richard H. Ullman, eds., Theory and Policy in International Relations (Princeton, New Jersey: Princeton University Press, 1972), p. 57.

⁸⁸ James M. Roherty, Decisions of Robert S. McNamara: A Study of the Role of the Secretary of Defence (Coral Gables, Florida: University of Miami Press, 1970), p. 74.

⁸⁹ Remarks to the Economic Club of New York 18 November, 1963, printed in Arthur Waskow, ed., The Debate Over Thermonuclear Strategy, p. 46.

experienced at the start of this period. Nevertheless, with MIRVs, only 220 Minuteman 3 ICBM's could destroy 21% of the Soviet population from immediate effects alone and 72% of the Soviet industry.⁹⁰ Thus an arsenal of over 1000 ICBM's plus hundreds of bombers and hundreds of submarine launched ballistic missiles (SLBMs) constituted a nuclear force far greater than that required for countervalue assured destruction tasks. To enhance survival of strategic forces, ICBM silos were also hardened to withstand anything but the most accurate attacks.

The United States strategic community had become increasingly accustomed to assessing the combat utility of nuclear weapons. The concept of launching a nuclear attack "before the aggressor has hit either us or our allies," was described in Congress as the only reliable form of deterrence;⁹¹ this is pure damage limitation. In 1961 SAC authorized the first withholding of ICBM's from the initial launches, an introduction of war fighting techniques.⁹² One key adviser to Kennedy declared that he believed "in the importance of maintaining superiority over the Communists in every element of our military power."⁹³ Others remained convinced of the necessity to maintain superiority in areas that matter, for if the United States could maintain a

⁹⁰ Barry Carter, "Nuclear Strategy and Nuclear Weapons," Scientific American (May 1974), p. 22. Twelve Poseidon SSBNs could do the same amount of damage.

⁹¹ Report of the House Appropriations Committee on Defence Appropriations for 1961 cited by Melvin R. Laird, A House Divided: America's Security Gap (Chicago: Henry Regnery Company, 1962), p. 81.

⁹² Paul Bracken, Command and Control of Nuclear Forces (New Haven, Connecticut: Yale University Press, 1983), p. 206.

⁹³ Paul Nitze was assistant Secretary of Defence for International Security Affairs, cited in Steven L. Reardon, The Evolution of American Strategic Doctrine: Paul H. Nitze and the Soviet Challenge, p. 52.

sufficient margin of superiority without giving a large stimulus to the arms race, it may hope to deter not only war but also the dangerous employment of Soviet strategic power for political ends.⁹⁴

Many elements in the United States strategic community were not eager to accept complete parity with the Soviet Union. The political détente that evolved over the late 1960's and early 1970's helped those who believed in stability to convince many of the American political elite that parity would in the final analysis help the United States by encouraging the Soviet Union to adopt less confrontational policies. Thus at the beginning of this period when the United States had unequivocal nuclear superiority, significant compellent characteristics were evident, but as parity was achieved and deterrence apparently became the dominant paradigm in United States declaratory strategy, significant traces of compellent thinking still remained within the American strategic community.

4. The Implication of Flexible Response

The first part of this period resembled the era of massive retaliation because much of the United States political elite felt that some useful degree of nuclear superiority would be achievable. By the end of this period, however, these views seemed illusory and parity seemed to be the apparent objective.

Different students have drawn vastly different implications from this shift. Some observers suggested that the United States and the Soviet Union drew different lessons from the Cuban Crisis, the Soviets drawing a longer term view to build up their military power while the United States

⁹⁴ Arnold Horelick and Myron Rush, Strategic Power and Soviet Foreign Policy (Chicago: University of Chicago Press, 1966) p. 218. See also Bernard Brodie, The Communist Reach for Empire (Santa Monica, California: Rand Corporation P-2916, 1964) p. 16.

believed détente and Soviet growth to nuclear parity would prevent a similar crisis in the future.⁹⁵ A different view was that the present United States superiority was indispensable to the preservation of peace.⁹⁶ A 1965 study of eight cases concluded that United States strategic forces played a part in conducting fear of unwanted consequences in the minds of Soviet leaders and thus influenced Soviet policy.⁹⁷ Those who held this view tended to see alarm in the trends in relative military strength.

...the United States is moving toward a posture of minimum deterrence in which we could be conceding to the Soviet Union the potential for a military and political victory if deterrence failed.⁹⁸

The American failure in Vietnam seemed to cast doubts on the utility of force, but this interpretation ignored the successful North Vietnamese use of force. Nevertheless a belief in a declining utility of force, the possibility of greater cooperation with the Soviet Union, Soviet determination to reach parity, and the high costs of maintaining nuclear superiority combined to allow proximate superpower parity to come about. The United States began to reduce its expectations. It dropped the criteria of not allowing the Soviets to gain the ability to cause greater damage to the United States than the United States could inflict on the

⁹⁵ John Van Oudenaren, Potential Threats to U.S. Soviet Deterrence: The Political Dimension (Santa Monica, California: Rand Corporation P-6826, 1982), p. 3. See also W. Scott Thompson, National Security in the 1980's: From Weakness to Strength (San Francisco, California: Institute for Contemporary Studies, 1980), p. 14.

⁹⁶ William R. Kintner, Peace and the Strategy Conflict (New York: Frederick A. Praeger, 1967), p. xi.

⁹⁷ Ibid., pp. 6-7.

⁹⁸ Paul Nitze, "Assuring Strategic Stability in an Era of Detente," Foreign Affairs 54 (January 1976), p. 227. This is an important article that helped coalesce and shape right wing opinion.

Soviet Union.⁹⁹ In a 1971 report, Melvin Laird expounded a strategy of "realistic" deterrence, simply a continuation of the United States retreat from massive retaliation.¹⁰⁰

During this period, the United States officially shifted towards a greater emphasis on deterrence, but strong indications of compellent thinking remained among the strategic elite. In particular, in the sense that the USAF retained its war fighting orientation and MIRVed systems provided certain advantages even with fewer missiles, the compellent model reappears and is useful as an alternative means of explaining some aspects of United States policy during this period.

IV. THE SEARCH FOR ADVANTAGE 1970-1986

In the most recent period of American nuclear strategy, a reasonably consistent pattern emerges as various American administrations attempt to recover, at least to some degree, the ability to restrain or to modify Soviet international behaviour.

Some people in Washington have a nostalgia for the early days of the Cold War, when the U.S. had strategic predominance, and nuclear massive retaliation was a plausible strategic posture.¹⁰¹

In the aftermath of the American failure to achieve its goals in Vietnam, the 1973 oil embargo by Arab states served to intensify global strategic competition. Increasingly, throughout this period, the United States re-emphasized the view that the Soviet Union was a formidable rival with

⁹⁹ Warner Schilling, "U.S. Strategic Nuclear Concepts in the 1970's: The Search for Equivalent Countervailing Parity," in Robert O'Neill and D.M. Horner, eds., New Directions in Strategic Thinking, p. 46.

¹⁰⁰ Albert Legault and George Lindsey, The Dynamics of the Nuclear Balance, p. 164.

¹⁰¹ Bruce Russett, The Prisoners of Insecurity: Nuclear Deterrence, the Arms Race and Arms Control, p. 41.

global ambitions. Inevitably, nuclear strategy reflected these thoughts, and American nuclear doctrine evolved towards greater complexity so as not to allow the Soviet Union any potential advantage. This section will briefly examine recent American nuclear strategy to determine which paradigmatic approach more closely reflects United States policy.

1. The Strategic Intentions

Shortly after his election as President, Nixon began to question the American nuclear strategy as it had evolved in the 1960's. The new administration sought to change nuclear strategy and "made it clear that it would not be bound by earlier theories of deterrence."¹⁰² The changes in American nuclear strategy initiated by Nixon were important because they were not only continued but were further developed by subsequent administrations. At the root of these changes lay different expectations about the utility of nuclear weapons, different views with respect to the status quo and slightly different values from that which existed in the 1960's.

Nixon was appalled by the prospect that in response to any form of nuclear attack, a President could be left with a single option of ordering the mass destruction of enemy civilians "in face of the certainty that it would be followed by the mass slaughter of Americans."¹⁰³ In the early 1970's, Nixon charged Kissinger "to come up with additional nuclear war

¹⁰² Lynn E. Davis, Limited Nuclear Options: Deterrence and the New American Doctrine, Adelphi Paper 121 (London: International Institute for Strategic Studies, 1976), p. 3.

¹⁰³ Nixon's 1970 Foreign Policy Report cited by Schlesinger in Hearings before the Senate Subcommittee on Arms Control, International Law and Organization of the Committee on Foreign Relations, Briefing on Counterforce Attacks (Washington, D.C.: USGPO, 1975), pp. 5-6.

options."¹⁰⁴ This study led directly to National Security Decision Memorandum 242, signed by Nixon in early 1974. These "new options" reflected a fundamental desire to change the United States declaratory policy as well as its nuclear action policy. The United States nuclear strategy as it emerged in what became known as Schlesinger's limited nuclear options assumed that the Soviet Union could not destroy the United States reserve strategic forces, and thus the traditional military values of using nuclear weapons to achieve sensible objectives should deterrence fail, were elevated to greater importance.¹⁰⁵

The Carter and Reagan administrations steadily pursued this strategic drift initiated by Nixon. Carter's Presidential Directive 59 emphasized a countervailing strategy to preclude any Soviet advantage, and Reagan's National Security Decision Document 13 went even further, proclaiming the American strategic goal is "to prevail in a protracted nuclear war" and to "restore peace on favourable terms."¹⁰⁶ Notwithstanding this strategic objective, many observers felt that the United States still needed to develop an articulate, coherent and credible strategy of how to apply this force to promote the attainment of policy objectives.¹⁰⁷

¹⁰⁴ Desmond Ball, "The Role of Strategic Concepts and Doctrine in U.S. Strategic Nuclear Force Development," in Bernard Brodie, Michael D. Intriligator and Roman Kolkowicz, eds., National Security and International Stability (Cambridge, Massachusetts: Oelgeschlager, Gunn and Haig, 1983), p. 52.

¹⁰⁵ Aaron L. Friedberg, "The Evolution of U.S. strategic Doctrine-1945 to 1981," in Samuel Huntington, ed., The Strategic Imperative: New Policies for American Security (Cambridge, Massachusetts: Ballinger Publishing Company, 1982), see pages 56 and 76.

¹⁰⁶ Caspar Weinberger, Annual Report to the Congress, Fiscal Year 1984 (Washington, D.C.: USGPO, 1983), p. 32, and Robert Scheer, With Enough Shovels (New York: Random House, 1982), p. 12.

¹⁰⁷ William J. Taylor, The Future of Conflict (New York: Praeger Publishers, 1983), p. 89, and Colin S. Gray and Keith Payne, "Victory is Possible," Foreign Policy 39 (Summer 1980), p. 18.

Increased attention to achieving favourable outcomes if deterrence failed resulted in a reinforced belief in the utility of nuclear weapons to support American overall objectives. Assured destruction was not abandoned, but it was not enough; however measured, it would not lead to assured crisis stability in the face of a Soviet strategic nuclear advantage.¹⁰⁸ The classical view that the best way to deter war is to prepare for war was gaining momentum, particularly among those that were familiar with Soviet nuclear strategy.¹⁰⁹ United States strategic policy in this period moved clearly towards a war fighting orientation that reflected a great deal more than assured destruction thinking.¹¹⁰

Another indication of paradigmatic intentions is the degree of commitment to the status quo. According to Weinberger, the United States must "contain Soviet aggression or subversion long enough for the internal contradictions of Soviet communism to emerge."¹¹¹ But the policy of the Reagan administration took a more assertive view of containment. It implied a need to have a more explicit strategy for competing with the Soviet Union and even suggested that Soviet withdrawals could be induced

¹⁰⁸ William R. Van Cleave, "The Requirement for and the Purpose of Quick Fixes to American Strategic Nuclear Forces," in William R. Van Cleave and W. Scott Thompson, eds., Strategic Options for the Early Eighties: What Can Be Done? (New York: National Strategy Information Centre, 1979), p. 15. The author expresses concern that studies have shown that a substantial strategic disparity exists in strategic capability in favour of the Soviet Union. See p. 3.

¹⁰⁹ George Keegan, "Editorial Letter," Strategic Review 5 (Spring 1977), p. 7. Keegan was head of USAF intelligence.

¹¹⁰ James Schlesinger, "The Evolution of American Policy Towards the Soviet Union," International Security 1 (Summer 1976), pp. 42-43; and Colin S. Gray, "Strategic Forces and SALT: A Question of Strategy," Comparative Strategy 2 (Number 2, 1980), p. 125.

¹¹¹ Caspar Weinberger, Annual Report to the Congress, Fiscal Year 1987 (Washington, D.C.: USGPO, 1986), p. 7.

by an appropriate American strategy.¹¹² Not only was there a belief in the Reagan administration that perceptions of relative military superiority were very important, but the tendency to link American economic policy to foreign policy vis-à-vis the Soviet Union implied a strong mercantilist orientation.¹¹³

American perceptions that nuclear use could be threatened to impose a change in the international system appeared to stem primarily from the belief that the Soviet Union "might entertain the illusion that nuclear war could be an option."¹¹⁴ American nuclear policy makers were far more concerned with Soviet strategy than they were in previous periods, and one result was a subtle but significant change in how the United States leadership viewed the ability and utility of nuclear weapons to alter the status quo when desired.

These notions questioned the values that underlay American strategic intentions. Certainly from the Soviet perspective, it appeared that the United States was not prepared to accept the Soviet Union as a status equal. This point was emphasized by Reagan when he stated that the Soviet leaders were "the focus of evil in the modern world."¹¹⁵ Soviet analysts

¹¹² Ibid., p. 28. See also Barry Posen and Stephen Van Evera, "Defence Policy and the Reagan Administration: Departure from Containment," International Security (Spring 1983), p. 34.

¹¹³ Michael D. Wormser, United States Defence Policy, 3rd edition (Washington, D.C.: Congressional Quarterly, 1983), p. 50. The pursuit of wealth has given greater utility to military force in the 1980's, see Hedley Bull, "Force in International Relations: The Experience of the 1970's and Prospects for the 1980's" in Robert O'Neill and D.M. Horner, eds., New Directions in Strategic Thinking, p. 19.

¹¹⁴ See Harold Brown's testimony in the Hearings before the Senate Committee on Foreign Relations, Nuclear War Strategy (Washington, D.C.: USGPO, 1981), pp. 32-33.

¹¹⁵ Ronald Reagan, "Remarks at the Annual Convention of the Evangelicals in Orlando, Florida, March 8, 1983," Weekly Compilation of Presidential Documents vol. 19 (March 14, 1983), p. 359.

also tended to view American limited nuclear options as

an attempt to utilize and maximize those particular features of the U.S. strategic offensive forces in which the U.S. considers itself ahead of the Soviet Union.¹¹⁶

Although there was some Soviet recognition of the American acceptance of the principle of assured destruction, the Soviet leaders were struck by what they perceived as a "constant search for ways of using strategic power in a more active and offensive manner."¹¹⁷

The American objectives in recent strategic formulations appear to assume the utility of nuclear weapons, to question the validity of the Soviet system and not accept that the Soviet Union has an equivalent moral right to compete with the West. Although the United States may have been prepared on the surface to accept "essential equivalence" in nuclear systems, it did not appear prepared to accept the Soviet political or economic system as a status equal.

2. The Threat of Force

Although military threats were about as frequent as in other periods, from 1970 to 1986 there was only one major direct American threat to use nuclear force. American resort to military force did not occur where conflict with Soviet forces appeared probable, and American strategy to counter possible Soviet expansion relied instead on allied states to defend themselves. Where this strategy appeared insufficient, the Reagan administration threatened horizontal escalation rather than nuclear

¹¹⁶ Henry Trofimenko, Changing Attitudes Toward Deterrence (Los Angeles, California: Centre for International and Strategic Affairs, 1980), p. 23. The author equates deterrence with compellence.

¹¹⁷ M.A. Mil'shtein as cited in David Holloway, "Military Power and Political Purpose in Soviet Policy," Daedalus 109 (Fall 1980), p. 30. See footnote 29. This is a very good article.

escalation.¹¹⁸ Some American "hawks" expressed concerns that unless American nuclear forces were significantly improved, there would be a time window in the late 1980's where the Soviets would have a "perceivable and usable strategic superiority."¹¹⁹ Others felt that major efforts were needed to improve the American nuclear posture "to make the Russians insecure in order to coerce them and reduce their influence."¹²⁰ This section will assess the United States' threats to use nuclear weapons, 1970-1986.

The only overt nuclear threat in this time frame was the global nuclear alert declared as a response to Soviet preparations to intervene in the October 1973 war between Israel on the one hand and Egypt and Syria on the other. The aim of this threat appears to have been more than simply to deter the Soviet threat, as it also carried far broader implications that embittered Moscow.¹²¹ In fact, American policy during those years was being conducted to reduce or eliminate where possible, Soviet influence in the Middle East.¹²²

¹¹⁸ To expand a conflict to another region where the United States has an advantage. See David Ransom, *et al.*, Atlantic Co-operation for Gulf Security (Washington, D.C.: National War College Paper, 1983), p. 23. See also Jeffrey Record, "Jousting with Unreality: Reagan's Military Strategy," International Security 7 (Winter 1983-1984), p. 7.

¹¹⁹ France P. Hoerber, Slow to Take Offence: Bombers, Cruise Missile and Prudent Deterrence (Washington, D.C.: Centre for Strategic and International Studies, 1980), pp. 19-20.

¹²⁰ Robert Jervis, The Illogic of American Nuclear Strategy, p. 188. See footnote 62.

¹²¹ Graham Allison, Albert Carnesale and Joseph S. Nye, "The Owls Agenda for Avoiding Nuclear War," The Washington Quarterly (Summer 1986), pp. 51-52.

¹²² Henry Kissinger, Years of Upheaval (Boston, Massachusetts: Little, Brown and Company, 1982), p. 574. This theme did not appear in official statements at the time; see Henry Kissinger's news conference of October 25, Department of State Bulletin vol. 69 (November 12, 1973), pp. 585-94.

A second less obvious threat resulted from the 1979 Soviet invasion of Afghanistan, a step that was particularly galling to Carter and his emphasis on genuine self determination.¹²³ Although Carter had warned Brezhnev at a summit conference not to intervene in Afghanistan, the United States was in no position to threaten the use of force in the face of Soviet local superiority. Nevertheless Carter used the "hotline" to communicate to the Soviet leaders that unless they drew back from and restored Afghanistan as a neutral non-aligned state, they were jeopardizing "the course of United States-Soviet relations throughout the world."¹²⁴ It is worth noting that the American demands included the restoration of Afghanistan to a status that had not obtained since prior to 1978. Although it was not articulated, the implication in each threat was that the United States was thinking in terms of compellence as well as deterrence.

The degree of counterforce and war fighting orientation to nuclear targeting systems is another paradigmatic indicator. While some claim that the practical difference between counterforce and countervalue targeting is slight, it is also true that all United States nuclear strategies have addressed essentially the same targets - the only difference is the priority of effort.¹²⁵ Counterforce targeting

¹²³ President Carter's Address at Commencement Exercises, Annapolis, June 7, Weekly Compilation of Presidential Documents, vol. 14 (June 12, 1978), p. 1053.

¹²⁴ Jimmy Carter, Keeping Faith: Memoires of a President (New York: Bantam Books, 1982), p. 472. See also Cyrus Vance, Department of State Bulletin, vol. 80 (May 1980), p. 18, and Jimmy Carter, Weekly Compilation of Presidential Documents, vol. 16 (April 14, 1980), p. 636.

¹²⁵ Jeffrey Richelson, "The Dilemma's of Counterpower Targeting," Comparative Strategy 2 (Number 3, 1980), p. 225. See also William Dougherty, Barbara Levi and Frank Von Hippel, "The Consequences of Limited Nuclear Attacks on the United States," International Security 10 (Spring 1986), p. 42.

requirements have continuously been a major part of United States strategic planning, especially among USAF officers.¹²⁶ As the Soviets had achieved parity, it was now clear to the United States that having an assured capability to destroy Soviet cities no longer provided effective deterrence. It was now necessary to be able to destroy the Soviet Union as a nation, including its war recovery potential.¹²⁷ Damage limiting and hard target kill capabilities appeared necessary to allow the United States the credibility to use these threats for political advantage.

Increasingly, the United States nuclear strategy had extended its logic to include limited war notions of war fighting. One purpose was to obtain a post war government in the Soviet Union more compatible with Western values, and the United States now appeared willing to attack the Soviet top command and control apparatus before it could disperse into its hardened shelters.¹²⁸ This strategy was a reversal from that of the 1960's and implied that retaliation alone was not enough and that protracted war was a possibility.¹²⁹ The Reagan initiatives to strengthen

¹²⁶ John T. Chain, "Strategic Fundamentals," Air Force 70 (July 1987), p. 66. General Chain was Director Joint Strategic Planning Staff and Commander SAC. See also Robert C. Aldridge, The Counterforce Syndrome: A Guide to U.S. Nuclear Weapons and Strategic Doctrine (Washington, D.C.: Institute for Policy Studies, 1978), p. 4.

¹²⁷ Hearings before a Subcommittee of the Committee on Appropriations, House of Representatives, Department of Defence Appropriations for 1978, part 2 (Washington, D.C.: USGPO, 1977), p. 167. See also General George G. Brown, cited in Defence Monitor 6 (August 1977), p. 2, where he indicates that such a strategy has not been seen in history since Carthage.

¹²⁸ Bernard Brodie, "The Development of Nuclear Strategy," International Security 2 (Spring 1978), p. 72. See also Colin S. Gray, "Nuclear Strategy: The Case for a Theory of Victory," International Security 3 (Summer 1979), p. 21.

¹²⁹ Lori Esposito and James A. Schear, The Command and Control of Nuclear Weapons (Queenston, Maryland: Aspen Institute for Humanistic Studies, 1985), p. 23. In the 1960's the U.S. strategy was to spare Moscow to enable negotiation to take place.

strategic nuclear forces reflected a desire for greater flexibility and a clear emphasis on sophisticated notions of nuclear war fighting to prevail if deterrence failed.¹³⁰ According to the Secretary of Defence, such a capability was not something separate from deterrence, but was a necessary part of it.¹³¹

The concept of fighting the Soviet Union with nuclear weapons placed considerable emphasis on nuclear targeting, and in 1978, Carter initiated a series of studies to determine the optimum targeting strategy. One of these studies suggested that United States nuclear targeting strategy could in part contribute to the breaking up of the Soviet "empire."¹³² These notions were based on ethnic nationalism literature¹³³ as well as the fact that most Soviet ICBM's were already located within the Russian ethnic area of the Soviet Union.¹³⁴

Soviet vulnerability to the breakup of its "empire" in time of war fueled American consideration of the use of ethnic targeting to gain some leverage over the Soviet Union. What contributed to greater awareness of

¹³⁰ Jon Connell, The New Maginot Line (London: Seeker and Warburg, 1986), p. 131. See also Louis René Beres, Mimicking Sisyphus: America's Countervailing Nuclear Strategy (Toronto: Lexington Books, 1983), p. 1; and, William R. Van Cleave and Roger W. Barnett, "Strategic Adaptability," Orbis 18 (Fall 1974), p. 656.

¹³¹ Caspar Weinburger, Annual Report to the Congress, Fiscal Year 1987 (Washington, D.C.: USGPO, 1986), p. 11.

¹³² Richard B. Foster, The Soviet Concept of National Entity Survival (Arlington, Virginia: SRI Project 7167, 1978), p. 62. The fact that Carter's National Security Advisor was keen on ethnic targeting of Russians may have furthered developments. See Peter Pringle and William Arkin, SIOP, The Secret U.S. Plan for Nuclear War, pp. 189-190.

¹³³ See Benedict Anderson, Imagined Communities (London: Verso Editions, 1983); and Dov Ronen, The Quest for Self Determination (New Haven, Connecticut: Yale University Press, 1979), p. 10.

¹³⁴ Gary L. Guertner, "Strategic Vulnerability of a Multinational State: Detering the Soviet Union," Political Science Quarterly 96 (Summer 1981), pp. 211-213.

these potential vulnerabilities was the Soviet demographic trend; the Russian birth rate was declining while that of other nationalities, particularly Muslim, was increasing.¹³⁵ Among the Russian ethnic group, nationalism was becoming a stronger force than ideology, and as a result ethnic nationalism was growing faster than integration in the Soviet Union.¹³⁶ Notwithstanding considerable efforts on the part of Soviet elites to Russify their important institutions of power, the growing national aspirations of minorities in the Soviet Union may eventually result in irresistible pressures to create nation states.¹³⁷ These ethnic trends have been held to be a fundamental weak link in the Soviet Union that could potentially be exploited by the United States.¹³⁸ It is the only problem that has the potential to bring down the Soviet Union from

¹³⁵ Soviet Union, USSR in Figures, 1983 (Moscow: Finansy: Statistika Publishers, 1984), pp. 11-12. See also Alexandre Bennigsen and Marie Broxup, The Islamic Threat to the Soviet State (London: Croom Helm, 1983), p. 124.

¹³⁶ Teresa Rakowska-Harmstone, "The Study of Ethnic Politics in the USSR," in George W. Simmonds, ed., Nationalism in the USSR and Eastern Europe in the Era of Brezhnev and Kosygin (Detroit, Michigan: University of Detroit Press, 1977), p. 32. See same author in Robert Conquest, ed., The Last Empire: Nationality and the Soviet Future (Stanford, California: Hoover Institution Press, 1986), p. 259. Increasing Russian nationalism begets subnationalism, see Susan Olzak "Contemporizing Ethnic Mobilization," Annual Review of Sociology (Number 9, 1983), p. 364.

¹³⁷ Cynthia H. Enloe, Ethnic Soldiers: State Security in Divided Societies (Athens, Georgia: University of Georgia Press, 1980), pp. 65-67. See also by same author, Police, Military and Ethnicity: Foundations of State Power (New Brunswick, New Jersey: Transaction Books, 1980), pp. 2-9. Richard Pipes believes that in time, these nation states must inevitably be created. See Carl A. Linden and Dimitri K. Simes, Nationalities and Nationalism in the USSR: A Soviet Dilemma (Washington, D.C.: Center for Strategic and International Studies, 1977), p. 21.

¹³⁸ Colin S. Gray, "Targeting Problems for Central War," Naval War College Review 32 (January-February 1983), pp. 11-12.

within, and in time of war these tensions could explode.¹³⁹

What gave the concept of ethnic targeting great appeal was its potential for leverage over Soviet policy. Because these ethnic conflicts are virtually systemic and long term in nature,¹⁴⁰ most Western observers have concluded that ethnic related conflict could increase in intensity.¹⁴¹ By threatening Russians and not non-Russians, incentives are created for greater resistance to Russian rule, and Soviet leadership could be kept on a "short leash."¹⁴² Thus, an American targeting strategy could threaten what the Soviet leaders value most, their power. The implication of threats of this nature more closely reflect compellence than deterrence and relate conceptually to the early notions of containment. In the final analysis, even though ethnic targeting was apparently rejected as official strategy, its consideration may have influenced the United States to target Soviet command and control facilities.¹⁴³ By threatening to destroy the Soviet leadership, many of the aims of ethnic targeting have been preserved without raising moral

¹³⁹ Alexandre Bennigsen, "Soviet Muslims and the Muslim World," in S. Enders Wimbush, ed., Soviet Nationalities in Strategic Perspective (London: Croom Helm, 1985), p. 222. See also Hélène Carrière d'Encause, Decline of an Empire: The Soviet Socialist Republics in Revolt (New York: Newsweek Books, 1980), p. 246. For an opposite but very isolated and narrow view see William Mandell, Soviet But Not Russian (Palo Alto, California: University of Alberta Press, 1984), p. 28.

¹⁴⁰ Gail Warshofsky Lapidus, "Ethnonationalism and Political Stability: The Soviet Case," World Politics 36 (July 1984), p. 578.

¹⁴¹ Rasma Karkhins, Ethnic Relations in the USSR (London: Allen and Unwin, 1986), p. 224.

¹⁴² George Quester, New Alternatives for Targeting the Soviet Union (Washington, D.C.: Defence Nuclear Agency 5047T, 1979), p. 62. See also George Quester, "Ethnic Targeting: A Bad Idea Whose Time Has Come," Journal of Strategic Studies 5 (June 1982), pp. 228-9.

¹⁴³ Harold Brown, Department of Defence Annual Report Fiscal Year 1982 (Washington, D.C.: USGPO, 1981), p. 42. Population "per se" would not be targeted.

questions.

The use of threats in this period had gained in sophistication. Nuclear targeting, damage limiting and war fighting concepts demonstrate continued appearance of compelling type of thinking in United States nuclear strategy. Although deterrence remained the official rationale for nuclear threats, the nature of threats in the 1970's and 1980's has long surpassed that required for "pure" deterrence.

3. The Correlation of Nuclear Forces

During the 1970-1986 period, the United States has gradually come to view the correlation of nuclear forces as an important variable in strategic planning. The greater the emphasis on nuclear war fighting, the more the importance of the relative ability of nuclear forces in the respective strategies of the superpowers.

By 1985, the United States had fewer delivery systems than the Soviet Union, but still had a hard target kill advantage if slower cruise missiles were counted. The quantitative measurement of relative combat utility will be dealt with in a later chapter, but in terms of numerical balance the United States had rough equivalence to the Soviet Union. Total numbers of warheads were higher than ever, more than ten times the number available in 1962. In spite of this huge number, in 1977 the Joint Chiefs of Staff warned President Carter that the Soviet Union had achieved a "significant nuclear weapons advantage."¹⁴⁴ Yet ten years after that dire warning, the United States faced a relatively similar strategic correlation of nuclear forces, and even after a surprise attack, could still retain one-third of its bombers, forty percent of its SLBM's and

¹⁴⁴ Clarence A. Robinson, Jr., "Carter Warned on Soviet Nuclear Advantage" Aviation Week and Space Technology (November 7, 1977), p. 18.

several ICBM's.¹⁴⁵

What the military really wanted was combat capability, "the essence of deterrence."¹⁴⁶ This combat capability provided the military justification for prompt hard target kill warheads. Increased accuracies and increased yields were required to destroy hardened silos and command and control facilities. According to the Carter administration, the hard target capability of the MX was "a major step in strengthening deterrence."¹⁴⁷

The Reagan administration continued to develop greater prompt hard target kill capabilities, but also introduced the Strategic Defence Initiative (SDI). SDI is an attempt to coordinate and accelerate research on ballistic missile defence systems. The combination of first strike capable offensive systems and ballistic missile defence epitomizes the logic of damage limitation by providing an excellent war fighting capability that could reduce the Soviet ability to threaten or intimidate.¹⁴⁸ Another aspect of SDI, however, is the cost to the Soviets to follow suit, and some believe that it was designed to create serious pressures on the already strained Soviet economy.

¹⁴⁵ Edgar Ulsamer, "Missiles and Targets," Air Force 70 (July 1987), p. 68.

¹⁴⁶ General Welch, cited by John T. Correll in "The Future of the ICBM," Air Force 70 (July 1987), p. 53. General Welch was USAF Chief of Staff.

¹⁴⁷ Hearings before a Subcommittee of the Committee on Appropriations, House of Representatives, Department of Defence Appropriations for 1978 Part 1 (Washington, D.C.: USGPO, 1977), p. 542.

¹⁴⁸ William Van Cleave, Fortress USSR: The Soviet Defence Initiative and the U.S. Strategic Defence Response (Stanford, California: Hoover Institution Press, 1986), see pp. 39-41. It is worth noting that it does so by increasing the American capability to do the same. This point is deliberately overlooked in this slanted piece.

The financial cost to both sides of a virtually open ended arms race in space would be huge and it is thought the USSR would be less able to afford it than the USA.¹⁴⁹

Although the capability of the United States strategic forces was at an all time high level, so was the Soviet capability. Each superpower appeared to be interested in survivable systems that could withstand the rigours of combat. In the United States, various basing modes for MX were discussed, mobile ICBM's were being developed, and air launched cruise missiles helped extend the accurate range of bombers. In spite of these developments, the United States control of its nuclear forces was so vulnerable that one analyst concluded with virtual certainty that thousands of megatons of explosive power could be delivered to the United States before authorization to retaliate could be passed to the armed forces.¹⁵⁰ Due to limitations in control means, much of the discrimination built into the United States nuclear war plans was probably significant only to American target planners.¹⁵¹ While great improvements in combat utility were made in this period, significant deficiencies remained.

The United States nuclear strategy appeared designed to compete with the strategy of the Soviet Union. The numbers of nuclear systems, the hard target kill capability and damage limiting orientation tended to

¹⁴⁹ Frank Barnaby, What on Earth is Star Wars? A Guide to the Strategic Defence Initiative (London: Fourth Estate, 1986), pp. 159-160.

¹⁵⁰ Bruce G. Blair, Strategic Command and Control: Redefining the Nuclear Threat (Washington, D.C.: The Brookings Institution, 1985), p. 283.

¹⁵¹ Desmond Ball, "Toward a Critique of Strategic Nuclear Targeting," in Desmond Ball and Jeffrey Richelson, eds., Strategic Nuclear Targeting (London: Cornell University Press, 1986), p. 19. This book contains some excellent research by Ball and Rosenberg into the details of U.S. nuclear targeting.

support more than "high quality" deterrence.¹⁵² The United States military strategy appeared intended to establish military advantages, indicating a reluctance to accept Soviet parity.¹⁵³ The analysis of the correlation of nuclear forces shows strong evidence of compelling thought.

4. The Implications of the Search for Advantage

Recent American strategic developments have emphasized war fighting capabilities to a higher degree than ever, and the coming to power of the political right in the United States only reinforced this tendency. The Reagan administration began its first term with a strong belief that only strong strategic forces could prevent the "Finlandization of America."¹⁵⁴ The fact that questions were raised in public by a senior Defence Department official as to whether the world could continue to exist half slave and half free implied a propensity to extirpate the "evil empire."¹⁵⁵ Notwithstanding the rhetoric, Reagan's initial budgets made very few changes to the military plans, and a trend of increased military spending can be traced to 1971.¹⁵⁶ The swing to war fighting doctrine is not explained simply by the Reagan administration and its right wing

¹⁵² Donald W. Hanson, "Is Soviet Strategic Doctrine Superior?" International Security 7 (Winter 1982/1983), p. 69.

¹⁵³ A. Trofimenko, "Political Realism and the Realistic Deterrence Strategy," in Robert J. Pranger and Roger P. Labrie, eds., Nuclear Strategy and National Security: Points of View (Washington, D.C.: American Enterprise Institute for Public Policy Research, 1977), pp. 38-53.

¹⁵⁴ Norman Podhoretz, The Present Danger (New York: Simon and Schuster, 1980), p. 12. See also Malcolm Wallop, "Opportunities and Imperatives of Ballistic Missile Defence," Strategic Review 7 (Fall 1979), p. 21. Podhoretz chaired the right wing Committee of the Present Danger.

¹⁵⁵ This official was Noel Koch, overseer of the U.S. Special Operation Force, cited in "Soviet Geopolitical Momentum: Myth or Menace?" The Defence Monitor 15 (Number 5, 1986), p. 9.

¹⁵⁶ Michael D. Wormser, U.S. Defence Policy, pp. 8-9.

orientation, for this trend had been reflected in United States strategic considerations throughout this whole period.

The Soviet reaction to Schlesinger's limited nuclear options and subsequent American attempts to construct usable nuclear plans had been intense. The Soviet Union accused the United States of seeking to make their deterrence of the Soviet Union more efficient than Soviet deterrence of the United States.¹⁵⁷ The Soviet Union appeared convinced that the United States fully intended to conduct its international affairs from a position of strength.¹⁵⁸

What the United States appeared to desire was to regain at least in part the powerful strategic position that it held prior to the Soviet achievement of parity. The search for whatever leverage technology could bring was an attempt to recapture an important element of strategic advantage. The analysis of strategic intentions indicates that the United States was reluctant to accept the Soviet Union as a status equal and therefore sought a strategy that would reduce Soviet influence. The analysis of nuclear threats revealed a serious flirtation with ethnic targeting that implied a high degree of motivation to induce major change in Soviet affairs through limited nuclear strikes. The correlation of nuclear forces analysis demonstrates a strong commitment to damage limitation in the form of fast and accurate hard target kill as well as ballistic missile defence capability.

¹⁵⁷ Henry Trofimenko, cited in Robert Levgold, "Military Power in International Politics: Soviet Doctrine on its Centrality and its Instrumentality," in Uwe Nerlich, ed., The Soviet Asset: Military Power in the Competition Over Europe (Cambridge, Massachusetts: Ballinger Publishing Company, 1983), p. 138. This is solid work with good articles.

¹⁵⁸ Whence the Threat to Peace (Moscow: Military Publishing House, 1987), p. 3.

All of these elements in United States nuclear strategy have been officially justified in terms of deterrence, but there is no doubt that they contribute to compellence as well as deterrence. It is clear that recent United States nuclear strategy can be more fully explained by the logic of the compellent paradigm.

V. CONCLUSIONS

When the concept of nuclear deterrence became official policy in the United States, the belief grew that massive strategic bombing was the optimum means to avoid wars, but conceptual difficulties immediately arose.¹⁵⁹ American strategic culture has always demonstrated a complex ambivalence toward nuclear weapons; for some they were simply too powerful to use, and for others they represented a challenge that science can ultimately solve. For the latter the answers lay in complex methodologies that sprang from operational analysis, game theory and technically improved systems. While the former have tended to reflect the modes of thought found in the deterrent paradigm, the latter have become immersed in the logic of the compellent model.¹⁶⁰

To a degree, declaratory American nuclear strategy appears to resolve the tensions inherent in these different points of view by holding the deterrence of war to be its principle objective. The combination of the policies of massive retaliation and containment, however, held significant elements that transcended deterrence. During this period the United States held a significant nuclear superiority and attempted to threaten massive first use not only to prevent a potential Soviet conventional

¹⁵⁹ See Philip Bobbitt, Democracy and Deterrence: The History and Future of Nuclear Strategy, pp. 19-39.

¹⁶⁰ For a good review of the logic of deterrence, see Frank C. Zagare, "Rationality and Deterrence," World Politics 42 (January 1990).

invasion of Europe, but also to modify Soviet international behaviour.

As the Soviet Union developed its nuclear capable systems, however, for the first time in American history the United States faced a continuing threat that could result in its destruction. The outcome was that the United States modified its strategy to make its extended deterrent more credible by introducing the notion of graduated deterrence. Strong tendencies to counterforce targeting surfaced but assured destruction of the Soviet Union remained the primary aim of United States nuclear strategy. The dominance of deterrent thinking in the late 1960's contributed to a heavy focus on stability and mutual assured destruction that precluded progress toward more flexible nuclear use options.

From the early 1970's, the United States began to shift its official policy to provide more flexible nuclear options. One major objective of increased operational flexibility was to prevent the Soviet Union from gaining any strategic advantage from the Soviet nuclear force buildup, but another equally obvious American goal, was the seeking of some form of American strategic leverage over the Soviet Union. A premium was placed on damage limitation and war fighting capabilities that clearly mixed both deterrent and compellent capabilities.

The United States' declaratory strategy emphasized its commitment to deterrence, but it also sought to win if nuclear war came. While the United States' strategic rhetoric focussed on deterrence, its nuclear force structure reflected increasing reliance on compellent capability. This brief overview of United States nuclear strategy indicates that deeper examination of the compellent paradigm as an appropriate explanation of American strategic thinking is clearly warranted.

Chapter Four

NUCLEAR STRATEGY IN THE SOVIET UNION

Military power is an essential adjunct to Soviet diplomacy and has, more than any other factor, contributed to the elevation of the USSR to superpower status. In spite of theoretical and practical difficulties, a substantive philosophy of international relations theory does exist in the Soviet Union, and although it has changed significantly over the years, it continues to rely heavily on the concept of power.¹ How the Soviet Union intends to use nuclear weapons to support its political ambitions and how nuclear strategy evolves over time are important questions. Even though the interaction of opposing strategies is still not fully understood,² in recent years serious attempts have been made to understand Soviet as well as American nuclear strategy.

These efforts have met with mixed success due to the tremendous difficulties in interpreting those relatively few Soviet sources that are generally available. These sources tend to be incomplete and contradictory, ranging from political assertions of the non-utility of nuclear weapons to detailed military assessments of their utility in combat.³ Depending on one's basic assumptions about the Soviet Union, one can find documentation to support several different interpretations. The

¹ Margot Light, The Soviet Theory of International Relations (Brighton, Sussex: Wheatsheaf Books, 1988) pp. 316-317. This book is a very useful review of Soviet international relations theory.

² For example, see Avner Cohen and Steven Lee, eds., Nuclear Weapons and the Future of Humanity: The Fundamental Questions (Totowa, New Jersey: Rowman and Allanheld, 1986), p. xi. The editors single out U.S. nuclear strategy and its growing emphasis on counterforce targeting in itself as making nuclear war more likely.

³ William C. Green, Soviet Nuclear Weapons Policy: A Research and Bibliographical Guide (Boulder, Colorado: Westview Press, 1987), p. 1.

veil of secrecy that shrouds the Soviet internal strategic dialogue seriously complicates the interpretive process.⁴ In the Soviet Union, declaratory policy essentially reflects military doctrine while action policy for the most part reflects military science, but throughout the nuclear age a tension has existed between these two levels of analysis.⁵ It has been difficult to discern to what degree Soviet declaratory policy reflected actual Soviet military strategy or represented Soviet reliance on a strategy of deception and concealment on a grand scale.⁶ Among those Western experts that study and interpret Soviet military doctrine, at least six different approaches have been identified, all of which tend to emphasize different aspects of the problem.⁷

This chapter will apply the previously established paradigmatic framework to Soviet nuclear strategy in an attempt to illuminate the prevailing basis of Soviet strategic thinking from 1970 to 1986. The first section describes Soviet strategic culture, the basic milieu in

⁴ Joseph D. Douglass, Jr. and Amoretta M. Hoeber, Soviet Strategy for Nuclear War (Stanford, California: Hoover Institution Press, 1979), p. 2.

⁵ In the analysis of Soviet sources, it is important to note that military doctrine is often decided at the highest levels and forms the apex of military thought. Military science is subordinate to military doctrine and can be divided into military strategy, operational art and tactics. Soviet analysts do accept the interrelationship of these levels, but not to the degree that Edward Luttwak implies in his Strategy: The Logic of War and Peace (Cambridge, Massachusetts: Harvard University Press, 1987), pp. 69-71.

⁶ Albert L. Weeks, "Soviet Credibility Gap: Offencist Strategy and Defencist Propaganda," Journal of Defence and Diplomacy 4 (July 1986), pp. 17-19. See also Richard H. Shultz and Roy Godson, Dezinformatsia: Active Measures in Soviet Strategy (Washington, D.C.: Pergamon-Brassey's, 1984), pp. 188-189. Moscow has developed the ability to conduct deception on a "massive" scale, but it can be subtle as well. See Stanislav Levchenko, "Same Deception, Different Style," Counterpoint 4 (February 1989), pp. 1-4.

⁷ See Douglas M. Hart, "The Hermeneutics of Soviet Military Doctrine," The Washington Quarterly 7 (Spring 1984).

which strategic decisions in the USSR are taken. Three following sections then deal with the thinking that accompanied the introduction of Soviet nuclear weapons, the drive to achieve parity and the subsequent tendency to search for strategic advantage. The focus of this chapter will primarily be on the objectives and threats embedded in Soviet nuclear strategy; detailed quantitative analysis of the correlation of nuclear forces will be left to later chapters.

I. SOVIET STRATEGIC CULTURE

Soviet strategic culture is a subset of Soviet political culture that, for the most part, is determined by the slowly changing attitudes of top party leaders and senior military officers.⁸ Soviet military leaders tend to reflect the major historical values of Russian political culture; an expansion of Russian/Soviet interests, a proclivity to authoritarianism, an acceptance of a fundamental ideological framework, and a propensity toward modernization. These are but some of the several contributing factors that have played a decisive role in shaping a unique Soviet strategic style.⁹

One permanent feature that conditions strategic thought in the Soviet Union is the lack of natural geographic boundaries and the scope of continental requirements that have inevitably led to large armies. Russian growth and self-perpetuation has largely been due to the size and capability of its army, an army that today is still largely based on

⁸ The Soviet elite suffers a paradox in that it is simultaneously conservative and revolutionary. Soviet strategic culture, as could be expected, reflects this dialectic. See Dimitri Simes, "Disciplining Soviet Power," Foreign Policy 43 (Summer 1981), p. 40.

⁹ Rebecca Strode, "Soviet Strategic Style," Comparative Strategy 3 (November 4, 1982), pp. 319-320.

nineteenth century traditional military structure and values.¹⁰ Army thinking still dominates a Soviet Armed Forces that envisages massive battles over "vast flat areas of sparsely populated land."¹¹ Recent wars of the twentieth century have reinforced the Soviet belief that mass and sizeable reserves are of vital importance in war. From 1914 to 1920, 12 million people were killed, and the loss of life in the Great Patriotic War (World War Two) was even greater.¹² The impact of these wars on modern Soviet strategic thought has been enormous, and even in the nuclear age, all officers are thoroughly schooled in the continuity of strategic principles, for the most part derived from past victories.¹³

The combination of heavy reliance on the military for the preservation and expansion of the state and an authoritarian political history has emphasized the role of the military in Soviet society.¹⁴

The accumulation of military power was not in the past and is not presently viewed as an unwanted but necessary burden. Rather, its acquisition has been a clearly articulated and acted upon state objective....¹⁵

With such a societal impact, the ability of Soviet military professionals

¹⁰ Richard Gabriel, The New Red Legions (London: Greenwood Press, 1980), p. 227-229. See also Norman Stone, "The Historical Background of the Red Army" in John Erickson and E. J. Feuchtwanger, eds., Soviet Military Power and Performance (London: Macmillan Press, 1979), pp. 15-16.

¹¹ C. N. Donnelly, Heirs of Clausewitz: Change and Continuity in the Soviet War Machine (London: Institute for European Defence and Strategic Studies, 1985), p. 14.

¹² Harriet Fast Scott and William F. Scott, The Armed Forces of the USSR. 3rd edition (Boulder, Colorado: Westview Press, 1984), p. 19.

¹³ Nathan Leites, Soviet Style in War (New York: Crane Russak, 1982). Leites' study was heavily based on World War Two and the author finds much continuity of thought with the present.

¹⁴ Richard Pipes, "Militarism and the Soviet State," Daedalus 109 (Fall 1980), p. 1. Pipes claims this process has gone to the point of "militarization," but this is somewhat overstated.

¹⁵ John J. Dziak, Soviet Perceptions of Military Power: The Interaction of Theory and Practice (New York: Crane Russak, 1981), p. 9.

to exercise greater influence than their American counterparts "in shaping their nation's strategic programs and arms control policies seems overwhelmingly powerful."¹⁶ In contrast to the United States, where the civil community has great impact on resource allocations, Soviet nuclear strategy has been developed and implemented almost exclusively by military officers. This reflects a profound difference between Soviet and American strategic cultures.¹⁷ In an excellent article, David Holloway surmises that the very success of the Soviet Union in creating military power allows the military a "comparative advantage" in formulating security policy.¹⁸ This does not mean that the party leaders are not in charge or that there are not periodic political-military tensions. What it does mean is that in a system with "no institutional mechanism for the resolution of conflicts among competing interests," the military "experts" cannot be authoritatively challenged and therefore have had a powerful impact on strategic style.¹⁹

A third component that helped shape a unique Soviet strategic culture was the adherence to a fundamental ideological framework that evolved relatively slowly when compared to changing political governments in the

¹⁶ Arnold L. Horelick, "The Strategic Mindset of the Soviet Military," Problems of Communism 26 (March-April 1977), p. 81. See also Edward L. Warner III, The Military in Contemporary Soviet Politics (New York: Praeger Publishers, 1977), p. 55.

¹⁷ Benjamin S. Lambeth, "Contemporary Soviet Military Policy," in Roman Kolkowicz and Ellen Propper Mickiewicz, eds., The Soviet Calculus of Nuclear War (Toronto: Lexington Books, 1986), p. 35. This is an extremely useful book, in spite of the fact that only two chapters were relatively new at the time of printing.

¹⁸ David Holloway, "Military Power and Political Purpose in Soviet Policy," Daedalus 109 (Fall 1980), p. 17.

¹⁹ Stephen White, Political Culture and Soviet Politics (London: Macmillan Press, 1979), p. 189. See also Howard Frost, "Soviet Party-Military Relations in Strategic Decision Making," in Kenneth M. Currie and Gregory Varhall, eds., The Soviet Union: What Lies Ahead? (Washington, D.C.: USGPO, 1984), p. 67.

West. Marxist-Leninist ideology in the Soviet Union had effectively replaced the Russian messianic role in "liberating" and "civilizing" other peoples, the justification for six centuries of Russian expansion.²⁰ To Marx, historical experience confirmed the often determining role of violence in political affairs, and to Lenin peace and war were but tools of policy to be flexibly employed to achieve political ends.²¹ Marxism-Leninism indeed provides a comprehensive and sophisticated political military conceptual framework that has had a profound impact on all levels of military theory and practice in the USSR.²² Military doctrine in the Soviet Union therefore embodies that element of political strategy that concerns itself with those specific principles, methods and forms of preparing for and waging war.²³ Although military professionals produce the details of nuclear strategy, within the context of military science, it remains rooted in political formulations of military doctrine and

²⁰ John S. Reshetar, Jr. The Soviet Polity: Government and Politics in the USSR (New York: Harper and Row, 1978), pp. 7-10. Some feel that Marxist-Leninist ideology appears to be bankrupt as a mobilizing tool and the search for a viable substitute has stimulated the revival of Russian nationalism. What is clear is that ideology does form the legitimizing core of Soviet policy. See Teresa Rakowska Harmstone, "Warsaw Pact: The Question of Cohesion Phase II - Vol. 3," Operational Research and Analysis Establishment Extra Mural Paper No. 39 (Ottawa: Department of National Defence, 1986), p. 243.

²¹ See Adolfo Sanchez Vasquez, "Are the Theses of Classical Marxism on Just War and Violence Valid Today," in John Somerville, Soviet Marxism and Nuclear War (London: Aldwych Press, 1981), p. 95; and, Peter Vigor, The Soviet View of War, Peace and Neutrality (London: Routledge and Kegan Paul, 1975), p. 87.

²² Kenneth Booth, The Military Instrument in Soviet Foreign Policy 1917-1972 (London: Royal United Services Institute, 1973), p. 63. See also Bernard Semmel, Marxism and the Science of War (London: Oxford University Press, 1981), p. viii.

²³ Phillip Petersen, "The Soviet Conceptual Framework for the Application of Military Power," Naval War College Review (May/June 1981), p. 15. See also Joseph Douglass, Soviet Military Strategy in Europe (New York: Pergamon Press, 1980), pp. 8-12.

invariably addresses the larger purposes of military power.²⁴ Soviet leaders recognize that such a comprehensive view is essential to optimize the relationship of military force to the achievement of political objectives, and Soviet military doctrine attempts to provide a hierarchical framework within which military strategy, operational art and tactics are subordinate variables. One significant impact of this ideology is that at times there has been considerable conceptual resistance among the military to the view that nuclear weapons have altered in any major fashion this fundamental political military relationship.²⁵

A fourth factor in Soviet strategic culture is an apparent ambivalence toward the west. On the one hand the West is feared for its potential ability to wage war, but on the other hand the West is admired because of economic and technological strength. Soviet fears of the West have been fueled by perceptions filtered through ideological and parochial suspicions that created a "woefully distorted picture, particularly of Western motives and intentions."²⁶ Furthermore, the formative years of strategic nuclear doctrine in the USSR coincided with a period of Soviet strategic inferiority that had a profound affect on

²⁴ Roman Kolkowicz, "The Soviet Union: The Elusive Adversary," in Roman Kolkowicz and Ellen Propper Mickiewicz, eds., The Soviet Calculus of Nuclear War, p. 22.

²⁵ See V.D. Sokolovskiy, Soviet Military Strategy, edited by Harriet Fast Scott (New York: Crane Russak and Company, 1975), p. 15. This view is supported by the extensive efforts by Soviet forces to prepare soldiers for nuclear war. See V.V. Shelyag, A.D. Glotchkin and K.K. Platonov, eds., Military Psychology, translated and published by United States Air Force (Moscow: 1972), pp. 65-66.

²⁶ Thomas W. Wolfe, The Soviet Voice in the East-West Strategic Dialogue (Santa Monica, California: Rand Corporation P-2851, 1964), p. 21.

Soviet strategic culture.²⁷ These concerns have resulted in an imbedded Soviet reluctance to accept that in some areas they are ahead of the West.

Somehow the West, they fear, with devilish cunning, is going to pull a technological rabbit from its hat and defeat all their efforts.²⁸

The result has been a consistent attitude among the Soviet strategic elites, at least until 1986, that priority of effort to modernize the armed forces has been essential to overcome the economic and technical limitations inherent in the Soviet economy.

Another facet of Soviet strategic culture is the Russian propensity to respect strength. The ideology of the present Soviet state is really not incompatible with much of the previous Russian political culture in that it reflects centuries of bureaucratic and authoritarian rule.²⁹ In Russian and Soviet history, the legitimacy of authoritarian rule and its supportive ideology is a very complex matter that in many respects has strong roots in the Soviet polity and is sustained by fear of what can happen if strength dissolves.³⁰ One impact of this respect for strength leads to cautious behaviour so as not to needlessly provoke a powerful

²⁷ Jack L. Snyder, The Soviet Strategic Culture: Implications for Limited Nuclear Operations (Santa Monica, California: Rand Corporation R-2154-AF, 1977), pp. 26-27.

²⁸ Jon Connell, The New Maginot Line (London: Secker and Warburg, 1986), p. 95. See also Seweryn Bialer, Stalin's Successors: Leadership, Stability and Change in the Soviet Union (Cambridge: Cambridge University Press, 1980), p. 245.

²⁹ Richard Pipes, "Diplomacy and Culture: Negotiating Styles," in Richard R. Staar, ed., Arms Control: Myth versus Reality (Stanford, California: Hoover Institution Press, 1984), p. 154. Pipes overstates the importance of force somewhat. Colin S. Gray also believes that Soviet strategic culture is more Russian than Marxist-Leninist. See his "Strategic Stability Reconsidered," Daedalus 109 (Fall 1980), p. 142.

³⁰ T.H. Rigby, "Conceptual Approach to Authority, Power and Policy," in T.G. Rigby, Archie Brown and Peter Reddaway, Authority, Power and Policy in the USSR (New York: St. Martin's Press, 1980), p. 10. See also Nathan Leites, Soviet Style in Management (New York: Crane Russak, 1985), p. 109.

enemy; in a subculture that takes a long term ideological view of struggle, rashness is a decided liability.³¹ Another impact of Soviet respect for strength is the deep conviction among military officers that "the political utility of military power is a function of its combat effectiveness."³² This leads to strategic style that values combat power as the most important variable or measure of strength such that any Western unilateral arms renunciation could well be interpreted by communist military analysts as a sign of political weakness.³³

Soviet military strategy therefore relies heavily on traditional indices of power, notwithstanding the scientific technical revolution in military affairs brought about by nuclear weapons. The concepts of deterrence and stability are important but not central to a Soviet military doctrine that appears to accept them as useful by-products of military power and proper strategy. According to the principles of military science, the more effective a state's fighting capability, the less likely another state would be to initiate war.³⁴ The Soviet military tend to regard all weapons, even nuclear weapons, as but tools of war and not the determinants of strategy; it is their ability to fight that is important.

In the Soviet military view, therefore, "mutual defencelessness"

³¹ Nathan Leites, Kremlin Thoughts: Yielding, Rebuffing, Provoking, Retreating (Santa Monica, California: Rand Corporation RM-3618-ISA, 1963).

³² Steve F. Kime, "The Soviet View of War," Comparative Strategy 2 (Number 3, 1980), p. 205.

³³ Bernard Brodie, The Communist Reach for Empire (Santa Monica, California: Rand Corporation P-2916, 1964), p. 5.

³⁴ Colin S. Gray, "Strategic Forces and SALT: A Question of Strategy," Comparative Strategy 2 (Number 2, 1980), p. 122. See also Paul Holman, "Deterrence versus War-Fighting: The Soviet Preference," Air Force Magazine 64 (March 1981), p. 50.

makes no sense whatsoever.³⁵ To minimize the damage to the Soviet Union from the power of nuclear weapons, Soviet military thought has emphasized surprise and deception to enable the Soviet Union to initiate their first decisive use.³⁶ In Soviet military thought, the defensive is a forced form of military operations, the chief goal of which is to create conditions for a subsequent transition to the offensive.³⁷ Defence is therefore a vital necessity when faced with a powerful enemy; it is an essential element of strategic thought, even in the nuclear age. Thus while political leaders at times have openly accepted the reality of mutual assured destruction, military officers have tended not only to resist MAD logic as a basis for strategy but also to question the United States' commitment to it.

The final component of the Soviet strategic subculture is the concept known as the correlation of forces. This fundamental concept is a Soviet account of the international system that appears more than ever a combination of Russian national interests in substance and Marxist-Leninist ideological principles in form.³⁸ The correlation of forces has been in Soviet use since revolutionary days and combines military,

³⁵ John Erickson, "The Chimera of Mutual Deterrence," Strategic Review 6 (Spring 1978), pp. 11-17.

³⁶ For a useful review of surprise (VNEZAPNOST) and deception (MASKIROVKA) in Soviet Strategy, see Jennie A. Stevens and Henry S. Marsh, "Surprise and Deception in Soviet Military Thought," Military Review 57 (June and July 1982).

³⁷ Marshal A.A. Grechko, The Armed Forces of the Soviet State 2nd Ed. translated and published by United States Air Force (Moscow: 1975), p. 260. See also Col. A.M. Danchenko and Col. I.F. Vydrin, eds. Military Pedagogy, translated and published by United States Air Force (Moscow: 1978), p. 213.

³⁸ Paul Dibb, The Soviet Union: The Incomplete Superpower (Chicago, Illinois: University of Illinois Press, 1986), p. 15.

economic, political and geographic factors.³⁹ It clearly suggests that an appropriate preponderance of overall strength results in an increase in political influence. As the Soviet leaders take an extremely broad view of this concept, the correlation of forces makes Moscow measure its strategic position relative to the United States, Europe and China simultaneously, as one single security problem.⁴⁰ Thus, a Soviet strategic analyst must consider the USSR surrounded by potential enemies and could have no basis for much confidence.⁴¹ Given Soviet political and economic limitations, this inevitably drives a requirement for very strong military forces in an attempt to achieve a favourable overall correlation of forces. Military power is therefore one of the "most important instruments" available to support foreign policy, and for the Soviet Union the effect of growing military power has been to create more "favourable conditions" for achieving Soviet goals.⁴²

From a military perspective, the correlation of forces provides a guide within which military officers prepare their estimates for various strategic situations. To the Soviet officer, the main characteristic of war is Clausewitzian in that "the essence of war is the continuation of

³⁹ Michael Deane, "The Soviet Assessment of the Correlation of World Forces: Implications for American Foreign Policy," Orbis 20 (Fall 1976), p. 627.

⁴⁰ Rebecca V. Strode, "Strategic Issues and Soviet Foreign Policy," in Gerrit W. Gong, Angela E. Stent and Rebecca V. Strode, eds., Areas of Challenge for Soviet Foreign Policy in the 1980's (Bloomington, Indiana: Indiana University Press, 1984), p. 91.

⁴¹ Seweryn Bialer, Stalin's Successors: Leadership, Stability and Change in the Soviet Union, p. 245.

⁴² V. M. Kulish, Military Power and International Relations, translated and published by United States Air Force (Moscow: 1972), pp. 30-31.

politics by means of armed force."⁴³ But war is not just a technical enterprise, it is also a complex and many-sided process involving economic, diplomatic and ideological forms of struggle. The main objective of Soviet strategic thought is to be in a position to win, if at all possible, any potential conflict. The objective of victory adds an offensive military component to the correlation of forces that further fuels a consensus favouring a strong military. Because the conflictual dialectic of Soviet ideology is incompatible with defensive doctrine or the commonly held Western notion of "peace," and because Soviet doctrine claims the correlation of forces is shifting towards socialism, one would be guilty of "capitulationism" if one did not take advantage of one's opportunities.⁴⁴

Clearly Soviet strategic culture is significantly different than that found in the West. The greatest single difference at least until recently has been the lack of a civilian security community in the Soviet Union that could speak with sufficient authority to challenge the Soviet military. Thus the concept of the correlation of forces has provided the military a central role in both political ideology and military doctrine. Although significant theoretical shifts have occurred over the years, the Soviet military remains for the most part committed to traditional military values and tends to seek the large forces necessary to ensure security if not victory in major war. Soviet military leaders tend to regard security in terms of military power, and to the Soviet political

⁴³ Marxism-Leninism on War and Army 5th ed. (Moscow: Progress Publishers, 1972), reprinted under auspices of United States Air Force. See pp. 10-12.

⁴⁴ See Institute for the Study of Conflict, The Strategic Intentions of the Soviet Union (London: Eastern Press, 1978), pp. 7-8, and Uri Ra'anani, "The USSR and the Encirclement Fear: Soviet Logic or Western Legend," Strategic Review 8 (Winter 1980), p. 50.

and military elites, too much power would probably constitute a contradiction in terms; Soviet leaders appear to equate military power with security, respect and influence in the world.

II. THE EARLY IMPACT OF NUCLEAR WEAPONS

At the close of World War Two, the United States introduced nuclear weapons, using them twice to compel Japan to consent to an unconditional surrender. The Soviet Union under Stalin's leadership appeared to ignore the impact of nuclear weapons on strategy and acted as if they were not a decisive factor in the dialectic of superpower relations. Because this declaratory strategic approach changed so rapidly after the death of Stalin, it appeared that Stalin had stifled the development of Soviet military thinking.⁴⁵ More recent studies, however, have discerned greater continuity in Soviet strategic thinking from World War Two to the present. This section will briefly survey the key developments of Soviet strategy as nuclear weapons were being introduced into the Soviet Armed Forces. As in previous chapters, this study will utilize the paradigmatic framework by examining strategic intentions, the explicit and implicit threats and then the correlation of nuclear forces.

1. The Strategic Intention

In the period 1945-1954, the Soviet Union concentrated on recovering from the devastation of World War Two and rebuilding its security position by consolidating gains along its periphery. It was the latter objectives that caused confrontation with the West that led to the Cold War. In

⁴⁵ Yosef Avidar, The Party and the Army in the Soviet Union (Jerusalem: Magnes Press, 1983), pp. 67-91. See also Roman Kolkowicz, Soviet Strategic Debate: An Important Recent Addendum (Santa Monica, California: Rand Corporation P-2936, 1964), p. 4.

retrospect it appears that Stalin deliberately downplayed, at least in public, the changes that nuclear weapons forced on the international community, but some Soviet debate undoubtedly took place in private.

Stalin clearly regarded nuclear weapons as significant, but he probably believed that, in limited numbers, they did not constitute a sufficient advantage against a country as vast as the USSR. Others such as Malenkov felt otherwise, and by the time of Stalin's death, Malenkov declared that permanent deterrence of the United States was not only possible, but a preferable strategy.⁴⁶ A major reason that Khrushchev was able to replace Malenkov as party leader after only one year in power was that Khrushchev had the support of the Armed Forces (including Marshal Zhukov) who were quite outspoken in their rejection of Malenkov's view of deterrence.⁴⁷ During this initial period, the Soviet Union did not appear to consider nuclear weapons in themselves sufficient to support foreign policy, and Soviet military strategy relied on conventional arms directed towards Europe, not the United States.

The huge Soviet conventional advantage over a war torn Europe outweighed or at least matched the political utility of American incipient nuclear power. The vast modern Soviet armies created in World War Two were only partially demobilized, and Soviet traditional military strategy did have considerable relevance in supporting the construction of a new

⁴⁶ H.S. Dinerstein, War and the Soviet Union (New York: Frederick A. Praeger, 1962), p. 77. Malenkov echoed many of the American strategic community who felt nuclear weapons were not usable other than to deter.

⁴⁷ Roman Kolkowicz, The Soviet Military and the Communist Party (Princeton, New Jersey: Princeton University Press, 1967), p. 112. According to Edward Crankshaw, there was no love lost between Malenkov and senior Army leaders, see Khrushchev Remembers (Boston, Massachusetts: Little, Brown, 1970), p. 322.

Soviet security system in Eastern Europe.⁴⁸ Stalin's objective was undoubtedly to advance the interests and ideology of the Soviet Union in whatever ways were most expedient so long as the survival of Soviet power itself was not threatened.⁴⁹ Nuclear strategy during the Stalinist period, if it existed at all, was a closely guarded secret, and the MVD under Beria, not the military, controlled nuclear development. The fact however that within six months after the arrest of Beria, the USSR held its first full scale nuclear military manoeuvres indicated that at least some nuclear planning had taken place in the military general staff.⁵⁰ During this early period, nuclear strategy in the Soviet Union remained for whatever reason heavily influenced by traditional military strategy.

2. The Threat of Force

A Soviet nuclear threat did not exist until after 1949, and even then the nuclear threats implicit in the early stages of nuclear deployment were limited to Europe. The bomber was the only means of delivery, consequently air defenses became an important strategic resource, one in which the Soviet Union invested heavily. Through Soviet intelligence sources, it is highly probable that Stalin knew the exact status of the

⁴⁸ Hannes Adomeit, "Soviet Risk Taking and Crisis Behaviour" in Gerald Segal and John Baylis, eds., Soviet Strategy (London: Croom Helm, 1981), p. 185.

⁴⁹ Raymond L. Garthoff, The Soviet Image of Future War (Washington, D.C.: Public Affairs Press, 1959), p. 2. The fundamental role of ideology in this process is highlighted by the Milovan Djilas chapter in G.R. Urban, ed., Stalinism: Its Impact on Russia and the World (London: Maurice Temple Smith, 1982).

⁵⁰ William C. Green, "The Early Formulation of Soviet Strategic Nuclear Doctrine," Comparative Strategy 5 (Number 4, 1984), p. 381. The KGB continue to guard nuclear warheads and appear to control access to nuclear warheads and communications to strategic weapons in what may be a dual key arrangement between the KGB and SRF. See Andrew Cockburn, The Threat: Inside the Soviet Military Machine (New York: Vintage Books, 1983).

United States nuclear programme.⁵¹ He would have known that a minimal American nuclear threat existed prior to the Korean War, and thus he would have felt no immediate pressure to change military strategy, at least until the Soviet weapons production programme could catch up with that of the United States.

As Soviet nuclear forces became available, targeting became an issue. During World War Two, the Soviets eschewed strategic bombing, and their historical analysis of British-American strategic bombing concluded that

there was no evidence to support notions that strategic bombing of cities with the purpose of inflicting punishment on the civilian population could have a substantial effect on the outcome of a war.⁵²

The Soviet military came to reject reliance on a strategy of nuclear bombing of the enemy's war making potential; attacking industrial and economic targets was not considered the most effective means to attain victory.⁵³ In fact, the Soviet leaders have charged that since the United States nuclear bombings of Japan were militarily pointless, they were really intended to intimidate the USSR.⁵⁴ During this early period when Soviet nuclear targeting plans were initially prepared, priority was given to military targets in Europe.

The primary Soviet threat was a potential rapid conventional

⁵¹ William C. Green, "The Early Formulation of Soviet Strategic Nuclear Doctrine," p. 375.

⁵² Stephen Meyer, Soviet Theatre Nuclear Forces Part I: Development of Doctrine and Objectives. Adelphi Paper 187 (London: International Institute for Strategic Studies, 1984), p. 10. This is a very good analysis of Soviet nuclear thinking.

⁵³ Raymond L. Garthoff, The Soviet Image of Future War (Washington, D.C.: Public Affairs Press, 1959), p. 11.

⁵⁴ William T. Lee, "Soviet Nuclear Targeting Strategy," in Desmond Ball and Jeffrey Richelson, eds., Strategic Nuclear Targeting (London: Cornell University Press, 1986), p. 91. See also David Holloway, The Soviet Union and the Arms Race (London: Yale University Press, 1983), p. 20.

offensive against Western Europe, and nuclear attacks on industries that could be quickly overrun in the event of war did not make sense. Nuclear threats were used implicitly to support a traditional strategy; war would be won by the destruction of enemy military forces, and nuclear weapons could greatly assist but were not in themselves decisive weapons. The concept of nuclear deterrence that was being developed in the West did not find much support among the Soviet strategic community.

3. Correlation of Nuclear Forces

During these early years, regardless of whether or not the United States' nuclear advantage effectively countered the Soviet conventional superiority in Europe, the United States did enjoy a favourable correlation of nuclear forces. In spite of rhetoric to the contrary, Stalin at a private meeting among other communist leaders, recognized that the United States was the most powerful state in the world.⁵⁵

According to a superb review of Soviet military policy, Stalin undoubtedly appreciated the strategic significance of nuclear weapons; secret work had begun on nuclear weapons in the 1930's and continued throughout most of the Second World War.⁵⁶ Soviet nuclear weapons development was clearly not a simple reaction to the United States' success. Equal priority was given to rapidly developing strategic delivery systems, and decisions made under Stalin enabled the Soviets to be the

⁵⁵ Hannes Adomeit, "Soviet Risk Taking and Crisis Behaviour," in Gerald Segal and John Baylis eds., Soviet Strategy (London: Croom Helm, 1981), p. 188.

⁵⁶ William T. Lee and Richard F. Staar, Soviet Military Policy Since World War II (Stanford, California: Hoover Institution Press, 1986), pp. 10-16. Work on nuclear weapons was however accelerated in 1943 when the Soviet Union became aware of American efforts.

first to place a satellite in orbit around the earth.⁵⁷ The Soviets were probably eager to develop systems to counter the American strategic advantage in nuclear capable bombers and were not satisfied with the quantity or quality of their own bomber force.

To the Soviet military, the effectiveness of their nuclear weapons was measured in concrete military terms that analysts in the West began to call counterforce. According to the Soviet Maj. Gen. M.A. Mil'shtein,

it is essential to select most carefully the targets for strategic air strikes so that the enemy cannot deal a retaliatory blow.⁵⁸

During this formative period several basic patterns of Soviet nuclear strategy were developed. War was still regarded as a political phenomenon, the objective of which was to achieve victory, and this could best be achieved by acting in accordance with an overarching strategy to direct decisive blows in a counterforce manner. As the Soviet Union entered the nuclear age, the Soviet strategic elite tended not to consider nuclear weapons as having created a revolution in military strategy.

4. The Implications of the Early Period

The legacy of this early period on Soviet nuclear strategy is profound. It established a clear link between nuclear weapons and traditional military strategy to a degree that did not exist in the West. Initially this was attributed to "stagnation" in Soviet military doctrine caused by the direct strategic control that Stalin allegedly maintained over strategic thinking.⁵⁹ This lack of "progress" resulted in a Western

⁵⁷ Ibid. See also William T. Lee, "Soviet Nuclear Targeting Strategy," p. 93.

⁵⁸ Cited in Raymond L. Garthoff, Soviet Strategy in the Nuclear Age (New York: Frederick A. Praeger, 1958), p. 75.

⁵⁹ Ibid., p. 63.

perception that Soviet thought was lagging behind that of the West, but this view downplays the significant continuity between traditional military thought and subsequent Soviet strategic innovations. What this period did do is instill a strong desire for professional autonomy and influence among senior military officers who were responsible for producing Soviet military doctrine and nuclear strategy.⁶⁰ With the fear of another purge lifted, these officers moved the strategic debate onto more visible levels and began to clarify their war fighting orientation toward nuclear weapons. Their problem was how to defeat a superior war fighting capability of the United States, and thus Soviet nuclear strategy closely resembled the traditional emphasis of the compellent paradigm.

III. THE ACHIEVEMENT OF PARITY

In the period between the mid 1950's and the late 1960's, the Soviets slowly but steadily developed the capability to attack and destroy the United States, and in the process recognized the scientific-technical revolution related to nuclear weapons. As Soviet nuclear programmes evolved, tensions over military doctrine developed between Khrushchev and his senior military officers, and Soviet strategy reached a crossroads.⁶¹ Fundamental issues regarding the utility of nuclear weapons were only resolved after Khrushchev's dismissal when an important political military consensus was reached. This section will examine the changes in nuclear strategy from the paradigmatic perspective to ascertain the declaratory

⁶⁰ Jack L. Snyder, The Soviet Strategic Culture: Implications for Limited Nuclear Operations, p. 27. See also Raymond L. Garthoff, The Role of the Military in Post-Stalin Soviet Politics. (Santa Monica, California: Rand Corporation P-937, 1956), p. 20.

⁶¹ Thomas W. Wolfe, Soviet Strategy at the Crossroads (Cambridge, Massachusetts: Harvard University Press, 1964), pp. 259-262. Khrushchev began to back track from his stance in the mid 1950's that had earned him sufficient military support to oust Malenkov.

nature of Soviet military doctrine.

1. Strategic Intentions

The advantage of an overarching ideology is that Soviet fundamental political objectives are relatively constant over time. What varies of course is the policy to achieve them. The advent of the ICBM, from which no real defence appeared possible, seriously challenged the tenet that nuclear weapons had not radically changed the nature of war.

Although Khrushchev in 1954 was able to oust his rival Malenkov in part through the support of the military, he subsequently demobilized about one million men and began to rely more heavily on nuclear weapons. However, when he attempted in 1959 to cut defence budgets further and again reduce the size of the Soviet army, his emphasis on nuclear substitutes antagonized more than just the "traditionalists" in the Soviet armed forces.⁶² Many in the Soviet military were reluctant to underwrite the short war concept inherent in Khrushchev's concept of strategic rocket war even if the early missiles could be made more reliable. To them powerful conventional forces were still essential. This brought the military doctrine of Khrushchev into serious conflict with his military officers who for the most part sought military superiority at all levels as emphasized by Marshal Grechko: Soviet armed forces "must always be superior to those of the imperialists."⁶³

By the twenty second congress of the Communist party, a compromise

⁶² Yosef Avidar, The Party and the Army in the Soviet Union, pp. 246-301. This solid study is based on interviews with several Soviet sources. See also Thomas W. Wolfe, Soviet Strategic Thought in Transition (Santa Monica, California: Rand Corporation P-2906, 1964), p. 12. The "modernists" favoured increased reliance on nuclear weapons, but the "traditionalists" viewed nuclear weapons primarily as adjuncts to strong conventional forces.

⁶³ Thomas W. Wolfe, Strategic Thought in Transition, p. 14.

was reached. It reflected the attempt to incorporate both the strategic rocket forces and balanced military forces in a new military doctrine that was first published in Marshal Sokolovsky's book, Military Strategy. Tension in military doctrine nevertheless remained over the primacy of nuclear weapons and the issue of whether nuclear war could still be won. Political leaders tended to fear the consequences of nuclear escalation, while military officers clung to the theoretical possibility of military victory. The third edition of Marshal Sokolovsky's book marked another important political military consensus in that escalation was no longer considered inevitable.⁶⁴

The goal of military superiority was strongly held by the Soviet military elite;

to assert that victory is not at all possible in a nuclear war would not only be untrue on theoretical grounds but dangerous as well from the political point of view.⁶⁵

One year later another Soviet military author was even more explicit in proclaiming that "long industrial efforts" were required to win the "struggle for superiority" that "must be waged continually."⁶⁶ Nuclear strategic forces were a vital component of military strategy, and

⁶⁴ V.D. Sokolovsky, Soviet Military Strategy, edited by Harriet Fast Scott, p. 69. Also between the first and third editions, the McNamara doctrine of counterforce was introduced, and it in turn affected Soviet doctrine. Note that the title of Sokolovsky's book is incorrect in this American translation.

⁶⁵ Lieutenant-Colonel E. Rybkin, "On the Nature of a Nuclear Missile War," in Roman Kolkowicz, The Red Hawks on the Rationality of Nuclear War (Santa Monica, California: Rand Corporation RM-4899-PR, 1966), p. 46. For the view that Rybkin represents official Soviet policy, see William F. Scott, "Soviet Military Doctrine and Strategy: Realities and Misunderstandings," Strategic Review 3 (Summer 1975), p. 62.

⁶⁶ Lieutenant-Colonel R.M. Bondarenko, "Military-Technical Superiority: the Most Important Factor of the Reliable Defence of the Country," Communist of the Armed Forces 17 (September 1966) translated in William R. Kintner and Harriet F. Scott, eds. and translators, The Nuclear Revolution in Soviet Military Affairs (Norman, Oklahoma: University of Oklahoma Press, 1968), p. 358.

superiority appeared to be the ultimate military objective.

A major difficulty in Soviet military doctrine, however, was the fact that even if a Soviet pre-emptive attack resulted in the first decisive use of nuclear weapons, the United States could still inflict intolerable damage on the USSR. The concept of assured destruction was not popular among the Soviet military, but it was an objective reality that underscored the tensions with political leaders over military doctrine.⁶⁷ As the Soviet Union gradually achieved the ability to destroy the United States, however, Soviet strategy became less concerned with an American direct attack and focussed on the far more demanding task of deterring American nuclear use if a Soviet conventional victory in Europe appeared likely.⁶⁸ The overriding Soviet objective became avoiding nuclear devastation of the USSR while still being free to pursue ideological and political goals.

During this period, the primary objective of Soviet strategy appeared to have been to catch up with the United States to check American strategic power. This aim and the desirability of achieving superiority as a long term goal displayed a tendency to compellence, but it was also clear that a strong component of deterrence was imbedded in it. This was not the strategy of a status quo power, and the Soviet Union actively sought to compel a gradual change in Europe that would enhance the security and stability of the socialist system.⁶⁹ The attempt to place

⁶⁷ Gerald Segal and John Baylis, Soviet Strategy, pp. 11-22.

⁶⁸ Michael MccGwire, Military Objectives in Soviet Foreign Policy (Washington, D.C.: Brookings Institution, 1987), p. 49. Although this study is written from a fairly narrow deterrent perspective, it is nevertheless an excellent work.

⁶⁹ John Van Oudenaren, "The Soviet Conception of Europe and Arms Negotiations," in Uwe Nerlich, The Soviet Asset: Military Power in the Competition over Europe (Cambridge, Massachusetts: Ballinger Publishing Company, 1983), p. 162 and p. 178.

offensive missiles in Cuba must be seen in this context, and it is usually portrayed as a shortcut to catching up to U.S. strategic power.⁷⁰

In Soviet strategy, compellence and deterrence thus became intermeshed in the dialectical synthesis that sought to resolve the tensions between military doctrine and military science. Although the military had made major efforts to identify Soviet military doctrine with the fundamentals of military science, in the final analysis political interests were not that different, and by the late 1960's a consensus emerged.⁷¹

The USSR is quite serious about deterring an American nuclear attack, but it rejects any notion that the United States is equally justified in seeking to deter a Soviet attack.⁷²

2. The Threat of Force

The first significant use of nuclear threats by the Soviet Union occurred in this period. While Khrushchev was particularly prone to nuclear boastfulness, most of the implied or explicit threats between the mid 1950's and the late 1960's were general military threats that were not specifically nuclear. According to the data of one superb study, the total number of threats to use force appeared to have remained relatively

⁷⁰ Arnold Horelick and Myron Rush, Strategic Power and Soviet Foreign Policy (Chicago, Illinois: University of Chicago Press, 1966), p. 214.

⁷¹ Thomas W. Wolfe, The Role of the Soviet Military in Decision Making and Soviet Politics (Santa Monica, California: Rand Corporation, 1963), p. 3. The right wing view is that those who felt nuclear weapons have utility won out. See Richard Pipes testimony in the Hearings Before the Subcommittee on Oversight of the Permanent Select Committee on Intelligence, Soviet Strategic Forces (Washington, D.C.: USGPO, 1980), p. 4.

⁷² William T. Lee and Richard F. Staar, Soviet Military Policy Since World War II, p. 24.

constant compared to previous years.⁷³ This was consistent with the Soviet propensity to rely on military threats to support foreign policy, but in only one case was the USSR ever thought to have increased its nuclear alert status.⁷⁴

If the quantity of military threats did not change with the introduction of nuclear weapons the nature of those threats did. The Soviet Union only threatened the use of nuclear weapons implicitly in support of military force in general and reserved explicit nuclear threats for vital interests.⁷⁵ The greater the commitment to a given policy, the greater the propensity to threaten significant military force, and the greater the likelihood of potential escalation to nuclear levels. In those cases where force was used to coerce, it was meant not only to deter certain behaviour but also to compel an action.⁷⁶ Until the Soviet Union achieved at least parity with the United States, however, it generally attempted to use military threats as a "counter-deterrent" to deter the United States from resorting to its nuclear deterrent. Thus for the USSR, the American concept of deterrence was a double-edged sword, "capable of offence as well as defence."⁷⁷ The Soviet leaders retained a declaratory

⁷³ Stephen S. Kaplan, Diplomacy of Power (Washington, D.C.: The Brookings Institution, 1981), pp. 689-693.

⁷⁴ That case was Cuba, but recent evidence indicates that no Soviet nuclear alert was called. See comments by David Burchival and Richard H. Kohn and Joseph P. Harahan, "U.S. Strategic Airpower, 1948-1962: Excerpts from and Interview with Generals Curtis E. Lemay, Leon W. Johnson, David A. Burchival and Jack J. Cotton," International Security 12 (Spring 1988), p. 95.

⁷⁵ Benjamin S. Lambeth, Selective Nuclear Operations and Soviet Strategy (Santa Monica, California: Rand Corporation P-5506, 1975), p. 20.

⁷⁶ Stephen S. Kaplan, Diplomacy of Power, p. 644. Soviet use of force to influence behaviour in East Europe is an obvious example.

⁷⁷ Raymond L. Garthoff, Soviet Military Policy: A Historical Analysis (New York: Frederick A. Praeger, 1966), p. 111.

strategy that emphasized military targets in a war fighting capacity in an effort to neutralize the American nuclear advantage.

To a Soviet military officer in the 1960's, fighting a limited nuclear war was to misuse a decisive strategic weapon and had no place in Soviet declaratory strategy. The underlying rationale was probably that it might weaken the effectiveness of Soviet restraints on the Western use of military and nuclear power.⁷⁸ Soviet emphasis on a pre-emptive nuclear strategy of first decisive use was criticized for avoiding the realities of nuclear combat,⁷⁹ but even if all the forces were not yet in place to support this strategy, it still held considerable deterrent value. Soviet strategists regarded with contempt complicated Western attempts at creating escalation ladders, being inclined to view these formulations as

products of misplaced scholasticism on the part of naive civilian defence intellectuals, who neither understand war nor treat important defence issues with the sort of seriousness they properly warrant.⁸⁰

To a Soviet officer, a decision to engage in war is the key threshold, and once joined in battle, nuclear weapons must be used decisively or not at all.

Of those threats in this period that could be considered serious enough to escalate to the nuclear level, the Suez crisis was the first. Khrushchev attempted to use nuclear threats against the British and French, but when SACEUR declared that the United States was prepared to

⁷⁸ Leon Gouré, Soviet Limited Nuclear War Doctrine (Santa Monica, California: Rand Corporation P-2744, 1963), p. 15.

⁷⁹ Peter King, "Two Eyes for a Tooth: The State of Soviet Strategic Doctrine," Survey 24 (Winter 1970), pp. 45-46.

⁸⁰ Benjamin S. Lambeth, "On Thresholds In Soviet Military Thought," The Washington Quarterly 7 (Spring 1984), p. 73.

retaliate, Soviet nuclear posturing quickly abated.⁸¹ In the second case the Soviet Union achieved its objectives in crushing the revolt in Hungary in spite of the American strategic superiority, and this may have later encouraged Khrushchev to run increased risks in Berlin.⁸² Thirdly, the decision to place offensive missiles in Cuba may have been a risky attempt to gain some strategic leverage over the United States, but Khrushchev appeared genuinely appalled at the possibility of war.⁸³ A final significant use of a threat was the Soviet nuclear threat against China in 1969. This threat followed six months of tensions and culminated in the cessation of border incidents; China felt compelled to begin negotiations within one month of the threat.⁸⁴ All Soviet threats were relatively contingent and limited to a specific target, a characteristic of compellent use. These threats were not intended to lead to war, but were carefully planned to create a politically exploitable environment.⁸⁵

To a similar degree, Khrushchev attempted to enhance the perception

⁸¹ Bernard Brodie, War and Politics (New York: Macmillan, 1973), p. 393. Soviet threats were issued only after Eisenhower's ultimatum to London and Paris. See Robert J. Hanks, American Sea Power and Global Strategy (New York: Pergamon-Brassey's, 1985), p. 56.

⁸² For support for this view, see Arnold Horelick and Myron Rush, Strategic Power and Soviet Foreign Policy, p. 212-213.

⁸³ Sergey Vladislavovich Chugrov, "Political Reefs of the Caribbean Crisis," Mirovaya Ekonomika I Mezhdunarodnyye Otnosheniya (May 1989), translated by FBIS/JPRS 7 September 1989, pp. 14-23. See also Raymond Garthoff, "Cuban Missile Crisis: The Soviet Story," Foreign Policy (Fall 1988), 66. That Khrushchev expressed empathy with the pain and horror of war was revealed in his letter to Kennedy. See Robert F. Kennedy, Thirteen Days (New York: W.W. Norton, 1969), p. 86-88.

⁸⁴ Stephen S. Kaplan, Diplomacy of Force, p. 647; and David Holloway, The Soviet Union and the Arms Race, p. 87. For an account of how senior Soviet military officers helped convey these threats, see Harry Gelman, The Brezhnev Politburo and the Decline of Detente (London: Cornell University Press, 1984), pp. 102-3.

⁸⁵ Kenneth Booth, The Military Instrument in Soviet Foreign Policy, p. 58.

of Soviet nuclear power. According to one study, what matters is not superiority as such, but the perception of superiority.⁸⁶ Khrushchev clearly attempted not only to accelerate the acquisition of Soviet nuclear power, but he also sought to enhance the image of Soviet nuclear power. To extract concessions in political negotiations over critical issues such as Berlin, he sustained the image of a growing Soviet lead in missile technology "through frequent misleading claims on Soviet missile strength."⁸⁷

This brief analysis of the use of nuclear threats indicates that their quantity and nature demonstrate the interrelationship of both compellent and deterrent characteristics. The use of the nuclear threat against China, a country over which the USSR had nuclear superiority is a good indicator of a compellent component in the Soviet use of threats.

3. The Correlation of Nuclear Forces

It was during this period that the Soviet Union progressed from a position of strategic inferiority to one of perceived parity with the United States. According to Benjamin Lambeth, Soviet nuclear doctrine had not really changed that much; what had changed was the Soviet ability to field more modern nuclear systems to implement it.⁸⁸ This was attributable to Soviet resource allocations that increased defence

⁸⁶ Jonathan Steele, World Power: Soviet Foreign Policy Under Brezhnev and Andropov (London: Michael Joseph, 1983), p. 37.

⁸⁷ Robert P. Berman and John C. Baker, Soviet Strategic Forces: Requirements and Responses (Washington, D.C.: The Brookings Institution, 1982), p. 47. This is a good review of Soviet nuclear force construction. See also Thomas W. Wolfe, Soviet Military Policy under Khrushchev's Successors (Santa Monica, California: Rand Corporation P-3193, 1965), p. 25.

⁸⁸ Benjamin S. Lambeth, "Contemporary Soviet Military Policy," in Roman Kolkowicz and Ellen Propper Mickiewicz, eds., The Soviet Calculus of Nuclear War, p. 32.

spending steadily from about 1960 until at least 1976 in spite of a serious impact on the Soviet economy.⁸⁹

The scale and proportion of this early Soviet nuclear development implies that catching up with the United States was an overriding objective. The attempt to place medium range missiles in Cuba would have put a substantial proportion of United States strategic bases under risk of a no-warning attack. The Soviet effort appeared intended to create a "fait accompli" of such a nature that the prompt unilateral action required to reverse it would require the initiation of violence.⁹⁰ This action and subsequent Soviet ICBM deployments demonstrated that the USSR probably did not regard the possession of an assured destruction capability against the United States as an adequate guarantee of Soviet security. It appears that the Soviet Union intended as a minimum to match the United States in strategic power and regarded superiority as clearly preferable.⁹¹

The Soviet assessment of the combat utility of nuclear weapons during this period also reflected the need for a wider range of military options and a divesting of the political liability of having a second best strategic posture.⁹² The Soviet military were seeking a fighting

⁸⁹ Abraham S. Becker, "Sitting on Bayonets? The Soviet Defence Burden and Moscow's Economic Dilemma," in Roman Kolkowicz and Ellen Propper Mickiewicz eds., The Soviet Calculus of Nuclear War, p. 195. Although increases in defence spending had slowed since 1977, it was still increasing. For an early version of the same article see Rand Corporation P-6908 (1983), p. 17.

⁹⁰ Arnold L. Horelick, The Cuban Missile Crisis: An Analysis of Soviet Calculations and Behaviour (Santa Monica, California: Rand Corporation RM-3739-PR, 1963), p. vii.

⁹¹ David Holloway, The Soviet Union and the Arms Race, p. 44.

⁹² Georgy Melorovich, "Soviet American Relations at a New Stage," Mirovaya Ekonomika I Mezhdunarodnyye Otnosheniya (September 1988), translated by FRIS/JPRS 24 January 1989, p. 19. See also Thomas W. Wolfe, Evolution of Soviet Military Policy (Santa Monica, California: Rand

capability second to none, and the standard distinctions in Western strategic discourse between first and second strike and between tactical and strategic nuclear operations were "entirely alien to the idiom of Soviet military philosophy."⁹³ To a Soviet war planner, damage limitation was a key element, and this reinforced a tendency to pre-emptive strategy, civil defence and attacking enemy command and control.⁹⁴ If war was perceived to be inevitable in a crisis, then Soviet strategy sought to alter the initial correlation of forces as rapidly as possible by optimizing the use of its available forces. Soviet strategists believed that if strategic command, control and communications were destroyed at the outset of nuclear war, the United States nuclear response would be ragged and uncoordinated allowing increased scope for other damage limitation measures.⁹⁵ The SS-9 Soviet ICBM with a 20 megaton warhead designed in this period, was probably intended for attacks on U.S. Minutemen launch control centers and other "nuclear decapitation" tasks.⁹⁶ This Soviet strategy was an effective way to deal with a larger more diverse nuclear force; without effective command and control, American

Corporation P-3773, 1968), p. 7.

⁹³ Benjamin S. Lambeth, "How to Think About Soviet Military Doctrine," in Gerald Segal and John Baylis, eds., Soviet Strategy, p. 113. Strike connotes the use of nuclear weapons.

⁹⁴ Fritz Ermath, "Contrasts in American and Soviet Strategic Thought," in Derek Leebeart ed., Soviet Military Thinking (London: George Allen and Unwin, 1981), pp. 65-66. Active and passive defence operates in conjunction with pre-emptive attacks, see Leon Gouré, The Role of Civil Defence in Soviet Strategy (Santa Monica, California: Rand Corporation RM-3703-PR, 1963), p. V.

⁹⁵ Desmond Ball, "Soviet Strategic Planning and the Control of Nuclear War" in Roman Kolkowicz and Ellen Propper Mickiewicz eds., The Soviet Calculus of Nuclear War, p. 50.

⁹⁶ John D. Steinbruner, "Nuclear Decapitation," Foreign Policy 45 (Winter 1980-1981), p. 18. See also Robert P. Berman and John C. Baker, Soviet Strategic Forces: Requirements and Responses (Washington, D.C.: The Brookings Institution, 1982), p. 53.

limited war options would be ineffective.

Soviet efforts to construct a credible strategic nuclear force appeared directed to increasing their relative strategic position, not achieving assured destruction. Soviet strategic thought in this period developed on a different track than in the United States and emphasized the ability to fight. Deterrence was to be ensured by having the ability to win if possible, but significant demands on nuclear forces appeared to approach the requirements for compellence.

The strategic course of U.S. policies is now changing before our very eyes from "pax Americana" to a definite form of necessity for peaceful coexistence. We must clearly understand that this change is a forced one and it is precisely the power of the Soviet Union and the socialist countries that is compelling American ruling circles to engage in an agonizing reappraisal of values.⁹⁷

4. The Implications of Parity

As parity became tangible, Soviet military doctrine shifted to a pre-emptive declaratory strategy for two fundamental reasons. Firstly, Soviet nuclear inferiority made it obvious that if the Soviet Union was to have any chance of winning a nuclear war, its strategy must allow it to land the first decisive blows. Secondly, an offensive oriented strategy required minimal modification of pre-nuclear military strategy thus maintaining a consistent approach to Soviet security that was ideologically compatible with Soviet foreign policy objectives. It may be that Soviet threats to use and the actual use of military force in East Europe directly reflected Soviet strategic weakness, in that force was the

⁹⁷ Leon Gouré, Foy D. Kohler and Mose L. Harvey, The Role of Nuclear Forces in Current Soviet Strategy (Miami, Florida: University of Miami, 1974), p. xxiii. The theme was echoed by Marshal A.A. Grechko in The Armed Forces of the Soviet Union (Moscow: Progress Publishers, 1976), p. 272.

only potential lever available.⁹⁸ The pre-emptive nuclear strategy probably reflected the Soviet need to deter United States nuclear threats while at the same time supporting an ideologically aggressive foreign policy. It combined a clear sense of purpose and an unrivalled conventional army in an attempt to maximize Soviet comparative strategic advantages, recognizing that nuclear weapons have not changed the fundamental relationship between policy and war.⁹⁹

The Soviet goal of achieving at least parity with the United States was an extremely high priority, but many in the strategic community viewed military superiority as the ultimate objective. The use of threats indicated an early propensity to threaten the use of nuclear weapons to gain political advantage. During this period, the deterrence of American nuclear power, a fundamental requirement to protect the Soviet Union, did not constrain the Soviets from actively pursuing a declaratory strategy that also contained a significant amount of compellence.

IV. THE SEARCH FOR ADVANTAGE, 1970-1986

In the 1970-1986 period, great controversy over the strategic intentions of the Soviet Union centered on whether or not the Soviet leaders still sought military superiority. The political military consensus over strategic military doctrine that was reached in the late

⁹⁸ In the sense that real power and the need to threaten violence are opposites. See Hanna Arendt, On Violence (New York: Harcourt Brace Jovanovich, 1970), pp. 53-56.

⁹⁹ A. Belyayev, "Defining Modern Wars: Conventional, Nuclear," Kommunist Vooruzhennykh Sil (April 1985), translated by FBIS/JPRS 29 August 1985, p. 19. See also Benjamin S. Lambeth, Trends in Soviet Military Policy (Santa Monica, California: Rand Corporation P-6819, 1982), p. 23.

1960's began to show signs of increasing tension in the later 1970's.¹⁰⁰ At least since 1977 Soviet political declarations have implied greater acceptance of nuclear deterrence,¹⁰¹ but the continuous build up of Soviet military forces has resulted in the accumulation of military equipment far in excess of what one might reasonably expect for defensive purposes.¹⁰² This section will examine Soviet nuclear strategy (1970-1986) to determine which paradigmatic approach more closely reflected Soviet policy. The analysis of Soviet strategic intentions will determine, to the extent that available evidence permits, the degree of strategic consensus within the Soviet political-military elite. Subsequent sections will analyze the use of threats and the correlation of proximate nuclear forces.

1. Strategic Intentions

Although the tone of Soviet foreign policy may have moderated somewhat from the days of Stalin and Khrushchev, the underlying objectives did not appear to have changed. The Soviet achievement of nuclear parity added momentum to a cautious incrementalist strategy to outflank, envelope and neutralize her divided adversaries and eventually force them to acquiesce to Soviet hegemony. The fundamental goal of such action appeared to be the alteration of the global correlation of forces by

¹⁰⁰ In the early 1970's the conservative trend in reaction to Khrushchev's reforms still held considerable influence. See Roy A. and Zhores A. Medvedev, Khrushchev: The Years in Power (New York: Columbia University Press, 1976), p. 183.

¹⁰¹ Cynthia Roberts, "Soviet Military Policy in Transition," Current History (October 1984), p. 332. See also Raymond Garthoff, "Mutual Deterrence and Strategic Arms Limitation in Soviet Policy," Strategic Review 4 (Fall 1982), p. 49.

¹⁰² United States Department of Defence, Soviet Military Power 1987 (Washington, D.C.: USGPO, 1987), p. 21. The Soviet force construction has raised concerns parallel to those raised after Sputnik. See Herbert S. Dinerstein, "The Revolution in Soviet Strategic Thinking," Foreign Affairs 36 (January 1958), p. 252.

increasing Soviet pressure on Europe, the strategic pivot of Soviet aspirations.¹⁰³ This was not only traditional great power behaviour, but it was legitimized by an ideology that ascribed a dominant role to military power and was supported by a strategic culture that accepted nuclear weapons as an important component in this process.

The Soviet Union clearly continued to see some utility in its nuclear arsenal to support its policies, and it rejected any acceptance of a status quo, particularly one based on a previous correlation of forces that had significantly changed.¹⁰⁴ In this sense the Soviet leaders rejected the notions of "equivalence" or "balance" for they implied acceptance of a status quo; they embraced concepts such as "equal security" and "correlation of forces" that are more permissive and elastic.¹⁰⁵

Soviet political values included an ideology that implied a fundamental questioning of the legitimacy of the United States regime. In a dialectical fashion, Marxist-Leninist ideology provides such purpose and direction to pragmatic politics that traditional state policy is held to be complementary to the class dominant paradigm.¹⁰⁶ The Soviet leaders

¹⁰³ Alvin Z. Rubinstein, Soviet Foreign Policy Since World War II: Imperial and Global (Cambridge: Winthrop Publishers, 1981), p. 259. During the Brezhnev period, the correlation of forces was particularly influential. Chapter eight covers this in more detail.

¹⁰⁴ Sh. Sanakoyev, "The World Today: Problem of the Correlation of Forces," International Affairs (November 1974), pp. 45-49. Soviet analysts believe that the correlation of forces has serious implications for international relations. See Abraham S. Becker, Strategic Breakout as a Soviet Policy Option (Santa Monica, California: Rand Corporation, 1977), pp. 53-56.

¹⁰⁵ Benjamin S. Lambeth, "The Political Potential of Soviet Equivalence," International Security 4 (Fall 1979), pp. 25-26. This is a good paper.

¹⁰⁶ John Lenczowski, Soviet Perceptions of U.S. Foreign Policy (London: Cornell University Press, 1982), p. 267.

also expressed concerns that the United States rejected the Soviet Union's right to exist as a major actor in international politics.¹⁰⁷ Thus, fundamental political antagonisms existed which, for the Soviet rulers, maintained the possibility of cataclysmic conflict and drove a requirement for powerful nuclear forces.

Increasingly, the Soviet Union was coming to terms with the fact that in spite of considerable efforts by the military, the USSR was still liable to be destroyed in any nuclear war. Soviet forces have in the past and continue to assign high priority to missile and space defence in spite of a significant technological lag in this area. SDI was therefore seen as an American attempt to push Moscow into a distant second place in the technological competition by breaking the rules agreed upon in SALT.¹⁰⁸ The possibility of a global climatic change or a nuclear winter possibly reinforced a growing tendency to focus on conventional weapons, but the Soviet military have been reluctant to accept this hypothesis.¹⁰⁹ Soviet leaders understood that the biggest threat to political control of the party in the USSR was a possible breakdown in war, and the nuclear forces of the United States posed their most immediate danger. It may be that the growing Soviet focus on the conventional phase of war and the acknowledged possibility of the non-use of nuclear weapons was leading to an ultimate view in some quarters that war cannot be won with nuclear

¹⁰⁷ V. Bolshakov, "Human Rights in the U.S. Strategy of Social Revenge," International Journal (January 1986), p. 26. See also Lawrence T. Caldwell and Robert Levgold, "Reagan through Soviet Eyes," Foreign Policy 52 (Fall 1983), p. 5.

¹⁰⁸ Benjamin S. Lambeth, The Soviet Union and the Strategic Defence Initiative: Preliminary Findings and Impressions (Santa Monica, California: Rand Corporation N-2482-AF, 1986), p. 30.

¹⁰⁹ Stephen Shenfield, "Nuclear Winter and the USSR," Millennium: Journal of International Studies 15 (Summer 1986), p. 206. See Annex A.

weapons.¹¹⁰

The issue of whether the Soviet Union really sought strategic or nuclear superiority was emotive and hinged in part on whether the Soviet Union ever believed it could fight and win a nuclear war. Richard Pipes, among other hawkish observers, felt that the Soviet leaders aspired to reach this objective.¹¹¹ A more balanced study however determined that since about December, 1966 the Soviet goal of superiority dropped to a second order of objectives while deterrence of nuclear devastation became the first order Soviet goal.¹¹² Yet another analysis found that "conservative" and "modernizing" factions with the Soviet elite "disagreed about the merits of pursuing strategic superiority."¹¹³ The official American view from 1978 to 1986 appears to support Richard Pipes, and the United States National Intelligence Estimate acknowledged for the first time in 1977 that the Soviet Union was really striving for superiority.¹¹⁴ Others felt that the twin drives for global domination and total security compelled the USSR toward constant expansion that denied the possibility

¹¹⁰ This is Marshal Ogarkhov's theme in History Teaches Vigilance (Moscow: 1985). This view is also held by Malcolm MacIntosh, Operation Research Analysis Establishment Lecture (Ottawa: ORAE Lecture, 13 April 1987).

¹¹¹ Richard Pipes, "Why the Soviet Union Thinks it Can Fight and Win a Nuclear War," Commentary (July 1977). See also Francis P. and Amoretta M. Hoeber, "The Soviet View of Deterrence: Who Whom?" Survey 25 (Spring 1980), p. 19.

¹¹² Michael MccGwire, Military Objectives in Soviet Foreign Policy, p. 235. This first class study notes the strong Soviet desire to avoid the devastation of the USSR if at all possible.

¹¹³ Erik P. Hoffmann and Robbin F. Laird, The Scientific-Technological Revolution and Soviet Foreign Policy (New York: Pergamon Press, 1982), p. 184.

¹¹⁴ Eugene V. Rostow in Forward to Joseph D. Douglass, Jr., and Amoretta M. Hoeber, Soviet Strategy For Nuclear War (Stanford, California: Hoover Institution Press, 1979), p. xii. The right wing in the U.S. begins to gain domestic influence as Soviet declaratory strategy was becoming increasingly deterrence oriented.

of reaching any point of lasting equilibrium between the superpowers.¹¹⁵ The key issue may not be whether Soviet leaders ever believed the achievement of a nuclear superiority to be possible, but rather whether they believed that a proper combination of weapons systems and strategy could achieve political advantages.

Whether or not the Soviets seek strategic superiority, every aspect of their force development over the past two decades points toward their determination to see what the traffic will bear in pursuit of whatever strategic advantages they can acquire...¹¹⁶

A major question that arises from the conflicting evidence is whether the political-military strategic consensus achieved in the 1960's had unravelled by the 1980's. Brezhnev's declaration in 1977 that no one could win a nuclear war, the Soviet declaration of 1982 not to be the first country to use nuclear weapons, and Gorbachev's initiatives in national security all seemed to question the continuing degree to which the military could retain its impressive control over strategic matters.¹¹⁷ This military position was primarily attributable to the monopoly on information and expertise on military strategic affairs in

¹¹⁵ Mark E. Miller, Soviet Strategic Power and Doctrine: The Quest for Superiority (Miami, Florida: Advanced International Studies Institute, 1982), p. 284. This work provides strong support for the compelling view. See also Harry Gelman, The Brezhnev Politburo and the Decline of Detente (London: Cornell University Press, 1984), p. 36.

¹¹⁶ Benjamin S. Lambeth, The State of Western Research on Soviet Military Strategy and Policy (Santa Monica, California: Rand Corporation N-2230-AF, 1984), p. 21. See also Benjamin S. Lambeth, "Soviet Strategic Conduct and the Prospects for Stability," in The Future of Strategic Deterrence, Adelphi Paper 161 (London: International Institute for Strategic Studies, 1980), p. 35.

¹¹⁷ Thane Gustafson and Dawn Mann, "Gorbachev's First Year: Building Power and Authority," Problems of Communism (May-June 1986), p. 2. See also Martin McCauley and Stephen Carter, Leadership and Succession in the Soviet Union, Eastern Europe and China (New York: M.E. Sharpe, 1986), p. 6.

what has been an extremely compartmentalized bureaucracy.¹¹⁸ The fundamental problem facing the Soviet Union has been slowing economic growth and an increasing reluctance on the part of party leaders to sustain the tremendous rates of growth of defence budgets that were easily achievable in the 1960's and 1970's.¹¹⁹ From 1977-1982, the Soviet military have had to adjust to decreasing growth of their budgets while the United States initiated a major defence buildup. The resultant tensions between party and military leaders in Moscow may be leading to party efforts to achieve greater independent analysis of strategic concerns implying a possible degradation of the primacy of the military in nuclear matters.¹²⁰

One interpretation of these events is that the party leadership denies that victory in nuclear war is possible while military leaders continue to assert that victory in nuclear war remains an "objective possibility." In Soviet ideological jargon this expression allows the

118 Senior military officers still maintain that the possibility of war is a harsh reality that could require offensive operations with any weapons. See Vice Admiral G. Kostev, "Our Military Doctrine in Light of New Political Thinking," Kommunist Vooruzhennykh Sil (September 1987), translated by FBIS/JPRS 23 December 1987, pp. 2-4. See also Arthur J. Alexander, Decision Making in Soviet Weapons Procurement, Adelphi Paper 147/148 (London: International Institute for Strategic Studies, 1979), pp. 40-41.

119 Abraham S. Becker, Guns, Butter and Tools: Tradeoffs in Soviet Resource Allocation (Santa Monica, California: Rand Corporation P-6816, 1982), and by the same author, "Sustaining the Burden of Soviet Defence: Retrospect and Prospect," in Uwe Nerlich, ed., The Soviet Asset: Military Power in the Competition over Europe, pp. 233-276.

120 Rebecca Strode, "The Soviet Armed Forces: Adaptation to Resource Scarcity," The Washington Quarterly 9 (Spring 1986), p. 67. Brezhnev in 1976-77 also took steps to reassert direct political control over the armed forces: he promoted himself Marshal, he announced his chairmanship of the Defence Council and he appointed Ustinov as Defence Minister. It may be no coincidence that this took place prior to the political assertion of the Tula line. See Michael J. Deane, Political Control of the Soviet Armed Forces (New York: Crane Russak and Company, 1977), pp.271-272.

military to admit the unlikelihood of the event while maintaining a theoretical purity that allows continuity with past strategy. As achieving an effective war fighting capability can justify limitless military procurement, this debate is directly linked to the resource allocation problem.¹²¹ The most visible manifestation of this process was the dismissal of Marshal Ogarkov from the Chief of Staff position and his eventual apparent acceptance of the party line established by Brezhnev at Tula in 1977.¹²² Closer analysis of Ogarkov's writings, however, indicates that he has steadfastly supported war fighting concepts and has consistently avoided saying that victory in nuclear war is impossible.¹²³ In spite of a general acknowledgement of the reality of assured destruction, it appears that the Soviet military have never accepted it as a strategic objective. Since two-thirds of the top 200 military officers have retired from 1985-1988 and since Gorbachev has strengthened the ability of the party to independently review military matters,¹²⁴ however, it appears likely that post 1986 military influence in the politburo will diminish.¹²⁵

¹²¹ George G. Weickhardt, "Ustinov versus Ogarkov," Problems of Communism 34 (January - February 1985), p. 78. Many military officers define the new doctrine of "reasonable sufficiency" in an open ended way with respect to military requirements. See Gloria Duffy and Jennifer Lee, "The Soviet Debate on Reasonable Sufficiency," Arms Control Today 18 (October 1988), p. 21.

¹²² Dale R. Herspring, "Nikolay Ogarkov and the Scientific-Technical Revolution in Soviet Military Affairs," Comparative Strategy 6 (Number 1, 1987), pp. 29-57. Brezhnev's Tula speech initiated a new Soviet declaratory strategy that appears to accept assured destruction.

¹²³ Tsuyoshi Hasegawa, "Soviets on Nuclear War Fighting," Problems of Communism 35 (July-August 1986), pp. 77-79.

¹²⁴ Seweryn Bialer, "Gorbachev and the Soviet Military," U.S. News and World Report (March 13, 1989), pp. 40-42.

¹²⁵ Strong statements from senior political leaders signify a decreasing military input into military doctrine. See Mikhail Gorbachev, Perestroika: New Thinking for Our Country and the World (New York: Harper

An overview of Soviet strategic intentions demonstrates impressive continuity in Soviet strategic thought in that Soviet fundamental objectives have not significantly changed. The military focus on the combat function is not inconsistent with the party need for deterrence to preserve their state. The Soviet Union evolved a strategy that prior to the 1980's left open the option of victory, and this required a degree of superiority that created a demand for high defence resource allocations.¹²⁶ What was probably at issue in Moscow was not whether superiority was desirable, but whether it was affordable or achievable. The Soviet Union probably had as its top priority the deterrence of an American nuclear attack, but at the same time it continued to manifest tendencies that were also attributable to the compellent paradigm.

2. The Threat of Force

The use of military threats has not abated with the Soviet Union's achievement of parity, and the Soviet frequency of military use over the years appears to have remained relatively stable. What has changed is the more assertive use of Soviet and allied forces to support foreign policy objectives, primarily in the third world. Soviet use of force led one observer to conclude that the Soviet Union had gained confidence and was prepared to run greater risks.¹²⁷ Others point out that, due to several uncertainties for Soviet planners, they remain cautious and will tend to

and Row, 1987), pp. 140-141; Edward Shevardnadze, "The Important Line of Soviet Diplomacy," International Affairs (March 1989), p. 10; and Dimitri Yazov, "The Soviet Proposal for European Security," Bulletin of the Atomic Scientists 44 (September 1988), p. 10.

¹²⁶ Arnold L. Horelick, "The Strategic Mindset of the Soviet Military," p. 84.

¹²⁷ Edward Luttwak, The Grand Strategy of the Soviet Union (London: George Weidenfeld and Nicolson, 1983), p. 40.

avoid coercion when the United States' direct involvement is likely.¹²⁸ The Soviet operations in Angola, Ethiopia and Afghanistan have demonstrated that Soviet confidence in their ability to exploit the external function of their armed forces has increased, and it is highly probable that nuclear parity has encouraged more assertive Soviet behaviour.

The Soviet Union has continued to expand its nuclear systems in the 1970's and 1980's in such a way that simple deterrence or assured destruction cannot explain. Most significantly, accuracy improvements and the "MIRVing" of "heavy" ICBM's has given the USSR a significant hard target kill advantage over the United States. Soviet concerns over the American improvements of their hard target or counterforce capability are probably "founded upon the desire to maintain a Soviet edge in this area."¹²⁹ The Soviet Union was also the first to deploy anti-ballistic missile defenses and an anti-satellite capability. The Soviet military have not only improved the survivability of their ICBM's by hardening silos and producing mobile ICBM's, but they have hardened their command and control facilities such that reconstitution after a nuclear attack is possible.¹³⁰ Although the Kremlin has put more strategic forces in ballistic missile submarines (SSBNs), these systems appear to remain strategic war fighting reserves, and the Soviet Union tends to rely on

¹²⁸ Benjamin S. Lambeth, "Uncertainties for the Soviet War Planner," International Security 7 (Winter 1982-1983), p. 145. For an earlier version see Risk and Uncertainty in Soviet Deliberations about War (Santa Monica, California: Rand Corporation R-2687-AF, 1981).

¹²⁹ Robin F. Laird and Dale R. Herspring, The Soviet Union and Strategic Arms (Boulder, Colorado: Westview Press, 1984), p. 101. This book provides a solid overview of Soviet nuclear thinking.

¹³⁰ Harriet Fast Scott and William F. Scott, The Soviet Control Structure: Capabilities for Wartime Survival (New York: Crane Russak, 1983), p. 129. See also David Rees, Soviet Preparedness (London: Institute for the Study of Conflict #163, 1984), p. 32.

ICBM's for their priority targets.

The concept of fighting limited nuclear war is still rejected by the Soviet elite as an American ploy to make its diversified strategic systems more useful in combat. Not only does the United States have a technological advantage in this domain, but geographical asymmetries could favour the United States in a limited nuclear war. There is however increasing possibility the Soviet Union would respect a limited nuclear war as long as Soviet soil was not targeted.¹³¹ This Soviet rejection of limited nuclear war appears to contradict what otherwise is a consistent war fighting approach, and the explanation likely has more to do with deterring the NATO nuclear deterrent than any other factor.¹³² The key variable here is for the Soviet Union to avoid its devastation through escalation to intercontinental nuclear strikes.

Since the Cuban missile crisis of 1962, the Soviet Union has kept the focus of the use of its military power on its conventional capabilities. No explicit nuclear threats have been noted since 1969, but in two cases at least the threat of escalation was sufficiently high to warrant attention. The first case occurred during the 1973 Arab-Israeli War and involved widely perceived Soviet preparations to deploy their airborne forces to protect Egypt from a humiliating defeat. Soviet military posturing made their threat to intervene sufficiently credible that, notwithstanding conciliatory signs from Brezhnev, the United States placed its forces on a global nuclear alert and pressured Israel to stop its

¹³¹ General Gareyev, a leading doctrinal spokesman for the Soviet military establishment has implied this. See David Yost, Soviet Ballistic Missile Defence and the Western Alliance (Cambridge, Massachusetts: Harvard University Press, 1988), p. 113. See also Jonathan S. Lockwood, The Soviet View of U.S. Strategic Doctrine: Implications for Decision-Making (New Brunswick, New Jersey: Transaction Books, 1983), p. 1973, and Benjamin S. Lambeth, "On Thresholds in Soviet Military Thought," p. 75.

¹³² Nathan Leites, Soviet Style in War, p. 379.

offensive and respect the ceasefire.¹³³ After close analysis of the Soviet threat it appears more likely that the Soviet Union "did not intend actual battlefield intervention, but rather the threat of intervention."¹³⁴ If this is so, then the real objective of the Kremlin may have been to compel the United States to apply greater pressure on Israel to cease its operations by threatening a military action that could bring superpower forces into mutual conflict. The second case involved extensive Soviet military posturing during the Polish crisis with the apparent aim of compelling action on the part of the Polish government to control Solidarnosc. It is quite plausible that military "exercises" may have also been intended to deter NATO reaction to any necessary Soviet military action in Poland. Both cases involved implicit nuclear threats and a high degree of contingency; deterrence and compellence clearly appear in each threat.

The Soviet leaders perceived the need for flexible and accurate nuclear systems and appeared to believe that offensive power was essential to their claim to superpower status.¹³⁵ They viewed with concern United States' attempts to contain Soviet force development, claiming the United States wanted its deterrence of the Soviet Union to be "more efficient"

¹³³ Stephen S. Kaplan, Diplomacy of Power, p. 656. United States intelligence also believed that nuclear materials were deliberately being shipped toward Egypt and this may have been with knowledge the United States would detect them. (Interview with retired senior officer who worked at NORAD Headquarters during the DEFCON 3 alert.)

¹³⁴ Galia Golan, "Soviet Decision-Making in the Yom Kippur War, 1973," in Jiri Valenta and William Potter eds., Soviet Decision Making for National Security (London: George Allen and Unwin, 1984), p. 210.

¹³⁵ See Soviet Defence Minister Yazov's comments cited in Soviet Military Power (Washington, D.C.: USGPO, 1988), p. 12. See also Fritz Ermath, "The Evolution of Soviet Doctrine," in Power and Policy: Doctrine, The Alliance and Arms Control Adelphi Paper no. 206 (London: International Institute for Strategic Studies, 1986), p. 7.

than Soviet deterrence of the United States.¹³⁶ Thus Moscow viewed the American military buildup under Reagan as an attempt by the United States to achieve military superiority.¹³⁷ This reflected the Soviet view that nuclear superiority can be a meaningful commodity that at some point translates into political advantage.

In general, since Khrushchev, Soviet leaders have continued to avoid direct nuclear threats against the United States and have tended to rely primarily on their superior conventional forces to provide implicit support for their policies. Nevertheless the Soviet counterforce capability and the nature of Soviet threats indicated that at least some compelling tendencies were imbedded in their nuclear strategy. As demonstrated in 1973, the Soviet Union had shown more interest in exploiting international crises than in preventing them.¹³⁸

3. The Correlation of Nuclear Forces

In the Soviet lexicon, the correlation of forces tends to be viewed in its totality, and the nuclear correlation is therefore seen in a longer term perspective than in the West. The Soviet analysts tend to focus on trends rather than static balances, and in their view the overall

¹³⁶ John Erickson, "The Soviet View of Deterrence: A General Survey," Survival 24 (November-December 1982), p. 247. The same article is reprinted in Frank Barnaby and Geoffrey Thomas, The Nuclear Arms Race - Control or Catastrophe?, pp. 73-93.

¹³⁷ Aleksey Alekseyevich Vasilyev and Mikhail Gerasev, "Certain Results of the Reagan Administration's Military - Political Course," Mirovaya Ekonomika I Mezhdunarodnyye Otnosheniya (May 1988), translated by FBIS/JPRS 6 October 1988, p. 33. See also Paul Dibb, The Soviet Union: The Incomplete Superpower, p. 124, and Lawrence T. Caldwell, "Optimism Versus Pessimism: A Soviet View of the Strategic Environment," in Keith A. Dunn and William O. Staudenmaier, Alternative Military Strategies for the Future (Boulder, Colorado: Westview Press, 1985), p. 63.

¹³⁸ Philip Windsor, "The Soviet Union in the International System of the 1980's" in Christoph Bertram, ed., Prospects of Soviet Power (London: Macmillan Press, 1980), p. 21.

correlation of forces is shifting in their favour.¹³⁹ Believing that the achievement of parity was not an accident, the Soviet Union appeared determined to seek a "quantitative and qualitative" advantage in weapons and forces to support foreign policy; Soviet declarations to the contrary could have been, at least to some degree, disinformation.¹⁴⁰ Although many in the West have belittled Soviet technical capabilities to produce first class equipment, Soviet design philosophy has emphasized operational effectiveness through simplicity, and the "consumer sovereignty" of the Soviet Armed Forces ensures that these criteria are met.¹⁴¹ Soviet nuclear systems in the 1980's displayed increasing sophistication, and the variety of yields and accuracy appeared well suited to the operational requirement of attacking military targets.

During this recent period, the numbers of nuclear delivery systems stabilized, even though the total numbers of deliverable warheads increased far beyond that required for assured destruction purposes. The SALT limits, however, have established an upper numerical limit that the Soviet Union will not likely exceed. Increasingly, Soviet political leaders appear to have reached the conclusion that the payoff for additional nuclear systems does not warrant the cost. The realization that a European war could remain conventional for a significant period has also resulted in Soviet command and control changes leading to increased

¹³⁹ Harry Gelman, The Brezhnev Politburo and the Decline of Detente, p. 29. This was particularly true of the Brezhnev era.

¹⁴⁰ William T. Lee and Richard F. Staar, Soviet Military Policy Since World War II, pp. 29-34. See also Max Beloff, "The Military Factor in Soviet Foreign Policy," Problems of Communism 30 (January-February 1981), p. 73.

¹⁴¹ Stan Woods, Weapon Acquisition in the Soviet Union (Aberdeen, Scotland: Centre for Defence Studies, 1982), p. 63. See also Mikail Agursky, The Soviet Military-Industrial Complex (Jerusalem: The Magnes Press, 1980), p. 31.

centralization and hardening of nuclear assets to protect them from conventional attack.¹⁴² Because the Soviet Union has a comparative advantage in deploying ground forces, a rough equivalence at the strategic nuclear level can provide a "nuclear umbrella" that could allow the Soviet Union to pursue more assertive policies along its periphery.¹⁴³ In short, strategic nuclear weapons can deter Western first use while compellence at lower levels can be pursued to modify the international status quo.¹⁴⁴ Notwithstanding Soviet pronouncements of their peaceful intentions,¹⁴⁵ the use of force in Afghanistan and the threat of force in the Polish crisis displayed a certain Soviet confidence in their ability to apply military power to achieve their political aims.

The overall correlation of forces has made these Soviet advances possible, but military power is its essence.

The ultimate purpose of Soviet military power is not simply to deter an attack on the USSR, but to intimidate the opponent to the point of paralyzing his will to resist Soviet geopolitical advances.¹⁴⁶

Although the above appears to have been generally accepted by the Soviet strategic elite, it is important to note that no clearly defined strategy

¹⁴² John G. Hines and Phillip A. Petersen, "Changing the Soviet System of Control: Focus on Theatre Warfare," International Defence Review (March 1986), p. 281.

¹⁴³ Bernard Brodie, The Communist Reach for Empire (Santa Monica, California: Rand Corporation P-2916, 1964), p. 17. See also Avigdor Haselkorn, The Evolution of Soviet Strategy 1965-1975 (New York: Crane Russak, 1978), p. 92.

¹⁴⁴ Dimitri Simes, "Deterrence and Coercion in Soviet Foreign Policy," International Security 5 (Winter 1980-1981), p. 97.

¹⁴⁵ M.A. Suslov, Selected Speeches and Writings (Oxford: Pergamon Press, 1980), p. 6.

¹⁴⁶ Mark E. Miller, Soviet Strategic Power and Doctrine: The Quest for Superiority (Miami, Florida: Advanced International Studies Institute, 1982), p. 186. This corresponds closely with the views of Robert E. Osgood in his Containment, Soviet Behaviour and Grand Strategy (Berkeley, California: Institute of International Studies, 1981), pp. 9-15.

exists to make it happen.¹⁴⁷ The Soviet leadership, however, seems to have been reasonably satisfied with the return on its military investment. To them,

Soviet power is credited with "sobering" the United States and "compelling" it to accept detente, with accelerating the rise of "progressive" forces in the Third world, and generally with preserving world peace...¹⁴⁸

The American adoption of flexible response inevitably appeared from the Soviet perspective as a United States retreat from the strategy of massive retaliation, and the limited nuclear options, although more disturbing, seemed like an American attempt to regain a lost advantage. The Soviet strategic community concluded that the evolution of United States strategic doctrine was the result of a forced response to the growth of Soviet strategic power.¹⁴⁹

From the perspective of the correlation of nuclear forces, the Soviet leadership appears to have been seeking advantages on a macro level that could be translated into political significance. There appears no doubt that the Soviet military values military supremacy, but the competition with the United States has made quantifiable nuclear superiority unreachable. Nevertheless the overall search for a favourable correlation of forces means that the Soviet Union would be happy to accept nuclear

¹⁴⁷ Robert Levgold, "Military Power in International Politics: Soviet Doctrine on its Centrality and Instrumentality," in Uwe Nerlich, ed., The Soviet Asset: Military Power in the Competition over Europe (Cambridge, Massachusetts: Ballinger Publishing, 1983), p. 148.

¹⁴⁸ John Van Oudenaren, Deterrence, War-Fighting and Soviet Military Doctrine, Adelphi Paper 210 (London: International Institute for Strategic Studies, 1983), p. 41.

¹⁴⁹ Colonel P. Skorodenko, "Military Strategic Parity as a Factor in Preventing War," Kommunist Vooruzhennykh Sil (June 1988), translated by FBIS/JPRS 15 September 1988, pp. 3-8. See also Jonathan S. Lockwood, The Soviet View of U.S. Strategic Doctrine: Implications for Decision Making, p. 174.

advantages were the United States to default.¹⁵⁰ Although deterrence of American nuclear attack in all conditions probably remains the most important Soviet strategic requirement, Soviet nuclear strategy also displayed compelling characteristics in that the achievement of nuclear advantages over the long term remained a fundamental goal.

4. The Implications of the Search for Advantage

In spite of apparent changes in military doctrine post 1977, a consistent tendency of Soviet military strategy appeared related to a search for some form of usable advantage. Soviet nuclear strategic forces developed to a point where the potential interaction of superpower military strategies actually permitted Soviet political leaders to restrain military spending, without great risk, and to declare that Soviet military forces exist for defensive or deterrent purposes only.¹⁵¹ In this fashion political asymmetries can be exploited by generating public sympathy in the Western nations that result in greater political pressure to reduce their armaments.

Whether the Soviet politburo was truly seeking military superiority is in some respects irrelevant; what is important is that some elements of the Soviet strategic elite did seriously value this advantage. In this period the Soviet Union was not faced with the choice of accepting parity or superiority; the choice was "between parity and a dangerous competition for superiority, the outcome of which was by no means

¹⁵⁰ Vernon V. Asputarian, "Soviet Global Power and the Correlation of Forces," Problems of Communism 29 (May-June 1980), pp. 12-13.

¹⁵¹ Mikhail Gorbachev, cited by Major General Yu Lebedev, "Military and Strategic Parity and the Realities of the Nuclear and Space Age," International Affairs (July 1986), p. 27. See also John Van Oudenaren, Deterrence, War-Fighting and Soviet Military Doctrine, pp. 12-15.

certain."¹⁵² The Soviet search for advantage therefore remained more subtle than an outright drive for superiority, and its goals were directed to the ancient art of winning without fighting.¹⁵³ By attempting to deny the United States the ability to use its strategy, the Soviet leaders hoped not only to deter American reaction to Soviet successes but to create a political atmosphere that corresponded with Soviet interests.

The first danger to the West, therefore, is not war as such, but rather the threat of war, and that the West will succumb to that threat, and be gradually Sovietized without ever a shot being fired.¹⁵⁴

Although such a strategy creates deterrence, its expressed intention is also to compel the United States to accept an increasing Soviet voice in international relations that eventually would lead to increased Soviet influence in the world.

V. CONCLUSIONS

Nuclear strategy in Soviet terms is a component of Soviet military strategy and is subordinated to military doctrine, the political-military strategy of ideological confrontation with the West. While military doctrine has evolved considerably over time, the precise makeup of nuclear strategy has been largely determined by Soviet military officers who appear heavily influenced by traditional concepts of combat utility which they have adapted to the nuclear age. These officers have contributed impressively to a unique Soviet strategic culture that is identifiable and differs in significant ways from that found in the United States. To the

¹⁵² David Holloway, "Military Power and Political Purpose in Soviet Policy," p. 20.

¹⁵³ See Sun Tzu, The Art of War, pp. 77-78.

¹⁵⁴ Chris N. Donnelly, Heirs of Clausewitz: Change and Continuity in the Soviet War Machine, p. 22.

Soviet strategic elite, greater military power, including nuclear power, results in greater security, respect and influence in the world, and these attitudes more closely reflect the more traditional themes of the compellent paradigm than those of the deterrent.

During the early period of Soviet nuclear weapon development, nuclear strategy became closely linked with traditional or pre-nuclear strategy to a degree not found in the West. Soviet political and military leaders viewed the nuclear superiority of the United States with respect and set out to close that gap as rapidly as possible. It is perhaps a reflection of Soviet strategic culture that the notion of deterring superior American power did not grow roots as deeply as it did in the West which enjoyed the strategic advantage at the time.

As the Soviet Union began to achieve the capability to attack the United States, a pre-emptive strategy of being first to initiate the decisive use of nuclear weapons became Soviet policy. This reflected an appropriate strategy for a weaker power yet it still carried the ideological connotations of offensive action. While striving to catch up to the United States' nuclear power, the Kremlin's military experts appeared to accept the ultimate usefulness of military superiority.

More recently, with the achievement of parity, the Soviet Union adopted a more assertive foreign policy backed by powerful conventional and nuclear forces. Military elements of the Soviet strategic elite continue to view military superiority as desirable, but competition with the technologically superior United States and the high cost to a stagnant Soviet economy have made this goal unattainable. As evidenced by deterrent declaratory policy and the no first use declaration, Soviet military doctrine has shifted towards assured destruction and deterrence, but these changes do not appear to have been accepted at lower levels.

The analysis of Soviet military strategy to 1986 indicates that it retained an ideologically motivated offensive strategy, as well as a sensitivity to opportunities to seek relative advantage. While the Soviet leaders sought above all to deter a United States nuclear attack on the Soviet Union, they also sought to reap political advantages through compellence when specific occasions presented themselves.

In the Russian language two meanings are often translated as deterrence, "keeping out" and "intimidation."¹⁵⁵ The former usually refers to the Soviet strategic forces and reflects the defence value inherent in strong military forces, but the latter often characterizes the United States strategic forces and reflects the compellent value of a superior position.¹⁵⁶ The Soviet Union acknowledged that deterrence is necessary and that assured destruction obtains, but it appeared loath to accept it as a strategy. Military doctrine appeared to be shifting to a deterrent view of nuclear weapons, but military strategy appeared not to change at all. The fundamental reason may be that the Soviet strategic elite has, for the most part, never accepted the deterrent paradigm nor are they convinced that the United States has. As a consequence the compellent paradigm may more accurately describe Soviet military strategy or at least the thinking behind it from 1970 to 1986.

¹⁵⁵ David Holloway, The Soviet Union and the Arms Race, p. 32-34.

¹⁵⁶ Aleksandr G. Savelev, "Averting War and Deterrence: The Approaches of the Warsaw Pact and NATO," Mirovaya Ekonomika I Mezhdunarodnyye Otnosheniya (June 1989), translated by FBIS/JPRS 5 October 1989, p. 11. The author attributes all the characteristics of the compellent paradigm to the United States and NATO.

Chapter Five

THE COMPETITION IN ARMS CONTROL

Arms control theory discussed in chapter two provides the intellectual background within which the practitioners of arms control have sought to achieve agreements acceptable to their respective societies. That chapter further developed the theme that there are at least two perspectives which, to a degree, reflect the deterrent and compellent paradigms of strategic thinking. It follows therefore that an analysis of the strategic arms control policies of the superpowers from a paradigmatic perspective should indicate which paradigm tends to dominate.

The focus on the United States and the Soviet Union strategic arms control practices will concentrate on the period 1970-1986. The role of other nuclear powers in strategic arms talks during this period has been minimal and therefore will not be specifically addressed. This in itself raises questions "about the political structure of the world and the distribution of power within it."¹ This study accepts the fact that the superpowers may conceive of arms control to their mutual advantage, perhaps even, at times, to the detriment of the international system.

The initiation of strategic arms control negotiations seemed to imply a commitment by each superpower to institutionalize mutual vulnerability in some form, and yet chapter two demonstrated how each paradigm could in theory support responsible negotiations and the reaching of an arms control agreement. The deterrent paradigm emphasizes the cooperative achievement of a stable balance through mutual assured destruction. It is essentially defensive in orientation and in its purest

¹ Hedley Bull, "Arms Control and World Order," International Security 1 (Summer 1976), p. 3.

form precludes limited and flexible nuclear war as a responsible policy option. The compelling thinker, on the other hand, views arms control as a competitive process, the ultimate logic of which is superiority. The greater the intensity of competition as opposed to cooperation in arms control, the more likely compelling thinking will be present.

This study will focus only on some illustrative examples and is not intended to be a complete review of what is a complex history of detailed arms control negotiations. After a brief review of early nuclear arms control efforts, this chapter will deal in turn with the Strategic Arms Limitation Talks (SALT I and SALT II) and the Strategic Arms Reduction Talks (START). The aim of this chapter is to apply the paradigmatic framework established in chapters one and two in order to determine, to the extent possible, the degree of compelling behaviour in the superpower strategic arms control negotiations.

I. EARLY NUCLEAR ARMS CONTROL

The early arms control efforts are important because they helped shape the experiences of those that began the first round of the Strategic Arms Limitation Talks in 1969. These experiences to a degree established our paradigmatic frame of reference.

The most prominent example that appeared relevant to arms control practitioners was the 1921 Washington Naval Treaty that set the ratio of capital ships among the major powers. What the proponents of arms control tended to overlook, however, was the degree of political motivation that made that treaty possible in the first place and then caused it to fall apart. For example, implicit in the agreement was the initial belief that Japan would help protect British and American interests in the Western

Pacific area in return for a certain naval balance.² Thus, the Washington Naval Treaty was only really of substantive value as long as the British and Japanese naval treaty existed. In retrospect it is clear that political factors are of key importance in arms control matters.

History also provides ample evidence of the need for some form of arms control to stabilize security relationships and to minimize the prospect of surprise attack. One study in 1883 determined that since 1700, in a sample of about 115 wars, 107 started with fighting rather than a declaration of war and, of those, 41 began with a surprise attack.³ What happened to the United States and to the Soviet Union in 1941 and in Korea in 1950 were therefore not anomalies but rather marked a considerable degree of continuity with the past.⁴

In the 1930's considerable effort was placed on disarmament and arms control issues. In the West the theoretical approaches noted in chapter two were dominant, but the Soviet Union tended to a more narrow view where all arms limitation fell under the "umbrella" of disarmament.⁵ Stalin, however, was more concerned with developing Soviet power:

² As Japan expanded her ambitions in China and her naval power to support them, that agreement was no longer valid. See Philip Towle, Arms Control and East-West Relations (London: Croom Helm, 1983), p. 172.

³ John Frederick Maurice, Hostilities Without Declaration of War cited in Geoffrey Blainey, The Causes of War (London: Macmillan Press, 1973), p. 170.

⁴ Klaus Knorr and Patrick Morgan, eds., Strategic Military Surprise: Incentives and Opportunities (London: Transaction Books, 1983), pp. 247-265. The same conclusion was reached by Ephraim Kam, Surprise Attack: The Victim's Perspective (London: Harvard University Press, 1988), p. 229.

⁵ Peter Vigor, The Soviet View of Disarmament (London: Macmillan Press, 1986), pp. 24-25. The Soviet leaders tend not to use the expression "arms control."

...to slow the tempo means to lag. And laggards are beaten. The history of old Russia consisted in being beaten continually for its backwardness.⁶

Stalin's determination to build Soviet industrial and military power in the early 1930's made the Soviet overtures to initiate global disarmament appear more as political warfare than realistic arms control.⁷

This theme was repeated as the Soviet Union began to construct a strategic nuclear force in the 1950's. At the surprise attack conference of 1958, both sides talked past each other, but at least the dialogue had started. The right wing of the United States, however, soon accused the Soviet Union of proposing disarmament for political advantage.⁸ One of the early issues that highlighted these concerns was the proposed test ban where the Soviet Union attempted to put pressure on the United States. By conducting several large nuclear tests and then declaring a unilateral moratorium on all nuclear testing, the Soviet Union undoubtedly hoped to curtail the American nuclear testing programme. When the Soviet Union resumed nuclear testing in 1961 it was with a 57 megaton device - by far the largest nuclear detonation in the world.⁹ This behaviour clearly evidenced a compelling motive, and the Soviet Union did succeed in testing large nuclear weapons in the atmosphere that the United States could not

⁶ Stalin speech of 1931 cited in Jerry Hough, "The Soviet View of the Strategic Situation," in Roman Kolkowicz and Neil Joeck, eds., Arms Control and International Security (Boulder, Colorado: Westview Press, 1984), p. 91.

⁷ Hedley Bull, The Control of the Arms Race (London: Weidenfeld and Nicolson, 1961), p. 33.

⁸ Barry Goldwater, Why Not Victory? (New York: McGraw Hill, 1962), pp. 79-85. This author is extremely right wing.

⁹ Raymond L. Garthoff, Soviet Military Policy: A Historical Analysis (New York: Frederick A. Praeger, 1966), p. 118.

duplicate after the Partial Test Ban Treaty was signed.¹⁰ Soviet objectives from the 1930's to the 1960's appeared to be primarily directed at blunting the growth of the West's strategic power in the hope of minimizing their adversary's strategic advantage.¹¹

The next major attempt to control nuclear weapons was initiated by the United States when President Johnson proposed a freeze on offensive and defensive nuclear weapons in January 1964. Like the Baruch Plan of the 1940's, this proposal if accepted by the Soviet Union would have established a permanent American dominance, denying the Soviet Union the ability to match the United States in strategic systems, to harden ICBM silos or to place SLBM's at sea.¹² To the Soviet Union the years 1963-1968 were years of sizable projected increases in their nuclear force structure whereas the United States force structure was actually decreasing.¹³ The nuclear freeze proposal of 1964, from the Soviet

¹⁰ See William H. Kincade, "Arms Control or Arms Coercion," Foreign Policy 62 (Spring 1986), p. 34. The advantage of such testing relates to being able to measure their electro magnetic effects. See also Werner Kaltefleiter, "Structural Problems in Negotiations: A View from Europe," in Richard F. Staar, ed., Arms Control: Myth versus Reality (Stanford, California: Hoover Institution Press, 1984), pp. 62-63.

¹¹ Roman Kolkowicz, The Role of Disarmament in Soviet Policy: A Means or an End? (Santa Monica, California: Rand Corporation P-2952, 1964), pp. 12-13.

¹² Johan J. Holst, "Missile Defence, the Soviet Union and the Arms Race" in Johan J. Holst and William Schneider, eds., Why ABM?: Political Issues in the Missile Defence Controversy (New York: Pergamon Press, 1969), p. 180. See also David Holloway, The Soviet Union and the Arms Race, p. 45.

¹³ Nuclear force structure refers to those nuclear capable military systems actually deployed and in operational status. In this study it is used in reference to those systems identified in SALT negotiations. In 1965 the U.S. had 2188 Strategic nuclear delivery vehicles against the Soviet 475, but by 1970 the U.S. had 2175 against the Soviet 1686. The U.S. reductions were due to reductions in bombers. See Hearings before the Subcommittee on Arms Control, International Law and Organization of the Senate Committee on Foreign Relations, ABM, MIRV, SALT and the Nuclear Arms Race (Washington, D.C.: USGPO, 1970), pp. 306-308, and Annex H. See also Robert Ehrlich, Waging Nuclear Peace: The Technology and Politics of

perspective, was totally unacceptable in that it clearly demonstrated that the United States had little interest in allowing the Soviet Union to achieve parity.¹⁴

Where the Soviet Union and the United States did reach agreement on arms control issues, the resultant treaties had little to do with nuclear deterrence as such, but were more properly termed confidence building measures.¹⁵ In addition to a number of fairly minor treaties, one interesting confidence building measure was the "graduated and reciprocal initiatives in tension-reduction" initiated by Kennedy and reciprocated by Khrushchev in 1963.¹⁶ Both leaders were shaken by the Cuban missile crisis of the previous year. This period in the mid to late 1960's laid the path for what transpired in SALT I. Relations between the superpowers gradually improved to the point where serious arms control talks could begin, but the political realities that had been revealed by the USSR in 1961 and by the U.S. in 1964 still lay under the surface.

This section has briefly surveyed some elements that preceded the key time frame of this study to demonstrate those traces of continuity with the past. Clearly, cooperation must be part of any serious arms control dialogue, but prior to the late 1960's it appeared that competition

Nuclear Weapons (Albany, New York: State University of New York, 1985), p. 291.

¹⁴ Raymond L. Garthoff, Intelligence Assessment and Policymaking: A Decision Point in the Kennedy Administration (Washington, D.C.: Brookings Institution, 1984), p. 25. The United States leaders may have felt that the Soviet Union had a minimum deterrent in 1964, especially after the sobering impact of the Cuban crisis. See Leo Szilard, "Minimal Deterrent vs. Saturation Parity," Bulletin of the Atomic Scientists 20 (March 1964), p. 7.

¹⁵ Joseph L. Noguee and Robert H. Donaldson, Soviet Foreign Policy Since World War II (Oxford: Pergamon Press, 1981), p. 257.

¹⁶ Charles E. Osgood, "The GRIT Strategy," Bulletin of the Atomic Scientists 36 (May 1980), pp. 58-60.

prevailed.

II. SALT I

The first SALT discussions between the two superpowers began in November 1969 and the SALT I accord was agreed by mid-summer 1972. This section will analyze the apparent aims, the implied threats and the correlation of nuclear forces that may have affected the final outcome.

1. Strategic Intentions

In retrospect it appears that the two superpowers held at least some different strategic objectives during the SALT negotiation process. The United States for the most part seemed intent on educating the Soviet Union as to the desirability of a stable and mutually acceptable balance of nuclear weapons, but the Soviet Union proved less than receptive to these ideas and more interested in protecting its plans to deploy a new generation of ICBM's.

The analysis of the United States aims in SALT I is made more difficult by the process, in particular the back channel negotiations conducted by Henry Kissinger which at times directly contradicted the United States position officially tabled at the negotiation sessions in Europe.¹⁷ This confusion in United States policy helped to lower the effectiveness of one of the key U.S. aims in SALT which was to stop Soviet

¹⁷ See Gerald Smith, Doubletalk: The Story of SALT I (New York: Doubleday and Company, 1980), pp. 228-229. In this example Kissinger agreed to exclude SLBM's from the SALT negotiations, contrary to the official U.S. policy. This resulted in the very high SLBM limits in the final accord. See Raymond Garthoff, Detente and Confrontation: American-Soviet Relations from Nixon to Reagan (Washington, D.C.: Brookings Institution, 1985), p. 158. Both these works are excellent sources for this period.

ICBM and SLBM launcher construction programmes.¹⁸ The United States, at least initially, hoped that the Soviet Union would agree to accept limits on strategic launchers that would be in rough numerical equivalence to those of the United States. In early 1970 the United States first proposed to limit ballistic missiles to 1710 launchers on each side, then when that was rejected, urged phased reductions of 100 ballistic missiles a year until equal levels of 1000 ballistic missiles were reached.¹⁹ Throughout the SALT I process the United States sought to restrain, albeit unsuccessfully, the pace of Soviet ballistic missile deployments.

Although the Soviet Union's primary motive in SALT I appeared to be to enshrine global acceptance of Soviet strategic parity, considerable doubt over the actual decision making process remains because of the high degree of Soviet secrecy that inevitably masks our understanding of true Soviet aims.²⁰ According to one very good study, the SALT I agreement offered the Soviet Union

a guarantee of their strategic nuclear equality with the United States and substantial other benefits at the price of hampering their pursuit of strategic superiority.²¹

During the negotiations, however, the Soviet representatives also took great care to seek an accord that would permit the deployment of their newer and more capable ICBM's. Another Soviet objective may also have been "to promote circumstances that would allow the Soviet Union to reduce

¹⁸ Gerald Smith, Doubletalk: The Story of SALT I, p. 156.

¹⁹ Ronald E. Powaski, March to Armageddon: The United States and the Nuclear Arms Race, 1939 to the Present (New York: Oxford University Press, 1987), p. 135. This initial proposal included SLBM's and a ban on MIRV's but was tied to on-site verification inspections.

²⁰ Stephen M. Meyer, Soviet Defence Decisionmaking: What Do We Know and What Do We Understand? ACIS Working Paper 33 (Los Angeles, California: Center for International and Strategic Affairs, 1982), p. 2.

²¹ Samuel B. Payne, The Soviet Union and SALT (Cambridge, Massachusetts: MIT Press, 1980), p. 10.

the dimensions of the United States' lead in ABM technology."²² The combination of the above points prompted the United States Secretary of Defence to doubt that the Soviet Union entered the arms control negotiations with a shared deterrence objective.²³ In fact, it is probable that Marshal Grechko's good relations with Brezhnev and his elevation to Politburo membership gave him the ability in effect to tell the United States "to take or leave" SALT I with a three to two ratio of Strategic Nuclear Delivery Vehicles (SNDVs) in favour of the Soviet Union.²⁴ At the very least his power probably allowed the military to exert a strong conservative influence in SALT I decision-making. In something so fundamental to Soviet security, it is quite likely that the Soviet leaders would wish military acceptance for the first SALT agreement. That military input may in part explain why the Soviet Union clearly rejected any real constraints on its ballistic missile improvement programmes in the SALT I accord.

In any event, as a result of Soviet intransigence, the United States agreed to establish numerical offensive limits that appeared to permit all Soviet and American planned strategic programmes to proceed without alteration. For the United States, the acceptance of this accord

²² David S. Yost, European Security and the SALT Process (London: Sage Publications, 1981), p. 43.

²³ Melvin Laird testimony in Hearings before the Subcommittee on Arms Control, International Law and Organization of the Senate Committee on Foreign Relations, ABM, MIRV, SALT and the Nuclear Arms Race, p. 276. See also Rebecca V. Strode, "Strategic Issues and Soviet Foreign Policy," in Gerrit W. Gong, Angela E. Stent and Rebecca V. Strode, Areas of Challenge for Soviet Foreign Policy in the 1980's (Bloomington, Indiana: Indiana University Press, 1984), p. 94.

²⁴ A staff study prepared for the Senate Committee on the Judiciary, Soviet Disarmament Propaganda and the Strange Case of Marshal Grechko (Washington, D.C.: USGPO, 1974), pp. v-vi. See also Thomas W. Wolfe, The SALT Experience (Cambridge, Massachusetts: Ballinger Publishing Company, 1979), pp. 75-76.

demonstrated that the United States military had, in part, lost its fight to retain nuclear superiority as a strategic objective.²⁵ Thus in SALT I both superpowers appeared, at least on the surface, prepared to accept, in principle, limitations that would preclude the near term attainment of nuclear superiority. The agreement to limit ABM's further indicated that the superpowers had accepted a stable nuclear relationship, but doubts remained over long-term political objectives. The SALT I accord was the first major strategic arms agreement and thus an important precedent. As a first step toward controlling and stabilizing what had been an unlimited arms competition, it exhibited outwardly many characteristics of the deterrent paradigm. Yet, neither superpower compromised anything that it was not earlier prepared to give up, and the competitive nature of certain proposals and objectives suggests that the compellent paradigm may offer an alternate explanation of political arms control.²⁶

2. The Threat of Force

In an arms control negotiation that depends heavily on mutual cooperation, direct nuclear threats clearly have little utility, but implicit threats remain embedded in each nation's force structure decisions and even in certain arms control proposals. What one nation perceives as a reasonable hedge against what the opponent might be capable of doing is seen by the other as a threat. Those weapons perceived as

²⁵ Richard K. Betts, Soldiers, Statesmen, and Cold War Crises (London: Harvard University Press, 1977), p. 109.

²⁶ At least one senior Soviet military officer viewed the SALT I agreement in terms of achieving a definite success. Major General M.I. Cherednichenko, "Military Strategy and Military Technology," Voyennaya mysl" (April 1973), p. 42 cited in Raymond Garthoff, "The Tightening Frame: Mutual Security and the Future of Strategic Arms Limitations," forthcoming. This competitive aspect also underlies Robin Ranger's thesis in Arms and Politics 1958-1978: Arms Control in a Changing Political Context (Toronto: Macmillan Press, 1979).

most threatening are those that the other side tends to hold highest in their hierarchy of military requirements, particularly in the Soviet case.²⁷

During SALT I negotiation the United States viewed the steady Soviet ICBM build-up as a significant threat, and the USSR perceived the more successful American MIRV and ABM programmes as technological threats. The United States in particular felt that the Soviet heavy ICBM's were serious potential threats because they could and probably would eventually carry a larger number of MIRV's than could smaller American ICBM's. The more warheads carried, the greater the probability that counterforce attacks could be effectively launched. The Soviet negotiators viewed the American forward based nuclear systems (FBS) with equal concern because of their proximity to the Soviet Union. Thus, American efforts in 1970 to stop the production or reduce the numbers of Soviet heavy ICBM's in conjunction with the United States proposals to build more ABM sites for each Soviet site or to freeze MIRV technology could be considered as implied threats.²⁸ The United States was threatening to outstrip the USSR in MIRV and ABM technology.

Thus to a degree, technological competition for strategic advantage formed the basis for those threats implicit in the SALT I negotiating period. The key Soviet concern centered on the ability of the United States to develop quickly and deploy sophisticated weapon systems that

²⁷ Robert Einhorn, Negotiating From Strength: Leverage in U.S.-Soviet Arms Control Negotiations (Washington, D.C.: Center for Strategic and International Studies, 1985), p. 38.

²⁸ Ronald E. Powaski, March to Armageddon: The United States and the Nuclear Arms Race, 1939 to the Present, pp. 135-137. The United States proposed to have four ABM sites at missile fields for one Soviet ABM site around Moscow. The result of these various proposals, all offered in 1970, would have given the United States a significant military advantage.

would take the Soviet system considerably longer to counter or replicate.²⁹ The United States had clearly demonstrated the ability to rapidly build qualitatively and quantitatively superior forces in the early 1960's, and the Soviet military feared that the United States could do so again if not constrained by arms control.³⁰ The opportunity to limit United States defence programmes to a large extent, therefore, is what motivated the Soviet leaders to accept negotiated limits on their own forces. In this manner the Soviet Union probably has seen "considerable advantage in averting what appeared to be a costly, unpredictable and disadvantageous competition."³¹

The combination of MIRV and ABM technology could eventually give significant nuclear strategic advantage to the United States. Soviet analysts from 1968 to 1974 argued that

the United States military industrial complex redoubled its efforts to gain one sided advantages vis-à-vis the USSR, especially in MIRVing, when SALT I seemed imminent.³²

Soviet and American military officers alike realized that accurate MIRV's coupled with an effective ABM could result in a credible first strike capability. According to the chief American negotiator, MIRV's could not be negotiated in SALT I because the United States preferred to retain its technological advantage and the USSR saw the enormous downstream potential

²⁹ See Ernest J. Yanarella, The Missile Defence Controversy: Strategy, Technology and Politics, 1955-1972 (Lexington, Kentucky: University of Kentucky, 1977), pp. 189-195.

³⁰ Raymond Garthoff, "The Soviet Military and SALT," in Jiri Valenta and William Potter, eds., Soviet Decision Making for National Security (London: George Allen and Unwin, 1984), p. 139.

³¹ Robert J. Einhorn, Negotiating from Strength: Leverage in U.S.-Soviet Arms Control Negotiations, p. 38.

³² Robbin F. Laird and Dale R. Herspring, The Soviet Union and Strategic Arms (Boulder, Colorado: Westview Press, 1984), p. 98.

that MIRV's offered to the Soviet Union with its larger ICBM's.³³

The only feasible means with which the Soviet Union could readily counter the American technological lead was to build greater numbers of ICBM's and to limit ABM's. According to Gerald Smith, the Soviet strategic build-up in 1969-1971 was developing such momentum that President Nixon may have felt those years offered the last chance to deal with the USSR on equal footing.³⁴ The United States leaders held a certain fear of Soviet intentions. Although the Soviet negotiators had been straightforward about their requirement for larger silos to house the SS-19 replacement for the SS-11, Kissinger later accused them of duplicity and many senior United States leaders believed him.³⁵ The result of this kind of behaviour was an increasing perception that the United States needed to be strong to negotiate successfully with the Soviet leaders. This was evidenced by the decision to accelerate the Trident programme by three years in order to present the Soviet Union with an upcoming system as a "bargaining chip."³⁶

Because each superpower proceeded cautiously in SALT I, a great deal of mutual mistrust prevented the achievement of a more comprehensive agreement. Nevertheless, if it is viewed as the first steps toward an

³³ Gerald Smith, Doubletalk: The Story of SALT I, p. 157.

³⁴ Gerald Smith's remarks are in Michael Charlton's excellent book, From Deterrence to Defence: The Inside Story of Strategic Policy (Cambridge, Massachusetts: Harvard University Press, 1987), p. 32. The Secretary of Defence, James Schlesinger was also concerned with breaking the momentum of Soviet ICBM deployment patterns; see his testimony before the Subcommittee on Arms Control, International Law and Organization of the Senate Committee on Foreign Relations, U.S.-U.S.S.R. Strategic Forces (Washington, D.C.: USGPO, 1974), p. 3.

³⁵ Raymond L. Garthoff, Detente and Confrontation: American-Soviet Relations from Nixon to Reagan, p. 174.

³⁶ Gerald Smith, Doubletalk: The Story of SALT I, pp. 339-340. Spending on Trident was moved forward to provide the first submarine in 1978 instead of 1981.

acceptance of the institutionalizing of MAD, the first SALT accord appears to reflect the stable balance characteristic of the deterrent paradigm. During the SALT I process, however, each superpower did demonstrate a tendency to view each other's strategic arms construction programmes and technological developments as threats designed to achieve potential advantage, a characteristic of compellent thinking.

3. The Correlation of Nuclear Forces

Because the SALT I accord imposed no real constraints on offensive force development for either superpower, it really had a marginal effect on the offensive balance. It permitted MIRV deployment for the United States and allowed the Soviet Union to deploy up to 2568 ballistic missiles, a figure they never actually reached. The lasting achievement, at least to date, of the SALT I accord, however, was the agreement to limit ABM's. This section will analyze the correlation of nuclear forces, paying particular attention to the ABM agreement.

The quality of nuclear forces was not a central issue in SALT I, but nevertheless it did have a bearing on the negotiations and the final accord. The Soviet Union, for example, negotiated with great care to avoid interfering with the deployment of its new generation of ICBM's which were expected to be technically far superior to the earlier SS-11 missiles.³⁷ Critics of SALT I in the United States were extremely disappointed to discover that the Soviet replacement ICBM's had about

³⁷ David Holloway, The Soviet Union and the Arms Race, p. 47.

three times the throw weight of the SS-11.³⁸ One objective of the United States in SALT I was to constrain or reduce Soviet forces so that they could only be used effectively against United States population and urban centers, but these new missiles appeared designed to eventually carry enough MIRV warheads to cover the entire target spectrum.³⁹ What made this problem even more disturbing was the fact that the SALT I accord hampered the United States from developing its own counterforce capability because it effectively foreclosed the upgrading of its silos.⁴⁰ Nevertheless, for the United States to agree to Soviet quantitative superiority in SALT I, the United States at the time must have had high confidence in its qualitative advantage based for the most part on its technical lead in MIRV's.

The numerical balance throughout the SALT I process appeared to assume increasing importance. One observer noted a shift in emphasis in 1972 "from an interest in the character of strategic weapons to an interest in numbers."⁴¹ The conclusion of SALT I giving a significant numerical advantage to the Soviet Union probably contributed a great deal

³⁸ The SS-11 was partially replaced by the SS-17 and SS-19, both considerably larger. See Colin S. Gray, "Strategic Forces and SALT: A Question of Strategy," Comparative Strategy 2 (Number 2, 1980), p. 127. Throw weight refers to the ability of a given missile to carry a payload over a given distance. The greater it is, the more firepower a missile can deliver in either the form of larger or multiple warheads.

³⁹ William T. Lee, "Soviet Nuclear Targeting Strategy and SALT," in Steven Rosefielde, ed., World Communism at the Crossroads: Military Ascendancy, Political Economy and Human Welfare (Boston, Massachusetts: Martinus Nijhoff Publishing, 1980), p. 73 and 56.

⁴⁰ The weights of missiles were also limited. See William R. Kintner and Robert L. Pfaltzgraff, eds., SALT: Implications for Arms Control in the 1970's (London: University of Pittsburgh Press, 1973), p. 395.

⁴¹ Thomas C. Schelling, "What Went Wrong with Arms Control," in Oyvind Osterud, ed., Studies of War and Peace (Oslo: Norwegian University Press, 1986), pp. 99-100. This work contains a selection of very good articles.

to this shift. One of the reasons the Soviet negotiators insisted on greater numbers was to in some way compensate for the United States FBS deployed in Europe. Soviet officials repeatedly raised the FBS issue and at one point even noted that the equivalent megatonnage of the American FBS was greater than that deployed on Soviet SSBN's.⁴²

With respect to combat utility of strategic nuclear weapons, each superpower in SALT had to accept limitations, but most importantly it was the United States that had to accept Soviet numerical parity. The Soviet Union in fact refused to discuss qualitative limits on their forces; their interest lay, not in sanctioning America's advantages, "but in cancelling them by some other means."⁴³ To obtain the SALT accord the United States was compelled to "discount" its strategic advantages and recognize the right of the USSR to catch up with the United States.⁴⁴ This notion, however, was not universally acceptable to American leaders and strategists. Immediately prior to SALT, President Nixon noted the need for a dominant nuclear posture as a check on Soviet expansionism and as a source of suasion to encourage moderation and accommodation to Western interests.⁴⁵ One of the key issues that caused a shift in United States policy was the difficulty the United States leaders had in satisfactorily

⁴² Gerald Smith, Doubletalk: The Story of SALT I, p. 92. See also Raymond L. Garthoff, Perspective on the Strategic Balance (Washington, D.C.: Brookings Institution, 1983), pp. 19-20. FBS were capable of destroying in one-way attacks 20 per cent of Soviet ICBM/MRBM force or 25 per cent of Soviet population.

⁴³ John Newhouse, Cold Dawn: The Story of SALT (New York: Holt, Rinehart and Winston, 1973), p. 174. This is a very good review of its subject.

⁴⁴ Thomas W. Wolfe, The SALT Experience, p. 254.

⁴⁵ See Michael Krepon, Strategic Stalemate: Nuclear Weapons and Arms Control in American Politics (New York: St. Martin's Press, 1984), pp. 29-32. Nixon promised to restore clear cut military superiority in his election campaign; see John Newhouse, Cold Dawn: The Story of SALT, p. 134.

explaining their ABM programme, particularly in the climate of SALT and detente. The administration even raised the spectre of a future Chinese nuclear threat as part of the initial justification for ABM.

The ABM treaty was the most significant aspect of SALT I negotiations in that it appeared to herald the acceptance of a stable nuclear balance based on mutual assured destruction. The United States probably agreed to it because ABM's were not yet acquired or deployed, their efficacy was questionable, they were enormously expensive and it was increasingly difficult to achieve a consensus on how to handle them - unless they were party to an agreement with the Soviet Union.⁴⁶ Why the Soviets agreed to it was more controversial. In 1967 Kosygin had told President Johnson that a ban on ballistic missile defences was "the most absurd proposition he had ever heard."⁴⁷ Even as the ABM Treaty was being signed, Soviet leaders were according civil defence in the USSR an extremely high priority.⁴⁸ Because Soviet military doctrine continued to maintain its commitment to strategic defence, it appeared that other considerations may have motivated the Soviet Union.

Several analysts have concluded that an important concern of the Soviet Union was to place constraints on the more technically advanced United States ballistic missile defence activities. The Soviet ABM had proved to be a disappointment to the Soviet military, and by 1968 there

⁴⁶ Bernard Brodie, "On the Objective of Arms Control," International Security 1 (Summer 1976), p. 35. The direction to concentrate on an ABM agreement stemmed from a joint Nixon/Soviet announcement on May 20, 1971, i.e. at the highest levels. See the 11th Annual Report of the Arms Control and Disarmament Agency (Washington, D.C.: USGPO, 1972), p. 6.

⁴⁷ Benjamin S. Lambeth, The State of Western Research on Military Strategy and Policy (Santa Monica, California: Rand Corporation N-2230-AF, 1984), p. 25.

⁴⁸ George Kolt, "The Soviet Civil Defence Programme," Strategic Review 5 (Spring 1977), pp. 59-60.

was a "sharp drop in the frequency of claims to an effective ABM defence of the USSR."⁴⁹ Although Soviet leaders did appear, after a time, to accept the logic that ABMs were a threat to MAD stability, they remained skeptical as to its desirability or the United States' acceptance of MAD. Thus they probably accepted the ABM Treaty as a second choice.⁵⁰ Henry Kissinger was convinced that the Soviet leaders "wanted to stop the only strategic programme we were actually building."⁵¹

From the Soviet viewpoint, the United States was prepared to negotiate SALT because of a fundamental change in the Soviet-United States correlation of nuclear forces.⁵² From the official American perspective the first SALT agreements were "without question in the American national interest" for they "capped" the Soviet strategic construction programmes and yet allowed an American technological lead.⁵³ For the right wing in the United States, however,

⁴⁹ Raymond L. Garthoff, "The Soviet Military and SALT," p. 147.

⁵⁰ Jeffrey Richelson, "Ballistic Missile Defence and Soviet Strategy," in Roman Kolkowicz and Ellen Propper Mickiewicz, eds., The Soviet Calculus of Nuclear War (Toronto: Lexington Books, 1986), p. 72. See also Carnes Lord, "Taking Soviet Defences Seriously" Washington Quarterly 9 (Fall 1986), p. 93.

⁵¹ Henry Kissinger, The White House Years (Boston, Massachusetts: Little, Brown and Company, 1979), p. 547.

⁵² Lewis Allen Frank, "Soviet Nuclear Planning - A Point of View on SALT," in Robert J. Pranger and Roger P. Labrie, eds., Nuclear Strategy and National Security: Points of View (Washington, D.C.: American Enterprise Institute for Public Policy Research, 1977), p. 456.

⁵³ Henry Kissinger, "The Permanent Challenge of Peace: U.S. Policy Toward the Soviet Union," in Robert J. Pranger, ed., Detente and Defence (Washington, D.C.: American Enterprise Institute for Public Policy Research, 1976), p. 322.

the Soviets had worked out a highly one-sided concept of what the talks should accomplish, and...their goal was an agreement that would enhance Soviet power at the expense of the U.S.⁵⁴

Thus, two distinct views exist that roughly parallel the deterrent and compellent paradigms, and so far the analysis of SALT I demonstrates that compellent thinking was evident in both superpowers.

4. The Paradigmatic Implications of SALT I

Which paradigm dominated the SALT I outcomes is difficult to establish. To the extent that the assumptions have changed since the 1950's and 1960's, arms control has become a more complex process.⁵⁵ What appears one way on the surface may be subtly different in substance.

In the political framework of detente, most analysts focused on the United States' acceptance of rather than the Soviet achievement of parity. Nowhere was parity defined. What SALT I did do was acknowledge the United States acceptance of the Soviet Union as a "political and psychological equal."⁵⁶ What SALT I did not do was establish superpower agreement that reflected military equality. It established quantitative not qualitative limits, but the technological competition continued.

In SALT I, the two sides were not really addressing a common set of problems. Asymmetries in fundamental national assumptions caused the United States to view SALT as a process separate from other security activities and the Soviet Union to see it as a small part of a much

⁵⁴ Paul Nitze, cited in Steven L. Rearden, The Evolution of American Strategic Doctrine: Paul H. Nitze and the Soviet Challenge (Boulder, Colorado: Westview Press, 1984), p. 65.

⁵⁵ G. W. Rathjens, "Changing Perspectives on Arms Control," Daedalus (Summer 1975), pp. 201-202.

⁵⁶ William R. Kintner and Robert L. Pfaltzgraff, eds., SALT: Implications for Arms Control, p. 399.

broader process.⁵⁷ One respected observer also noted that in the United States the influence of the military was in decline whereas in the Soviet Union it appeared to be in the ascendancy.⁵⁸ Because the military seem to gravitate naturally to a war fighting perspective, increased military influence could indicate greater compellent tendencies.

The paradigmatic analysis shows each power had specific objectives which could be explained by either paradigm. Both appeared very concerned over technological developments to the point of feeling threatened by the other. On the surface the ABM Treaty and the apparent acceptance of mutual assured destruction with offensive limits appears to indicate a dominant deterrent paradigmatic correlation, particularly in the United States. But further analysis reveals that a compellent explanation of the SALT I process, particularly with respect to Soviet views, is a plausible alternative.

III. SALT II

Immediately after SALT I was signed in May 1972, the superpowers began a dialogue on SALT II, but they could not agree on a second treaty until June 1979. This treaty, signed by President Carter, was never ratified by the United States primarily due to the deterioration of political relations and the consequent loss of trust between the superpowers. This section will analyze the SALT II process using the same framework as the preceding section.

⁵⁷ Gerald Smith, Doubletalk: The Story of SALT I, p. 455.

⁵⁸ Hedley Bull, "The Scope for Super Power Agreements," in Robert O'Neill and David N. Schwartz, eds., Hedley Bull on Arms Control (London: Macmillan Press, 1987), p. 83.

1. Strategic Intentions

Initially it appeared that superpower arms control objectives did not appreciably change, and the SALT I process continued unaltered until the autumn of 1974 when the Vladivostok accord was reached. This framework was the result of a compromise in which the United States abandoned its strong efforts to cut back Soviet throw weights and the Soviet Union dropped its insistence that FBS be included. In the United States this compromise was never totally accepted; the liberals felt the overall limits were set too high, and the conservatives feared that dropping the throw weight issue was a fundamental error.⁵⁹ This compromise was also not without controversy in the USSR as Brezhnev reportedly had to "spill political blood" to achieve this accord.⁶⁰ Beginning in the mid-1970's a deterioration in political relations slowly began to erode mutual trust and confidence such that the tensions inherent in the arms control process began to surface.

In the United States, both the liberals and the conservatives began to attack the arms control process based on the Vladivostok Accord, thereby gradually eroding its political support. By 1977 Harold Brown, the United States Secretary of Defence, had convinced President Carter to depart from the Vladivostok framework by proposing to cut one-half of Soviet heavy ICBM's.⁶¹ This proposal, if accepted by the Soviet Union, would have significantly hindered the Soviet pursuit of a hard target kill capability against United States ICBM's.⁶² Furthermore, the United States

⁵⁹ Ronald E. Powaski, March to Armageddon: The United States and the Nuclear Arms Race, 1939 to the Present, pp. 151-152.

⁶⁰ Joseph L. Noguee and Robert H. Donaldson, Soviet Foreign Policy Since World War II, p. 283.

⁶¹ Raymond L. Garthoff, Detente and Confrontation, p. 804.

⁶² David S. Yost, European Security and the SALT Process, p. 44.

Secretary of State, at least for a time, viewed arms control as a manipulative instrument for controlling Soviet behaviour.⁶³ With increasing global superpower rivalry, the United States appeared to be introducing new objectives in the SALT process.

The Soviet Union continued to regard arms control as a political struggle, a protracted test of will, skill and resources.⁶⁴ Soviet arms control proposals, for the most part, continued to appear designed to generate tensions among NATO members, to stimulate public concern, and to achieve limits on Western forces without reciprocal limits on Soviet forces.⁶⁵ During SALT II the American arms control community began to lose their cultural myopia and relinquish their evangelical objectives of educating the Soviets as to the virtues of deterrence.⁶⁶ Throughout the SALT II negotiations the Soviet Union appeared primarily concerned with limiting the ability of United States nuclear weapons to support American foreign policy.

With respect to the degree each superpower was willing to support the status quo of the nuclear balance, SALT II saw some shifts in emphasis. The Soviet Union clearly stopped well short of endorsing the existing

⁶³ Philip Windsor, "Towards a Hierarchy for Arms Control," Millenium: Journal of International Studies (Summer 1986), p. 175. After a trip to Moscow in 1975, Henry Kissinger finally dropped his efforts to link events in Angola, for example, to arms control negotiations. In 1978 Brezhnev again accused Carter of seeking unilateral leverage via arms control. See Strobe Talbot's excellent review of SALT II, End Game: The Inside Story of SALT II (New York: Harper and Row, 1979), p. 147.

⁶⁴ Colin S. Gray, "Soviet-American Strategic Competition: Instruments, Doctrines and Purposes," in Robert J. Pranger and Roger P. Labrie, eds., Nuclear Strategy and National Security: Points of View, p. 297.

⁶⁵ Norman Howard and Colleen Sussman, eds., Security and Arms Control: The Search for a More Stable Peace (Washington, D.C.: U.S. Department of State, 1984), p. 23.

⁶⁶ Robin Ranger, Arms and Politics 1958-1978: Arms Control in a Changing Political Context, pp. 216-217.

nuclear equilibrium. Rather, the USSR endeavoured to persuade the United States to accede to a "fundamental restructuring" of the old international order, in large part based on a new correlation of forces.⁶⁷ The "hawkish" element in the United States became convinced that American "renunciatory passivity" in the face of the Soviet nuclear build-up compromised the utility of arms control as a respectable tool of strategic policy.⁶⁸ Pressure began to build in the United States for a more hard line response. In the Carter administration, some arms control initiatives were even undermined by Brzezinski and Schlesinger who sought to protect the United States' ability to produce nuclear weapons and conduct the minimum number of tests necessary for the United States nuclear weapons programme.⁶⁹ As SALT II progressed, the United States negotiators increased their efforts to limit Soviet ICBM's, the fundamental objective of which was to reduce Soviet MIRV's.⁷⁰ The SALT II process was only able to consolidate or manage "the more satisfactory aspects of the political and military status quo,"⁷¹ but other key elements remained beyond agreement. An example of the underlying tension was that even the signed treaties on the Nuclear Threshold Test Ban (1974) and Peaceful Nuclear Explosions (1976) had never been submitted for

⁶⁷ Thomas W. Wolfe, The SALT Experience, p. 250.

⁶⁸ Edward N. Luttwak, "Why Arms Control Has Failed," Commentary 65 (January 1978), p. 28.

⁶⁹ Zbigniew Brzezinski, Power and Principle: Memoirs of the National Security Advisor, 1977-1981 (New York: Farrar, Straus, Giroux, 1983), p. 172 and pp. 316-317. Brzezinski only went through the motions with respect to the comprehensive test ban because Carter believed in it. Brzezinski and Schlesinger were also able in 1978 to block a proposal from Vance and Warnke to propose a cutoff on the production of fissionable materials.

⁷⁰ Strobe Talbot, End game: The Inside Story of SALT II, p. 127.

⁷¹ Lawrence Freedman, Arms Control: Management or Reform (London: Routledge and Kegan Paul, 1986), p. 70.

American ratification.⁷²

The last aspect of superpower objectives relates to the notion of improving one's international political position with arms control. For the Soviet Union in this period, arms control was an adjunct to military power and not necessarily the primary means to safeguard Soviet security.⁷³ As a result, the USSR avoided presenting concrete proposals that involved constraining or restructuring its own nuclear force posture.⁷⁴ The United States on the other hand repeatedly tabled arms control proposals that have had the ambitious goal of eliminating worrisome force asymmetries that it was not prepared to counter through unilateral defence efforts.⁷⁵ The SALT II process showed that if there was any convergence in strategic thinking it may be that the United States was beginning to reflect the USSR in strategic theory.⁷⁶ The United States would not accept Soviet arms control proposals that might preclude the deployment of MX or Trident.

Strategic intentions of both superpowers in SALT II suggested that each was increasingly inclined to seek some advantage as a tactical goal

⁷² Michael McGwire, Military Objectives in Soviet Foreign Policy (Washington, D.C.: Brookings Institution, 1987), p. 265. They may have been submitted and withdrawn. See the 1976 Annual Report of the Arms Control and Disarmament Agency (Washington, D.C.: USGPO, 1977), p. III.

⁷³ Helmut Sonnenfeldt and William G. Hyland, Soviet Perspectives on Security. Adelphi Paper 150 (London: International Institute for Strategic Studies, 1979), p. 22. See also Arnold L. Horelick, "The Strategic Mindset of the Soviet Military," Problems of Communism 26 (March-April 1977), p. 85.

⁷⁴ Harold Brown and Lynn Davis, Nuclear Arms Control Choices (London: Westview Press, 1984), p. 36. This aspect has changed post 1986.

⁷⁵ Robert J. Einhorn, Negotiating from Strength: Leverage in U.S.-Soviet Arms Control Negotiations, p. 39.

⁷⁶ Coit D. Blacker and Gloria Duffy, eds., International Arms Control: Issues and Agreements (Stanford, California: Stanford University Press, 1984), p. 340.

in the negotiations. Notwithstanding this tendency, one study determined that no arms race existed and that in terms of strategic spending the logic of the weapons build-up was internally, not externally, motivated.⁷⁷ One implication is that the motivation for these weapons has less to do with pure deterrence than with other objectives, some of which, during the SALT II process, were compelling in nature.

2. The Threat of Force

As political tensions increased between the superpowers, it was perhaps inevitable that at some point explicit threats would be made. SALT II was marked by at least one overt threat and several implied threats as the negotiations dragged on.

The one explicit threat was made by the United States in 1977 after the Soviet Union had totally rejected President Carter's deep reductions proposals. He declared at a news conference 30 March that

if we feel at the conclusion of a month's discussions that the Soviets are not acting in good faith with us and that an agreement is unlikely, then I would be forced to consider a much more deep commitment to the development and deployment of additional weapons.⁷⁸

This threat implied that the United States would deploy the hard target capable MX unless the Soviet Union accepted the one-sided United States "deep cuts" proposals, and this was not well received in Moscow.⁷⁹ When

⁷⁷ Jacek Kugler and A.F.K. Organski with Daniel Fox, "Deterrence and the Arms Race: The Impotence of Power," International Security 4 (Spring 1980), pp. 122-130. This is also a theme of Gwyn Prins, Defended to Death: A Study of the Nuclear Arms Race (Markham, Ontario: Penguin Books, 1983), note chart on p. 35.

⁷⁸ President Jimmy Carter discusses Strategic Arms Limitation Proposals, Department of State Bulletin 76 (April 25, 1977), pp. 409-414.

⁷⁹ Strobe Talbot, Endgame: The Inside Story of SALT II, p. 74. See also Raymond L. Garthoff, Detente and Confrontation: American-Soviet Relations from Nixon to Reagan, p. 810.

Carter received no favourable Soviet response, he used the opportunity to authorize the Mark 12A warhead deployment on the Minuteman 3 missile, a hard target capable system.⁸⁰ In terms of obtaining an advantage for the United States in arms control, this threat was a total failure, but its primary impact on Moscow may have been to remind Soviet leaders that the United States technological lead still posed a significant threat.

Soviet concerns during SALT II were therefore little different than during SALT I. The Soviet Union appeared reluctant to make an arms control commitment in any area where the Soviet Union lagged for fear of being unable to catch up. New technology and new weapons take years to develop and could very easily be subject to arms control if sufficient political will existed.⁸¹ Arms control for the Soviet Union still tended to be primarily a political matter, and therefore it remained unrealistic for some Americans to expect that SALT II in itself could alleviate the major sources of military instability.⁸² Nevertheless the underlying premise in the Carter "deep cuts" proposal seemed to be that

the United States had a compelling technological advantage and new weapon systems that can force the Russians to accept fundamental changes in nuclear arsenals or be worse off than the United States if there is no agreement.⁸³

One of these new weapons that United States technology had built was the strategic cruise missile, and the Soviet SALT negotiators struggled to

⁸⁰ Robbin F. Laird and Dale R. Herspring, The Soviet Union and Strategic Arms, pp. 118-119. This was in May, 1977.

⁸¹ Trevor Taylor, "Arms Control: The Bankruptcy of the Strategist's Approach," in David Carlton and Carlo Schaerf, eds., The Arms Race in the 1980's (New York: St. Martin's Press, 1982), p. 50.

⁸² Richard Burt, "... or Half Empty?" Foreign Policy 36 (Fall 1979), p. 37. See also William E. Odom, "Soviet Force Posture: Dilemmas and Directions," Problems of Communism 34 (July-August 1985), p. 13.

⁸³ Lawrence Freedman, U.S. Intelligence and the Soviet Strategic Threat (Princeton, New Jersey: Princeton University Press, 1986), p. 198.

limit its deployment. The cruise missile posed serious arms control difficulties because it was small and not readily verifiable, and these difficulties were only partially offset by the fact that they are not good first strike weapons.⁸⁴ The United States Department of Defence initially concluded that it was possible to add crucial support to this programme by calling it a "bargaining chip" in SALT, but during the negotiations with the Soviet Union the Pentagon was unwilling to give it up.⁸⁵ Clearly, "new" military systems such as cruise missiles and Trident could only be funded for essential military purposes and thus in the final analysis make poor bargaining chips.⁸⁶ In fact, the United States appeared quite prepared to exploit its cruise missile advantage as a response to the expansion of Soviet military power.⁸⁷ The Soviet Union on the other hand proposed limits on air launched cruise missiles (ALCM's) that seemed calculated "to narrow existing asymmetries between the technologies" of the superpowers probably because the ALCM threatened to reverse the trends in the power balance.⁸⁸ The United States response to the perceived

⁸⁴ Charles A. Sorrels, U.S. Cruise Missile Programmes: Development, Deployment and Implications for Arms Control (Oxford: Brassey's Publishers, 1983), p. 178. Cruise missiles are slow and can take several hours to reach their targets.

⁸⁵ Raymond L. Garthoff, "Negotiating with the Russians: Some Lessons from SALT," International Security 1 (Spring 1977), p. 20.

⁸⁶ Gerard Smith cited in Harold Brown, "Negotiating with the Soviets and Prospects for Arms Control Negotiations," in Roman Kolkowicz and Ellen Propper Mickiewicz, eds., The Soviet Calculus of Nuclear War, p. 154.

⁸⁷ Richard Smoke, National Security and the Nuclear Dilemma (London: Addison-Wesley Publishing Company, 1984), p. 205. Carter liked the cruise missile, and his cancellation of the B-1 bomber complicated arms control negotiations because the United States military then needed even more cruise missiles. See Strobe Talbot, Endgame: The Inside Story of SALT II, p. 104.

⁸⁸ See Robert L. Pfaltzgraff and Jacquelyn K. Davis, Salt II: Promise or Precipice? (Miami, Florida: Center for Advanced International Studies, 1976), p. 22. See also Helmut Sonnenfeldt and William G. Hyland, Soviet Perspectives on Security, p. 23.

Soviet counterforce threat was to rely on its technology to field new weapons that were far more sophisticated and could threaten the USSR in different ways.

The increased weapon survivability provided by small, mobile cruise missiles also complicated arms control because it created verification problems. The reliance on national technical means to verify compliance with arms control agreements has not been sufficient to satisfy the United States Congress.⁸⁹ Not all tests can be completely monitored and evidence of cheating is rarely conclusive even though both superpowers have tacitly agreed to act with restraint with respect to interfering with each other's satellites.⁹⁰ Unfortunately the national technical means used by the United States to monitor compliance with arms control agreements are the same means used to collect intelligence on all Soviet strategic activities.⁹¹ Thus much of the verification argument is clouded by the concern of the United States not to reveal too much of its true intelligence collection capabilities, and it could well be that certain Soviet "violations" have been specifically intended to test or confirm

⁸⁹ No perfect verification is possible and excessive demands for verification can be used as a smokescreen. See Verification in All its Aspects: A Comprehensive Study on Arms Control and Disarmament Verification Pursuant to UNGA Resolution 40/152 (Ottawa: April, 1986), p. 4. See also Robert Perry, "Verifying SALT in the 1980's in Christoph Bertram, ed., The Future of Arms Control: Part 1, Beyond SALT II Adelphi Paper 141 (London: International Institute for Strategic Studies, 1977), p. 23, and his The Faces of Verification: Strategic Arms Control for the 1980's (Santa Monica, California: Rand Corporation P-5986, 1977), p. 29.

⁹⁰ Bhupendra Jasani and Frank Barnaby, Verification Technologies: The Case for Surveillance by Consent (London: Berg Publishers, 1984), p. 10, and Gerald M. Steinburg, Satellite Reconnaissance: The Role of Informal Bargaining (New York: Praeger Publishers, 1983), p. 3.

⁹¹ Congressional Research Service, Fundamentals of Nuclear Arms Control Part IV: Treaty Compliance and Nuclear Arms Control (Washington, D.C.: USGPO, 1985), p. 11. See also Stuart A. Cohen, "The Evolution of Soviet Views on SALT Verification: Implications for the Future," in William C. Potter, ed., Verification and SALT: The Challenge of Strategic Deception (Boulder, Colorado: Westview Press, 1980), p. 65.

these American capabilities.⁹² The Soviet anti-satellite programme has generated a great deal of United States concern, but it has not developed into a very capable system. The SALT II agreement, in spite of several technical difficulties, made excellent progress in verification and has been called "an historic accomplishment" in this field.⁹³

During the SALT II negotiations the Soviets continued to add strategic warheads to their nuclear arsenal, and the United States continued to rely on superior technology. Carter's overt threat, the length of the negotiations and the failure of the United States to ratify the treaty all testified to the increased political competition to win a more favourable agreement.

3. The Correlation of Nuclear Forces

SALT II limits were set at levels only slightly lower than those of SALT I, but a series of sub-limits were probably of greater significance. Overall, offensive forces were capped at 2400 strategic nuclear delivery vehicles until 1981 when only 2250 were permitted. The ceilings on MIRVed ICBM's, MIRVed ballistic missiles including SLBM's, and all MIRVed ICBM's and SLBM's plus ALCM equipped aircraft were set at 850, 1200 and 1320 respectively. Thus in SALT II, some efforts were made to control the qualitative aspects of strategic weapons.

During the SALT II process, significant technical progress resulted in the deployment of qualitatively superior systems especially in the Soviet force structure. In particular, improvements in MIRV technology resulted in significant increases in accuracy and lethality during this

⁹² William C. Potter, Verification and Arms Control (Toronto: Lexington Books, 1985), p. 248.

⁹³ Ian Bellamy and Coit Blacker, ed., The Verification of Arms Control Agreements (London: Frank Cass, 1983), p. 23.

period. The control of accuracy however was not dealt with by SALT, even though the means to do so through testing limitations were available.⁹⁴ This tendency to avoid limiting the qualitative aspect of nuclear arms is the result of a technological competition that neither superpower seemed prepared to restrict. The United States sought to maintain its technical advantages, and the Soviet Union attempted to contain those American advantages without agreeing to any limitations that could substantially hinder its own programmes to catch up.⁹⁵ By not agreeing to address this qualitative competition the superpowers were exhibiting tendencies to develop counterforce weapons characteristic of the compellent framework.

The quantitative aspect of SALT II resulted in equality of limits in deference to the political requirements of the United States but at levels acceptable to the Soviet Union. Thus, the limits on the United States nuclear forces were actually higher in SALT II than they were in SALT I. According to Henry Kissinger in 1974 the only way the United States could have convinced the Soviet Union to accept lower numerical limits would be

to drastically increase defence spending and to hold the increase for a number of years, long enough to convince the Soviets that we were going to drive the race through the ceiling with them.⁹⁶

Such thought creates a danger that arms control can create additional or

⁹⁴ Donald MacKenzie, "Missile Accuracy - An Arms Control Opportunity," Bulletin of the Atomic Scientists 42 (June/July 1986), p. 16.

⁹⁵ Gerald Segal and John Baylis, "Nuclear Weapons have altered the Historical Practice and Rendered the Nuclear Variant of War Useless for Practical Policy," in Gerald Segal and John Baylis, Soviet Strategy (London: Croom Helm, 1981), p. 27. See also Robin Ranger, The Implications of Possible U.S. Introduction of Ballistic Missile Defence into the North American Air Defence System (Ottawa: Operational Research and Analysis Establishment, 1981), p. 19.

⁹⁶ Cited in Michael Charlton, From Deterrence to Defence: The Inside Story of Strategic Policy, p. 49. See also Frank Gaffney, "Arms Control Negotiations: The Rocky Road to Accord," Defence 84 (Washington, D.C.: USGPO, 1984), p. 4.

unnecessary requirements that can distort military planning,⁹⁷ and to a certain degree the United States hoped to use the threat of major cruise missile deployments as leverage to obtain lower limits. Carter in March 1977 went considerably further when he proposed deep cuts that would probably have emasculated the projected Soviet five-year plan resulting in the dissolution of a number of design bureaus and support institutions.⁹⁸ The Soviet Union's outright rejection of this proposal attested to their determination not to allow arms control to drive Soviet military requirements.

Carter's proposal was also viewed in Moscow as an attempt to channel the superpower strategic competition into areas dominated by the United States to produce a one-sided advantage.⁹⁹ Thus, the Soviet leaders probably attributed to the Americans the belief that some kind of nuclear superiority does matter. Various other analysts also noted that the debate in the United States over SALT II was really over how far the United States acceptance of nuclear war fighting should be allowed to go.¹⁰⁰ The Soviet Union probably would have preferred nuclear superiority as well but for the extremely high costs and the unlikelihood of actually attaining it. Not having a SALT agreement could allow some temporary Soviet advantages but the United States with its superior economic base could always overtake the Soviet Union again as it did in the 1960's. Therefore, the conservative minded Soviet leaders probably accepted some

⁹⁷ See Lawrence Freedman, Arms Control: Management or Reform, p. 72.

⁹⁸ William T. Lee, "Soviet Nuclear Targeting and SALT," p. 78-79.

⁹⁹ International Institute for Strategic Studies, Strategic Survey, 1977 (London: International Institute for Strategic Studies, 1977), p. 94.

¹⁰⁰ Gary L. Guertner, "Carter's SALT: MAD or SAFE?" Bulletin of the Atomic Scientists 35 (October 1979), p. 32. See also John Leyman in "SALT and U.S. Defence Policy," The Washington Quarterly 2 (Winter 1979), p. 40.

constraints on their force structure to ensure the United States was at least equally constrained.¹⁰¹ Raymond Garthoff, a respected analyst, insists that the SALT II agreement caused the Soviet Union to cancel construction of about 50 SS-17 and 50 SS-19 silos.¹⁰²

During the SALT II negotiations each superpower wanted an agreement that would at least minimize risks and reduce or limit the levels of strategic weapons somewhat. The Soviet military's principal objective in SALT was to assure no disadvantage and to retain some advantage if possible.¹⁰³ The United States was seriously concerned over the growing Soviet hard target kill capability that would provide the USSR with war fighting advantages. The competitive search for qualitative advantages dominated SALT II, and the inability of the superpowers to agree to control this phenomena demonstrates strong compelling tendencies.

4. The Paradigmatic Implications of SALT II

As political relations between the Soviet Union and the United States deteriorated, tensions over SALT II became exacerbated. At least one element in American politics sought to recoup the "losses" of SALT I which resulted in more assertive United States behaviour. The Soviet Union's approach to SALT II was very similar to that followed in previous negotiations; in fact, the Soviet leaders appeared to be quite disturbed

¹⁰¹ The nature of the compromise is spelled out in the United States Arms Control and Disarmament Agency, 1980 Annual Report, p. 58. See also Samuel B. Payne, The Soviet Union and SALT, pp. 77-78.

¹⁰² Raymond L. Garthoff, Perspectives on the Strategic Balance (Washington, D.C.: Brookings Institution, 1983), p. 15. SALT II forced the Soviet Union to dismantle 250 strategic nuclear delivery vehicles, but most were obsolete systems. See the United States Arms Control and Disarmament Agency, 1979 Annual Report (Washington, D.C.: USGPO, 1980), p. 2.

¹⁰³ Raymond L. Garthoff, "The Soviet Military and SALT," in Gerald Segal and John Baylis, Soviet Strategy, p. 161.

when Carter attempted to depart radically from the Vladivostok accords, which maintained strong continuity with SALT I.

The use of overt threats indicates that the political framework within which arms control was being negotiated was changing.

Business can no longer be conducted as usual, because the basis has changed and a new framework has not yet been established....¹⁰⁴

The ultimate truth of that statement was that the SALT II agreement was a reasonably sound agreement that the United States refused to ratify. If one were to examine the SALT II treaty on its technical merits, it is difficult to see how it can be opposed unless one rejects its fundamental start point.¹⁰⁵ Soviet negotiating behaviour and objectives remained fairly constant from SALT I and were not marked by anything extraordinary.¹⁰⁶ This deterioration in the political framework appears to have as much to do with American reactions to Soviet foreign policy in the Horn of Africa, Angola and Yemen as with developments in arms control itself. The revolution in Iran and the Soviet invasion of Afghanistan finally made it impossible for any American administration to get SALT II ratified. The increased influence of the right wing in the United States corresponded with the decrease in American global influence, but the SALT II process and treaty became the scapegoats. Because the United States had always held high expectations for SALT, its failure and the realities of the Soviet strategic build-up proved to be a bitter disappointment.

¹⁰⁴ Christoph Bertram, "Rethinking Arms Control," Foreign Affairs 59 (Winter 1980/1981), p. 365. Paul Nitze also felt that arms control negotiations had to be conducted from a position of strength; see his testimony in the Senate Committee on Foreign Relations, U.S./Soviet Strategic Options, (Washington, D.C.: USGPO, 1977), p. 62.

¹⁰⁵ Jan Lodal, "SALT II and American Security," Foreign Affairs 59 (Winter 1978/1979), p. 265.

¹⁰⁶ Christer Jonsson, Soviet Negotiating Behaviour (New York: Columbia University Press, 1979), p. 77.

The Soviet Union in SALT II displayed an understanding of deterrence but was not about to give up military advantages if they could be found. The United States became more assertive and made several proposals to draw down the Soviet forces and even attempted to improve its own military position. Stability in SALT II appeared to be a secondary issue in what became a technological competition to achieve advantage.

IV. START

The third and most recent phase of the superpower arms control negotiations began with the signing of the SALT II treaty and concludes with the summit meeting of October, 1986, in Reykjavik, Iceland. This period was marked by highly polemical rhetoric particularly from the conservative administration of Ronald Reagan. As was increasingly evident in SALT II, the worsening political relations between the United States and the Soviet Union had an increasing impact on arms control and tended to shape the START nuclear negotiations.¹⁰⁷

1. Strategic Intentions

From 1979 to 1986 political relations between the superpowers continued to deteriorate over the Soviet invasion of Afghanistan, turmoil in Poland and the Soviet destruction of a civilian airliner. No major arms control agreement was reached in this timeframe, yet important negotiations took place at all levels. Of major concern to the USSR was the American commitment to the strategic defence initiative (SDI), and to the United States the most significant factor was the growing Soviet capability to destroy American ICBM's with only a fraction of Soviet

¹⁰⁷ Michael Mandelbaum, The Nuclear Question: The United States and Nuclear Weapons 1946-1976 (New York: Cambridge University Press, 1979), p. 200.

missiles. In this atmosphere, arms control negotiations became in some ways more of a propaganda exercise as each side appealed to the public media with its proposals.

The Reagan administration had campaigned stridently against the SALT II accords calling it a "fatally flawed" agreement.¹⁰⁸ As noted in chapter three, the United States appeared to have introduced significant compelling objectives that affected its approach to arms control. Critics of this administration considered that Reagan had little use for arms control, and negotiations were simply a political ploy "to keep United States allies reasonably satisfied and United States voters reasonably quiescent."¹⁰⁹ But one observer noted a fundamental change in arms control that amounted to a "paradigm shift" where the degree of strategic vulnerability became of paramount importance.¹¹⁰ Along the lines of original arms control theory, this concept accepted the notion of competition that has many objectives, not all of which are shared. Strategic defences became a central and fundamental objective of Reagan that could not be negotiated away in the arms control process.¹¹¹

The Soviet Union's view as to the utility of nuclear weapons did not change from the earlier SALT process, and during this period, the Soviet leaders appeared more genuinely interested in serious arms control

¹⁰⁸ Michael MccGwire, Military Objectives in Soviet Foreign Policy, p. 265.

¹⁰⁹ Paul Warnke, "The Nuclear Superpower Relationship: Political and Strategic Implications," in Wolfram F. Hanreider, ed., Technology, Strategy and Arms Control (Boulder, Colorado: Westview Press, 1986), p. 24.

¹¹⁰ Roger K. Smith, "The Separation of Arms Control Talks: The Reagan Definition of Arms Control and Strategy," Millenium: Journal of International Studies 15 (Summer 1986), p. 144 and p.161.

¹¹¹ William M. Arkin, "The New Mix of Defence and Deterrence," Bulletin of the Atomic Scientists 42 (June/July 1986), p. 4. See also W. Bruce Weinrod, "Strategic Defence and the ABM Treaty," The Washington Quarterly 7 (Summer 1986), p. 86.

negotiations than their American counterparts. While Soviet political leaders seemed increasingly prepared to accept mutual vulnerability as an obvious reality, military officers in the Soviet Union continued to reject it as a fundamental objective. Although the Soviet Union continued to assign high priority to missile and space defence, it strenuously opposed the American SDI in arms control negotiations. This stance probably reflected Moscow's reservations that it could only lose in a BMD competition with the United States rather than a broad doctrinal conviction about the desirability of mutual vulnerability as a long term strategy.¹¹²

Another major Soviet arms control objective was to block the proposed American deployment of Pershing II and ground launched cruise missiles (GLCM) to Europe as part of the modernization of NATO long range theatre nuclear forces.¹¹³ European concerns expressed strenuously by Helmut Schmidt in 1977, over maintaining NATO's link to the American nuclear deterrent, resulted in NATO adopting in 1979 a twin track plan that provided for American deployments of intermediate range nuclear missiles beginning in 1983, if an arms control agreement to reduce Soviet theatre nuclear power could not be reached. The Soviet Union strenuously opposed the introduction of a "new" capability into Europe. Soviet and United States efforts to deal with this problem will be discussed in subsequent parts of this dissertation.

In this period the Soviet Union also declared a "no first use" policy for nuclear weapons that at least on the surface demonstrated increasing

¹¹² See Benjamin S. Lambeth, The Soviet Union and the Strategic Defence Initiative: Preliminary Findings and Impressions (Santa Monica, California: Rand Corporation N-2482-AF, 1986), p. 18.

¹¹³ Michael MccGwire, Military Objectives in Soviet Foreign Policy, p. 266.

reliance on deterrence, but it also put considerable political pressure that acted as a brake on United States policy to modernize its strategic forces. The Soviet Union sought to blunt the war fighting orientation of the Reagan administration that appeared aimed at restoring American nuclear superiority.

In terms of the status quo of strategic weapons or arms control negotiations, Ronald Reagan's policies signified an important change to Soviet leaders. In a "striking departure" from SALT, the United States was now rejecting the concept of mutual deterrence or stable balance.¹¹⁴ President Reagan in March, 1983, announced his SDI programme and declared his ultimate intention to make nuclear deterrence obsolete. Although one of his close advisors had no doubts about his deep personal commitment to significant arms reductions, the United States proposals in START were decidedly one-sided.¹¹⁵ Reagan's Eureka College speech in May, 1982, unveiled the first American START proposal that would have required the Soviet Union to scrap one-half of its modern MIRVed missiles to remain within the proposed limit of 2500 warheads on ICBM's.¹¹⁶

Although the Soviet Union was beginning to accept the concept of a stable balance of nuclear weapons as a possible objective, the Soviet military continued to define deterrence in war fighting terms. To a Marxist theorist the premise that weapons contribute to the risk of war is

¹¹⁴ Hedley Bull, "The Classical Approach to Arms Control Twenty Three Years After," in Uwe Nerlich, ed., Soviet Power and Western Negotiating Policies, Vol. 2: The Western Panacea: Constraining Soviet Power Through Negotiation (Cambridge, Massachusetts: Ballinger Publishing, 1983), pp. 125-126.

¹¹⁵ Robert McFarlane, "Effective Arms Control: Challenge of the 1980's," in William T. Parsons, ed., Arms Control and Strategic Stability (London: University Press of America, 1986), p. 3.

¹¹⁶ Richard Smoke, National Security and the Nuclear Dilemma (London: Addison-Wesley Publishing Company, 1984), pp. 232-233.

sophistry - social clashes cause conflict and weapons are but tools of policy.¹¹⁷ The major Soviet concern with SDI and significant reductions had more to do with the fear of United States technology than the concepts themselves. Arms control to the Soviet Union is an instrument to selectively negotiate certain weapon deployments to attempt "to remain technologically competitive with their most innovative opponents."¹¹⁸ Soviet negotiators have sought to block any United States efforts to improve its relative strategic position and have been primarily interested in containing technological advances in United States nuclear capabilities and space based systems that could ultimately threaten Soviet ICBM's and compel a costly restructuring of Soviet strategic forces.¹¹⁹ The Soviet response to the Eureka College proposal was to call for a freeze on all nuclear weapons deployments, the main aim of which was probably to halt American technical progress.

In terms of long term political values, the Soviet leaders anticipated political conflict with the United States, and their enormous investment in strategic forces was intended as a diplomatic as well as a military instrument.¹²⁰ The major problem for the Soviet Union in the 1980's, however, was that the high cost of these weapons propelled arms control into being an increasingly prominent factor in Soviet politics.

¹¹⁷ Barry Blechman, "Do Negotiated Arms Limitations Have A Future?" Foreign Affairs 59 (Fall 1980), p. 106. See also Anne T. Sloan, "Soviet Propositions on Strategic Arms Control and Arms Policy: A Perspective Outside the Military Establishment," in Roman Kolkowicz and Ellen Proper Mickiewicz, eds., The Soviet Calculus of Nuclear War, p. 121.

¹¹⁸ Phillip A. Petersen, "The Modernization of the Soviet Armed Forces," NATO's Sixteen Nations 31 (July 1986), p. 33.

¹¹⁹ Congressional Research Service, Fundamentals of Nuclear Arms Control, Part VI: Soviet Attitudes and Objectives in Negotiations (Washington, D.C.: USGPO, 1986), pp. vii-x.

¹²⁰ Colin S. Gray, The Soviet-American Arms Race (Westmead: Gower Publishing Company, 1981), p. 9.

Arms control could free important resources which might otherwise be spent on defence.¹²¹ In spite of evident pressures to reduce military spending on strategic weapons, the Soviet Union has no intention of falling behind the United States as happened in the 1950's and 1960's. A senior Soviet negotiator summed up an underlying Soviet objective in START:

Before we had to negotiate from a position of being five years behind. Now we're not behind you. Nor do we intend to be, ever again.¹²²

To the United States, the Soviet Union may even have had a margin of superiority in 1980 that the Reagan initiated defence build-up intended to erase. Allegations that the Soviet Union had violated the 1925 chemical weapons protocol raised concerns that the Soviet Union was prepared to violate any arms control agreement if those transgressions would serve their interests.¹²³ Since the Republican Party platform called for the re-establishment of military and technological superiority over the Soviet Union, one objective in START appeared to be to effect nothing less than a complete overhaul of the Soviet strategic forces and establish major

¹²¹ Rebecca Strode, "The Soviet Armed Forces: Adaptation to Resource Scarcity," The Washington Quarterly 9 (Spring 1986), p. 67. In the 1980's even the Strategic Rocket Forces have suffered budget cutbacks. See p. 56. The December 1988 Soviet announcement of conventional force reductions was also probably motivated by budgetary considerations.

¹²² The official was Osadchiyev in 1983 cited by Strobe Talbott's excellent book, Deadly Gambits: The Reagan Administration and the Stalemate in Arms Control (New York: Alfred A. Knopf, 1984), p. 298.

¹²³ Mark C. Storella, Poisoning Arms Control: The Soviet Union and Chemical/Biological Weapons (Washington, D.C.: Institute for Foreign Policy Analysis, 1984), p. X.

changes in the nuclear balance, with Soviet cooperation or without.¹²⁴

In START the objectives of the superpowers were such that no agreement was possible in the short term, and it took over 2 1/2 years for the first formal negotiations to take place. Although each superpower appeared increasingly prepared to reduce strategic weapons, it wanted to do so in such a manner that was as advantageous as possible. While arms reductions could reflect deterrent thinking, the concept of using these reductions to achieve a strategic advantage of any kind more closely paralleled the compelling paradigm of strategic thinking.

2. The Threat of Force

The START process particularly in the early 1980's was marked by an increased frequency of threats originating from both sides. The lack of evident progress and the poor political relations between the superpowers further exacerbated the tensions in arms control that to varying degrees had been evident throughout SALT I and SALT II.

The Soviet leaders probably felt that the initial Reagan START proposals were a serious threat before world opinion. According to a senior Soviet official, the Eureka College proposal and the various build-down proposals appeared to be designed "to emasculate" Soviet strategic forces.¹²⁵ Even the United States Secretary of State felt the Eureka College proposal was designed for maximum political advantage; it was a

¹²⁴ Strobe Talbott, Deadly Gambits: The Reagan Administration and the Stalemate in Arms Control, p. 7. The United States was determined to reduce Soviet ICBM forces. See the United States Arms Control and Disarmament Agency, 1983 Annual Report (Washington, D.C.: USGPO, 1984), p. 6. See also William Kincaide, "The SDI and Arms Control," in Samuel F. Wells and Robert S. Sitwak, Strategic Defences and Soviet-American Relations (Cambridge, Massachusetts: Ballinger Publishing Company, 1987), p. 102.

¹²⁵ Strobe Talbott, Deadly Gambits: The Reagan Administration and the Stalemate in Arms Control, p. 341.

"non-negotiable package" and "a two-faced proposal."¹²⁶ By encouraging more SLBM's and fewer ICBM's, these proposals also appeared designed to channel the strategic competition into areas of American technical advantage.¹²⁷

The United States still felt that the growing Soviet technical capability to destroy American ICBM's with only a fraction of its strategic force posed a serious threat. The Soviet proposal of a nuclear freeze, because of its political support in the United States, threatened to consolidate this Soviet advantage, and a freeze proposal was only narrowly defeated in the United States Congress. The rapid Soviet build-up of the SS-20 Intermediate Range Ballistic Missile (IRBM) in Europe was also perceived as a threat by the Reagan administration. Richard Perle was convinced that the Soviet Union had deliberately deployed more SS-20 missiles than were really required so as to threaten NATO, to achieve an advantageous arms control leverage and to circumvent the SALT limits.¹²⁸

The INF talks also sparked some threats that contributed to the deterioration of the arms control process. The Soviet leaders clearly perceived NATO plans to deploy the Pershing II to the Federal Republic of Germany as a serious threat, and in turn Brezhnev threatened in 1982 to place the United States in "an analogous position" if the United States

¹²⁶ Alexander Haig, Caveat: Realism, Reagan and Foreign Policy (New York: Macmillan, 1984), p. 223. These comments were from a man who believed in U.S. superiority; see his testimony before the Senate Armed Services Committee, Military Implications of the Treaty on the Strategic Offensive Arms and Protocol Thereto (SALT II Treaty), PART I (Washington, D.C.: USGPO, 1979), p. 359.

¹²⁷ Edwina Moreton, "Untying the Nuclear Knot," in Gerald Segal et al., Nuclear War Nuclear Peace (New York: St. Martin's Press, 1983), p. 60. The extent of this advantage will be made more clear in chapter seven.

¹²⁸ Strobe Talbott, Deadly Gambits: The Reagan Administration and the Stalemate in Arms Control, pp. 59-60. See also p. 44 for a discussion of the link between SS-20 and SALT limits.

proceeded with NATO INF modernization.¹²⁹ The Soviet Union also threatened to walk out of the INF and START negotiations if American deployments began, and to deploy even more missiles to East Europe.¹³⁰ When the Soviet Union was unable to influence the West German election and NATO deployments began, it followed through on each threat by walking out on arms control talks, increasing numbers of SSBN's in forward deployment areas and moving some extra missiles into East Europe. The public nature of the arms control dialogue in INF and START literally forced the Soviet Union to follow through in each case even though this was apparently resisted by the Soviet military.¹³¹

The START negotiations continued to stumble over specific aspects of American technical superiority primarily because these issues were perceived as fundamental concerns by the Soviet Union. With increased Soviet research into defence technologies in this period, the Soviet motivations for opposing the SDI appeared to still be based on the fear that the United States was significantly ahead in strategic defensive technology.¹³² American offers to sell this expensive technology to a Soviet Union having economic difficulties would be tantamount to nuclear

¹²⁹ International Institute for Strategic Studies, Strategic Survey 1982-1983 (London: International Institute for Strategic Studies, 1983), p. 22.

¹³⁰ Lawrence T. Caldwell, "Soviet Policy on Nuclear Weapons and Arms Control," in Dan Caldwell, ed., Soviet International Behaviour and United States Policy Options (Lexington, Massachusetts: Lexington Books, 1985), pp. 215-216.

¹³¹ Rose E. Gottesnoeller, "Soviet Arms Control Decision-Making Since Brezhnev," in Roman Kolkowicz and Ellen Propper Mickiewicz, eds., The Soviet Calculus of Nuclear War, p. 107.

¹³² Caspar Weinburger, "Why Offence needs Defence," Foreign Policy 68 (Fall 1987), p. 11. See also D. Goedhuis, "The Importance of Preserving and Strengthening the ABM Treaty of 1972," International Relations (May 1986), p. 479.

blackmail, if they were believable.¹³³ Discussions over when to field this technology formed the essential sticking point, with the Soviet Union insisting on the longest possible timeframe before either side would give the requisite six-month notice to abrogate the ABM Treaty.¹³⁴ The United States, however, seemed prepared to use SDI as a lever to bring the Soviet leadership face to face with its shortcomings or even as a vehicle to degrade party influence.¹³⁵

Although the Reagan administration did not agree with SALT II, it has largely continued to abide by its limits. The Soviet Union also claims to be following SALT II limits, but the United States has on several occasions charged the Soviet Union with treaty violations. The chief American START negotiator, Edward Rowny, finally threatened that unless the Soviet leaders stopped violating the SALT II Treaty and "dramatically change their behaviour," the United States would proceed with a major strategic modernization programme.¹³⁶

During the START process, the use of threats became much more frequent as confrontation and competition increasingly marked the arms control process. Each superpower attempted to consolidate its advantages

¹³³ Tom Gervasi, The Myth of Soviet Military Supremacy (New York: Harper and Row, 1986), pp. 18-19. This work does a good job debunking the somewhat alarmist right wing concern over Soviet military power.

¹³⁴ Andrei Kokoshin, "A Soviet View on Radical Weapons Cuts," Bulletin of the Atomic Scientists (March 1988): p. 17. Soviet leaders view ABM as very destabilizing. See also Philip J. Klass, "Mobile Missile Verification Slows START Negotiations," Aviation Week and Space Technology (21 December, 1987), p. 25.

¹³⁵ James M. McConnell, "SDI, the Soviet Investment Debate and Soviet Military Policy," Strategic Review 16 (Winter 1988), p. 47. See also Dimitry Mikheyev, The Soviet Perspective on the Strategic Defence Initiative (Washington, D.C.: Institute for Foreign Policy Analysis, 1987), pp. 86-87.

¹³⁶ Hugh Lucas, "SALT II has Outlived Its Usefulness," Janes Defence Weekly (14 June, 1986), p. 1081.

and minimize its disadvantages through the medium of arms control. The Soviet Union sought to retain its advantage in land-based accurate ICBM warheads, and the United States sought to gain maximum leverage to reduce Soviet warheads through a strategic build-up of MX, Trident and B-1 strategic systems. The United States refused to compromise on SDI and threatened the USSR with the future achievement of a counterforce and damage limiting capability that could facilitate a first strike. The nature and frequency of implied and direct strategic threats strongly reflected the search for advantage in the compellent paradigm.

3. The Correlation of Nuclear Forces

START, at least as of the Reykjavik summit between Reagan and Gorbachev, had produced no agreement on strategic arms reductions. The proposals and public declarations of each superpower were such that each appeared to be seeking an agreement that would provide it a comparative advantage over the other.

What in SALT was a quantitative competition in strategic weapons was now a qualitative one where criteria such as accuracy, lethality and survivability became most important. Although strategic defence was a major component of the United States policy towards arms control from 1983 on, the prospect of trying to defend against a nuclear attack has never been absent.¹³⁷ Even a top Soviet scientist noted that ABM limitations had no impact whatsoever on his work on Soviet ballistic missile defences.¹³⁸ The concept of strategic defence including those elements

¹³⁷ Gary L. Guertner and Donald M. Snow, The Last Frontier: An Analysis of the Strategic Defence Initiative (Toronto: Lexington Books, 1986), p. 4.

¹³⁸ The scientist was Anatoly Fedoseyev, cited in Stephen P. Adragna, On Guard for Victory: Military Doctrine and Ballistic Missile Defence in the USSR (Washington, D.C.: Institute for Foreign Policy

based in space had become so well established that only those who believed in mutual assured destruction as a central component of strategic stability objected to it.¹³⁹ The role of strategic defences appeared to be increasingly accepted in Moscow and Washington, but the key concerns appeared to be over timings and comparative advantage. One very positive aspect of defences was that they were easily distinguishable from offensive systems, thus precluding an even greater security dilemma.¹⁴⁰

During the START negotiations each superpower proposed reductions in strategic weapons but the quantities of strategic warheads on each side actually rose. Clearly, quantitative arms racing is where the Soviet Union has a comparative edge, and the Soviet proposal to freeze strategic weapons in January, 1983, appeared designed to take advantage of the recently completed Soviet build-up and limit American strategic modernization programmes.¹⁴¹ The increasing numbers of strategic warheads conflicted with the declaratory intentions of each power to reduce nuclear arsenals.

Each superpower in this period accused the other of striving for nuclear superiority. Reagan announced at a press conference "that on balance the Soviet Union does have a definite margin of superiority," and he felt that that margin created a "window of vulnerability" for the

Analysis, 1987), p. 27.

¹³⁹ Colin S. Gray, American Military Space Policy (Cambridge, Massachusetts: Abt Books, 1983), p. 19.

¹⁴⁰ Robert Jervis, "Cooperation Under the Security Dilemma," World Politics 30 (January 1978), p. 211.

¹⁴¹ Rebecca V. Strode, "Soviet Policy Toward the Freeze in Historical Perspective," in Keith Payne and Colin S. Gray, The Nuclear Freeze Controversy (New York: University Press of America, 1984), p. 127. See also Robert J. Einhorn, Negotiating from Strength: Leverage in U.S.-Soviet Arms Control Negotiations, p. 41. See Annex H as well.

United States.¹⁴² After the Reagan-Gorbachev summit meeting in Geneva, Gorbachev maintained that the United States was trying to achieve nuclear superiority.¹⁴³ The Soviet Union was particularly alarmed that each American arms control proposal appeared to rest on the linking of nuclear arms reductions to the reduction of Soviet influence, military capabilities and "objectionable behaviour."¹⁴⁴ The arms control proposals of the Reagan administration offered the Soviet Union little prospect for enhancing their strategic position. In particular, the Reagan administration has taken a very narrow interpretation of the 1972 ABM Treaty that could permit SDI deployment, in spite of its not being a broadly held view.¹⁴⁵ The increasing accuracy and hard target kill potential of modern systems when coupled with even a marginally effective defence could provide a useful war fighting capability.

The concept of strategic defence imposes a new standard on the stability equations. The gradual but steady drift away from mutual assured destruction as a central requirement for nuclear stability was sanctioned by the Scowcroft commission set up to achieve greater consensus in American strategic policy.¹⁴⁶ The combination of some strategic defence and a policy of deceptive basing (mobile ICBM's) can in fact

¹⁴² Tom Gervasi, The Myth of Soviet Military Supremacy, p. 75.

¹⁴³ Zhores A. Medvedev, Gorbachev (New York: W.N. Norton and Company, 1986), p. 241.

¹⁴⁴ Corbin Fowler, The Logic of U.S. Nuclear Weapons Policy: A Philosophical Analysis (Lewiston, New York: Edwin Mellen Press, 1987), p. 218.

¹⁴⁵ This interpretation is probably not legally sound. It hinges on the use of the expression "other physical principles." See Raymond L. Garthoff, Policy Versus the Law: The Reinterpretation of the ABM Treaty (Washington, D.C.: Brookings Institution, 1987), pp. 6-18.

¹⁴⁶ Brent Scowcroft, comments in Michael Charlton, From Deterrence to Defence: The Inside Story of Strategic Policy, p. 105.

achieve a cost effective degree of ICBM survivability.¹⁴⁷ Both superpowers in the START timeframe were developing strategic point defences and mobile ICBM's to enhance the survivability and therefore the combat utility of its nuclear forces. This concept fits much better with the broader Soviet approach to stability which depends on renouncing the development and deployment of "new" weapon systems, renouncing the first use of nuclear weapons, but rejecting the notion of total Soviet vulnerability.¹⁴⁸

During the START negotiations each superpower declared its willingness to reduce the quantity of nuclear weapons, but each sought to do so on its own terms. The strategic shift toward defences gathered increased momentum and served to intensify the arms control competition which had become one almost completely based on technology. At least for the first seven years of START, this analysis indicates that the United States had indeed shifted noticeably into a compellent framework while the USSR still displayed some compellent characteristics.

4. The Paradigmatic Implications of START

During the START negotiations political relations between the Soviet Union and the United States deteriorated even further from those which existed in SALT II. Each superpower appeared to be attempting to achieve unilateral advantage from its arms control proposals that almost seemed reminiscent of their political disarmament efforts in the 1950's. But at the same time START was also touching the core of each superpower's

¹⁴⁷ Raymond E. Starsman, Ballistic Missile Defence and Deceptive Basing: A New Calculus for the Defence of ICBM's (Washington, D.C.: National Defence University Press, 1981), p. 53.

¹⁴⁸ Ellen Propper Mickiewicz and Roman Kolkowicz, International Security and Arms Control (New York: Praeger Publishing, 1986), p. 158.

security, and this implied that negotiations would be more difficult and concessions more modest than was the case in SALT.¹⁴⁹

In START, the tenuous linkage between INF and strategic weapons that was barely containable in SALT II came undone and two levels of nuclear negotiations were established.¹⁵⁰ The political campaigns by each superpower to "win" its objectives in the NATO theatre nuclear force modernization issue had a major impact on START for two reasons. It diverted attention from the START process, and it threatened the Soviet Union in a way that it considered "strategic." It also became clear that since the Soviet Union was unlikely to agree to accept the one-sided United States "strategic" deployments, no real progress in START could be made until the INF issue was resolved.

In the START negotiations, it appears that each nation sought to achieve advantage with each of its proposals. The United States was committed to SDI and strategic force modernization of technologically advanced weapon systems so it refused a nuclear freeze. The Soviet Union had finally reached its strategic force structure objectives in the early 1980's, and felt that the ICBM advantage it enjoyed was balanced by American superiority in SLBM's and bombers. To Soviet leaders the prospect of unequal reductions would return the USSR to an inferior strategic position. It may also be that the Soviet Union felt much more comfortable with a slight quantitative advantage due to its nagging fear of American technological momentum. In any event, the Soviet Union in

¹⁴⁹ Congressional Research Service, Fundamentals of Arms Control, Part I: Nuclear Arms Control; a Brief Historical Survey (Washington, D.C.: USGPO, 1985), p. 40. See also United States Arms Control and Disarmament Agency, 1984 Annual Report (Washington, D.C.: USGPO, 1985), pp. 5-11; and, Steven E. Miller, "Politics over Promise," International Security (Spring 1984), pp. 88-89.

¹⁵⁰ John Cartwright and Julian Critchley, Cruise, Pershing and SS-20 (London: Brassey's Defence Publishers, 1985), p. 42.

START would surrender no advantage, and the United States, notwithstanding its efforts, did not have the leverage to force them to do so.¹⁵¹

The increased frequency of threats and the one-sided nature of the arms control proposals meant that START was increasingly a political process. Consequently, it appears that arms control may have been relegated to a more modest position within the strategic debate.¹⁵² Thus, each superpower was able to declare its willingness (and this commitment could be genuine) to seek strategic arms reductions while increasing its deployments and tabling proposals in public that would result in unilateral advantages. Consequently, at the Reykjavik summit when Gorbachev proposed abolishing nuclear weapons, each leader pursued a chimera by declaring himself more ready than the other to reduce nuclear arms, to a degree that their respective strategies could probably never accept.

The compelling paradigm, then, offers a useful explanation of the thinking behind the START process as each superpower repeatedly evidenced a political desire to improve its strategic position through selected arms reductions. Each attempted to harness public opinion in its efforts to direct arms control onto a course where it could optimize its technical advantages in what was an increasingly political competition.

V. CONCLUSION

Even though the arms control process has been subjected to some

¹⁵¹ William R. Van Cleave, "The Arms Control Record: Successes and Failures," in Richard F. Staar, ed., Arms Control: Myth Versus Reality, p. 19.

¹⁵² William Bajusz, Deterrence, Technology and Strategic Arms Control Adelphi Paper 215 (London: International Institute for Strategic Studies, 1987), pp. 48-49. See also Henry W. Schaffer, Nuclear Arms Control: The Process of Developing Positions (Washington, D.C.: National Defence University Press, 1986), p. 82.

significant political shifts, this review has noted a remarkable continuity in strategic arms control assumptions. The Soviet Union consistently assumed that the United States would use the negotiations to incrementally achieve military advantage, relying on its superior economy and open political system to compel the Soviet Union to make concessions.¹⁵³ The Americans, at least initially, had excessive confidence that the Soviet Union would eventually, and without criticism, accept the concept of strategic stability.¹⁵⁴ After 17 years of strategic arms control negotiations each side still believed the other was attempting to make its strategy unworkable and thereby undermine its security.¹⁵⁵ These latter perceptions more closely reflect the attitudes characteristic of compellent thinking.

Although in arms control theory several different views of arms control exist, in practice these contending viewpoints can be reduced to those of strategists and arms control advocates. A strategist seeks unilateral advantage for his country, often in a competitive sense, while an arms control advocate wants increased security and decreased risks for all parties, usually through mutual cooperation.¹⁵⁶ Both superpowers have had people in influential positions who held each of these beliefs, and it is worth noting that these views correspond closely with the compellent

¹⁵³ Soviet analysts note that the final product of most arms control agreements has ended up closer to initial United States positions. See Alexei Arbatov, "START: Good, Bad or Neutral," Survival (July/August 1989) p. 297. See also Daniel Frei, Perceived Images (Totowa, New Jersey: Rowman and Allenheld, 1986), p. 280.

¹⁵⁴ Fritz W. Ermath, "Contrasts in American and Soviet Strategic Thought," International Security 3 (Fall 1978), pp. 154-5.

¹⁵⁵ David Holloway, The Soviet Union and the Arms Race, p. 72.

¹⁵⁶ Herman Kahn, Thinking About the Unthinkable in the 1980's (New York: Simon and Schuster, 1984), pp. 194-197. See also Samuel B. Payne, The Soviet Union and SALT, Chapters 6 and 7.

and deterrent paradigms. It is primarily due to the influence of arms controllers that arms control talks such as SALT I began, but once the negotiations were underway there appeared to be an inescapable tendency for each government to use them to maximize its advantages and minimize its disadvantages.¹⁵⁷ Once a strategic perspective gains the upper hand, the tendency appears to be towards reinforcing the belief that political and military gains can be obtained from some advantage in nuclear weapons.¹⁵⁸

When SALT began in 1969, the deterrent paradigm was clearly the dominant Western model, and the arms control community in the United States expected that, as negotiations continued, the USSR for the most part would adopt it. SALT I to a large degree was probably a negotiation between people who held fundamentally different paradigmatic views. While the final product appeared to have substantiated the expectations of the United States arms control community, the Soviet rationale for signing it was probably very different. Even in the United States, significant evidence of compelling nuclear thinking existed, but many still felt the United States forces to be so superior to the Soviet forces that there was no major concern over SALT I in an era of detente. As a result of different paradigmatic views, however, the United States conceded a significant quantitative missile advantage to the USSR and agreed to limit its most threatening programme.

It was only after the Soviet Union had continued to modernize and improve the qualitative aspects of its ICBM force that the United States

¹⁵⁷ Phil Williams, comments in Oyvind Osterud, ed., Studies of War and Peace, pp. 110-111.

¹⁵⁸ Sverre Lodgaard and Frank Blackaby, "Nuclear Weapons and Arms Control," in Marek Thee, ed., Arms and Disarmament: SIPRI Findings (Oxford: Oxford University Press, 1986), p. 329.

realized that the Soviet Union did not necessarily share the same assumptions of deterrence. The United States attempted to use SALT II to rectify the perceived imbalance of SALT I, but the Soviet Union insisted in maintaining the principles on which SALT I was based. The START negotiations continued a struggle for technical advantage through arms control as the United States attempted to use strategic reductions to reduce the Soviet ICBM force. The United States shift in thinking toward strategic defences was particularly worrisome to the USSR, and it steadfastly refused to reduce its force structure unless SDI was part of the package. Even though Soviet leaders increasingly valued deterrence of nuclear war as their most important objective, the sustained emphasis on strong forces capable of fighting if necessary indicates that underlying Soviet strategic thought appears to have remained fairly constant. The United States seems however to have conducted a paradigm shift from deterrence to compellence in the period of this review.

Over the period covered, both superpowers expanded their objectives to be pursued with strategic arms control but appeared to reduce their expectations for success. Because there was little evidence to indicate that unilateral restraint by one superpower will induce a positive reaction from the other,¹⁵⁹ both sides have continued with force modernization programmes. The START debate in the Western media was probably more directed at the attitudes of Western Europeans than the substance of arms control.¹⁶⁰ Increasingly, arms control praxis came to reflect the compellent framework as each side carefully protected its best

¹⁵⁹ Albert Carnesale and Richard N. Hass, eds., Superpower Arms Control: Setting the Record Straight (Cambridge, Massachusetts: Ballinger Publishing Company, 1987), p. 336.

¹⁶⁰ Karl Kaiser, "The NATO Strategy Debate After Reykjavik," NATO Review 6 (December 1986).

war fighting systems and sought to negotiate away those of the opponent. The notion that the compellent paradigm has come to dominate superpower strategic arms control parallels the results from the analysis of American and Soviet declaratory nuclear strategy in chapters three and four. At the very least, the compellent paradigm offers an increasingly plausible explanation for superpower arms control behaviour from 1970 to 1986.

Chapter Six

THE COMPETITION IN ALLIANCE STRATEGY

As the central alliance for each superpower, NATO and the Warsaw Pact have played a pivotal role in the nuclear dimension of Soviet and American strategy. When the economies and populations of the various non-Soviet European countries are considered together, it becomes evident that a politically united Europe could easily compare to either superpower in potential power. Thus a political competition for influence in Europe has been an inevitable by-product of a bipolar world with the intensity of the rivalry exacerbated by the Soviet perception that as a European power, it has greater legitimacy in its quest.

The advent of nuclear weapons has superimposed the risk of nuclear war over the political competition in Europe. The bi-polarity of the international system from 1970 to 1986 and the power of nuclear weapons together appear to have enhanced the utility of alliances.¹ To a degree NATO and the Warsaw Pact are a medium the two superpowers have adopted to manage, legitimize and implement their nuclear strategies. In the nuclear era, however, alliances expose their members to such unprecedented risks that these weapons have assumed a central role affecting alliance relationships.² The relationship between alliance strategy and superpower nuclear strategy is thus of fundamental

¹ Arthur R. Day and Michael W. Doyle, Escalation and Intervention: Multilateral Security and Its Alternatives (Boulder, Colorado: Westview Press, 1986), pp. 1-3. According to an interesting view, one important factor in the cold war was the mutual superpower recognition that a carefully managed antagonism actually served their respective interests. See Michael Cox, "From the Truman Doctrine to the Second Superpower Detente: The Rise and Fall of the Cold War," Journal of Peace Research (No. 1, 1990), p. 30.

² Henry T. Nash, Nuclear Weapons and International Behaviour (Leyden, Netherlands: A.W. Sijthoff, 1975), p. 55.

importance, and a knowledge of how the former operates may shed some light on the latter.

The role of strategic and theatre nuclear weapons in each alliance is ostensibly to deter the other side from initiating a conflict or from escalating to nuclear first use once war begins. Simply put, it is the manipulation of strategic risk via the prospect of escalation to seek policy objectives. Because Europe is so important to the superpowers, each has deployed a vast array of forces that include both conventional and nuclear weapons. For much of the period under review in this chapter the integration of conventional and nuclear forces in each alliance has been so complete that military commanders would be under pressure to use nuclear weapons early in any conflict.³ It is this integration of nuclear weapons into conventional forces that complicates the application of nuclear strategy and the conclusion of arms control agreements. Since conventional forces are commonly understood to have defensive and offensive utility as described in chapter one, nuclear forces that are closely integrated with conventional forces may be expected to have or be viewed as having deterrent and compellent utility.

This chapter will analyze the alliance strategy of each superpower during the period 1970-1986 to assess which paradigm best reflects their nuclear strategies. The first section describes in general the situation on the central front of NATO and the Warsaw Pact, the second investigates NATO strategy and the third examines Warsaw Pact strategy. Detailed examination of the United States and Soviet intercontinental forces has been left for subsequent chapters.

³ Morton H. Halperin and Madalene O'Donnell, "The Nuclear Fallacy", Bulletin of The Atomic Scientists 44 (January/February 1988), p. 8.

I. THE SITUATION ON THE CENTRAL FRONT

The central front of NATO and the Warsaw Pact is the military center of gravity of the two alliance systems. The outcome of any future battle between these alliances would probably be decided by the results of this major contest which would for the most part probably be fought on German soil. The partition of Germany and the role of each German state in its respective alliance system has served to highlight a delicate political situation where a special relationship between each superpower and its German ally has been required. Because the role of strategic nuclear weapons can only be properly understood if the role of conventional forces and other nuclear weapons is clear, this section examines the complete spectrum of alliance military forces.

As cold war became fact, NATO and eventually the Warsaw Pact developed into effective military organizations that could fight should the need arise. From the outset, however, a major asymmetry existed in that the Soviet Union had a large numerical advantage of conventional forces which the United States tended to offset through its advantage in nuclear weapons.⁴ Early efforts to get the superpowers to withdraw their troops from Central and Western Europe faltered primarily due to complications for internal relations within the two alliance systems.⁵ The Soviet Union undoubtedly felt more secure with troops in central Europe but an equally significant reason may have been Western Europe's

⁴ For a good summary of the spiral of actions in the 1950's, see Richard Ned Lebow, "Provocative Deterrence: A new look at the Cuban Missile Crisis," Arms Control Today (July-August 1988), pp. 15-16. For an early rationale for NATO reliance on nuclear weapons, see T.F. Walkowicz, "Counter-Force Strategy," Air Force: The Magazine of American Airpower 38 (February 1955), p. 51.

⁵ Richard Smoke, National Security and the Nuclear Dilemma (London: Addison-Wesley Publishing Company, 1984), p. 133. This work provides a very good general review of nuclear weapons issues.

insistence that the United States maintain troops in Europe as a visible link to American strategic nuclear weapons. One of NATO's central problems has been maintaining the credibility of American nuclear intervention and retaliation in the face of a growing Soviet capability to devastate the United States.⁶

The total balance of NATO and Warsaw Pact forces is best understood by examining the alliance force structure from four perspectives: conventional forces, short range tactical nuclear weapons, longer range theatre nuclear weapons and strategic or intercontinental nuclear systems. In the 1950's NATO was clearly superior in all categories of nuclear weapons but, even after the rearmament of West Germany, still lacked the conventional strength of the Warsaw Pact. By 1967 when NATO adopted a flexible response strategy, the Soviet Union had built an advantage in long range theatre nuclear systems to supplement its conventional superiority, but the United States retained significant advantages in short range and in intercontinental nuclear weapons.⁷ From 1970 to 1986 these conditions gradually shifted to the benefit of the Soviet Union as it continued to develop its nuclear and conventional force structure.

The conventional advantage of the Warsaw Pact over the NATO forces in 1986 was in the order of about two to one by most quantitative indicators. Two recent Supreme Allied Commanders Europe (SACEUR) have expressed concerns that the Soviet Union will continue to widen and manipulate their

⁶ No alliance commitment can be separated from the analysis of the immediate balance of forces. See Paul K. Huth, Extended Deterrence and the Prevention of War (London: Yale University Press, 1988), p. 215. See also Robert E. Osgood, Limited War Revisited (Boulder, Colorado: Westview Press, 1979), p. 5.

⁷ Phillip A. Karber, "The Battle of Unengaged Military Strategies, in Uwe Nerlich, ed., The Soviet Asset: Military Power in the Competition Over Europe (Cambridge, Massachusetts: Ballinger Publishing Company, 1983), p. 228.

conventional advantage to the point that NATO "will find itself vulnerable to Soviet intimidation and coercion."⁸ In fact the Soviet Union increased combat power in its existing units such that from 1965 until the late 1970's about 30 division equivalents were added to Warsaw Pact forces.⁹ This force improvement prompted alarms that the Warsaw Pact was close to achieving a "decisive conventional military superiority,"¹⁰ but more sober judgements noted the improved ability to defend urbanized Europe and concluded neither side had, as of 1986, a decisive advantage.¹¹ It is worth noting however that a two to one numerical advantage, while not in itself decisive, provided the Soviet Union with a conventional quantitative edge that was about twice as great as that enjoyed by Germany over France and Britain in 1940.

One major concern that has always existed but appears to be mounting is the potential degradation of nuclear means in conventional war. Soviet frontal aviation for example could successfully interdict NATO theatre nuclear weapons (TNW) in one to four days if other targets were ignored.¹²

⁸ General Galvin, SACEUR Statement to Brussels Centre for European Policy Studies, 30 July 1987. See also Bernard W. Rogers, "NATO's Strategy: An Undervalued Currency," Power and Policy: Doctrine, The Alliance and Arms Control. Adelphi Paper 205 (London: International Institute for Strategic Studies, 1986), p.4.

⁹ Phillip A. Karber, "The Battle of Unengaged Military Strategies," p. 215. The Soviet Union has also fielded 7 new weapons for each American new weapon. See Phillip A. Karber, "To Lose an Arms Race: The Competition in Conventional Forces Developed in Central Europe, 1965-1980," in Uwe Nerlich, ed., The Soviet Asset: Military Power in the Competition Over Europe, pp. 31-88.

¹⁰ Sam Nunn and Dewey Bartlett, NATO and the New Soviet Threat, A report to the Senate Committee on Armed Services (Washington, D.C.: USGPO, 1977), p. 1.

¹¹ Jonathan Dean, Watershed in Europe: Dismantling the East-West Military Confrontation (Toronto: Lexington Books, 1987), p. 260.

¹² Joshua M. Epstein, Measuring Military Power: The Soviet Air Threat to Europe (Princeton, New Jersey: Princeton University Press, 1984), p. 178.

The pressure in a crisis to disperse nuclear weapons to increase their survivability to conventional attack is increasing, and thus incentives to preempt with nuclear weapons have probably increased.¹³

Nuclear weapons have been important to each superpower, but NATO has relied heavily on tactical nuclear weapons to replace force goals for conventional forces that proved unattainable.¹⁴ The Soviet Union also deployed tactical nuclear weapons to support its concept of rapid offensive operations that required complete integration of nuclear firepower into the manoeuvre of Soviet and Warsaw Pact forces.¹⁵ The numbers of tactical nuclear weapons expanded significantly until by 1973 NATO had well in excess of 7,000 warheads, most of which were short range artillery shells.¹⁶ The initial Soviet preference on the other hand was for longer range rockets and missiles that had more controllability and greater invulnerability. Recently NATO has reduced its European stockpile of short range tactical nuclear weapons, but the Soviet Union has introduced greater numbers of nuclear capable artillery. The evident superiority that NATO held in 1950's and 1960's in battlefield (short

¹³ Dennis Gormley, "The Impact of NATO Doctrinal Choices on the Policies and Strategic Choices of Warsaw Pact States: Part II", Power and Policy: Doctrine, The Alliance and Arms Control, pp. 30-31.

¹⁴ Lisbon force goals for NATO were originally set at 96 Divisions in 1952. In 1955 a 26 Division force was created and 15,000 nuclear weapons were required to make up the difference. See Donald R. Cotter, James H. Hansen and Kirk McConnell, The Nuclear Balance in Europe: Status, Trends, Implications (Washington, D.C.: United States Strategic Institute, 1983), p. 4.

¹⁵ A.A. Sidorenko, The Offensive (Moscow: 1970), translated by United States Air Force p. 58. See also Donald R. Cotter, James H. Hansen and Kirk McConnell, The Nuclear Balance in Europe: Status, Trends, Implications, p. 8.

¹⁶ U.S. Security Issues in Europe: Burden Sharing and Offset, MBFR and Nuclear Weapons, A report for the Subcommittee on U.S. Security Agreements and Commitments Abroad of the Senate Committee on Foreign Relations (Washington, D.C.: USGPO, 1973), p. 13.

range) nuclear weapons has eroded until, in the 1980's, the Soviet Union has reached parity in this area. Improvements in Soviet nuclear force posture appear deliberately aimed at achieving at least parity at each level of capability.¹⁷

The Soviet Union's propensity to concentrate on missiles had accorded the Warsaw Pact an advantage in theatre nuclear forces for two reasons. Firstly the greater range of Soviet systems provided improved and rapid target coverage of NATO, and secondly any NATO retaliation against several of these systems would have to be against Soviet territory, a step NATO may be reluctant to take.¹⁸ These advantages more than compensated the Soviet Union for the earlier NATO numerical advantage in short range systems. Furthermore, in long range theatre systems (INF) in the early 1980's the Warsaw Pact was said to have as much as a ten to one advantage.¹⁹ The reason for this asymmetry was the difference in roles. Whereas NATO INF were designed primarily to provide a link to the United States strategic nuclear forces, the Soviet Union was planning to destroy all NATO TNW as well as support an offensive into Western Europe.²⁰ A

¹⁷ Edward Luttwak, "The Problems of Extending Deterrence," The Future of Strategic Deterrence. Adelphi Paper 160 (London: International Institute for Strategic Studies, 1980), p. 35.

¹⁸ United States Department of Defence, NATO and the Warsaw Pact (Washington, D.C.: USGPO, 1981), p. 46. See also Stephen Meyer's extremely useful contribution, Soviet Theatre Nuclear Forces, Part II: Capabilities and Implications. Adelphi Paper 188 (London: International Institute for Strategic Studies, 1984), p. 147.

¹⁹ Donald R. Cotter, James H. Hansen and Kirk McConnell, The Nuclear Balance in Europe: Status, Trends, Implications, p. 3. The Soviet Union had enough TNW to cover most of Western Europe with 10 psi overpressure from nuclear blasts. Other assessments claim the Soviet advantage was not as great, but all assessed a significant Soviet advantage in this area. This advantage has been reduced but not eliminated by the 1987 INF Treaty.

²⁰ Stephen Meyer, Soviet Theatre Nuclear Forces, Part II: Capabilities and Implications, p. 48.

more fundamental problem with INF is that they were designed for first use, and this probably helped account for the intensity of the Soviet reaction to the NATO decision in 1979 to deploy long range missiles to Europe.²¹ From 1970 to 1986 the Soviet Union maintained and increased its advantage in INF, but it never relented in its efforts to prevent NATO deployment, and when that failed, to remove NATO's INF nuclear missiles through negotiations.

The final dimension of alliance military strategy refers to the intercontinental strategic systems that form the last resort up the ladder toward escalation dominance. The most significant event in the years 1970-1986 was the Soviet achievement of strategic parity in the eyes of all alliance members. By 1982 senior United States officials accorded the Soviet Union a three to one advantage in ICBM's.²² The impact of this major shift in the correlation of forces created difficulties for the United States in NATO and caused it to pay closer attention to its alliance partners. The general consensus in the 1950's and 1960's that allowed the United States considerable latitude in handling nuclear matters had eroded. If nothing else the enhanced radiation warhead episode demonstrated that the United States could no longer act unilaterally in nuclear matters.²³ NATO strategy under these new conditions appeared in a different light:

²¹ Particularly the Pershing II. See Michael Mandlebaum, "Instability and Nuclear Order: The First Nuclear Regime," in David C. Gompert *et al.*, Nuclear Weapons and World Politics: Alternatives for the Future (New York: McGraw Hill, 1977), p. 24. For a description of the Soviet goal to eliminate all U.S. long range nuclear forces in Europe see the United States Arms Control and Disarmament Agency, 1985 Annual Report (Washington, D.C.: USGPO, 1986), p. 14.

²² United States Arms Control and Disarmament Agency, 1982 Annual Report (Washington, D.C.: USGPO, 1984), p. 5.

²³ Alexander Haig, Hearings on Military Posture, Part I, before the House Committee on Armed Services, (Washington, D.C.: USGPO, 1979), p. 1384.

Under conditions of strategic parity and theatre nuclear inferiority, a NATO nuclear response to a non-nuclear Soviet aggression in Europe would be a questionable strategy at best, a self-defeating one at worst.²⁴

Assessments of the outcome of possible war in central Europe are still very much dependent on assumptions as to how such a war might start. In general the more that combat assessments move away from gross numbers of units or equipments and attempt to portray interactions, constraints and capabilities, the more even the balance appears.²⁵ The Director of the United States Defence Intelligence Agency felt that the overall balance was fairly stable and that the USSR perceives that NATO would be a clearly matched opponent.²⁶ Even though the Warsaw Pact has a superior strategic position, stronger conventional forces, and an offensive strategy designed to utilize these advantages, NATO has excellent prospects for a successful defence if it is fully deployed.²⁷ One respected analyst believes that Soviet operational research reveals that the Warsaw Pact cannot win under such conditions.²⁸ The real problem then becomes one of how much warning NATO has and whether NATO leaders are

²⁴ Sam Nunn, NATO: Can the Alliance Be Saved? (Washington, D.C.: USGPO, 1982), p. 2.

²⁵ James Blacker and Andrew Hamilton, Assessing the NATO/Warsaw Pact Military Balance (Washington, D.C.: USGPO, 1977), p. 50.

²⁶ General Tighe, Allocation of Resources in the Soviet Union and China - 1979, Part 5. Hearings before the Subcommittee on Priorities and Economy in Government of the Joint Economic Committee, (Washington, D.C.: USGPO, 1980), p. 116.

²⁷ John G. Hines and Phillip A. Petersen, Thinking Soviet in Defending Europe address to the Conference of Defence Associations, Ottawa, 8 May, 1987. See also Desmond Ball et al., Crisis Stability and War (Ithaca, New York: Cornell University Peace Studies Programme, 1987), p. 6.

²⁸ Christopher Donnelly, The Soviet Operational Manoeuvre Groups: The Non Nuclear Threat to NATO. A presentation to Operational Research Analysis Establishment Special Seminar, Ottawa, 14 April 1987.

prepared to deploy their forces based on what would undoubtedly be conflicting and partial information. If NATO were about to begin mobilization of its forces and dispersal of its nuclear weapons from central storage areas, the Soviet leaders would see their military advantage receding and would, in such a crisis, be under intense military pressure to pre-empt.²⁹

In such a situation Soviet leaders would probably devote considerable effort to convincing NATO leaders that no Soviet attack was imminent. This could allow for the defusing of a serious crisis or it could secure strategic political surprise for a Soviet attack. The point at which war begins will have tremendous consequences on its results. Since some of NATO's strongest forces must deploy from the United States and all must move forward to their deployment areas, the Soviet Union has less need to mobilize prior to a NATO/Warsaw Pact war and even then some Soviet preparation could begin surreptitiously.³⁰ In the 1980's a number of significant Confidence and Security Building Measures have been introduced that significantly reduce NATO concerns about the possibility, however remote, of a surprise Soviet attack.

One final aspect of an alliance's ability to withstand the rigours of war is its social cohesiveness, an often forgotten dimension of strategy.³¹ NATO and the Warsaw Pact would each experience varying problems, but the most significant problem in a major crisis may well be

²⁹ John M. Mearsheimer, "Why the Soviets Can't Win Quickly in Central Europe," International Security 7 (Summer 1982), p. 39. See also Bruce Russett, The Prisoners of Insecurity: Nuclear Deterrence, The Arms Race, and Arms Control (New York: W.H. Freeman and Company, 1983), pp. 159-160.

³⁰ About four days warning is needed to prepare NATO sufficiently to withstand a Warsaw Pact attack.

³¹ Michael Howard, "The Forgotten Dimensions of Strategy", Foreign Affairs 57 (Summer 1979), pp. 975-986.

the cohesion of the Warsaw Pact alliance. The Soviet goal of maintaining tight control of its military alliance appears incompatible with the equally important goal of maintaining political stability in Eastern Europe.³² The loyalty of the non-Soviet Warsaw Pact armed forces in combat remains questionable.

From 1970-1986, in addition to strategic arms control discussed in the preceding chapter, a number of efforts at conventional and theatre nuclear arms control have been made, but no significant breakthrough occurred during this period. These arms control efforts, concentrating on reducing conventional and INF forces in Europe, encountered no more success prior to the Reykjavik summit in 1986 than the START negotiations in the same period in spite of strong popular pressure in Western Europe to reach an agreement.³³ In 1987, however, United States and the Soviet Union finally signed an INF Treaty that succeeded in eliminating land based long range theatre nuclear missiles from the European confrontation.

During this period prior to 1986 the Soviet Union increased its advantage in conventional forces, and it attained at least parity in battlefield, intermediate and strategic nuclear weapons. In the 1980's the conventional balance has been an increasing concern to NATO headquarters as confidence in early resort to nuclear weapons recedes.³⁴ This situation does not provide any assurances to Soviet leaders that they

³² Steven Larrabee, *The Challenge to Soviet Interests in Eastern Europe* (Santa Monica, California: Rand Corporation R-3190-AF, 1984), p. 118. See also Robert W. Komer, *Maritime Strategy or Coalition Defence* (Cambridge, Massachusetts: Abt Books, 1984), p. 106.

³³ These efforts included in particular the Stockholm Conference on Confidence- and Security-Building Measures and Disarmament in Europe and the negotiations on Mutual and Balanced Force Reductions.

³⁴ Michael J. Slack, "Alliance Issues," in R.B. Byers and Michael J. Slack, eds., *The Canadian Strategic Review 1985-1986* (Toronto: Canadian Institute of Strategic Studies, 1988), pp. 80-84.

could win should war occur, but it probably imbues them with an increased degree of confidence that the Western European nations may be slightly more accommodating to Soviet interests. If war occurs, the outcome would be determined by two variables - the degree of NATO preparation, and the method in which nuclear weapons are introduced, if they are used at all.

II. PARADIGMATIC ANALYSIS OF NATO STRATEGY

From the outset NATO was conceived as a political alliance designed to counter Soviet power and maintain Western European countries as free democracies. Although the military dimension of the alliance has steadily assumed greater importance, the need to match the Soviet Union's military power was evident even before NATO's formation in 1948. The British ambassador to France noted in 1947 that had Britain and France maintained their military strength after World War I, they could have probably prevented World War II.³⁵ To counter the array of Soviet armies opposite Western Europe, NATO needed the power of the United States; therefore Western European and American security were officially coupled in 1948.³⁶ This marked the first time that a group of proud and ancient powers became dependent on the protection of a government three thousand miles away.³⁷

Over a period of about five years, nuclear weapons became the foundation of alliance strategy, and massive retaliation called for strategic bombing of the Soviet Union in the event of a Soviet incursion of any sort into Western Europe. The essential difficulty with this

³⁵ Philip Towle, Europe Without America: Could We Defend Ourselves? (London: Alliance Publishers, 1983), p. 41.

³⁶ The agreement to found the NATO alliance. Coit D. Blacker, Reluctant Warriors (New York: W.H. Freeman and Company, 1987), p. 69.

³⁷ Alastair Buchan and Philip Windsor, Arms and Stability in Europe: A British-French-German Enquiry (London: Chatto and Windus, 1963), p. 227.

strategy was that it called for massive nuclear first use without public opinion being prepared to support such a step.³⁸ With the advent of a Soviet ability to retaliate in kind, at the insistence of the United States and over the objections of France,³⁹ NATO finally agreed in 1967 to adopt the strategy of flexible response where NATO would select the appropriate response to any Soviet move.

This section will apply the paradigmatic framework to the NATO strategy of flexible response, 1970-1986. The NATO political objective, the implied threats to use military force, and the correlation of nuclear forces guide the following paradigmatic analysis.

1. The Strategic Intentions of NATO

NATO was founded as a defensive alliance to deter further Soviet encroachment into Western Europe. As previously noted, the ratio of conventional forces between NATO and the Warsaw Pact virtually precluded any significant offensive capability against the Soviet Union. Nevertheless the Soviet Union perceives the deterrence policy of NATO as an active one "that asserts hostile intent."⁴⁰ A closer examination of NATO's objectives, particularly with respect to the use of nuclear weapons, is now in order.

NATO is divided by geographic asymmetry, essentially between the United States and Western Europe. From 1970 to 1986 the United States has concentrated on enhancing the credibility of using nuclear weapons by

³⁸ Sir Anthony Buzzard et al., "On Limiting Atomic War," Bulletin of the Atomic Scientist 13 (June 1957), p. 216.

³⁹ France withdrew its forces from the NATO military command structure in 1966, primarily over nuclear strategy.

⁴⁰ Michael MccGwire, "The Dilemmas and Delusions of Deterrence," in Gwyn Prins, ed., The Choice: Nuclear Weapons Versus Security (London: Chatto and Windus, 1984), p. 96.

introducing limited nuclear war fighting concepts, but the Europeans, who appear to see any Soviet move as less probable, insist on rapid escalation to intercontinental weapons to avoid the threat of prolonged conventional or nuclear war limited to Europe.⁴¹ Notwithstanding the differences over how to employ nuclear weapons, NATO is united behind the principle of nuclear first use, an essential pillar of alliance strategy.⁴² As the capability of non nuclear weapons has steadily improved, however, the concept of deterrence has tended to expand to include conventional forces. This results in a greater blurring of the nuclear threshold which emphasizes the high degree of integration between conventional and nuclear weapons in NATO, at least until such time as an all conventional defense is considered feasible.⁴³ This tends to exacerbate the tensions between Western Europe which seeks the promise of quick escalation to enhance deterrence, and the United States which seeks the basis for war fighting or war termination functions.⁴⁴ Although recent efforts to improve conventional defences are significant, they depend on 3% increases in

⁴¹ See Michael Howard, "On Fighting a Nuclear War," International Security 5 (Spring 1981), p. 8; and Catherine M. Kelleher, "Thresholds and Theologies: Time for a Critical Reassessment," in William J. Taylor, Steven A. Marranen and Gerrit W. Gong, eds., Strategic Responses to Conflict in the 1980's (Toronto: Lexington Books, 1984), p. 171.

⁴² See testimony of Vice Admiral Gerald Miller, former Deputy Director of Joint Strategic Target Planning Staff, First Use of Nuclear Weapons: Preserving Possible Control, Hearings before the Subcommittee of International Security and Scientific Affairs of the House Committee on International Relations (Washington, D.C.: USGPO, 1976), p. 47.

⁴³ See Carl Builder, The Prospects and Implications of Non Nuclear Means for Strategic Conflict. Adelphi Paper 200 (London: International Institute for Strategic Studies, 1985), pp. 29-30. See also Major Dorn Crawford, "The Operational Level of Deterrence," Military Review 68 (January 1987), p. 21.

⁴⁴ Catherine M. Kelleher, "Nation-State and National Security in Post War Western Europe," in Catherine M. Kelleher and Gale A. Matton, eds., Evolving European Defence Policies (Toronto: Lexington Books, 1987), p. 3.

defence spending for many years, and thus offer no short term solution.⁴⁵ Present NATO strategy is essentially a compromise between the need to deter and the need to fight which still depends heavily on the utility of nuclear weapons.

The tensions between the strategic objectives of Western European countries and those of the United States also extend to some differing views of the European status quo. During the 1970-1986 period Western Europeans tended to view NATO strictly as an alliance limited to the defence of NATO countries, but the United States still tends to see the Alliance as the cornerstone of its worldwide network dedicated to the containment of Soviet influence.⁴⁶ The United States aspires to retain its "freedom of action" to pursue "world power" in competition with the Soviet Union and to maintain the credibility of American national strategy.⁴⁷ When Zbigniew Brzezinski came to the Carter administration he brought with him the notion that the United States should have as its objective the undoing of the European partition.⁴⁸ The Reagan administration has also become attracted to the theme of somehow trying to

⁴⁵ In 1984 NATO upgraded its conventional force goals in a programme called the Conventional Defence Improvements effort which was being developed into a long term plan (MC 299). See Michael J. Slack, "Alliance Issues," in R.B. Byers and Michael J. Slack, eds., The Canadian Strategic Review 1985-1988, p. 81.

⁴⁶ David Charles, Nuclear Planning in NATO: Pitfalls of First Use (Cambridge, Massachusetts: Ballinger Publishing Co., 1987, p. 9. These views have shifted somewhat from the 1960's. See Leonard Beaton, The Western Alliance and The McNamara Doctrine. Adelphi Paper 11 (London: International Institute for Strategic Studies, 1964), p. 6.

⁴⁷ John M. Collins, United States/Soviet Military Balance. A research paper presented to the House Committee on Appropriations, Department of Defence Appropriations for 1977, Part 6 (Washington, D.C.: USGPO, 1976), p. 42.

⁴⁸ Zbigniew Brzezinski, Testimony before the Subcommittee on Europe of the House Committee on Foreign Affairs, United States Relations with Europe in the Decade of the 1970's (Washington, D.C.: USGPO, 1970), pp. 227-229.

roll the Soviets back from East Europe. To maintain the fundamental tenet of NATO alliance cohesion, however, these United States sentiments have been downplayed and are not part of NATO's declared strategy.⁴⁹

Because NATO is made up of several states who inevitably have several diverse views, the need for alliance cohesiveness is paramount. There has therefore been strong support in NATO for maintaining the status quo that essentially stemmed from the bipolar international system and the Federal Republic of Germany's tacit acceptance of the maintenance of the division of Germany.⁵⁰ Nevertheless the inevitable tensions inherent in such a diverse alliance have caused some speculation as to the inevitable decline of NATO over time. These observations are rooted in the waning belief that the United States will continue indefinitely to shield Europe with its strategic nuclear weapons in the face of certain destruction.⁵¹

The underlying political values of NATO are difficult to discern due to the fact that the Alliance is made up of different sovereign states who pursue national interests that are overlapping but are not identical.⁵² In general the West European countries have tended to treat the Soviet Union on non-ideological grounds such that trade agreements and relaxed

⁴⁹ See John Steinbruner, "Alliance Security", p. 201 and David N. Schwartz, "A Historical Perspective," p. 19. Both can be found in John Steinbruner and Leon Sigal, eds., Alliance Security: NATO and the No First Use Question (Washington, D.C.: Brookings Institution, 1983).

⁵⁰ See A.W. DePorte, Europe Between the Superpowers: The Enduring Balance (London: Yale University Press, 1979), p. 187. See also Glenn H. Snyder, "The Security Dilemma in Alliance Politics," World Politics 36 (July 1984), p. 495.

⁵¹ Gerald Garvey, Strategy and the Defence Dilemma (Toronto: Lexington Books, 1984), pp. 17-18. See also Hedley Bull, "The Moscow Agreements on Strategic Arms Limitations," in Robert O'Neill and David N. Schwartz, eds. Hedley Bull on Arms Control (London: Macmillan Press, 1987), p. 185. The prospect of German reunification in the 1990's will accelerate this process.

⁵² David Garnham, "Comments to the Editor," International Security 10 (Spring 1986), p. 205.

tensions have been a positive experience, contrary to the more distant, ideological and zero sum view often held in Washington.⁵³ Even though controversy is at times evident over important values, NATO remains united in its support of defending NATO governments from Soviet intimidation and NATO territory from Soviet encroachment.

By virtue of the principle of the lowest common denominator, NATO has determined its fundamental political objective, deterring aggressive Soviet actions. Officially NATO is seeking only what's necessary for its military security without striving for superiority or seeking security at the expense of the Soviet Union.⁵⁴ Senior American officials believed that their participation in NATO holds their allies together and prevents them from seeking greater accommodation with the Soviet Union.⁵⁵ Thus the strength of NATO during the period under review has been tied to the United States and its nuclear weapons. What makes extended deterrence workable is the basic recognition that defending Western Europe is essential to the independence and security of the United States.⁵⁶

⁵³ R.J. Vincent, Military Power and Political Influence: The Soviet Union and Western Europe. Adelphi Paper 119 (London: International Institute for Strategic Studies, 1975), p. 27. See also Karl Kaiser's testimony before the Subcommittee on Europe and the Middle East of the House Committee on Foreign Affairs, United States-Western Europe Relations in 1980 (Washington, D.C.: USGPO, 1980), p. 192. For some quantitative data see Jack Brougher, "1979-1982: The United States Uses Trade To Penalize Soviet Aggression and Seeks to Reorder Western Policy," in Joint Economic Committee, Soviet Economy in the 1980's: Problems and Prospects Part 2 (Washington, D.C.: USGPO, 1982), p. 421.

⁵⁴ Report on the State of Efforts Towards Arms Control and Disarmament and on the Changes in the Balance of Military Power 1985 (Bonn: Press and Information Office of the Federal Government, 1985), pp. 10-14.

⁵⁵ James R. Schlesinger, "The Evolution of American Policy Toward the Soviet Union," International Security 1 (Summer 1976), p. 41.

⁵⁶ Walter B. Slocombe, "The Future of Extended Deterrence," in Richard G. Lugar and Robert E. Hunter, eds., Adapting NATO's Deterrent Posture (Washington, D.C.: Centre for Strategic and International Studies, 1985), p. 26.

In general, NATO strategy is one that from the viewpoint of strategic intentions appears to fall within the deterrent paradigm except for the high value placed on the utility of nuclear weapons to stop other than nuclear provocations. The commitment of NATO to nuclear first use, therefore, is a threat that bears closer examination.

2. The NATO Threat of Force

No specific NATO overt threats are known to have taken place, but the NATO determination to use nuclear weapons to deter non nuclear actions serves an important if tacit function. NATO strategy as outlined in the NATO document, MC-14/3, identifies three levels of war all of which could be fought with nuclear weapons: direct defence with whatever weapons are authorized, deliberate escalation, and general nuclear response against the Soviet Union.⁵⁷ Deliberate escalation is defined as the attempt

to defeat an aggressor by deliberately raising, but where possible controlling, the scope and intensity of combat, making the cost and risk disproportionate to the aggressor's objectives and the threat of general nuclear response progressively more imminent.⁵⁸

NATO strategy is based on a triad consisting of conventional forces, theatre nuclear forces and United States strategic nuclear forces, but it is the deliberate threat to escalate rapidly any conflict to intercontinental nuclear war that really underpins the defence of NATO. Analysis of this nuclear threat involves a closer look at nuclear targeting, the prospects for controlled escalation and the contingency of actual use. This section concludes with a look at a specific United

⁵⁷ United States Security Issues in Europe: Burden Sharing and Offset, MBFR and Nuclear Weapons, p. 19. MC-14/3 is a NATO Military Committee classified document produced in 1967 that encapsulates the current NATO military strategy.

⁵⁸ Ibid.

States threat to involve NATO more deeply in its global competition with the Soviet Union.

Firstly, the NATO military headquarters has a nuclear planning cell that identifies actual targets for all of the nuclear weapons under its control. This cell coordinates closely with the United States Joint Strategic Targeting Planning Staff, and it concentrates its targeting efforts on military targets. Because of West German insistence, NATO has adopted a strategy of forward defence, an attempt to stop the enemy as far forward as possible.⁵⁹ In conditions of only partial mobilization or deployment prior to the outbreak of war, this strategy would probably result in a military request to use battlefield nuclear weapons very early in a conflict to prevent an enemy breakthrough. NATO in fact plans to use its nuclear weapons on military targets to achieve essential military objectives and minimize civilian casualties.⁶⁰ If the weapons are carefully matched to their targets, as they are planned to be, the extent of collateral damage can often be limited to the physical boundary of the target under attack.⁶¹ NATO strategy depends heavily on the first use of counterforce weapons and this tends to influence to a degree American nuclear strategy in the same direction.⁶²

A second aspect of nuclear strategy that affects NATO nuclear planning is the degree to which it is possible to control nuclear weapons

⁵⁹ This forward strategy has been applied at sea as well. See John F. Leyman, Maritime Strategy in Defence of NATO (Washington, D.C.: Center for Strategic and International Studies, 1986), p. 7.

⁶⁰ General A.J. Goodpaster, testimony before the Joint Committee on Atomic Energy, To Consider NATO Matters (Washington, D.C.: USGPO, 1975), p. 2.

⁶¹ John W. Cane, "The Technology of Modern Weapons for Limited Military Use," Orbis 22 (Spring 1978), p. 226.

⁶² Earl C. Ravenal, "Counterforce and Alliance: The Ultimate Connection," International Security 6 (Spring 1982), p. 26.

once their use has been initiated. Europeans tend not to embrace the concept of modern limited nuclear war because it could destroy what it was designed to protect, their countries.⁶³ The notion of a pause or firebreak before using nuclear weapons was an American concept that in European minds simply delayed the needed escalation and pointed out how difficult it was to construct a strategic and tactical doctrine acceptable to the alliance.⁶⁴ In the early 1970's when NATO still had some advantages in battlefield and strategic weapons, NATO strategy specified "selective employment would be used on a controlled or limited scale" either for demonstrative or tactical purposes.⁶⁵ As NATO's nuclear advantages dissolved, however, a more stark interpretation appeared:

We will fight with conventional forces until we are losing, then we will fight with tactical nuclear weapons until we are losing, and then we will blow up the world.⁶⁶

Nevertheless, NATO plans appear to be based on selective and limited nuclear first use in an effort to avoid further escalation if at all possible.

The next paradigmatic variable to be addressed is the degree of contingency obtained by the NATO nuclear threats, particularly the

⁶³ Daniel Frei, Risks of Unintentional Nuclear War (Geneva: United Nations Publications, 1982), p. 107. For an earlier view of the damage caused by tactical atomic war see, Richard Goold-Adams, On Limiting Atomic War (London: Royal Institute of International Affairs, 1956), p. 20.

⁶⁴ Henry Kissinger, The Necessity for Choice (New York: Harper and Brothers, 1960), pp. 81-86. See also Albert Legault, Deterrence and the Atlantic Alliance (Toronto: Canadian Institute of International Affairs, 1966), p. 65.

⁶⁵ The first public description of NATO's limited options for using nuclear weapons cited by Thomas W. Wolfe, Soviet Military Capabilities and Intentions in Europe (Santa Monica, California: Rand Corporation P-5188, 1974), p. 28.

⁶⁶ Morton Halperin, testimony before the Subcommittee on U.S. Security agreements and Commitments Abroad of the Senate Committee on Foreign Relations, Nuclear Weapons and Foreign Policy (Washington, D.C.: USGPO, 1975), p. 44.

"extended deterrence" provided by the United States strategic nuclear systems. Extended deterrence implies that "deterrent" forces were designed for United States defence and then were "extended" to Europe, but the reality was that United States nuclear forces were designed to support American foreign policy which at the time definitely included the need to defend Europe.⁶⁷ However, to defend Europe NATO can no longer rely, as it did in the past, on escalation dominance; it can only threaten general first use to cultivate doubt in Soviet minds about what the consequences of conflict in Europe might be.⁶⁸ This makes NATO strategy of first use somewhat more open ended and consequently harder to defend on ethical grounds.⁶⁹ The threat to use nuclear force is however to be triggered only in response to a Soviet conventional or nuclear attack in Europe. Thus NATO nuclear strategy, if examined in isolation at the time a decision were made to use nuclear weapons, would be a very contingent one used to persuade an invading enemy "to cease his aggression and withdraw."⁷⁰ Operational NATO nuclear strategy is therefore not

⁶⁷ Albert Wohlstetter, "The Political and Military Aims of Offence and Defence Innovation," in Fred S. Hoffman, Albert Wohlstetter and David S. Yost, Swords and Shields: NATO, the USSR, and New Choices for Long Range Offence and Defence (Toronto: Lexington Books, 1987), p. 30. This book contains some excellent articles, including Wohlstetter's.

⁶⁸ Lawrence Freedman provides a very good treatment of two concepts of escalation: dominance and uncertainty, The Price of Peace: Living With the Nuclear Dilemma (London: Firethorn Press, 1986), p. 130. See also Strategic Survey, 1986-1987 (London: International Institute for Strategic Studies, 1987), p. 67.

⁶⁹ The requirements for just war involve three basic principles. The use of force must be discriminate, proportional to the good intended and stand a reasonable chance of success. See Bruce M. Russett, "Ethical Dilemmas of Nuclear Deterrence," International Security 8 (Spring 1984), p. 52.

⁷⁰ Lawrence Freedman, "The Wilderness Years," in Jeffrey D. Boutwell, Paul Doty and Gregory F. Treverton, The Nuclear Confrontation in Europe (London: Croom Helm, 1986), p. 51. See also Colin S. Gray, "The Transition from Offence to Defence," The Washington Quarterly 9 (Summer 1986), p. 71.

necessarily the same as NATO political strategy.

The final aspect of NATO nuclear threats relates to the link between the United States global plans involving possible nuclear use and those of NATO. To the Soviet Union the United States has global interests to pursue that require its close connection with extended deterrence and compellence concepts.⁷¹ The European members of NATO are reluctant to support the United States beyond certain limits because of the underlying fear that a United States-USSR conflict will drag Europe into a war.⁷² It is precisely that threat that the Reagan administration brought to bear in its brief policy of horizontal escalation. After Carter had threatened to use force to prevent further Soviet encroachment toward the Persian Gulf,⁷³ the lack of credibility of United States military action became evident. Horizontal escalation was a unilateral American attempt to support its policy by threatening to expand any conflict laterally to a geographic location of the United States' choosing.⁷⁴ A policy such as this probably served to exacerbate the Soviet concern that the United States global ambitions are closely linked to its NATO alliance.

Although NATO declaratory strategy is primarily deterrent, its

⁷¹ See Roy Allison, The Soviet Union and the Strategy of Non-Alignment in the Third World (Cambridge, England: The University Press, 1988), pp. 127-132 for a useful review of Soviet efforts to counter the perceived United States threat. See also John Erickson, "The Soviet View of Deterrence: A General Survey," Survival 24 (November-December 1982), p. 245.

⁷² Lawrence Freedman, The Price of Peace: Living With the Nuclear Dilemma, p. 96.

⁷³ Jimmy Carter, Weekly Compilation of Presidential Documents 16 (28 January, 1980), p. 197.

⁷⁴ Keith A. Dunn and William O. Staudenmaier, "A NATO Conventional Retaliatory Strategy: Strategic and Force Structure Implications," in the book by same authors, Military Strategy in Transition: Defence and Deterrence in the 1980's (Boulder, Colorado: Westview Press, 1984), p. 196. See also Joshua M. Epstein, "Horizontal Escalation: Sour Notes of a Recurrent Theme," International Security 8 (Winter 1983-1984), p. 19.

operational strategy and its nuclear threats have a strong tendency to be compellent in nature. Should war occur, NATO threatens limited and controlled nuclear first use against specific counterforce targets which implies a desire to change Soviet policy as well as a desire to deter any potential Soviet military action.

3. The Correlation of Nuclear Forces

NATO nuclear and conventional forces are so interdependent that the correlation of nuclear forces cannot really be analyzed without first paying attention to conventional forces. In the 1980's the possibility of a pure conventional defence of NATO became more promising, and in the words of one observer the impact of conventional defence would be

to free military strategists and policy makers from the mental straitjackets now imposed by outdated deterrent theory and turn to the more traditional role of strategy: success on the battlefield.⁷⁵

The concept of conventional defence has been criticized either for being unable to provide the requisite degree of security for Western Europe or for being a "tool of coercion" based on conventional retaliatory capability against non-Soviet Warsaw Pact territory.⁷⁶ Whatever the prospects for conventional defence, NATO still appears extremely reluctant to forego the nuclear option.

In spite of the fact that NATO, if it were to defend itself

⁷⁵ Robert E. Killebrew, Conventional Defence and Total Deterrence: Assessing NATO's Strategic Options (Washington, D.C.: Scholarly Resources, 1980), p. 145.

⁷⁶ Richard Betts feels West Europe would be less secure. See his "Conventional Strategy: New Critics, Old Choices," International Security 7 (Spring 1983), p. 162. Dimitri Simes feels that an increased NATO capability for manoeuvre would threaten the Soviet hold on Eastern Europe. See his "Containment: Choices and Opportunities," in Terry L. Deibel and John Lewis Gaddis, eds., Containment: Concept and Policy (Washington, D.C.: National Defence University Press, 1986), p. 674.

successfully from a conventional attack, would have to resort fairly quickly to nuclear weapons, SACEUR has declared that NATO should not seek such strong conventional forces that it undermines nuclear first use, the pivot of deterrence.⁷⁷ A large alliance inevitably has a certain structural rigidity when it comes to changing defence policy. The present reliance on nuclear weapons has contributed to the rigidity of structure and inflexibility of procedure often attributed to NATO.⁷⁸ While this structural rigidity has political benefits with respect to alliance cohesion, it can serve to weaken NATO's military posture. The need to consider conventional and nuclear defensive operations could result in "impure tactics" that are not optimized for either type of warfare.⁷⁹ The lack of military flexibility could then severely curtail NATO's option of controlled escalation as a means of "coercive bargaining" unless extremely flexible TNF forces were available.⁸⁰

The nuclear forces of NATO, in a paradigmatic context, also require analysis as to their quality, quantity and expected combat utility. As noted in the first section of this chapter some significant changes mark the 1970-1986 period.

⁷⁷ Bernard W. Rogers cited in Edgar Ulsamer, "The Nuclear-Conventional Link," Air Force 70 (June 1987), p. 24. See also Bernard W. Rogers, "Greater Flexibility for NATO's Flexible Response," Strategic Review 11 (Spring 1983), p. 13.

⁷⁸ F.S. Northedge, "The Resort to Arms," in his book, The Use of Force in International Relations (London: Faber and Faber, 1974), p. 24. The need for greater flexibility in NATO is also a theme of Patrick Cosgrave and George Richey, NATO's Strategy: A Case of Outdated Priorities (London: Alliance Publishers, 1985), pp. 47-48.

⁷⁹ Lawrence Martin, "Flexibility in Tactical Nuclear Response," in John J. Holst and Uwe Nerlich, eds., Beyond Nuclear Deterrence: New Arms, New Aims (New York: Crane and Russak, 1977), p. 257.

⁸⁰ Peter Stratman and René Herman, "Limited Options, Escalation and the Central Region," in John J. Holst and Uwe Nerlich, eds., Beyond Nuclear Deterrence: New Arms, New Aims, pp. 239-254.

The achievement of strategic nuclear parity by the Soviet Union placed much greater reliance on the quality of TNF. NATO nations essentially had two options if they were to avoid having to accommodate the USSR: to decrease their reliance on nuclear weapons or to construct a credible theatre nuclear deterrent.⁸¹ In the early 1970's, however, NATO felt no great desire to either modernize or reduce their dependence on nuclear forces even though studies had shown that existing TNW would have little prospect of turning the tide of a war in Europe.⁸² But by 1977, as detente was beginning to unravel, Helmut Schmidt openly declared his concerns that SALT had led to strategic parity that neutralized the United States deterrent nuclear capability and impaired the security of Western Europe in the face of Soviet power.⁸³ The result of NATO discussions was the twin track decision in 1979 to deploy modern long range nuclear systems while seeking to negotiate reductions in Soviet theatre nuclear power. The intense controversy over the actual deployments of Pershing II and Ground Launched Cruise Missiles (GLCMs) tended to overshadow the increased threat to both the United States and the Soviet Union that these

⁸¹ See Walter Slocombe's excellent analysis, The Political Implications of Strategic Parity. Adelphi Paper 77 (London: International Institute for Strategic Studies, 1971), p. 20.

⁸² Lawrence Freedman, "The Wilderness Years," pp. 54-56. Also in October, 1977 Secretary of State Vance had testified that no additional long range ground or sea based systems were required. See hearings before the Subcommittee on Europe and the Middle East of the House Foreign Affairs Committee, The Modernization of NATO's Long Range Theatre Nuclear Force (Washington. D.C.: USGPO, 1981), p. 19.

⁸³ Helmut Schmidt, "The 1977 Alistair Buchan Memorial Lecture," October 28, 1977 Survival 20 (January-February 1978), pp. 3-4. See also Jeffrey D. Boutwell, "NATO Theatre Nuclear Forces: The Third Phase, 1977-1985," in Jeffrey D. Boutwell, Paul Doty and Gregory F. Treverton, The Nuclear Confrontation in Europe, p. 69. Note Vance's complacency in footnote 82, above.

highly mobile and very lethal weapons posed.⁸⁴ These effective and flexible systems clearly caused serious concern in Moscow for they appeared to preclude the possibility of a conflict remaining at the conventional level. The United States was totally committed to nuclear war in Europe with high quality nuclear weapons which could strike the Soviet Union with little or no warning.

With respect to the quantity of nuclear weapons in Europe, NATO has actually decreased its number of nuclear warheads by about 2400 following decisions taken in 1979 and 1983.⁸⁵ As the reductions were limited to older less useful systems that would have caused a high degree of collateral damage if used, the impact of these reductions pales in significance to that of the INF modernization. The additions of INF were established at a quantitative level politically designed to avoid presenting too vulnerable a target or posing too provocative a threat to the Soviet Union. The Soviet reaction to INF deployments indicated that the latter point may have been misjudged.

The final variable in the correlation of nuclear forces analysis is the expected combat utility of NATO's nuclear weapons. In spite of the increased emphasis on conventional strategies, NATO's reliance on deliberate escalation in any conflict implies a high expectation of their utility. Follow on forces attack for example is a conventional strategy to attack deeply into the enemy rear, but as with much of NATO's conventional strategy it relies for the most part on dual capable systems

⁸⁴ Lawrence Freedman, "Europe Between the Superpowers," in Gerald Segal, *et al.*, Nuclear War, Nuclear Peace (New York: St. Martin's Press, 1983), p. 81. See also Richard K. Betts, NATO Deterrent Doctrine: No Way Out. ACIS Working Paper 51 (Los Angeles: Center for International and Strategic Affairs, 1985), p. 10.

⁸⁵ Jeffrey D. Boutwell, "NATO Theatre Nuclear Forces: The Third Phase, 1977-1985," p. 80. If General Roger's recommendations are followed, even more reductions of older systems may be made.

which may be attrited substantially prior to nuclear release. Thus any effective use of nuclear weapons will probably require an early decision, but that decision may be more difficult given the parity in strategic systems.⁸⁶ United States nuclear weapons in Europe may therefore still have the primary function of sustaining political will and generating positive psychological perceptions to enhance credibility.⁸⁷ Thus the NATO INF deployments from 1983 to 1986 filled a significant role in enhancing the credibility and utility of nuclear first use.

The correlation of nuclear forces analysis indicates that although deterrence remained the dominant consideration certain compellent tendencies existed in NATO nuclear strategy, especially from 1979 to 1986. The introduction for a time of Pershing II and GLCMs, the high number of warheads remaining in Europe, and the expected utility of nuclear first use imply that NATO strategy has at least some compellence embedded in its policy of deterrence.

4. The Implications of NATO Strategy

Overall, NATO declaratory strategy is essentially defensive in nature as its primary focus is to deter war in Europe. The problem for NATO has been to avoid crossing two key thresholds that could cause the decoupling of U.S. strategic forces from Europe: relying on too few nuclear weapons in Europe may be inadequate both as a symbol of American power and as an

⁸⁶ Colin S. Gray, "The Strategic Implications of the Nuclear Balance and Arms Control," in Richard F. Staar, ed., Arms Control: Myth Versus Reality (Stanford, California: Hoover Institution Press, 1984), p. 36. See also Colin S. Gray, "Nuclear Strategy: The Debate Moves On," Royal United Services Institute 121 (March 1976), p. 49.

⁸⁷ Robert E. Osgood, NATO: The Entangling Alliance (Chicago: University of Chicago Press, 1962), p. 350. See also William R. Kintner and Robert L. Pfaltzgraff, eds., SALT: Implications For Arms Control in the 1970's (London: University of Pittsburgh Press, 1973), p. 397.

immediately available reservoir of firepower; relying on too many large weapons based outside of Europe (SLBM's and ICBM's) may result in the United States withholding the use of its ultimate weapons.⁸⁸ Because in the 1970-1986 time frame a defence based on improved conventional technologies had not been considered feasible for the alliance,⁸⁹ NATO has endeavoured to find a balance that would make its threat to use nuclear weapons believable.

The NATO quest to enhance the credibility of its resort to nuclear weapons has placed a great deal of pressure on the United States. Timeliness of nuclear authorization remains a critical factor in NATO considerations because it is possible that the Soviet Union could accomplish its objectives against NATO in time to be essentially independent of whatever the result of a US-USSR strategic exchange.⁹⁰ If this were true, American incentives to initiate nuclear action would be very low indeed. The NATO Treaty does not force a United States President to initiate the first use of nuclear weapons, and such a decision may well require, in legal terms, broader congressional support.⁹¹ NATO nations have long recognized the importance of a timely United States' decision to initiate nuclear war; this is a critical point for Germany and in part

⁸⁸ Strobe Talbott, Deadly Gambits: The Reagan Administration and the Stalemate in Arms Control (New York: Alfred A. Knopf, 1984), p. 23. See also Robert L. Pfaltzgraff, National Security: Ethics, Strategy and Politics (Washington, D.C.: Pergamon-Brassey's, 1986), p. 5.

⁸⁹ John Jorgen Holst, "Flexible Options in Alliance Strategy" in John J. Holst and Uwe Nerlich, Beyond Nuclear Deterrence: New Arms, New Aims, p. 289.

⁹⁰ S.T. Cohen, U.S. Strategic Nuclear Weapon Policy-Do We Have One? Should There Be One? (Santa Monica, California: Rand Corporation P-5127, 1973), p. 17.

⁹¹ Michael J. Glennon, "The NATO Treaty: The Commitment Myth," in Peter Raven-Hansen, First Use of Nuclear Weapons (New York: Greenwood Press, 1987), p. 63.

explains why Britain and France have developed independent nuclear forces. In fact France may have deliberately structured its tactical nuclear posture to compel employment of United States nuclear weapons on terms compatible with the French view of the deterrence requirement.⁹²

With respect to nuclear weapons the NATO strategy of flexible response demands the deliberate and controlled first use of small numbers of warheads in what has been described as an attempt to exploit the Soviet "strategic weakness" of refusing to engage in limited nuclear war.⁹³ While the overarching strategic objective is to deter the occurrence of war, the actual threat of nuclear first use is really intended to compel a change in Soviet conduct through selective nuclear use. Thus NATO strategy contains an active component that cuts across nuclear and conventional thresholds and goes beyond the conceptual understanding of deterrence.⁹⁴ It appears that as long as the NATO strategy of deterrence depends on initiating nuclear war by deliberate escalation, NATO nuclear strategy also contains at least some compellent characteristics.

III. PARADIGMATIC ANALYSIS OF WARSAW PACT STRATEGY

The Warsaw Treaty Organization (known in the West as Warsaw Pact) was formed in 1955 ostensibly in reaction to the rearmament of West Germany in

⁹² Jeffrey Record, U.S. Nuclear Weapons in Europe: Issues and Alternatives (Washington, D.C.: Brookings Institution, 1974), p. 33. In addition to the French declaratory policy of inflicting maximum pain on any aggressor, however, France has also quietly developed operational plans in which nuclear weapon use is closely coordinated with the counterforce planning of NATO. See Richard Ullman, "The Covert French Connection," Foreign Policy (Summer 1989), pp. 3-33.

⁹³ David Charles, Nuclear Planning in NATO: Pitfalls of First Use, p. 21.

⁹⁴ R.B. Byers, "Thresholds and Deterrence Credibility: The European Perspective," in William Gutteridge and Trevor Taylor, The Dangers of New Weapon Systems (London: MacMillan Press, 1983), p. 104.

NATO, but it did provide a more convenient and more broadly based legitimation for the maintenance of Soviet Forces in East Europe. While the Warsaw Pact may have begun as primarily a paper exercise to sanction the hegemonic role of the Soviet Union, it has gradually become an institution with a meaningful role to play in Soviet coalition strategy.⁹⁵ The exact nature of that strategy however remains clouded behind a veil of secrecy, and its interpretation often subject to the view of the hermeneutics of Soviet military doctrine.⁹⁶

The Soviet Union clearly did not urgently require the Warsaw Pact for essential military purposes. In the early 1950's the Soviet Union had sufficient military control of East Europe by virtue of the fact that Soviet troops were stationed there through various bilateral agreements, and Soviet general officers commanded non-Soviet armed forces at most senior levels.⁹⁷ Furthermore, in terms of military utility, Soviet senior officers have never appeared willing to consider the non-Soviet Warsaw Pact troops as being reliable enough to be potential replacements for Soviet troops.⁹⁸

If the Warsaw Pact, primarily a military alliance, was not needed for purely military reasons, then it must have been needed for political reasons important to the politico-military strategy of the Soviet Union.

⁹⁵ Thomas W. Wolfe, Soviet Strategy at the Crossroads (Cambridge, Massachusetts: Harvard University Press, 1964), pp. 210-211. See also his Soviet Military Policy Trends Under the Brezhnev-Kosygin Regime (Santa Monica, California: Rand Corporation P-3556, 1967), p. 18.

⁹⁶ See the interesting and worthwhile contribution of Douglas M. Hart, "The Hermeneutics of Soviet Military Doctrine," The Washington Quarterly 7 (Spring 1987), pp. 77-88.

⁹⁷ Viktor Suvarov, Inside the Soviet Army (London: Hamish Hamilton, 1982), pp. 14-16. For example in the early 1950's very few general officers in the Polish Army could speak Polish.

⁹⁸ Thomas W. Wolfe, Soviet Strategy at the Crossroads, p. 215.

The Soviet view of NATO is instructive:

from a Soviet standpoint, NATO as an organization plays a major role in protecting American power in Western Europe and in limiting West European independence from U.S. security interests.⁹⁹

It is entirely plausible that this view parallels the importance of the Warsaw Pact in Soviet grand strategy, at least during the period 1970-1986.

Although the Soviet Union still dominates the Warsaw Pact, as a military alliance it has changed considerably since its inception. Initially the East European forces had no access to nor training for nuclear weapons, making it difficult for them to integrate successfully with Soviet forces who were so trained and equipped.¹⁰⁰ By the 1970's however the non-Soviet Warsaw Pact forces had begun training for nuclear conditions enabling them to integrate more completely with Soviet forces. This section will examine the Soviet strategy for the Warsaw Pact 1970-1986 by looking in turn at its strategic intentions, the implied threats to use force and the correlation of nuclear forces in Europe.

1. The Strategic Intentions of the Warsaw Pact

As the Warsaw Pact alliance is primarily based on the power of Soviet military forces, the strategic intentions of the alliance closely reflect those of Soviet policy. Europe is the dominant concern to the Soviet Union, but East Europe due to ideological and defence

⁹⁹ Robbin F. Laird, The Soviet Union, the West and the Nuclear Arms Race (New York: New York University Press, 1986), p. 37. For a very typical Soviet account of American efforts to assert itself globally, see Sergei Blagovolin and Alexander Buzeyev, "Modern Militarism: Global Dimensions," Social Sciences 19 (No. 2, 1988), pp. 193-197.

¹⁰⁰ Thomas W. Wolfe, The Evolving Nature of the Warsaw Pact (Santa Monica, California: The Rand Corporation M-4835-PR, 1965), p. 10.

considerations clearly holds the most important priority.¹⁰¹ According to one respected expert, Malcolm MacIntosh:

as seen from Moscow, Europe is the most important peninsula in the Eurasian continent; and the Russians have always been drawn to the idea that in any geographical grouping of states, the most powerful nation should naturally assume leadership of the group. Therefore in the most general terms, the Russians feel that Europe is part of "their" continent, and that they have the right to be politically predominant in the European area. The presence of any other superpower, under whatever pretext, is regarded, in this broad sense, as an intrusion...¹⁰²

According to its Soviet commander, the Warsaw Pact alliance facilitates Soviet strategy by providing a necessary defensive counter to NATO's "aggressive" posture in Europe.¹⁰³ Clearly the Warsaw Pact gives the Soviet Union an important defensive shield, but the large Soviet armies have created suspicions that other objectives exist. The Soviet Union and Warsaw Pact declaration not to be the first to use nuclear weapons has implied a reduction in the reliance on nuclear weapons to support strategic plans.¹⁰⁴ With its previously described conventional advantage, properly implemented with an offensive military strategy should war occur and backed by at least nuclear parity at all levels, the Warsaw Pact could possibly gain advantage in conventional war. No first use

¹⁰¹ Angela Stent, "Western Europe and the USSR," in Gerrit W. Gong, Angela Stent and Rebecca V. Strode, Areas of Challenge for Soviet Foreign Policy in the 1980's (Bloomington, Indiana: Indiana University Press, 1984), p. 2.

¹⁰² Malcom MacIntosh encapsulates the Russian nationalist view that has been more prevalent in the Brezhnev years than in the more recent Gorbachev period, post 1986. He is cited in George Ginsburgs and Alvin Z. Rubenstein, "Finlandization: Soviet Strategy or Geographical Footnote," in George Ginsburgs and Alvin Z. Rubenstein, eds., Soviet Foreign Policy Towards Western Europe (New York: Praeger Publishers, 1978), p. 3.

¹⁰³ Victor Kulikov, "There Has Been and Remains a Threat to the Warsaw Treaty Member-Countries from NATO," APN Military Bulletin (September 1987), translated in FBIS/JPRS 23 February 1988, p. 5.

¹⁰⁴ From Whence the Threat To Peace (Moscow: Military Publishing House, 1987), p. 12.

affords the Warsaw Pact the maximum utility from its conventional superiority and thus benefits the USSR to the detriment of Western Europe.¹⁰⁵

In spite of the Soviet declaration of no first use, however, and in spite of economic difficulties, it continued to deploy more modern theatre nuclear systems.¹⁰⁶ These deployments demonstrated a major Soviet objective that related closely with the no first use declaration:

to deter NATO's resort to nuclear weapons in war, to deter escalation if NATO goes nuclear and to have some chance of avoiding destruction on Soviet territory.¹⁰⁷

The Soviet military and political leaders in fact appear to have a very good idea how effective nuclear weapons might be, to the point that military officers probably still prefer preemption. In seeking to negate NATO's nuclear options, the Warsaw Pact has integrated its nuclear and conventional forces and is for the most part better prepared than NATO to fight a conventional, chemical or nuclear war in Europe.¹⁰⁸ As the Soviet leaders came to realize that theatre war could remain conventional for long periods, they began to reorganize their nuclear assets to better

¹⁰⁵ Karl Kaiser, Georg Leber, Alois Mentes and Franz-Joseph Schulze, "Nuclear Weapons and the Preservation of Peace, Foreign Affairs 60 (Summer 1982), p. 1157.

¹⁰⁶ This was not without some controversy in the Soviet Union. See Dan L. Strode and Rebecca V. Strode, "Diplomacy and Defence in Soviet National Security Strategy", International Security 8 (Fall 1983), p. 110. Notwithstanding the economic difficulties and increased incentives to participate in arms control, defence remained top priority, see G.P. Armstrong, Soviet Motivations for Conventional Arms Reductions (Ottawa: Operational Research Analysis Establishment, D Strat A 86/16, 1986).

¹⁰⁷ Gregory Treverton, Nuclear Weapons in Europe. Adelphi Paper 168 (London: International Institute for Strategic Studies, 1981), p. 9.

¹⁰⁸ James L. Martin, "How the Soviet Union Came to Gain Escalation Dominance: Trends and Asymmetries in the Theatre Nuclear Balance," in Uwe Nerlich, ed., The Soviet Asset: Military Power in the Competition Over Europe, p. 89. See also Richard Burt, "NATO and Nuclear Deterrence," in Marsha McGraw Olive and Jeffrey Porro, eds., Nuclear Weapons in Europe (Toronto: Lexington Books, 1983), p. 110.

protect them, but training for war in nuclear and chemical environments remained very high.¹⁰⁹ The general explanation for these military preparations is that Moscow hopes to translate its military assets into political influence by creating a psychological impact causing a tendency toward political accommodation with Soviet interests.¹¹⁰

Warsaw Pact strategy, because of its reliance on nuclear coercion to deter NATO first use, creates risks for the Soviet Union, forcing Soviet leaders to distinguish carefully between their vital and lesser goals. The vital Warsaw Pact military objectives appear to involve maintaining the protective security belt of East European buffer states and retaining the freedom to seize the strategic initiative in war.¹¹¹ The former implies defensive motivations, but the latter requires an offensive component in Warsaw Pact strategy. The freedom to seize and presumably retain the strategic initiative in war demands a Warsaw Pact offensive strategy that implies a willingness to preempt with nuclear weapons immediately prior to NATO's first use.¹¹² Soviet military leaders appear seriously determined to gain the traditional military objectives of

¹⁰⁹ John G. Hines and Phillip A. Petersen, "Changing the Soviet System of Control: Focus on Theatre Warfare," International Defence Review (March 1986), p. 281.

¹¹⁰ Seweryn Bialer, Stalin's Successor's: Leadership, Stability and Change in the Soviet Union (Cambridge: Cambridge University Press, 1980), p. 264. See also Lothar Ruehl, "The Threat Perceived? Leverage of Soviet Military Power in Western Europe" in Uwe Nerlich, ed., The Soviet Asset: Military Power in the Competition Over Europe, p. 204.

¹¹¹ Jurgen Arbeiter, NATO Strategy: Strengths and Weaknesses. National Security Series 6/80 (Kingston, Ontario: Queen's University Press, 1980), p. 20.

¹¹² Even though new political thinking has emphasized the "new" defensive intentions of the Warsaw Pact, the overwhelming majority of military leaders believe that it cannot completely renounce the conduct of offensive operations. See the excellent article by Aleksander Savelev, "Averting War and Deterrence: The Approaches of the Warsaw Pact and NATO," Mirovaya Ekonomika i Mezhdunarodnyye Ostnosheniya (June 1989), translated by FBIS/JPRS 5 October 1989, p. 15.

victory in all forms of war if at all possible.¹¹³

The Warsaw Pact from 1970 to 1986, in part propelled by Marxist-Leninist ideology, challenged the existing status quo by seeking political accomodation from Western Europe. The offensive component of Warsaw Pact strategy threatened to give the Soviet Union unrestricted access to a relatively intact Western Europe, a situation that could reduce the time for Soviet economic reconstitution after a nuclear war by half.¹¹⁴ To the degree that Warsaw Pact strategy sought to retain Soviet control in East Europe, this offensive capability in the Soviet view probably provided the best defence by forcing a defensive strategy upon NATO. The result of an offensive strategic orientation however placed pressures on East European countries to conform to Soviet policy, thus creating considerable instability in the alliance.¹¹⁵

This tension faced the Soviet leaders with a fundamental obstacle which was only overcome with an extremely high military, political and economic commitment to the Warsaw Pact. Unfortunately for the Soviet leadership, the Soviet Union's most effective tool, its armed forces, were the least suited to defend its most vital stake in Eastern Europe,

¹¹³ Soviet military officers continue to insist that the Armed Forces must be prepared for extensive use of any type of weapon. See Vice Admiral G. Kostev, "Our Military Doctrine in Light of New Political Thinking," Kommunist Vooruzhennykh Sil (September 1987), translated by FBIS/JPRS 23 December 1987, p. 2. See also Warner R. Schilling, "U.S. Strategic Nuclear Concepts in the 1980's: The Search for Sufficiently Equivalent Countervailing Parity," International Security 6 (Fall 1981), p. 76.

¹¹⁴ See testimony by T.K. Jones in congress, cited by William R. Van Cleave and W. Scott Thompson, eds., Strategic Options for the Early Eighties: What Can be Done? (New York: National Strategy Information Center, 1979), pp. 121-122.

¹¹⁵ Stephen Larrabee, "The View from Moscow," in Stephen Larrabee, ed. Two German States and European Security (London: MacMillan Press, 1989), p. 192. See also Avigdor Haselkorn, The Evolution of Soviet Strategy 1965-1975 (New York: Crane Russak and Company, 1978), pp. 2-3.

ideological or political loyalty.¹¹⁶ East European regimes faced a serious lack of legitimacy, and the Soviet Union lacked incentives "for enticing rather than compelling allegiance" from its Warsaw Pact allies.¹¹⁷ Warnings noted that any Western attempts to take advantage of the ferment in East Europe could have dynamic effect on the Soviet leadership.¹¹⁸ The Soviet Union has not hesitated to intervene directly with military force if necessary to prevent deviant factions from gaining the capability to mobilize for armed resistance.¹¹⁹ The cohesiveness of the Warsaw Pact to Soviet policy has perhaps been the most fundamental strategic objective of Moscow, at least from 1970 to 1986.

The primary Soviet military objective in Europe appeared therefore to be the maintenance of its East European security system with the pursuit of Soviet policy goals toward achieving political accommodation from Western Europe, an important but lesser order goal. The conventional and theatre nuclear forces in the Warsaw Pact supported both goals: the former implied a deterrent perspective, but the latter introduced a degree of compellence into Warsaw Pact strategy.

¹¹⁶ Helmut Sonnenfeldt, "Perceptions of Soviet Power and Influence," in James Sherr, Soviet Power: The Continuing Challenge (London: MacMillan Press, 1978), p. 193.

¹¹⁷ Seweryn Bialer provides an excellent analysis of this issue. See his The Soviet Paradox: External Expansion, Internal Decline (New York: Alfred A. Knopf, 1986), p. 198, and Stalin's Successors: Leadership, Stability and Change in the Soviet Union, p. 296.

¹¹⁸ Richard Rosecrance, "Deterrence and Vulnerability in the Pre-Nuclear Era," in The Future of Strategic Deterrence Adelphi Paper 160 (London: International Institute for Strategic Studies, 1980), p. 29.

¹¹⁹ Christopher D. Jones, "Soviet Hegemony in Eastern Europe: The Dynamics of Political Autonomy and Military Intervention," in Erik P. Hoffmann and Frederic J. Fléron, eds., The Conduct of Soviet Foreign Policy (New York: Aldine Publishing Company, 1980), p. 560.

2. The Warsaw Pact Threat of Force

Because nuclear forces were so thoroughly integrated into Soviet and, to a lesser degree, Warsaw Pact strategy, the major threat to overpower Western Europe could not readily be separated into conventional and nuclear compartments. The obvious threat was based on powerful conventional forces but these were backed up at every level of combat by very capable nuclear weapon systems. The application of the paradigmatic framework to the Warsaw Pact nuclear threats, so far as they can be separated from military or conventional threats, is the subject of this section.

Although the Warsaw Pact has not used direct threats to NATO, the Soviet Union has employed more subtle threats on a fairly regular basis. Mostly these threats pertained to offers to support nuclear free zones or offers to "spare" regions or countries if they rejected nuclear weapons.¹²⁰ Soviet leaders may have also regarded active intimidation by military forces, including manoeuvres, violations of territorial waters and airspace as politically useful if it made Western Europe more receptive to Soviet calls for political and other forms of cooperation.¹²¹ Since all such Warsaw Pact military action is ultimately supported by Soviet nuclear weapons, a form of coercion is implied that is not far removed from nuclear coercion. A more direct nuclear threat was carried by the Soviet acceleration of its SS-20 missile production after the 1979

¹²⁰ John Van Oudenaren, Soviet Policy Toward Western Europe: Objectives, Instruments, Results (Santa Monica, California: Rand Corporation R-3310-AF, 1986), p. 49. See also T.B. Millar, The East-West Strategic Balance (London: George Allen and Unwin, 1981), p. 67.

¹²¹ John Van Oudenaren, Soviet Policy Toward Western Europe: Objectives, Instruments, Results, p. vi.

NATO decision to deploy Pershing II and GLCM's to Europe.¹²² This threat was amplified by a tremendous propaganda campaign to pressure the Federal Republic of Germany to change its stance on accepting the new INF weapons onto German soil.¹²³ As to the first variable, the Soviet Union appeared prepared to imply the threat of force frequently for specific policy objectives.

Secondly, nuclear targeting in the Warsaw Pact has remained relatively constant since the Soviet Union first introduced nuclear weapons in Europe. Soviet nuclear targeting strategy has been designed to cover military hard and soft targets but not destroy the human social and economic basis for the socio-economic system that would replace imperialism.¹²⁴ Modern Soviet missiles deployed to Europe are extremely precise and are now capable of discriminate attacks even with conventional warheads.¹²⁵ After degrading NATO's nuclear capabilities in the conventional phase of war and identifying all remaining nuclear targets, Soviet military strategy, on the verge of a breakthrough, projected using nuclear weapons in a pre-emptive counterforce fashion.¹²⁶ The Soviet military preoccupation with pre-emption, in spite of Soviet declarations

¹²² William G. Hyland, "The Struggle for Europe: An American View," in Andrew J. Pierre, ed., Nuclear Weapons in Europe (New York: Council on Foreign Relations, 1984), p. 32.

¹²³ Wolfgang Seiffert, "Soviet Political Strategy Toward The Federal Republic of Germany," in Ray S. Cline, James A. Miller and Roger E. Kanst, eds., Western Europe in Soviet Global Strategy (London: Westview Press, 1987), p. 138.

¹²⁴ William T. Lee, "Soviet Nuclear Targeting Strategy," in Desmond Ball and Jeffrey Richelson, eds., Strategic Nuclear Targeting (London: Cornell University Press, 1986), p. 92.

¹²⁵ Anthony Cordesman, "SDI and Europe: Where Does Theatre Defence Fit In?" International Defence Review (Number 4, 1987), p. 411.

¹²⁶ Joseph D. Douglass and Amoretta M. Hoerber, Conventional War and Escalation: The Soviet View (New York: Crane Russak and Company, 1981), p. 7.

of no first use of nuclear weapons, coupled with enhanced military capabilities, have probably increased the risks that conventional war in Europe will escalate.¹²⁷ By 1986, the Warsaw Pact had the force structure in place to match its earlier doctrine to destroy most of NATO's nuclear weapons in one pre-emptive attack. Even the 1987 INF treaty and the removal of the SS-20, although outside the time frame of this study, did not appreciably change this fact; it only reduced the Soviet advantage.

The next variable in the paradigmatic analysis is the degree to which the Warsaw Pact expected to control nuclear war once it was initiated. In spite of a strong desire to avoid fighting by Western limited war rules, the Soviets are probably better prepared to fight a limited war on non-Soviet European soil than NATO.¹²⁸ As noted earlier in chapter four, V.D. Sokolovsky's third edition of Military Strategy in the mid 1960's did introduce the possibility of controlling nuclear war into Soviet military doctrine. The Soviet Union does not, however, accept that any nuclear attacks on Soviet soil can be "limited". Although Soviet doctrine has never considered Western concepts of limited war to be valid, the United States Secretary for Defence James Schlesinger has observed that in Soviet exercises the Soviet military has indicated great interest in

¹²⁷ Senior Soviet leaders still insist that escalation once nuclear weapons are used is automatic. See Colonel-General Gareyev, "The Revised Soviet Military Doctrine," Bulletin of the Atomic Scientists (December 1988), p. 30. See also Stephen M. Meyer, "Soviet Perspectives on the Paths to Nuclear War," in Graham T. Allison, Albert Carnesale, and Joseph S. Nye, eds., Hawks, Doves and Owls: An Agenda for Avoiding Nuclear War (New York: W.W. Norton and Company, 1985), p. 204.

¹²⁸ John R. Thomas, "Limited Nuclear War in Soviet Strategic Thinking," Orbis 10 (Spring 1966), pp. 211-212. See also Joseph D. Douglas, Soviet Military Strategy in Europe (New York: Pergamon Press, 1980), p. 200; and, Lawrence D. Freedman, "U.S. Nuclear Weapons in Europe: Symbols, Strategy, and Force Structure," in Andrew J. Pierre, ed., Nuclear Weapons in Europe, pp. 62-63.

notions of controlled nuclear war.¹²⁹ The non-Soviet Warsaw Pact countries probably share the concerns of West Europe that any war, let alone nuclear war limited to Europe, would be an unmitigated disaster, and this concern may contribute to the Warsaw Pact's official renunciation of limited war concepts.

The Soviet threats to actually use military force are not open ended, but are technically contingent on NATO beginning a war in Europe. It would be logical, however, that if Soviet leaders were to view war as probable in a crisis, due to the nature of the military balance, the Warsaw Pact would probably attack prior to NATO completing its deployment and mobilization. To do otherwise would forfeit the great advantage of forces the Soviet Union enjoys along most of its periphery.¹³⁰ In fact, one isolated analyst believed that the Soviet Union maintained enough strength in Eastern Europe to conduct a conventional attack that could possibly defeat NATO before it could deploy or mobilize its forces.¹³¹ Although this would be most improbable, the amount of Soviet conventional forces in Eastern Europe does cause NATO serious concern. Maintaining the military capability to attack Western Europe at short notice was therefore an essential means by which the Soviet leadership could apply political leverage in West Europe.¹³² The Warsaw Pact, then, performed an essential

¹²⁹ Testimony before a subcommittee of the Senate Committee of Foreign Relations, Hearing, U.S. Nuclear Weapons in Europe and US-USSR Strategic Doctrines and Policies (Washington, D.C.: USGPO, 1974), p. 183.

¹³⁰ Dennis M. Gormley and Douglas M. Hart, "Soviet Views on Escalation," The Washington Review (Fall 1984), p. 78.

¹³¹ Peter H. Vigor, Soviet Blitzkrieg Theory (London: MacMillan Press, 1983), pp. 1-10. Such an attack would be without any significant mobilization to achieve political surprise in NATO, a flaky proposition.

¹³² Thomas W. Wolfe, The Soviet Union's Strategic and Military Stakes in the GDR (Santa Monica, California: Rand Corporation P-4549, 1971), p. 4.

role in providing the Soviet Union with an acceptable mechanism for maintaining significant quantities of Soviet forces in East Europe, East Germany in particular, where they could use Warsaw Pact territory as a springboard for launching a rapid offensive if necessary.¹³³

There is sufficient indication that in initiating any conflict the Warsaw Pact would probably employ deliberate deception and surprise to achieve a rapid and decisive advantage. For example, the Soviet led Warsaw Pact invasion of Czechoslovakia in 1968 achieved considerable surprise and moved 25 divisions into that country within 24 hours.¹³⁴ Since that time Soviet efforts to reorganize their military command structure have made it clear that the warning time to NATO of any Warsaw Pact attack will be further reduced.¹³⁵ The Warsaw Pact has acquired sufficient infrastructure and equipment that mobilization for war will likely be more rapid than in NATO.¹³⁶ Strategic surprise and deception would also likely be part of any Warsaw Pact military operation as they were in Czechoslovakia and in Afghanistan.¹³⁷ It appears that the Warsaw

¹³³ Thomas W. Wolfe, The Role of the Warsaw Pact in Soviet Policy (Santa Monica, California: Rand Corporation P-4973, 1973), p. 5.

¹³⁴ Phillip A. Karber, "Nuclear Weapons and Flexible Response," Orbis 14 (Summer 1970), pp. 284-285.

¹³⁵ John G. Hines and Phillip A. Petersen, "Changing the Soviet System of Control: Focus on Theatre Warfare," International Defence Review (March 1988), p. 289.

¹³⁶ As forces are being reduced in the later 1980's, even higher standards of combat readiness are being implemented. See Colonel-General Gareyev, "The Revised Soviet Military Doctrine," p. 31. See also Robert L. Pfaltzgraff, The U.S. Defence Mobilization Infrastructure: Problems and Priorities (Cambridge, Massachusetts: Institute for Foreign Policy Analysis, 1981), p. 5.

¹³⁷ Jiri Valenta, "Perspectives on Soviet Intervention," in Jonathan Alford, ed., The Soviet Union: Security Policies and Constraints (London: St. Martin's Press, 1985), p. 165. See also Richard K. Betts, Surprise Attack: Lessons for Defence Planning (Washington, D.C.: The Brookings Institution, 1982), p. 285.

Pact need only resort to nuclear weapons if NATO has used or is about to employ them.

The advantages of the Warsaw Pact in being able to initiate rapid offensive action may help convince Soviet leaders that Europeans will be more accommodating to Soviet interests,¹³⁸ and this could possibly make Moscow believe it has greater freedom of action in a crisis.¹³⁹ The use of threats for political advantage and the focus on counterforce targeting support a compelling view, even though other factors are either ambivalent or tend to support the deterrent paradigm.

3. The Correlation of Nuclear Forces

The Warsaw Pact, like NATO has integrated nuclear and conventional forces to a considerable degree, but since the late 1970's greater emphasis has been placed on the conventional phase of war. Certain operational changes with respect to the control of nuclear weapons have caused some concern among Soviet military officers who see them as another political constraint on its ability to launch pre-emptive strikes at the proper moment.¹⁴⁰ As discussed in chapter four, Soviet military strategy holds that nuclear weapons play a decisive role in changing the correlation of forces, and thus the role of nuclear weapons in Warsaw Pact strategy is extremely important. This section provides a brief look at the quantity and quality of Soviet theatre nuclear forces and then

¹³⁸ Mark C. Storella, Poisoning Arms Control: The Soviet Union and Chemical/Biological Weapons (Washington, D.C.: Institute for Foreign Policy Analysis, 1984), p. X.

¹³⁹ Barry Blechman, Rethinking U.S. Strategic Posture (Cambridge, Massachusetts: Ballinger Publishing Company, 1982), p. 252.

¹⁴⁰ Dennis Ross, "Arms Control Implications of NATO and WP Doctrines," in Power and Policy: Doctrine the Alliance and Arms Control. Adelphi Paper 206 (London: International Institute for Strategic Studies, 1986), pp. 54-55.

examines the expected utility of these weapons.

The Soviet Union has always given a high priority to covering regional targets with nuclear weapons, particularly in the early days when it could not threaten the United States. Once the Soviet Union developed the ability to strike the United States, intercontinental systems became top priority for a time. As soon as these were deployed, however, the Soviet Union once again placed increased emphasis on upgrading the earlier systems intended for use along the Soviet periphery. The improvements, such as SS-20, SS-21, SS-22, SS-23 and advanced fighter and bomber aircraft, that were deployed in quantity in the 1980's have been significant qualitative improvements with increased range, accuracy, lethality, payload, survivability and flexibility of employment.¹⁴¹ These improvements along with ICBM and SLBM developments show that the Soviet Union has produced a sustained effort over several decades to negate the reliance of NATO on United States nuclear forces.¹⁴² Soviet nuclear forces are flexible instruments for war fighting and are specifically designed to be operationally effective in combat.

Certainly the Soviet Union appears to believe that nuclear forces should be designed for maximum utility, but the remainder of the Warsaw Pact has at least some reservations about nuclear weapons. In 1984 when the Soviet Union deployed additional quantities of SS-21, SS-22, and SS-23 missiles to Eastern Europe in the attempt to intimidate NATO, Eastern

¹⁴¹ Robert P. Berman and John C. Baker, Soviet Strategic Forces: Requirements and Responses (Washington, D.C.: The Brookings Institution, 1982), p. 67.

¹⁴² In the soviet view, this effort was forced on the Soviet Union by United States' efforts to achieve nuclear advantage for its political/compellent purposes. See Aleksandr Savelev, "Averting War and Deterrence: The Approaches of the Warsaw Pact and NATO," p. 14. See also James L. Martin, "How the Soviet Union Came to Gain Escalation Dominance: the Trends and Asymmetries in the Theatre Nuclear Balance," p. 101.

European recipients of these systems expressed their political anger to Moscow.¹⁴³ From Moscow's perspective, however, coalition warfare of any sort can only be conducted successfully through the complete subordination of all military components to one supreme command authority, and in the Warsaw Pact that means Soviet authority.¹⁴⁴ As the unity of the Warsaw Pact is of fundamental importance, Soviet war preparations in the Warsaw Pact have gone to the extent of molding the alliance into an army modelled along Soviet lines. Some measures taken include not only the universal use of Russian as the command language, but also of Soviet documentation, communication, automation and decision-making procedures.¹⁴⁵ East European regimes have not had sufficient independence from the Soviet Union to take positions analogous to those taken by West Europe vis-à-vis the United States. Consequently any difference of views over the expected utility of nuclear weapons for intimidation or war fighting purposes have been usually kept behind a veil of secrecy.

Recent Warsaw Pact declarations of no nuclear first use imply a heavy reliance on conventional forces for at least the initial phase of war. Earlier Soviet doctrinal writings referred to only two escalation boundaries, between conventional and nuclear war, or between theatre and general nuclear war.¹⁴⁶ Although it is impossible to determine whether

¹⁴³ John Van Oudenaren, Soviet Policy Toward Western Europe: Objectives, Instruments, Results, p. 50.

¹⁴⁴ D.L. Smith and A.L. Meier, "Ogarkhov's Revolution: Soviet Military Doctrine for the 1990's," International Defence Review 20 (Number 7, 1987), p. 872.

¹⁴⁵ John J. Yurechko, "Command and Control for Coalition Warfare: The Soviet Approach," Signal (December 1985), p. 13. The Russian language is used at formation level; command at unit level is usually in the national language, by necessity.

¹⁴⁶ Joseph D. Douglass, The Soviet Theatre Nuclear Offensive (Washington, D.C.: USGPO, 1976), p. 5.

Soviet operational nuclear strategy has in fact changed since the no first use declaration, it does appear that the Soviet Union's military officers have not lost sight of the immense advantages of nuclear pre-emption. Soviet military officers are trained to think differently than their Western counterparts, and they may in fact not believe NATO's defensive declaratory policy.¹⁴⁷

The Soviet Union has deployed the quantity and quality of nuclear forces that gave the Warsaw Pact the ability to anticipate a reasonable chance of success in combat if a pre-emptive strategy was used. The Warsaw Pact from 1970 to 1986 was an extension of Soviet forces and took military direction from Moscow, including its nuclear strategy. While Soviet declaratory nuclear strategy still appears to be primarily a deterrent one, the Soviet theatre nuclear force structure supported a Warsaw Pact offensive/compellent military strategy at every level.

4. The Implications of Warsaw Pact Strategy

Soviet nuclear strategy heavily influenced the Warsaw Pact's predominantly offensive theatre strategy to counter NATO. Should war begin then East Europe would be placed in an awkward position with respect to nuclear weapons for either NATO or the Soviet Union could escalate to nuclear use with little warning to East Europe. In either case it is highly likely that the initial use of nuclear weapons would be confined to non-Soviet Europe, raising at least the possibility of a limited nuclear war. One of the major incentives for the Soviet Union to have adopted a no first use declaratory policy may have been to soothe East European concerns over nuclear use to facilitate the maintenance of Warsaw Pact

¹⁴⁷ Edgar O'Ballance, Tracks of the Bear: Soviet Imprints in the 1970's (Novato, California: Presidio Press, 1982), p. 15.

cohesion.

The Warsaw Pact nations were absolutely essential to Soviet military strategy for they provided the firm forward base with which to attack or threaten to attack NATO. Alliance cohesion was therefore perhaps even more vital to the Soviet military than the hardware at the disposal of the two alliances.¹⁴⁸ The force structure of the Warsaw Pact, however, indicated an improved capability in the 1980's to fight in all significant weapons categories. The Warsaw Pact strategy threatened a massive and rapid conventional attack should war begin, and nuclear weapons supported this strategy. One advantage of strong strategic and theatre nuclear forces for the Soviet Union was that Soviet extended deterrence, in terms of its credibility, may have extended further than that of the United States.¹⁴⁹ Consequently the Soviet Union may have had a potential for escalation dominance and more flexible options than NATO's strategy of flexible response.¹⁵⁰

In essence the Soviet Union relied on deterrence to protect its East European security system, and on compellence to persuade West Europe to be more accommodating to Soviet interests or to enforce the former. The Soviet use of threats and its force structure clearly indicated compellent tendencies within its overarching offensive military strategy. Towards the latter part of the 1970's, the Soviet Union adopted a declaratory nuclear strategy to deter NATO first use should war occur, but when the

¹⁴⁸ Lawrence Freedman, "Nuclear Weapons and Strategy", in Oyvind Osterud, ed., Studies of War and Peace (Oslo: Norwegian University Press, 1986), p. 84.

¹⁴⁹ Samuel Huntington, "The Renewal of Strategy," in his The Strategic Imperative: New Policies for American Security (Cambridge, Massachusetts: Ballinger Publishing Company, 1982), p. 34.

¹⁵⁰ Jacquelyn K. Davis and Robert L. Pfaltzgraff, Soviet Theatre Strategy: Implications for NATO (Washington, D.C.: United States Strategic Institute, 1978), p. 34.

actual forces in place are considered, this shift appears to have been one of political expediency rather than a fundamental change. Whether the INF Treaty or the recent adoption of a defensive Warsaw Pact strategy portend further substantive shift to deterrent thinking among Soviet leaders post-1986, remains to be seen. In the paradigmatic context, at least in the 1970-1986 period, the compelling model provides a more complete picture of Warsaw Pact strategy.

IV. CONCLUSION

NATO and the Warsaw Pact alliances have designed strategies to optimize their advantages and minimize their disadvantages in the competition for control of Europe. The gravitation of most of Europe into these two alliance systems indicates a greater "tightness" or cohesiveness in the mid-1980's than the 1950's. Alliances and wars may well be linked, especially when accompanied by the tightening of alliance structures,¹⁵¹ and therefore the superpower nuclear competition in Europe may have enormous implications for the future.

Both the Soviet Union and the United States, to a large degree, control their respective alliance's nuclear strategy. The Soviet Union is the only nuclear power in the Warsaw Pact and clearly the dominant member, but the United States, by virtue of its massive power, also has a predominant influence over NATO, particularly in the area of nuclear planning.¹⁵² The ability of each superpower to impose its strategy on its

¹⁵¹ Bruce Bueno de Mesquita, "Systematic Polarization and the Occurrence and Duration of War," Journal of Conflict Resolution 22 (June 1978), pp. 241-268. The fact that the Warsaw Pact has apparently loosened post 1986, therefore, should be a positive sign.

¹⁵² Robbin F. Laird, The Soviet Union, The West and the Nuclear Arms Race, p. 39. See also Daniel Charles, Nuclear Planning in NATO: Pitfalls of First Use, p. 18.

respective alliance is tempered, especially in NATO but also in the Warsaw Pact, by the political requirement to maintain the cohesion of the alliance.¹⁵³ One researcher suggests that superpower concerns over cohesion are not misplaced, because alliances between major and minor powers usually have the lowest reliability in war of all alliance types.¹⁵⁴

If anything, the smaller alliance members generally exert an influence on the alliance as a whole towards deterrent, not compellent, thought. The embracing of deterrence by smaller alliance partners has functioned to formalize and enforce an underlying political consensus on the inviolability of the present East-West borders.¹⁵⁵ In fact, to the extent that each superpower, but particularly the Soviet Union, appears to be conscious of the stabilizing value of the bipolar alliance structure, this trend to deterrent support for the status quo is reinforced.¹⁵⁶

The competition in alliance military strategy is consequently somewhat constrained by several important political factors. To avoid the costs of equal conventional forces, NATO relies heavily on the strategy of first use of nuclear weapons to deter the Warsaw Pact from any incursion into Western Europe. Soviet nuclear and conventional military doctrine appears designed to intimidate and to deter NATO's resort to nuclear

¹⁵³ Lawrence Freedman, The Price of Peace: Living With the Nuclear Dilemma (London: Firethorn Press, 1986), pp. 281-282.

¹⁵⁴ Alan Ned Sabrosky, "Interstate Alliances: Their Reliability and the Expansion of War," in J. David Singer, ed., The Correlates of War II: Testing Some Realpolitik Models (New York: The Free Press, 1980), pp. 196-197.

¹⁵⁵ Barrie Paskins, "Proliferation and the Nature of Deterrence," in Nigel Blake and Kay Pole, eds., Dangers of Deterrence: Philosophers on Nuclear Strategy (London: Routledge and Kegan Paul, 1983), p. 125.

¹⁵⁶ See Stephen Larrabee, "The View From Moscow," p. 205, and Gregory Flynn, "Problems in Paradigm," Foreign Policy (Spring 1989), p. 73.

weapons should war begin. It is a strategy that takes advantage of NATO's conventional weakness.¹⁵⁷ According to one account:

it is difficult at times to avoid the impression that both nuclear superpowers seek to exploit their nuclear strategic predominance to compensate for diplomatic, political and even economic infirmities, and to exploit their nuclear status for purposes of alliance management.¹⁵⁸

The 1987 INF treaty does not invalidate this analysis, because the treaty "will not fundamentally alter the overall superpower military balance."¹⁵⁹ The Soviet military chief of staff stated that the key Soviet objective in the INF treaty was to eliminate from Europe the United States ground based ballistic missiles which threatened Soviet territory.¹⁶⁰ This rationale demonstrates the seriousness with which Moscow viewed NATO INF deployments, and the giving up of the SS-20 to obtain the dismantling of NATO INF may not necessarily reflect paradigmatic change. In the correlation of forces analysis at theatre and strategic levels the Soviet Union could be better off after the INF Treaty. The Pershing II, for example, threatened automatic nuclear escalation and at the same time threatened to prevent the Soviet Union from retaining the strategic option of launching its forces upon warning of a United States attack. Even if the Soviet Union is increasingly embracing deterrent thinking, the legacy of compellence in its strategy is

¹⁵⁷ Joseph D. Douglass, Soviet Military Strategy in Europe, p. 201.

¹⁵⁸ Wolfram Hanreider, "Arms Control and The Federal Republic of Germany," Wolfram F. Hanreider, ed., Technology, Strategy and Arms Control (Boulder, Colorado: Westview Press, 1986), p. 60.

¹⁵⁹ Michael R. Gordon, "Dateline Washington: INF: A Hollow Victory?" Foreign Policy 68 (Fall 1987), p. 160. Other Soviet systems can cover European targets. Key hard targets will probably be covered by ICBM warheads that would otherwise be in reserve.

¹⁶⁰ Leon Gouré, "The Soviet Strategic View," Strategic Review 16 (Winter 1988), p. 79.

still cause for NATO concern.

NATO grand strategy seeks to deter a Soviet invasion, but NATO declaratory and operational nuclear strategy seeks to compel a change in Soviet behaviour if war should occur. The Soviet Union's longstanding objectives have been primarily to maintain control in East Europe and to compel greater accommodation to Soviet interests in West Europe, but its nuclear declaratory strategy still clearly seeks to deter any NATO use of nuclear weapons. The operational strategy of the Soviet Union, however, appears designed to ensure deterrence by the threat of conducting conventional offensive operations supported by the implied threat of preemptive nuclear war should NATO attempt nuclear first use. In both alliance strategies, deterrence and compellence appear so deeply intertwined that their separation becomes extremely artificial and awkward.

Chapter Seven

THE NUCLEAR FORCE STRUCTURE OF THE UNITED STATES

So far in this inquiry, the focus on nuclear strategy has been to analyze the objectives and threats that underpin the superpower's declared intentions. This study now begins to narrow this focus to the analysis of the actual strategic nuclear force structures. The United States nuclear forces are dealt with in this chapter, the Soviet nuclear forces follow in chapter eight, and then the trends of the correlation of nuclear forces between the two nuclear powers form the theme of chapter nine.

Only by examining the capabilities of the respective strategic forces can the actual operational strategy be determined with any reliability. As has been elaborated in chapter one, the deterrent and compellent paradigms require different force structures. These next chapters therefore seek to identify, to the extent possible, how closely each superpower's strategic forces conform to the respective paradigms. If deterrent thinking were dominant, one would expect that a given force structure would simply be designed to absorb a first strike and still be capable of inflicting assured destruction on its rival. If compellent thinking were dominant, one would expect that a given force structure would seek an advantage in a potential counterforce exchange such that greater residual nuclear forces could be held for subsequent threats or war fighting purposes.

This chapter begins with the explanation of the correlation of nuclear forces model that applies to the following chapters as a heuristic device in the analysis of nuclear force structure. Following this explanation, the analysis utilizes the now familiar correlation of

nuclear forces framework that examines in turn the quantity, the quality and the expected combat utility of these forces.

I. THE CORRELATION OF NUCLEAR FORCES MODEL

To a Soviet strategic analyst in the Brezhnev era, the concept of the correlation of forces was a fundamental baseline that determined his approach and methodology. The correlation of nuclear forces is simply a subset of this broader concept that was explained in chapter four. This section seeks first to explain the model used in this study and then account for its use in spite of certain criticisms. Inevitably, some caveats are necessary to avoid oversimplifying and distorting what is in reality an extremely complex issue.

Any model that purports to analyze the correlation of forces must therefore be a relatively complex one that accounts for many diverse factors. The degree of complexity can be even further compounded by the fact that many factors have changing significance and are capable of behaving in an unpredictable manner.¹ Nevertheless, the concept of somehow assessing the correlation of forces is one of the few remaining standards that stems from Lenin's concept of revolution, and it has triggered many modelling efforts designed to accomplish this task.² In 1967 one of these efforts by Major General Anureyev, a highly respected and influential professor at a senior Soviet military academy, produced a correlation of nuclear forces model that provided an interesting conceptual and analytical foundation for dynamic modelling of central or

¹ Michael J. Deane, "The Soviet Assessment of the Correlation of World Forces: Implications for American Foreign Policy," Orbis 20 (Fall 1980), p. 628.

² Richard E. Porter, "Correlation of Forces: Revolutionary Legacy," Air University Review 28 (March-April 1977), pp. 26-27.

theatre nuclear war.³ This model is as follows:

$$C = C_0 \frac{\sum_i U_i \times P_i \times S_i}{\sum_j U_j \times P_j \times S_j}$$

where C is the correlation of nuclear forces, C₀ is the initial correlation of nuclear forces (defined by dividing the total equivalent megatonnage, EMT, of country i by that for country j), U is the fraction of EMT by type of a given weapon system, P is the probability of penetration of a given weapons system and S is the probability of survival of a given weapons system. While this model presents an interesting conceptualization of how to assess the correlation of nuclear forces, Stephen Meyer's version contains a serious error of mathematical logic in that he appears to have confused the total megatonnage value with equivalent metagonnage and thus misrepresents the original formulation.⁴ Another way of expressing this equation where n simply represents the number of a given weapon system is as follows:

$$C = \frac{\sum_i n_i (EMT_i) \times P_i \times S_i}{\sum_j n_j (EMT_j) \times P_j \times S_j}$$

³ I. Anureyev, "Determining the Correlation of Forces in Terms of Nuclear Weapons," Military Thought 6 (1967), in Selected Readings From Military Thought, 1963-1973. Vol. 5, Part 1 (Washington: USGPO, 1982), pp. 164-165. See also Stephen M. Meyer, Soviet Theatre Nuclear Forces, PART I: Development of Doctrine and Objectives. Adelphi Paper 187 (London: International Institute for Strategic Studies, 1984), pp. 35-38.

⁴ This methodology has been validated by Ed Edmond of the Directorate of Mathematics and Statistics and by Dr. J.S. Finan, the Director of Strategic Analysis, at the Operational Research Analysis Establishment in Ottawa, February, 1988. See Annex A for the formula and methodology used to generate data for this study.

For each given weapon system, detailed and separate calculations are required to determine its probability of penetration and its probability of survival in combat. These additional calculations are also very complex and inevitably must rely on certain assumptions as to how these systems will perform when the time comes. What this expression represents is a combination of quantitative and qualitative factors that, to a degree, account for the relative utility of various weapons systems that are or become residuals in combat.

As is the case for any such model, this one can be criticized as an inaccurate or inappropriate expression of complex reality. Strategic analysis faces several major constraints, most of which have to do with the limitations of human intuitive inferential abilities in coping with massive amounts of information or with the limitations of science and formal methods in accounting for complexity without unduly truncating the analytical process.⁵ Clearly with any such means of analysis, one runs the risk of providing "a machinery for producing phoney corroborations" that only gives a semblance of scientific validity.⁶ Operational research in World War Two, for example, tended in retrospect to be in error by a factor of three.⁷ In the Vietnam conflict, systems analysis also failed to reveal that Vietnamese troops who fought well defending their homes in the Mekong Delta would desert rather than fight when sent to the

⁵ See Albert Clarkson, Toward Effective Strategic Analysis (Boulder, Colorado: Westview Press, 1981), pp. 81-83.

⁶ Imre Lakatos, "Falsification and the Methodology of Scientific Research Programmes," in Imre Lakatos and Alan Musgrave, eds., Criticism and the Growth of Knowledge, p. 176.

⁷ Philip Morse conducted operational research in World War Two. He felt that more recent projections could be even less accurate and said so in a letter to the United States Senate, Congressional Record (17 February, 1972), p. S-1938. See Fred Kaplan, Wizards of Armageddon, (New York: Simon and Schuster, 1983) p. 355.

demilitarized zone.⁸ Models are simply the tools of analysis and therefore still require judicious application by people with a broad knowledge of history and politics who at exactly the same time understand technical detail.

Relation of nuclear analysis, as a result of the total lack of any operational experience, depends very heavily on various models and games. Notwithstanding the criticisms, no effective analysis of strategic nuclear weapons can occur without making extensive use of mathematical models to create an "artificial reality" that is an important first step in developing useful and flexible models.⁹ To conduct any meaningful analysis, some simplification is necessary. The Soviet Union made considerable progress along these lines in the 1960's while the Western analysts tended to focus on the games of Chicken and Prisoner's Dilemma, tailored for the rational analysis of deterrence.¹⁰ The selection of a Soviet model for use in this analysis is for the most part because of its greater applicability to the paradigmatic mode of analysis.

The correlation of nuclear forces model is designed to demonstrate the residual ability of nuclear force structures to inflict damage on the other side. That is undoubtedly why EMT was selected as the unit of measure for the power of the weapons. Those weapons with which one attacks must be deliverable and reliable, and those weapons withheld must be survivable. These weapons can be used for counterforce or countervalue

⁸ Eliot Cohen, "Guessing Game: A Reappraisal of Systems Analysis," in Samuel Huntington, ed., The Strategic Imperative: New Policies for American Security (Cambridge, Massachusetts: Ballinger Publishing Company, 1982), p. 183.

⁹ Thomas L. Saaty, Mathematical Models of Arms Control and Disarmament (New York: John Wiley and Sons, 1968), pp. 160-1.

¹⁰ Ibid. The latter games are generally felt to be more appropriate for deterrence analysis and less useful for analysis of compellence.

attacks; however, it has been accepted that counterforce nuclear warfare is the upper limit of rational, politically purposive military action.¹¹ Impressive increases in weapon system accuracy now mean that collateral civilian casualties in a counterforce attack could conceivably be reduced by as much as 96%.¹² Nevertheless, the most accepted measure of one's ability to inflict strategic defeat is EMT, and as long as a given superpower can deliver about 400 EMT, it can reasonably be expected to have a capacity to defeat strategically an opponent.

Technical analysis and mathematical modelling in the Soviet Union complements the ideological commitment to finding a scientific basis to confirm the actual correlation of forces, but the problems of accurately identifying the relative power of adversary countries affects all states. In the past, serious errors in calculating the correlation of forces have led to disastrous political and military consequences. For example, when Germany cautiously sent three battalions to re-occupy the Rhineland in 1936, Britain estimated 30 battalions were involved and the French thought 300 battalions moved in.¹³ It is also possible that a real advantage in forces will not necessarily lead to a favourable result. One Soviet analyst has noted carefully that

¹¹ Paul Ramsay, The Just War: Force and Political Responsibility (New York: Charles Scribner and Sons, 1968), p. 215. More recent assessments also accept that the final retaliation implicit in deterrence is not morally justified. See John Finnis, Joseph Boyle and Germain Grisey, Nuclear Deterrence, Morality and Realism (Oxford: Oxford University Press, 1988), pp. 159-161.

¹² Henry S. Rowen and Albert Wohstetter, "Varying Response with Circumstance," in Johan J. Holst and Uwe Nerlich, eds., Beyond Nuclear Deterrence: New Aims, New Arms, pp. 232-233.

¹³ Herbert Goldhammer, Reality and Belief in Military Affairs: A First Draft (Santa Monica, California: Rand Corporation R-2448-NA, 1979), p. 2.

a superiority in forces must not be over simplified. Even a significant superiority is merely a favourable opportunity. Its conversion into actuality is a complex and contradictory process.¹⁴

In the United States, a parallel to this notion is found in the realist model of interstate conflict.

In a world where power counts, the supreme virtue is prudence, that is, a rational calculation of the advantages of alternative courses of action. Such a calculation requires a judgement of the relative power of adversary nations and one's ability to influence their actions.¹⁵

Detailed calculations of force structure and mathematical models are the key tools for modern military analysis, necessary to avoid perceptions that on occasion can be opposite to reality. The Soviet success of Sputnik and the American Apollo successes are examples that helped convince many people that a given superpower was considerably more powerful relative to the other than it actually was.¹⁶

Both the Soviet Union and the United States rely heavily on various forms of modelling to assist in developing nuclear strategy and force structure. In the Soviet Union, the main utility of these models appears to be the provision of a mathematical basis for the most effective methods for conducting combat. It forms a logical strictness of thought that

¹⁴ Stephan A. Tyushkevich, "The Methodology for the Correlation of Forces in War," in Joseph D. Douglas Jr. and Amoretta M. Hoeber, eds., Selected Readings From Military Thought 1963-1973, Vol. 5, Part 2, (Washington, D.C.: USGPO, 1983), p. 64. The Soviet invasion of Finland in 1939/40 is a pertinent example.

¹⁵ Russel J. Lang, "Influence Strategies and Interstate Conflict," in David Singer, ed., The Correlates of War II: Testing Some Realpolitik Models (New York: The Free Press, 1980), p. 127. See also Hans Morgenthau, Politics Among Nations 5th Edition, (New York: Alfred A. Knopf, 1965), p. 10 and p. 27.

¹⁶ Herbert Goldhammer, Reality and Belief in Military Affairs, p. 1. Although such examples are most evident in forming mass opinion, they are also important in shaping beliefs of political, economic and military elites.

disciplines the mind and serves as an aid to better strategic decisions.¹⁷ In this process, mathematical forecasting and operational research are linked, and the main purpose of this effort is to provide information and data needed for better Soviet decision-making.¹⁸ In the United States a similar but more diverse strategic community has had an equally significant role in aiding the decision-making process. Not only have defence officials conducted extensive research and analysis, but they have been assisted by many outside agencies. Throughout the 1950's and 1960's, the Rand Corporation in particular had a major impact on United States nuclear analysis. In general, the American analysts have observed the same fundamental variables, but have not put them together in the same comprehensive and numerate fashion.¹⁹ One independent analyst, for example, produced a dynamic model with some similarity to that produced by General Anureyev, but it dealt only with ICBM's.²⁰

The correlation of nuclear forces model used by this study is simply a tool that has application to the analysis of the nuclear force structure

¹⁷ N. A. Lomov, Scientific - Technical Progress and the Revolution in Military Affairs (Moscow: translated and reprinted by the United States Air Force, 1973), p. 244.

¹⁸ Yu. V. Chuyev and Yu. B. Mikhaylov, Forecasting in Military Affairs (Moscow: translated by Secretary of State Department, Canada and reprinted by USGPO, 1975), p. 224.

¹⁹ American methodologies include "Relative Force Size Comparison" (Department of Defence) and "Discretionary Force Potential" (Joint Chiefs of Staff). See Christopher I. Branch, Fighting a Long Nuclear War: A Strategy, Force, Policy Mismatch (Washington: National Defence University Press, 1984), pp. 57-66. See also testimony of Dr. William J. Perry before the Committee on Armed Services, United States Senate, "Research and Development," Department of Defence Authorizations for FY 1981 Part 5 (Washington: USGPO, 1980), p. 2721.

²⁰ Michael Intiligator, "The Debate Over Missile Strategy: Targets and Rates of Fire," Orbis 11 (Winter 1968), p. 1159. Another United States model, purportedly similar to a Soviet one, is the Arsenal Exchange Model. See Michael May, George Bing and John Steinbruner, Strategic Arms Reductions (Washington, DC: The Brookings Institution, 1988), pp. 30-31.

of each superpower. It provides a relative measure of nuclear forces that allows a comparative analysis of nuclear systems which includes at least some of the dynamic factors critical in the event of war. Although it is a necessary simplification, its application to the existing nuclear force structure over time should clearly show any significant trends. More importantly, this model is probably representative of the type of analysis that routinely takes place in Moscow and even possibly in Washington with the aid of highly classified data and sophisticated computers. Consequently the model's results will yield an insight into nuclear strategic thinking that will greatly assist the paradigmatic analysis.

II. STRATEGIC NUCLEAR FORCES - QUANTITATIVE FACTORS

As a first step in the quantitative analytical process, one must decide on the applicable data base, a task made all the more difficult when dealing with strategic weapons systems between the Soviet Union and the United States who do not acknowledge the same definition of "strategic." To the United States, strategic nuclear systems have intercontinental range, but to the Soviet Union any weapon that can strike at the heart of Soviet power (within the boundaries of the Soviet Union) must be judged strategic regardless of where it is based. In the subsequent analysis, the systems agreed to by the Soviet Union and the United States throughout the SALT negotiations form the analytical baseline.²¹ Thus, several potent weapon systems are immediately excluded from analysis, and some inclusions may not necessarily reflect their intended utility in war. For example, all theatre nuclear forces including Backfire bomber and attack aircraft carriers are excluded as are

²¹ The only exception is the inclusion of the SS-N-5 missile, done only for greater ease of counting SLBM's. This addition has minimal influence on the overall results, and all were taken out of service by 1980.

British, French and Chinese nuclear forces. The exclusions, however, are partially offset by the inclusions of the Polaris/Poseidon SSBN's allocated to NATO and those Soviet ballistic missiles, including the variable range SS-11's and their replacements, that are probably intended to threaten peripheral targets.²² By limiting this study to the systems covered by the SALT accords, the huge task of analyzing strategic nuclear systems becomes more manageable without seriously affecting the correlation of nuclear forces model results.

Assessing the United States nuclear force structure in a paradigmatic context requires the application once more of the correlation of nuclear forces component of the previously established framework. This framework contains three aspects of analysis: quantitative factors, qualitative factors and dynamic processes. This section will delve into the quantitative aspects of United States force structure, and the two following sections will address the qualitative and dynamic factors. The major focus of this analysis is on the period 1970-1986, the third period of United States nuclear strategy that was analyzed in chapter three.

Because of the fact that most of the decisions that shaped the numbers of United States nuclear strategic systems took place in the McNamara years (1960's), the quantitative section can be fairly brief. Compared to previous periods, from 1970 to 1986 the numbers of major strategic systems of the United States have been relatively stable. For the most part, the major quantitative or static indicators are held to be the number of strategic nuclear delivery vehicles (SNDV's), the number of

²² In 1963, NATO identified a requirement for and was allocated five SSBN's to threaten theatre targets in East Europe, and the USSR has probably allocated over 100 SS-11 replaced by an equal number of SS-17 ICBM's to threaten key targets in Europe and China. See Robert P. Berman and John C. Baker, Soviet Strategic Forces: Requirements and Responses (Washington, DC: The Brookings Institution, 1982), p. 59.

nuclear warheads or re-entry vehicles, and the equivalent megatonnage values of the strategic nuclear force as a whole.²³

From the years 1970 to 1986, the United States total of SNDV's decreased from 2175 to 1910, the lowest level being 1849, reached in the year 1983.²⁴ It had been long predicted that the United States could reduce its strategic forces without jeopardizing its retaliatory capability and without adverse political consequences for the United States,²⁵ but this SNDV reduction may no longer be the most significant factor in assessing strategic power. While the number of ICBM's and SLBM's dipped somewhat in the early 1980's the major change during this period for the United States was the cut in the number of operational bombers. Several bombers remain in long term storage, but their use in modern combat would require a great deal of preparation time. A few additional ICBM's have also been acquired for testing purposes, but without warheads and re-usable silos their use would also require a great deal of preparation time.²⁶ As the United States has no known plans to reconstitute its strategic forces in the event of war, for the purposes of analyzing the American nuclear forces ready for combat, only those presently in operational units are counted.

²³ Donald M. Snow, Nuclear Strategy in a Dynamic World: American Policy in the 1980's (University, Alabama: University of Alabama Press, 1981), p. 108.

²⁴ See Annex B for details of the U.S. SNDV totals 1970-1986.

²⁵ See Alton H. Quanbeck and Barry M. Blechman, Strategic Forces: Issues for the Mid Seventies (Washington, D.C.: Brookings Institution, 1973), p. 68.

²⁶ For example, 108 MX missiles were acquired to field a force of 50 missiles. The additional missiles are for both initial and subsequent testing. See David M. North, "New Soviet Weapons and Strategy Shape U.S. Deterrence Efforts," Aviation Week and Space Technology (March 10, 1986), p. 25.

A more significant variable is perhaps the total number of warheads or re-entry vehicles fielded in the strategic nuclear force. In 1970, the United States had 4079 strategic warheads, but by 1986 this number had grown to 11,772, almost a threefold increase. Most of this increase was attributable to the Poseidon and Trident weapon systems, but the Minuteman 3 and the air launched cruise missile (ALCM) have also contributed to this growth.²⁷ The MIRVing of strategic missiles in the 1970's was the most important factor that increased the number of warheads available, and it was quite clear during this period that more warheads were required to cover additional targets.²⁸ In terms of striking hard targets, it is considered feasible to send at most two warheads; the first, an airburst to maximize overpressure and immediate radiation and to minimize the debris in the air that could interfere with the passage of subsequent warheads, and the second, a ground burst to create maximum shock and cratering.²⁹ MIRV's facilitate striking hard targets by allowing RV's from separate missiles to attack a given target, hereby increasing the probability that at least one will arrive. By 1977, according to an assessment by the Congressional Budget Office, the

²⁷ On the average, strategic target lists have grown 10% per year. See Richard Lee Walker, Strategic Target Planning: Bridging the Gap Between Theory and Practice (Washington: National Defence University Press, 1983) p. 11. See Annex C for details of U.S. warhead totals 1970-1986.

²⁸ Although no single factor adequately explains the MIRV decision, the impetus for its acceptance derived from budgetary constraints on rational military target analysis. See Ted Greenwood, Making the MIRV: A Study in Defence Decision Making (Cambridge, Massachusetts: Ballinger Publishing Company, 1975), p. 142.

²⁹ Robert C. Aldridge, First Strike: The Pentagon's Strategy for Nuclear War (Boston, Massachusetts: South End Press, 1983), p. 61. This book provides some excellent detail on American technologies and their war fighting or counterforce applications.

strategy of essential equivalence would require about 16,000 warheads.³⁰ Over this time period, an evident increase in targets, at least in part due to the requirement to attack hard targets, appears related to this growth in strategic warheads.

The total nuclear force structure is also a function of strategic programme funding, and clearly funding realities constrain the ability of the United States government to fulfill all of its strategic goals. A case in point is the MX, 200 of which were to be acquired in part to improve the United States position in arms control talks, but by 1986 only 50 were funded.³¹ From the early 1950's to the early 1970's the United States has been able to gradually reduce its spending on strategic systems in constant dollars to about half of its previous level.³² This reduction in strategic spending was reversed in the mid 1970's primarily due to concerns over Soviet strategic construction. Between 1981 and 1985 the United States defence spending grew by 32% in real terms, as President Reagan launched the largest United States military build-up since the Korean War.³³ This increased defence spending in part accounts for the sharp increases in warheads available in the 1980's.

³⁰ United States Congressional Budget Office, U.S. Strategic Nuclear Forces: Deterrence Policies and Procurement Issues (Washington, D.C.: USGPO, 1977), p. 32. This number of warheads is that needed by the proposed or "required" strategic force.

³¹ Leon V. Sigal, "Stable Deterrence or Nuclear War - Fighting: All Unclear on the Nuclear Front," in R. B. Byers ed., Deterrence in the 1980's: Crisis and Dilemma (Bechenham: Croom Helm, 1985), p. 108.

³² Henry S. Rowen, "The Need for a New Analytical Framework," International Security 1 (Fall 1976), p. 130. Rowen's data refutes the notion of an arms race in strategic systems prior to 1976.

³³ Barry R. Posen and Stephan W. Van Evera, "Reagan Administration Defence Policy: Departure from Containment," in Kenneth A. Oye, Robert J. Lieber and Donald Rothschild, eds., Eagle Resurgent? The Reagan Era in American Foreign Policy (Boston, Massachusetts: Little Brown and Company, 1987), p. 75.

The final quantitative variable used as a strategic yardstick is the summation of EMT, the measure of destructive power. Although the total EMT available to the United States dropped by 10.8 percent over the period, this ignores the significant increase in the United States totals after 1981.³⁴ In fact, the total EMT in United States strategic forces dropped until 1976 when it more or less levelled off. The significant increases in the 1980's, however, are directly attributable to ALCM and Trident, but even modest increases in the number of MX missiles or B-1 bombers in subsequent years could return the EMT available to the 1970 level.

EMT is a variable that is often directly related to another common indicator used to measure strategic power, that of throw weight. The two are somewhat linked by Kent's rule which claims that the size of a nuclear warhead is proportional to its yield to the two-thirds power.³⁵ Therefore, the greater the throw weight, the greater the number of warheads, total yield and total EMT. Since the power of a ballistic missile is proportional to its fuel load and since its fuel load is proportional to its volume, assuming its range to be constant, analysts can make reasonably accurate estimates of missile throw weight. Not all analysts, however, believe that throw weight is a meaningful indicator of strategic power.³⁶ This study considers EMT a more useful indicator

³⁴ See Annex D for details of EMT totals for the United States.

³⁵ See the very good article by Thomas A. Brown, "Number, Mysticism, Rationality and the Strategic Balance," Orbis 21 (Fall 1977), p. 485. See also Ian Bellamy, "More Arithmetic of Deterrence: Throw Weight, Radioactivity and Limited Nuclear War," RUSI Journal 124 (June 1979), pp. 35-36.

³⁶ For a positive view see Paul H. Nitze's influential article, "Assuring Strategic Stability," Foreign Affairs 54 (January 1976), p. 230. For a dissenting view see Jan Lodal, "Assuring Strategic Stability: An

because it alone measures the actual pattern of destruction on the ground, reducing yields of various sizes to an equivalent standard.³⁷

The measure of the quantitative factors of SNDV's, warheads and EMT tends to show a fairly stable United States nuclear force structure over the period 1970-1986. While two indicators, the SNDV and EMT, show an overall decrease during this period, both have shown increases in the 1980's. The number of warheads, however, has increased almost threefold with about 2500 being added in the 1980's. Overall, the quantitative indicators in the 1970's seems to fall within what might be expected in a deterrent paradigm, but the significant increases in the 1980's especially in numbers of warheads when coupled with the already high levels of nuclear weapons indicates that deeper analysis is necessary.

III. STRATEGIC NUCLEAR FORCES - QUALITATIVE FACTORS

During this period, 1970-1986, a technological competition to field "better" strategic systems appears to have accelerated in conjunction with the levelling off of the numbers of strategic nuclear systems. Qualitative factors that make a given system more effective include increasing the availability, the reliability, the accuracy, the precision, the yield, the penetration ability, the hardness or the survivability of each individual weapon.³⁸ For the United States, these variables have steadily improved during this period of analysis as newer systems and

Alternate View," Foreign Affairs 54 (April 1976), p. 480.

³⁷ A nuclear fireball creates three dimensional damage but most target areas are measured in two dimensions. EMT for yields under one Megaton are proportional to the yield to the two-thirds power and yields over one megaton are proportional to the square root of the yield. See Ian Bellany, "The Essential Arithmetic of Deterrence," RUSI Journal 118 (March 1973), p. 28.

³⁸ Accuracy does not equal precision. The measure of accuracy is Circular Error Probable and the measure of precision is bias.

modifications to existing systems have been fielded.³⁹

1. Overall Availability and Reliability

Weapon availability is a function of routine maintenance and alert posture. The United States in peacetime normally has about 90% of its ICBM's available for immediate launch, about 25% of the strategic bomber force on alert, and about 50% of its SSBN's at sea or on patrol.⁴⁰ This study, however, rejects the concept of an "out of the blue" strategic attack as a practical policy option and accepts the notion that strategic combat is far more likely to occur after a serious political crisis or after a period of conventional war. Thus, what is most important to this analysis is what the United States forces would look like in a fully alerted or generated posture. If such a generated posture were to be maintained for a significant period of time, however, it would degrade as the effect of reduced training and maintenance would be felt. This study assumes that generated posture may have to be held for up to 30 days and that the strategic forces may degrade slightly from a fully generated condition. It is also assumed that ICBM's are close to 100% available, that 85% of SSBN's are at sea and that 80% of bombers are on alert status. Even in a fully generated condition, however, the United States could possibly be able to deliver as few as 38% of its nuclear strategic weapons

³⁹ See Annex E for data on U.S. ballistic missiles. This annex summarizes the key variables that will be addressed in this section.

⁴⁰ William C. Martel and Paul L. Savage, Strategic Nuclear War: What the Superpowers Target and Why (London: Greenwood Press, 1986), p. 28-30. This book is a major contribution to nuclear targeting.

on their targets.⁴¹

The second major qualitative factor is closely related to availability; it is the overall reliability (OAR) of a given weapon system, including the probability that first the missile then the warhead will function properly. The OAR is normally expressed as a figure from zero to one, where one is total reliability. As weapon systems get more complex, the number of parts increases, and for example, a given weapon system with one million parts, each with a reliability of .999999 for performing its mission, could have an overall probability of success that could be less than .4.⁴² Because reliability errors are multiplicative, the actual reliability of a given system is difficult to determine; however, modern ballistic missile reliabilities are generally assessed at between .7 and .9.⁴³ One way of determining OAR is to monitor actual missile tests; from 1965-1983, however, only three United States ICBM's have been launched from operational silos, and none worked properly.⁴⁴ Others have simply assumed that the United States, with its great industrial and technological strength, has ICBM's and SLBM's that are

⁴¹ Desmond Ball, Targeting for Strategic Deterrence. Adelphi Paper 185 (London: International Institute for Strategic Studies, 1983), p. 26. It is not possible to sustain troops and equipment in a generated state for prolonged periods. See Ellen P. Stern, The Limits of Military Intervention (London: Sage Publication, 1977), p. 84.

⁴² The example used was the Nike Hercules Air Defence System cited in Norman R. Augustine, Augustine's Laws (New York: American Institute of Aeronautics and Astronautics, 1982), p. 59. If any one part fails, the whole mission may fail. The same principle applies to all systems.

⁴³ Kosta Tshipis provides an excellent review of nuclear weapons technologies in his, Arsenal: Understanding Weapons in the Nuclear Age (New York: Simon and Schuster, 1983), p. 114. OAR of .6 means that a given system will operate as planned 60% of the time.

⁴⁴ Bruce Russett, The Prisoners of Insecurity: Nuclear Deterrence, The Arms Race and Arms Control, p. 29. Even those launched from test facilities have not been much more successful.

extremely reliable.⁴⁵ At the beginning of the 1970's reliabilities appeared to be lower than in the 1980's. One analysis of a possible Soviet counterforce attack postulated that the OAR including availability would be as low as .57.⁴⁶ According to a senior defence official, in 1968 the average OAR of Minuteman 1 and 2, and the three Polaris variants was .66.⁴⁷ When the availability factor is withdrawn, assuming it to be .9, then the OAR averages out to be .73.

This study has selected OAR's for the United States systems that are more or less based on these averages in the early years and projected reliability improvements into the 1980's. United States B-52/B-1B bombers are assessed as having an overall system reliabilities of .8/.85 respectively that includes all warheads, missiles and the aircraft itself.

2. Lethality

The next major qualitative factor includes the variables of accuracy, precision and yield to measure the lethality of a given weapon system against hard targets. This factor is also known as counter military potential (CMP or K) and is expressed mathematically as:

$$\text{CMP} = K = \frac{Y^{2/3}}{\text{CEP}^2}$$

⁴⁵ Dietrich Schroer, Science, Technology and the Nuclear Arms Race (New York: John Wiley and Sons, 1984), p. 157.

⁴⁶ Albert Wohlstetter, "The Case for Strategic Force Defence," in Johan J. Holst and Wilham Schneider Jr. eds., Why ABM?: Political Issues in the Missile Defence Controversy (New York: Pergamon Press, 1969), p. 133. Wohlstetter, using some classified data, concluded that the Soviets could destroy all but 8.7% of Minuteman, but that 5% of the Minuteman force could effectively retaliate.

⁴⁷ Ian Bellany, "The Essential Arithmetic of Deterrence," p. 31.

where yield (Y) is expressed in megatons of TNT explosive power and circular error probable (CEP) is expressed in nautical miles.⁴⁸ CMP is a concept that loses some of its meaning at very high or very low accuracies, but it is nevertheless an accurate measure of technical sophistication. The higher the K value, the higher the probability of destroying a given hard target.⁴⁹ The probability of destroying a target of H hardness or the single shot kill probability (SS_{KP}) is sometimes expressed as follows:⁵⁰

$$SS_{KP} = 1 - .05^{\frac{K}{(H/16)^{2/3}}}$$

This equation assumes a simplified lethal radius of a nuclear weapon that, of course, varies with each particular weapon, target, weather and soil condition, but normally can destroy a silo type structure at a distance of 1 1/4 times the crater radius.⁵¹

When a more precise measure of lethal radius is introduced, such as that computed by a General Electric calculator, the following formula is

⁴⁸ Dietrich Schroer, Science, Technology and the Nuclear Arms Race, p. 202. See also Barry Schneider, Colin Gray and Keith Payne, Missiles for the Nineties: ICBM's and Strategic Policy (Boulder, Colorado: Westview Press, 1984), pp. 49-52. This CMP value is valid for targets over 300 psi in hardness.

⁴⁹ CMP is useful until CEP is equal to or less than the radius of the crater the explosion excavates. See Kosta Tsipis, Arsenal, p. 307. The highest useful value of CMP is therefore about 100-125. The crater radius can be determined by the following formula: (yield)^{0.3} x 60 feet per kiloton. A one Kt groundburst will create a 60 foot radius crater. See Samuel Glasstone and Philip J. Dolan, The Effects of Nuclear Weapons 3rd edition (London: Castle House Publications, 1980), pp. 233-236. This work is the best reference for technical details of nuclear weapons.

⁵⁰ See Barry Schneider, Colin Gray and Keith Payne, Missiles for the Nineties: ICBM's and Strategic Policy, p. 52.

⁵¹ Samuel Glasstone and Philip J. Dolan, The Effects of Nuclear Weapons, p. 267.

derived:⁵²

$$SS_{KP} = 1 - .5 \frac{8.41 Y^{2/3}}{H \cdot 7 (CEP)^2}$$

This is the formula for SS_{KP} used in this study.

The final calculation of the ability to destroy a given target is the terminal kill probability (T_{KP}) which is the SS_{KP} times the OAR. Should more than one RV of different yields be used per silo, then the overall T_{KP} can be expressed as:⁵³

$$\text{overall } T_{KP} = T_{KP1} + (1 - T_{KP1}) T_{KP2}$$

These formulae, that will be used throughout this study, place a premium on both yield and accuracy, but clearly increased accuracy results in a greater payoff in the ability to destroy hard targets.

The United States from 1970 to 1986 has consistently pursued increased accuracy, but has a mixed record with respect to increasing warhead yields. In the early 1970's the older Minutemen 1 were replaced with lower yield Minutemen 3 missiles. Even though the Minuteman 3 was MIRVed, it was "expressly designed to be effective only against soft targets."⁵⁴ When the Minuteman 3 was re-equipped with the Mark 12A

⁵² See Lynn E. Davis and Warner R. Schilling, "All You Ever Wanted to Know about MIRV and ICBM Calculations But Were Not Cleared to Ask," Journal of Conflict Resolution 17 (June 1973), p. 211. More accurate SSKP formulae exist for specific purposes, but this is considered the best general purpose expression by Dr. J. S. Finan, the Director of Strategic Analysis, of ORAE, Ottawa (Interview: 18 March, 1988).

⁵³ Ibid., p. 127.

⁵⁴ William T. Lee and Richard F. Staar, Soviet Military Policy Since World War II, p. 78.

warhead system in the early 1980's, however, the yield was doubled and the accuracy improved such that the lethality of the Minuteman 3 in the 1980's was six times its K value in the early 1970's.⁵⁵ Generally speaking, the yields on SLBM and bomber carried warheads decreased slightly over the period, at least until the Trident missile was deployed. Flexibility has also been enhanced by deploying selectable yield warheads on cruise missiles, Pershing II and gravity bombs. For the most part the United States has attempted to increase its strategic force lethality by increasing the numbers of its warheads and making them more accurate.

Overall accuracy is enhanced by having a lower CEP and a small bias. Bias is the distance between the centre of the target and the centre of distribution of RV impact points, and as it is normally less than one third of the CEP, it is usually ignored.⁵⁶ The less the bias, the more precise a weapon system is said to be, but one of the unknown quantities in a missile exchange would be that ballistic missiles have never been tested in a polar trajectory so that real systemic bias is uncertain. The standard measure of accuracy is CEP, that radius within which there is a .5 probability that a given RV will impact. Even though these values are regularly tested, these tests tend to occur over shorter ranges and in placid conditions such that real CEP's could be overstated by as much as 10%.⁵⁷ This study has used the CEP's as published in unclassified sources

⁵⁵ Thomas J. Downey, "How to Avoid Monad - and Disaster," Foreign Policy 24 (Fall 1976), p. 177.

⁵⁶ Michael Pentz, "New Weapons and Strategies for their Use," in Thomas L. Perry and Dianne DeMille, eds., Nuclear War: The Search for Solutions, p. 59. See also contrary view, see General Robert T. Marsh, "Strategic Missiles Debated: Missile Accuracy - We Do Know," Strategic Review 10 (Spring 1982), pp. 36-37. Marsh stresses that bias is a relatively minor error, even on polar trajectories. This study assumes bias can be ignored. See Annex A for further support.

⁵⁷ Matthew Bunn and Kosta Tsipis, "The Uncertainties of a Pre-emptive Nuclear Attack," Scientific American 249 (November 1983), p. 42.

as being the most reasonable data available, but several uncertainties inevitably remain.

The United States has made great efforts to improve the accuracy of its nuclear weapon delivery systems and has made considerable progress during the 1970-1986 period. As early as 1969, the defence department renewed its effort to improve the accuracy of strategic systems, but it was not until fiscal year 1975 that bureaucratic and philosophical resistance eroded to the point that an Improved Accuracy Programme was funded.⁵⁸ Every United States strategic nuclear delivery system produced has had better accuracy than its predecessor and, in general, ICBM accuracy has doubled every seven years.⁵⁹ The quiet retrofitting of all Minuteman 3 missiles with the NS-20 guidance system has also increased accuracy considerably, enabling it to attack hard targets.⁶⁰ Guidance systems for nuclear delivery systems have improved by using better inertial and stellar navigation devices to update the delivery bus on its trajectory. To obtain greater accuracy by taking advantage of more precise navigation aids, manoeuvring re-entry vehicles (MARV's) are under active development.⁶¹ If the RV could take advantage of updated

⁵⁸ Joel S. Wit, "American SLBM: Counterforce Options and Strategic Implications," Survival 24 (July/August 1982), p. 164. Early attempts to find increased accuracy for Poseidon were turned down in 1969, 1970 and 1971.

⁵⁹ Dietrich Schroerer, Science, Technology and the Nuclear Arms Race, p. 148.

⁶⁰ Thomas Cochran, William M. Arkin and Milton M. Hoenig, Nuclear Weapons Databook: United States Nuclear Forces and Capabilities Vol. 1 (Cambridge, Massachusetts: Ballinger Publishing Company, 1984), p. 113. This is a good source for nuclear weapon data.

⁶¹ Global Positioning System is replacing Transit satellite navigation system in the mid-1980's. All ballistic missiles will be more accurate with this system. Even without MARV, GPS will allow accuracies to be increased by 1/2. See Robert C. Aldridge, First Strike: The Pentagon's Strategy for Nuclear War, p. 93 and p. 118. See also Jonathan Alford ed., The Impact of New Military Technology (Farnborough: Gower and Allanhead, Osmun, 1981), p. 118.

navigational information for longer along its trajectory, it would be more accurate. MARV's will permit theoretical accuracies as low as 30 feet without the RV having to sense the target.⁶² This accuracy, when coupled with an earth penetrating warhead, will give such increased lethality against hard targets that one such warhead would be the equivalent of two present MX warheads.⁶³ Clearly, the United States considers increased accuracy as an important factor in strategic weapon development and, since 1975, has vigorously pursued more accurate delivery systems.

3. Penetration

Another key variable remains the probability that the strategic weapons systems can penetrate to their targets. The United States deploys a number of penetration aids to facilitate the penetration of its SLBM's and ICBM's against the Soviet missile defences. Soviet ballistic missile defences have been strengthened and modernized over the past years, so that missile penetration will probably be less than unity. Even though American bomber tactics have called for low level penetration since the 1960's, the Soviet Union has expanded and improved its high altitude air defence to the degree that many feel it has some ABM capability.⁶⁴ In this study, the United States missile penetration of the USSR is based on the OAR times a defence factor that varies from .9 to unity.⁶⁵ Soviet

⁶² Robert C. Aldridge, First Strike: The Pentagon's Strategy for Nuclear War, p. 118.

⁶³ Attributed to John Pike, Assistant Director Space Policy for the Federation of American Scientists, in "Air Force Readies Nuclear Earth Penetrator," Defence News, 17 August, 1987.

⁶⁴ John Prados, The Soviet Estimate: U.S. Intelligence Analysis and Russian Military Strength (New York: Dial Press, 1982), p. 169.

⁶⁵ In this study, unity was used for the defence factor from 1970-1972, .98 from 1973-1975, .95 from 1976-1982, and .9 from 1983-1986. Many modern Soviet surface to air missiles are given some capability

ballistic missile defences are judged unable to provide any meaningful area defence, but have some ability to defend point targets.

As the United States maintains a large percentage of its EMT in its strategic bomber forces, the ability of those aircraft to penetrate Soviet defences is a very important variable. The United States strategic bomber force can attack a formidable number of aim points, even without the assistance of missiles, in a target set more closely tailored to an assured retaliation mission where both hard and soft military targets can be destroyed.⁶⁶ Average bomb loads of four bombs plus missiles have been assumed in this study.⁶⁷ To attack well defended military targets, however, will require that the United States bomber force penetrate what is probably the most in-depth air defence system ever created. Historical loss rates in conventional combat have been in the order of two to three percent, giving very high penetration rates.⁶⁸ In 1972 over North Vietnam, the United States directed 700 sorties of B-52 bombers into the heavily defended Hanoi-Haiphong area yet lost only 15 aircraft, a little over 2 percent.⁶⁹ Because the ability of the bomber to penetrate

against ballistic missiles. The efficacy of these systems remains controversial. See John M. Collins, U.S. - Soviet Military Balance, 1980-1985 (Washington, D.C.: Pergamon-Brassey's, 1985), p. 56. John Collins provides excellent data on Soviet and United States nuclear forces.

⁶⁶ Francis P. Hoerber, Slow to Take Offence: Bombers, Cruise Missiles and Prudent Deterrence, pp. 33-36.

⁶⁷ John M. Collins, U.S. - Soviet Military Balance, 1980-1985, p. 180. See also Norman Polmar, Strategic Weapons: An Introduction (New York: Crane Rusak, 1982), p. 145.

⁶⁸ Average allied bomber losses in World War Two were 2.8%. See The United States Strategic Bombing Survey Summary Report (European War) (Washington, D.C.: USGPO, 1945), p. 1.

⁶⁹ Norman Polmar, Strategic Air Command: People, Aircraft and Missiles (Cambridge, Massachusetts: Patrick Stevens, 1979), p. 127. See also Bill Yenne, SAC: A Primer of Modern Strategic Airpower (Novato, California: Presidio Press, 1985), pp. 101-119. Of these, Polmar's book

sophisticated air defence systems has become primarily a function of complex electronic "gadgetry",⁷⁰ and that gadgetry is susceptible to EMP, trying to penetrate Soviet defences in conditions of nuclear war is an unknown quantity. Generally speaking, the United States bomber force is intended to conduct follow up attacks on Soviet hard and soft targets after ICBM and SLBM attacks have blasted approach corridors and weakened the air defence system. Soviet defences consist of 10,000-12,000 surface to air missiles, 1200-2600 interceptors, up to 10,000 radars, and a sophisticated warning and communication system.⁷¹

The United States estimates that its attempts to penetrate Soviet defences with nuclear bombers will be .75 effective. In 1979, the Commander Strategic Air Command (SAC), General Ellis, anticipated a .75 penetration ability for 1985.⁷² The Joint Chiefs of Staff have apparently assumed that in the present SIOP the probability of arrival to enemy targets for weapons carried on penetrating bombers is about 77 percent for ALCM's, 72 percent for short range attack missiles (SRAM's) and 60 percent for bombs.⁷³ In 1975, however, a former senior SAC pilot estimated that the B-52's ability to penetrate to Soviet targets at that time at about

is the more detailed and the more useful.

⁷⁰ Ronald W. Clark, The Role of the Bomber (London: Sidgwick and Jackson, 1977), p. 130.

⁷¹ See Herbert York, Does Strategic Defence Breed Offence? (London: University Press of America, 1987), p. 8; and, Dietrich Schroer, Science Technology and the Nuclear Arms Race, p. 127.

⁷² Cited by Defence Secretary Harold Brown in John M. Collins, U.S. - Soviet Military Balance: Concepts and Capabilities, 1960-1980 (Washington, D.C.: USGPO, 1980), p. 146.

⁷³ William Arkin and Richard Fieldhouse, Nuclear Battlefields: Global Links in the Arms Race (Cambridge, Massachusetts: Ballinger Publishing Company, 1985), p. 91. This book is quite useful.

60-75 percent, somewhat lower than official estimates.⁷⁴ Each year the Soviets have increased the effectiveness of their air defences such that from the early 1960's on the United States was forced to adopt low level penetration tactics. The penetration data of Soviet air defences by SAC in this study is based on interpolation of the above information, including a .8/.85 OAR for B-52/B-1B bombers and their weapons.⁷⁵

The penetration of United States nuclear systems to Soviet targets from 1970-1986 has remained relatively constant. As older B-52 models could no longer effectively penetrate, they were replaced by newer more effective versions, and as they in turn degraded they were augmented with SRAM and ALCM. Most recently the B-1B and ALCM have given the United States bomber force an effective ability to penetrate Soviet defences. The ballistic missile systems do not face effective defences so that their penetration is relatively high.

4. Survivability

Each leg of the United States triad faces a different survivability problem which will be affected in different ways by crisis and war. The land based ICBM's are threatened by Soviet ICBM's that could impact within 20 minutes of the United States receiving reliable strategic warning. The United States bomber force is threatened by SLBM's that could possibly reduce their reaction time to as little as 9 minutes. The SSBN's if in

⁷⁴ Dr. Bob Brereton, Director of Air Operational Research in ORAE, Ottawa, (Interview: 12 January, 1988).

⁷⁵ See Annex F. Bomber Penetration Data. Soviet defence against American penetration is plotted linearly for reasons of simplifying a complex issue. The lines on the chart are meant to be a plausible relative explanation of continual increases in Soviet air defences relative to United States abilities to counter it, over the life of a weapon system. This Annex is considered a plausible explanation of unclassified data by Dr. Bob Brereton, the director of DAOR, ORAE, Ottawa.

port are very vulnerable to any nuclear missile attack and at sea are threatened by Soviet anti-submarine warfare (ASW). The survivability of the United States strategic nuclear forces is important because it is a central qualitative variable contributing to the correlation nuclear forces analysis. Each leg of the triad will be examined in turn.

The standard measure of ICBM resistance to an attack is the hardness of its silo against the shock of a nuclear detonation. A typical nuclear weapon expends its energy as follows: 50% blast, 40-45% thermal and 5-10% in excited nuclei.⁷⁶ A standard missile silo can shield a missile from thermal and radiation effects from detonations that are fairly close; thus, the challenge for silo hardness is to protect a delicate missile from damage due to shock and blast.⁷⁷ A silo's resistance to such a blast is usually expressed in pounds per square inch overpressure that the structure is predicted to withstand. Because no silo has ever been exposed to a nuclear weapon test, however, uncertainty in silo hardness calculations is in the order of about 20 percent.⁷⁸ Most silo attacks involve 2 warheads, one airburst and the other groundburst, but it is the ground burst weapon that will cause the most damage.⁷⁹ The expression for silo survivability used in this study, where P_S is the probability of survival, is as follows:

$$P_S = 1 - T_{KP}$$

⁷⁶ Kosta Tsipis, Arsenal: Understanding Weapons in the Nuclear Age, p. 46.

⁷⁷ Ibid., p. 135.

⁷⁸ Matthew Bunn and Kosta Tsipis, "The Uncertainties of a Preemptive Nuclear Attack," p. 44.

⁷⁹ Kosta Tsipis, Arsenal: Understanding Weapons in the Nuclear Age, p. 271. See also Samuel Glasstone and Philip J. Dolan, The Effects of Nuclear Weapons, p. 24.

Unless a nuclear weapon detonates close enough to a silo, so that the silo is visibly destroyed, the attacker will not know if his attack was successful or not. It is plausible that the silo would withstand far more shock than the relatively delicate missile contained within. It is considered possible now to construct underground shelters that can reasonably be expected to withstand overpressures greater than 6000 psi.⁸⁰

The United States ICBM force has had two overt hardening programmes during the 1970-1986 period. The first began in the 1960's and was completed by 1972, thereby placing all American ICBM's in silos protected to a value of about 900 psi.⁸¹ From about 1974 to 1978 a silo hardening programme was implemented at the same time as the Command Data Buffer System was installed on United States Minuteman ICBM's that would allow rapid retargeting.⁸² This study has assumed that the Minuteman hardness achieved during this programme approximates 2000 psi, the hardness value attributed to reinforced concrete.⁸³

One problem with United States force structure is its reliance on launch control centres (LCC's) to execute launch orders when received. In

⁸⁰ Report of the Secretary General of the United Nations, Nuclear Weapons (London: Frances Pinter, 1981), p. 46.

⁸¹ Lynn E. Davis and Warner R. Schilling, "All You Ever Wanted to Know about MIRV and ICBM Calculations But Were Not Cleared to Ask," p. 231 Cites the figure 900 psi. William T. Lee and Richard F. Staar, Soviet Military Policy Since World War II, p. 81 note that programme ended in 1972. This study notes that data from Kosta Tsipis cited in Dietrich Schroerer, Science, Technology and the Nuclear Arms Race, p. 202 and p. 157 corroborate the figure 900 rather than the 2000 suggested by Lee and Staar.

⁸² The Military Balance, 1974-1975 and subsequent years.

⁸³ This figure represents the generally agreed strength of U.S. silos. The finite limit to the ultimate compressive strength of cement approximates 3,000 psi. See John M. Collins, Imbalance of Power: An Analysis of Shifting U.S. - Soviet Military Strengths (London: Presido Press, 1978), p. 51.

the United States, there appears to be no ground based means of launching an ICBM if its LCC is destroyed, and there are only 100 LCC's controlling the 1000 Minutemen missiles. This situation has led one analyst to conclude that the Soviets must plan on attacking the United States command and control at the first opportunity.⁸⁴ In this study, it has been assumed that if the LCC's are destroyed those ICBM's within its direct control are effectively lost.

Bomber survivability is primarily a function of warning time for those aircraft on alert. Those aircraft not on alert are assumed destroyed by attacks on the forty or so bomber bases. With nine minutes of warning, a B-52 can fly out as far as 46 nautical miles from its base, sufficient to render a barrage attack statistically useless.⁸⁵ Since the bomber itself cannot withstand much more than 1-2 psi overpressure, speed is its only means of survival. This study assumes that for an extended period such as 30 days, less than 80 percent of the bomber force can be maintained on continuous alert and that 90 percent of that number survive a nuclear attack. Therefore, in a generated posture 70 percent of the United States B-52's can probably survive a nuclear attack. Because B-1B's are somewhat faster and slightly harder, 80 percent are assumed to survive an attack.

The survival of SSBN's represents an important component of the correlation of nuclear forces model as applied to the United States because about half of its strategic warheads are on SLBM's. This study assumes that in a generated condition, about 15% of these assets will be

⁸⁴ Bruce Blair, Strategic Command and Control: Redefining the Nuclear Threat, p. 284. This study has assumed that LCC's are as hard as ICBM silos, even though they are not as deep. See R.T. Pretty, ed. Jane's Weapon Systems (London: Jane's Yearbooks, 1988-1989).

⁸⁵ Roger Speed, Strategic Deterrence in the 1980's (Stanford, California: Hoover Institution Press, 1979), p. 145.

required to be in port at any given time and that the remaining 85% are at sea.⁸⁶ Those in port are quite vulnerable to strategic attack and are assumed destroyed when attacked. Those SSBN's at sea are more survivable, but still are subject to attack by several means, all of which involve a capability by the Soviet Union to locate, identify and destroy them. As the SSN is widely viewed as the best counter to a submarine,⁸⁷ the Soviet Union has invested a great deal into producing SSN's capable of countering SSBN's. Nevertheless, any SSBN on patrol is extremely quiet, and superior United States submarine technology allows for American submarine operation to be more silent than their Soviet counterparts. Generally speaking, United States submarines can proceed at higher speeds without being detected, while still detecting and tracking Soviet submarines.⁸⁸ In the 1980's, however, this American advantage was decreasing.

The survivability of SSBN's is also a function of the amount of sea room in which they have to operate. As SLBM ranges are extended, the amount of sea that must be searched is expanded geometrically, and this clearly increases SSBN survivability. If an SSBN remains deep, it is hard to detect but cannot readily communicate and, if found, can be destroyed easily due to the propagation of shock in deep water.⁸⁹ In this study,

⁸⁶ William M. Arkin and Richard W. Fieldhouse, Nuclear Battlefields: Global Links in the Arms Race, p. 83.

⁸⁷ Robert E. Kuenne, The Attack Submarine: A Study in Strategy (London: Yale University Press, 1965), pp. 188-192. SSN's are nuclear powered attack submarines.

⁸⁸ Vice Admiral Nils Thunman provides interesting testimony on American submarine advantages, Hearings before the Committee on Armed Services, House of Representatives, Department of Defence Authorization for Appropriations for FY 1986. Part 3 (Washington: USGPO, 1985), p. 163.

⁸⁹ A nuclear submarine at sea can probably withstand pressures in excess of 14,000 psi. See Kosta Tshipis, Arsenal: Understanding Weapons in the Nuclear Age, p. 71. The increased water pressures at greater depths make it feasible to conduct barrage attacks on SSBN's operating below 300 meters.

survivability of SSBN was based on the amount of sea space available and the relative effectiveness of Soviet ASW in those waters.⁹⁰ In this analysis, the Ohio class submarine was accepted as the most survivable SSBN at sea during the period.⁹¹ In general, the United States appears to have very survivable SSBN's that have, at a minimum, kept pace with Soviet ASW improvements by virtue of adding longer range missiles.

The United States from 1970 to 1986 has taken serious efforts to improve the survivability of its strategic delivery systems against developing threats. In a sense, the hardening of ICBM silos, the dispersal of bombers, and construction of survivable SSBN's are measures of passive strategic defence.⁹² These are measures that serve to enhance both deterrent and war fighting aspects of the United States strategic force structure.

5. The Implications of the Qualitative Analysis

From 1970 to 1986 the United States appears to have sought overall improvements in the qualitative aspect of its strategic nuclear forces, but the major effort has been to improve accuracies of all strategic systems. Qualitative improvements have contributed to an ongoing competition with the Soviet Union in all strategic areas, and Annexes F and G display that competition graphically. The application of the

⁹⁰ Annex G, SSBN Survivability Data, portrays the survivability factors used in subsequent calculations. This data has been reviewed by Fraser Bolton, the Director of Maritime Operational Research, ORAE (Ottawa) and is considered a plausible explanation of SSBN survivability based on unclassified data.

⁹¹ D. Douglas Dalgleish and Larry Schwiekart, Trident (Carbondale, Illinois: Southern Illinois Press, 1984), see chapter eight.

⁹² Lawrence Freedman, Strategic Defence in the Nuclear Age. Adelphi Paper 224 (London: International Institute for Strategic Studies, 1987), p. 64.

correlation of nuclear forces model requires that plausible assessments of all these variables be made to calculate a given correlation. The qualitative analysis highlights strenuous United States efforts to improve the lethality of its strategic systems that implies a bias to achieving a hard target kill capability that the compelling paradigm explains quite well.

IV. STRATEGIC NUCLEAR FORCES - COMBAT UTILITY

The dynamic factors of nuclear force structure are perhaps the most difficult to assess because the interaction of weapon systems in combat depends on what decisions are taken and when. Many of these decisions are simply not taken in advance, and there is no way of knowing for certain what choices a United States president will make. This section will analyze the general capability of the United States intercontinental nuclear forces to influence the outcome of strategic combat from 1970 to 1986. Certain elements or choices available in the United States force structure should reflect any tendency toward a given strategy. Since force structure is purportedly a reflection of strategy, one would expect that the United States force structure should parallel the declared strategy discussed in chapter three.

The quantitative and qualitative analyses are useful and necessary but not themselves sufficient indicators of paradigmatic thinking. These numbers and qualities must be related to actual results or outcomes before they can be said to have any meaning.⁹³ This section will first examine the methodology necessary to generate the correlation of nuclear forces data, then note some command control factors that may serve to constrain

⁹³ Warner R. Schilling, "U.S. Strategic Nuclear Concepts in the 1970's: The Search for Sufficiently Equivalent Countervailing Parity," International Security 6 (Fall 1981), p. 52.

some options, follow with a review of some key combat variables, and finally describe some results from the correlation of nuclear forces model.

As has been alluded to earlier, the correlation of nuclear forces model requires several calculations, all of which to one degree or another must rely on certain assumptions as to the operation and effectiveness of nuclear weapons. The quantitative and qualitative analyses have for the most part completed the data base, but now further conceptual assumptions are required prior to actually "running" the formula. These assumptions are necessary to decide which systems to withhold and which to use against what Soviet targets. In this process, the lethality value K provides a useful indicator to calculate the effectiveness of one force against another, but to do this correctly one must

match up specific missile types and target types, carry out a detailed calculation of the kill probabilities of each combination, and then calculate the overall results.⁹⁴

Thus to determine the survivability of a given ICBM type, an exchange model must be created for each situation and year that must, by necessity, be independently calculated.

Since nuclear weapons appear to exist primarily for coercing one's opponent,⁹⁵ the relative ability to conduct a counterforce exchange reflects one means of measuring one's potential advantage. This is certainly the view of Paul Nitze who claims that the post nuclear exchange relationship most clearly brings out the stability or potential

⁹⁴ Thomas A. Brown, "Missile Accuracy and Strategic Lethality," Survival 18 (March/April 1976), p. 58. Brown provides excellent analysis of the accuracy/lethality problem.

⁹⁵ Herman Kahn, On Thermonuclear War, p. 302.

instability of the strategic relationship.⁹⁶ Obtaining a favourable post exchange correlation of nuclear forces may have more to do with who strikes first than how the balance may have looked beforehand, but it is obvious that survivability of strategic forces is central to the post exchange outcome. During the beginning of this period, the United States began to express concern about the pre-launch survivability of its ICBM's.⁹⁷ Within a few years a senior defence official was advocating high survivability to support national decision making "during and after nuclear attacks."⁹⁸

The initial correlation of nuclear forces exchange model involved matching the more lethal American and Soviet strategic missiles against the most lucrative targets in the opponent's inventory, to facilitate creating specific survivability values.⁹⁹ Subsequently, the remaining United States and Soviet missiles were targeted in a similar manner until all of the opponent's targets were covered, including bomber capable airfields, SSBN bases and critical nuclear command and control targets. Soft targets were covered with less lethal SLBM's wherever possible. All targets were covered at least once every model, but the optimum number of

⁹⁶ Paul Nitze, Hearings before the Subcommittee on International Political and Military Affairs of the Committee on International Relations, House of Representatives, U.S.-USSR Relations and the Strategic Balance (August 31 and September 2, 1976), p. 29.

⁹⁷ Melvin Laird in his FY 1973 Defence Annual Report cited in Lynn E. Davis and Warner R. Schilling, "All You Ever Wanted to Know about MIRV and ICBM Calculations But Were Not Cleared to Ask," p. 208.

⁹⁸ Malcolm Currie, Director of Research and Engineering, in Hearings before a Subcommittee of the Committee on Appropriations, House of Representatives, Department of Defence Appropriations for 1978 Part 3, (Washington, D.C.: USGPO, 1977), p. 236.

⁹⁹ William C. Martel used the same basic logic to construct his exchange model in "Exchange Calculus of Strategic Nuclear War," in Stephen J. Cimbala, ed., Strategic War Termination (New York: Praeger Publishers, 1986), p. 11.

RV's per target was two. Once targeting was complete, SS_{KP} and T_{KP} were calculated for each type of weapon targeted against each type of target. Then, the potential survivability of ICBM type was calculated and adjusted by a factor to account for incapacitated weapons due to destruction of command and control links.¹⁰⁰ The resultant survivability, expressed a figure from 0 to 1, became S_i , the final figure required to calculate the correlation of nuclear forces formula. This procedure was repeated for each year under study, with all forces regarded as residuals, to establish a correlation of nuclear forces baseline (C-1) from which to compare subsequent models.

For the United States force structure, the impact of nuclear command and control bears further analysis. Not only would the loss of the LCC's affect the survivability of ICBM's, but the entire United States strategic command control system appears to be unable to survive for more than a few hours and thus may be "unable to control the nuclear forces."¹⁰¹ The United States nuclear forces may be more robust than the command and control structure that supports it, creating a potentially severe penalty for delay in releasing nuclear weapons.¹⁰² According to an unpublished Pentagon analysis, the present strategic system could be effectively disabled by as few as fifty Soviet weapons.¹⁰³ In terms of actual overall

¹⁰⁰ The command control centers were allowed the same hardness as the ICBM's under its control, and they were attacked in the same manner as ICBM's.

¹⁰¹ Paul Bracken, Command and Control of Nuclear Forces, p. 212. The only survivable component is that small portion which can remain airborne and even that may be vulnerable to Electromagnetic Pulse effects (EMP).

¹⁰² Bruce G. Blair, Strategic Command and Control: Redefining the Nuclear Threat, p. 209.

¹⁰³ Daniel Ford, The Button: The Nuclear Trigger - Does It Work? (London: George Allen and Unwin, 1985), p. 228.

strategic force structure, it appears that the United States is simply not prepared to ride out a Soviet first strike. The common operating premise among United States war planners appears to be that "the United States would never permit itself to be hit first" and that Strategic Air Command "does not intend to be in a retaliatory mode."¹⁰⁴ These deep command and control problems are only reflected in the correlation of nuclear forces analysis with respect to significantly increased ICBM vulnerability, but they raise serious questions as to why the official policy of being able to absorb a Soviet first strike and still retaliate effectively has not been translated into a more survivable command and control structure. At a minimum this anomaly indicates a dichotomy between the declaratory policy and what may be operational policy as well as providing incentives to adopt a launch on warning strategy in war.

Launch on warning is a situation in which strategic nuclear forces are launched on corroborated strategic warning that the other side has launched a nuclear attack and, if planned from the outset, can be a strategy. A variant of this strategy occurs when one does not receive adequate warning or when one plans to wait a little longer for reasons of stability, to ensure that in fact an actual attack is in progress, and then launch under attack.¹⁰⁵ It is highly probable that the United States would, in a generated posture, during a major crisis, launch under attack if not on warning. Notwithstanding the emphasis on survivability, the risks of absorbing a nuclear attack are simply too great.

The execution of a SIOP war plan is also a complex phenomenon that is plagued with multiple uncertainties. Although increased options have been

¹⁰⁴ Ibid., p. 234.

¹⁰⁵ See Richard L. Garwin, "Launch Under Attack to Redress Minuteman Vulnerability," International Security 4 (Winter 1979/1980) p. 117.

introduced into operation planning, the real variable in determining which options are open may depend on the time required either to decide or to reprogramme the missile inventory. From 1970 to 1986, great efforts have undoubtedly been made to provide real-time information to assist decision-making and to speed up missile reprogramming in the event the option selected is not one already programmed. Prior to the Command Data Buffer System, it appeared to take 36 minutes to re-target a Minuteman 3, more than the time of flight of an ICBM.¹⁰⁶ By 1978, each ICBM and SLBM in the United States had 100-200 target plans available in computer memories and presumably could be re-programmed to at least some options much more quickly.¹⁰⁷ Not only do these improvements provide greater operational flexibility in crisis situations, but they also permit the possibility of launching a reprogrammed counterforce attack. The advantage of this option is that any missile that is discovered unreliable during the initial part of its launch can be immediately replaced, thereby increasing the overall T_{kp}. Although the increased reprogramming capabilities have not been factored into the correlation of nuclear forces model, the 1980's offer United States leaders far more flexible options for nuclear use than existed in the 1970's.

A successful reprogramming attack in a counter silo role, however, requires overcoming the debris from previous nuclear detonations. To avoid this interference, the timing of each RV's arrival is very important. Unless CEP's were better than .018 nautical miles, those RV's

¹⁰⁶ John F. McCarthy, Jr., "The Case for the B-1 Bomber," International Security 1 (Fall 1976), p. 82.

¹⁰⁷ John M. Collins and Anthony Cordesman, Balance of Power: Shifting U.S.-Soviet Military Strengths, p. 71. There are also two modes of launch, one of which takes less time but may not have its INS fully realigned; therefore, it would be less accurate. See Desmond Ball, Targeting for Strategic Deterrence, p. 27.

arriving a few minutes after the initial explosions would encounter sufficient debris to cause significant errors in accuracy or even destruction of the incoming warhead.¹⁰⁸ One way to gain more time to conduct a more precise counter silo attack is to decapitate the Soviet command and control system. This study excludes, for example, the lethal Pershing II that in Soviet eyes could strike Moscow in only a few minutes, rendering the Soviet system incapacitated for about the length of time it would take an ICBM to reach the Soviet Union.¹⁰⁹ To a Soviet planner, the fast and accurate Pershing II would therefore probably be considered a strategic system that had a direct impact on the strategic correlation of nuclear forces. In general, the faster and more accurate weapon systems of the 1980's give American decision makers more flexibility to strike the Soviet Union's nuclear power.

To augment even more an attacker's flexibility and to further complicate the defender's problem, SSBN's can approach the Soviet Union from any direction in order to maximize accuracy and reduce the warning time of an attack. The closer to the Soviet Union that an SSBN operates, however, the greater the risk that Soviet ASW forces will detect it.¹¹⁰ To account for this increased risk, this study subtracted .05 from the survivability of those SSBN's operating relatively close to Soviet territory. What makes this increased risk worthwhile is the ability to

108 This is known as fratricide: one's own detonations destroy one's subsequent warheads that must travel through the nuclear cloud. John D. Steinbruner and Thomas M. Garwin, "Strategic Vulnerability: The Balance Between Prudence and Paranoia," International Security 1 (Summer 1976), p. 160.

109 Michael Forster, "Strategie des ersten Schlages Nach Dem Aufbau eines Systems der Raketenabwehr," European Military Science (February 1986), p. 71.

110 Joel S. Wit, "American SLBM: Counterforce Options and Strategic Implications," pp. 172-173.

fire certain SLBM's against targets at distances significantly less than the maximum range. Since the CEP is measured at maximum range from a fixed point, the accuracy will be better when the missile strikes targets at shortened ranges. SLBM accuracy is a product of missile accuracy (CEP) and SSBN navigation error (E), as follows:¹¹¹

$$\text{SLBM CEP} = \frac{r(\text{CEP})}{R} + E^2$$

where r is the distance from the SSBN to the centre of the target and R is the total range of the missile. In this study some United States SLBM's have been targeted at reduced ranges to increase their hard target kill potential.¹¹² American SLBM's have also been targeted in their usual role which is to destroy bomber and SSBN bases quickly and to create corridors for subsequent bomber penetration.

Another potential requirement calling for rapid delivery of warheads is the notion of "pin down." By using a series of high altitude detonations over ICBM fields at 10-15 minute intervals the EMP generated can possibly prevent ICBM's from being successfully launched.¹¹³ Because it takes about five minutes for a Soviet ICBM to leave the atmosphere and because the missile and its guidance system are highly susceptible to electro-magnetic induction damage, it is possible to prevent successful

¹¹¹ Desmond Ball, "The Counterforce Potential of American SLBM Systems," Journal of Peace Research 14 (No. 1, 1977). pp. 30-31.

¹¹² This use was limited to Poseidon and Trident systems. See Annex E for adjusted CEP's.

¹¹³ Kosta Tsipis, Arsenal: Understanding Weapons in the Nuclear Age, p. 61.

launch with EMP.¹¹⁴ It may, therefore, be possible to use SSBN's close to Soviet coasts to deliver "pin down" attacks on Soviet missile fields which could significantly reduce the time available for the Soviet leaders to launch their ICBM's and avoid a launch under attack situation. This "pin down" need last only until the incoming ICBM RV's strike their targets; non-maneuvering warheads are not susceptible to EMP related damage and nuclear detonations at altitude raise no debris. It is possible that such an attack strategy could significantly degrade the Soviet response. This option would not have made practical sense in the 1970's because most SLBM's carried one warhead, and a "pin down" strategy would disarm the United States faster than the Soviet Union. But in the 1980's, more survivable SSBN's with multiple warheads, when coupled with hard target kill capable ICBM's, does give the United States a far more effective damage limiting capability.

The counter silo potential of United States strategic missiles is true damage limitation; it is "the ability to destroy enemy offensive weapons before they can be fired and thus diminish retaliatory damage."¹¹⁵ The United States clearly prefers prompt counterforce capability as the best option for the United States strategic nuclear force structure.¹¹⁶ In the correlation of nuclear forces model, the one obvious deficiency that appeared in the United States force structure is that after a counterforce exchange, the only nuclear forces remaining are not capable of prompt hard target kill. Nuclear reserves or withholds from an initial

¹¹⁴ Francis P. Hoerber, Slow to Take Offence: Bombers, Cruise Missiles and Prudent Deterrence, p. 22.

¹¹⁵ Donald M. Snow, Nuclear Strategy in a Dynamic World: American Policy in the 1980's, p. 213.

¹¹⁶ See Congressional Budget Office, Counterforce Issues for the United States Strategic Nuclear Forces (Washington, D.C.: USGPO, 1978). This document endorsed counterforce in spite of its greater cost.

nuclear exchange can play a significant role in the subsequent war or bargaining process.¹¹⁷ This need was recognized in the Nixon administration; however, the force structure to fully implement it is not yet in place. Nation Security Decision Memorandum 242 stated a need for strategic reserves that would be important for "protection and coercion" during and after major nuclear conflict.¹¹⁸

The impact of the modernization of the United States strategic nuclear forces has been to increase greatly the flexibility and range of American strategic options in 1986 over those available in 1970. Although this is reflected to a degree in the correlation of nuclear forces model, the Soviet Union has expanded its flexibility as well. From 1970 to 1975 the United States held a clear advantage in nuclear forces, and the Soviet Union's position would actually deteriorate markedly if it launched a counterforce strike on the United States.¹¹⁹ In fact, until 1978, the United States' correlation would improve after a Soviet first strike, but from 1975 on the trend has been in the Soviet favour. This is primarily due to Soviet survivability measures and the relative lack of United States hard target kill capability, especially in the residuals from the first strike. From 1980 onwards, the improvements to the United States force structure have resulted in the C-1 curve peaking and then moving slowly in favour of the United States.

The dynamic elements of United States force structure include many variables that together have assisted the American leadership of 1980 in reversing the increasing Soviet advantage in the correlation of nuclear

¹¹⁷ See Michael D. Intriligator, "The Debate Over Missile Strategy: Targets and Rates of Fire," p. 1152.

¹¹⁸ Desmond Ball, Targeting For Strategic Deterrence, p. 35.

¹¹⁹ See Chart 1. Line C-2 shows the correlation of nuclear forces results after a Soviet first strike. (Below unity is U.S. Advantage).

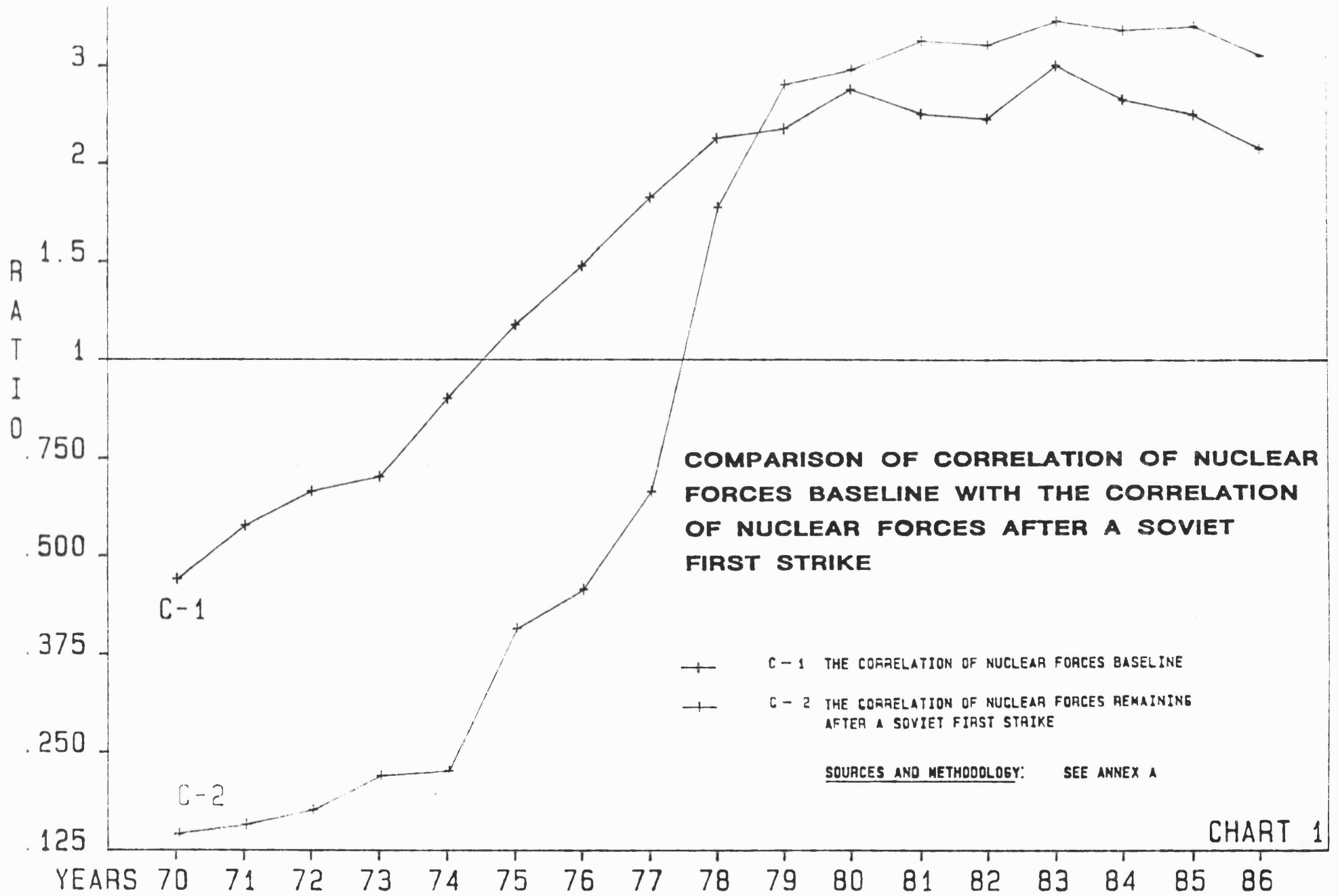


CHART 1

forces. The key elements, however, have been prompt hard target kill capability and targeting flexibility that will significantly enhance war fighting capabilities and "constitute a highly visible symbol of power and intent."¹²⁰ This focus on counterforce is not new and has been a central part of each war plan or SIOP since the 1950's.¹²¹ In spite of considerable rhetoric that all of this capability is necessary to deter the Soviet Union, the fact remains that if one is going to shoot at missiles, one is talking about first strike capability.¹²² The capability to destroy hard targets on a time sensitive basis and increased real nuclear options appears to better fit the intent of the compelling paradigm.

Future developments planned by the United States include more MX, Midgetman, Trident II, SDI, "stealth" bombers and sea launched cruise missiles (SLCM's) all of which will enhance the United States nuclear force structure in the correlation of nuclear forces model. Trident II will especially provide a secure and flexible hard target kill vehicle that will be capable of destroying Soviet ICBM's within 15 minutes of launch from virtually any direction.¹²³ Land attack SLCM's will also have a hard target kill capability and will be almost totally unverifiable from an arms control perspective.¹²⁴ Midgetman will also be capable of hard

¹²⁰ Congressional Budget Office, U.S. Strategic Nuclear Forces: Deterrence Policies and Procurement Issues, p. xii. The citation referred to nuclear weapons required to support a strategy of "essential equivalence."

¹²¹ Desmond Ball, Targeting for Strategic Deterrence, p. 4.

¹²² Robert McNamara, cited in Henry L. Trewhitt, McNamara: His Ordeal in the Pentagon (New York: Harper and Row, 1971), p. 115.

¹²³ See Robert S. Norris, "Counterforce at Sea: The Trident 2 Missile," Arms Control Today (September 1985).

¹²⁴ John M. Collins, U.S.-Soviet Military Balance, 1980-1985, p. 58.

target kill, and the MX warhead, already very lethal, is upgradable from 300 to 475 Kt giving it even greater lethality.¹²⁵ If SDI research results in the United States deploying even a partially effective shield against RV's aimed at counterforce targets, it could significantly contribute to the survivability of American ICBM's and may even provide some protection for bomber bases. Force structure improvements to United States strategic nuclear weapons appear clearly intended to enhance its war fighting posture, and the proclivity in the late 1960's to avoid producing weapons systems designed to achieve strategic advantage has been reversed.¹²⁶ Although increased deterrence will be one result of these proposed changes, enhanced compellent capabilities may well be the prime result.

V. FORCE STRUCTURE IMPLICATIONS

The correlation of nuclear forces model provides a useful adjunct to the paradigmatic framework and allows deeper analysis of force postures. Not only can it provide a more meaningful comparison of nuclear forces, but it allows for greater analysis of arms control implications for various arms control proposals. The United States force structure has undergone significant improvement from 1970 to 1986, but the C-1 line on Chart 1 indicates that it lagged improvements in the Soviet Union.

In the early 1970's, however, the development of new United States strategic systems was relatively slow, possibly because the United States held a significant correlation of nuclear forces advantage. The

¹²⁵ Thomas B. Cochran, William M. Arkin and Milton M. Hoenig, Nuclear Weapons Databook: U.S. Nuclear Forces and Capabilities, Vol. 1, p. 126.

¹²⁶ Edward Luttwak, "Strategic - Nuclear Parity Versus the Military Priorities of the Reagan Administration," in Keith A. Dunn and William O. Staudenmaier, eds., Alternative Military Strategies for the Future, p. 154.

quantitative analysis in particular brings out a gradual decline in most static indicators that display a certain American satisfaction or complacency with the status of their intercontinental nuclear arsenal. This does not mean, however, that qualitative or dynamic improvements did not happen, only that their implementation did not appear to keep pace with those occurring on the Soviet side.

The mid to late 1970's saw the correlation of nuclear forces baseline move steadily from a position of relative American advantage to a position showing a clear Soviet advantage. Although little immediate change took place among the quantitative indicators, significant improvements began among the qualitative and dynamic measures. The most significant improvements were in ICBM hardening, improved accuracy in missile guidance systems and improved ability to rapidly re-target or re-select options. The dip in the C-1 trend line in 1981 and 1982 reflects the introduction of the Mark 12A warhead and the NS-20 guidance system on the Minuteman 3. By 1983 the Soviets had achieved an almost 3 to 1 advantage in the correlation of nuclear forces baseline, a reversal from the 2 to 1 advantage that the United States held in 1970.¹²⁷

In the 1980's the United States was clearly moving to rectify their deteriorating strategic position. During this period, virtually every indicator of potential strategic power climbed as did the United States defence budget. Numbers of nuclear warheads increased almost threefold after 1970, accuracy was increased about fourfold after 1970, and increased flexibility, reliability, lethability and survivability combined

¹²⁷ Military officers in the United States were alarmed at these shifts and noted the 4 to 1 Soviet advantage in throw weight. See testimony of Lieutenant General Thomas Stafford before the Committee on Armed Services, United States Senate, Department of Defence Authorization for Appropriations for Fiscal Year 1980, Part 5 (Washington: USGPO, 1979), p. 2471.

to give the United States a significantly greater war fighting posture. From 1983 to 1988 the trend of the C-1 baseline was toward a decreasing Soviet advantage, and future American strategic programmes make it likely that this trend will continue at least into the near future.

These recent trends appear to reflect the choice of the United States to increase its available options to a number significantly greater than those implied by the deterrent paradigm. They more closely reflect a desire to take more initiative to ensure the long term well being of the United States rather than rely on retaliation to protect its national survival.¹²⁸ Clearly, these notions extend beyond the concept of deterrence toward what one author has described as "dynamic containment" where strategic nuclear weapons are targeted on Soviet military forces "wherever the dynamic exchange ratio is substantially positive."¹²⁹ The trend in the United States in the 1980's has been toward measuring the security of the West by its freedom to conduct more vigorous policies without fear.¹³⁰ The recent improvements to the United States force structure appear to be increasingly optimised to the compellent model rather than the deterrent.

Since the declaratory policy of the United States remains essentially one of deterrence, a force structure designed to optimize compellence begs an explanation. The obvious conclusion reached by John Collins is that

¹²⁸ See Carl. H. Builder, A Conceptual Framework for a National Strategy on Nuclear Arms (Santa Monica, California: Rand Corporation R-2598-AF, 1980), p. 8. Builder's conceptualization of strategy parallels that of compellence. Nuclear weapons are useful for more than just deterrence.

¹²⁹ Max Singer, "Dynamic Containment," in Aaron Wildavsky, ed., Beyond Containment: Alternative American Policies Toward the Soviet Union (San Francisco, California: Institute for Contemporary Studies, 1983), p. 197.

¹³⁰ D. V. Anderson, Peace is War (Toronto: Lerna Press, 1987), p. 360. This right wing book lives up to its title.

declaratory policy is different from operational nuclear policy.¹³¹

Desmond Ball also reaches this conclusion, noting that debates on nuclear strategy are often hampered by the failure to differentiate between

the substance of action policy...from the rhetoric of declaratory policy which is generally designed for a variety of strategic and bureaucratic-political purposes sometimes quite unrelated to the demands of extant action policy.¹³²

Desmond Ball traces the separation of United States action and declaratory policies to 1963 when Defence Secretary McNamara began to use strategic doctrine as a weapon in "intramural bureaucratic battles over military programmes, defence and service budgets."¹³³ Since that time, various SIOP's and Nuclear Weapons Employment Policies (NUWEP's) have constantly maintained a counter military targeting philosophy while "public officials have learned to talk in public only about deterrence and city attacks."¹³⁴ Assured destruction had no real impact on SIOP design. For thirty years, "American operational strategy has been heavily dedicated to counterforce," at least as much as the capability of United States strategic nuclear assets would permit.¹³⁵ It may also be true that for major powers, a degree of strategic uncertainty is an advantage, and therefore operational and declaratory nuclear policies may "seldom

¹³¹ John M. Collins, U.S.-Soviet Military Balance, 1980-1985, p. 60.

¹³² Desmond Ball, "Toward a Critique of Strategic Nuclear Targeting," in Desmond Ball and Jeffrey Richelson, eds., Strategic Nuclear Targeting (London: Cornell University Press, 1986), p. 18.

¹³³ Desmond Ball, "The Development of the SIOP, 1960-1983," in Desmond Ball and Jeffrey Richelson, eds., Strategic Nuclear Targeting, p. 68. This is a well researched article.

¹³⁴ Ibid., p. 70.

¹³⁵ Colin Gray, Strategic Studies and Public Policy: The American Experience, p. 133.

coincide."¹³⁶

This analysis of United States force structure reinforces the view that operational nuclear strategic forces have been based on military realities of war fighting rather than political requirements for assured destruction.

Force structures should reflect military realities, and it is thus unwise to encourage the view that much can be read into them by way of underlying political objectives.¹³⁷

United States intercontinental nuclear forces have been improved significantly to increase the United States flexibility to respond forcefully in many diverse situations.

The additions to the American strategic inventory from 1970 to 1986 have provided a force structure that appears to be in a qualitative competition with the Soviet Union. The United States forces, both in existence and planned, have an operational capability well in excess of that required for deterrence. If these strategic forces have been designed to support a strategy, that strategy would more closely resemble the theoretical requirements called for by the compellent paradigm.

¹³⁶ Desmond Ball, "Counterforce Targeting: How New? How Viable?" In Robert Travis Scott, ed., The Race for Security: Arms and Arms Control in the Reagan Years (Toronto: Lexington Books, 1987), p. 122.

¹³⁷ Lawrence Freedman, Strategic Defence in the Nuclear Age, p. 6. The author intended to indicate that military force structures do not necessarily determine policy, but if the military "reality" does require nuclear warfighting capability, then the deterrent policy it is designed to support more closely resembles the compellent paradigm than the deterrent, at least in its logic.

Chapter Eight

THE NUCLEAR FORCE STRUCTURE OF THE SOVIET UNION

The previous chapter introduced the correlation of nuclear forces model and then applied it to the United States nuclear force structure for central war. Since this model is essentially a Soviet concept, its utility in demonstrating how Soviet nuclear analysts might approach the nuclear question is also extremely important. Not only can this model help indicate the paradigmatic logic behind the Soviet long range nuclear force structure, but it can also provide additional insight into how Soviet decision-makers might understand nuclear strategy and its utility to support Soviet foreign policy.

This chapter begins with an explanation of the significance of this Soviet perspective to Western analysts. Following this explanation, the chapter continues the paradigmatic force structure analysis by focusing on the quantitative, qualitative and dynamic variables incorporated into the correlation of nuclear forces model.

I. THE IMPORTANCE OF THE CORRELATION OF NUCLEAR FORCES MODEL

Since most nuclear analysts in the West have had limited experience with the Soviet Union and were not able to translate those few Soviet sources that became available in the West, Western views of Soviet nuclear strategy tended to be somewhat diverse and even controversial. Thus, the correlation of nuclear forces model, since it is a Soviet model, offers a unique insight into Soviet nuclear thinking. As the modern Soviet nuclear force structure was for the most part built in the late 1970's, given the time required to implement major construction projects, this strategic development probably had its roots in decisions taken in

the late 1960's.¹ With the complexity of modern weapons it is common to take about ten years from a decision to proceed until force structure implementation. Thus, the fact that this model was published in 1967 makes it a very appropriate indicator of strategic thought in the Soviet Union when at least some key decisions were made. The correlation of nuclear forces model as presented in this study appears to be a particularly useful tool for analyzing the construction of Soviet nuclear forces in the 1970-1986 time period.²

According to a respected expert, Marxist-Leninist ideology holds that historical progress is governed by discoverable and permanent laws, the pursuit of which equates to knowledge.³ Thus, it follows that certain laws must exist that determine the outcome of war. In fact, Soviet formulations of the laws of war are a major endeavour on the part of several Soviet scholars, but in spite of their efforts over the years they have yet to complete a coherent system to explain and account for war.⁴ Nevertheless, several iterations of the laws of war have been produced, the latest of which makes very specific reference to the correlation of military forces as follows:

¹ Michael MccGwire, Military Objectives in Soviet Foreign Policy (Washington, D.C.: Brookings Institution, 1987), p. 235. By use of "wave" theory of tracing Soviet decisions, MccGwire convincingly identifies some key Soviet strategic decisions which took place about December 1966.

² Leonid Brezhnev and Mikhail Suslov were key individuals who believed in the military component of the correlation of forces as a major factor in Soviet foreign policy. See Charles Gati, "Eastern Europe on its own," Foreign Affairs 68 (No 1, 1989), p. 103, and David Holloway, "Gorbachev's New Thinking," Foreign Affairs 68 (No. 1, 1989), p. 67.

³ Julian Lider, The Political and Military Laws of War: An Analysis of Marxist-Leninist Concepts (London: Saxon House, 1979), p. v. See also William P. Baxter, "Soviet Perceptions of the Laws of War," in Graham D. Vernon, ed., Soviet Perceptions of War and Peace (Washington, D.C.: National Defence University Press, 1981), p. 17.

⁴ Julian Lider, The Political and Military Laws of War: An Analysis of Marxist-Leninist Concepts, p. 206.

Victory and defeat in war and its length and final results are defined by the relative power of the armed forces and the mobilization potential of the warring sides.⁵

The correlation of forces appears to be a fundamental concept that underpinned the creation of Soviet military force structure. Although the military was technically only one facet of the total correlation of world forces, during the Brezhnev era it was probably the most important variable.⁶ Any change in Soviet military power was held to create a change in the correlation of world forces that, in the Soviet view, must have an effect on or even alter world events. As a consequence of this belief, Soviet leaders probably felt that gains could be won without the use of force and that the availability of military power would be crucial to those "victories."⁷ This line of argument implied a strong Soviet conviction that a positive shift in the correlation of military forces would be of fundamental importance because "military power confers political advantage."⁸

It logically follows that the concept of the correlation of military

⁵ Law of War 5 in the Soviet Military Encyclopedia cited in William P. Baxter, "Soviet Perceptions of the Laws of War," p. 22.

⁶ Julian Lider, Military Force: An Analysis of Marxist-Leninist Concepts (Westmead, Farnborough, Hants: Gower Publishing Company, 1981), p. 208. For the view that military force is the single most important factor, see Michael J. Deane, "Soviet Perceptions of the Military Factor in the Correlation of World Forces," in Donald C. Daniel, ed. International Perceptions of the Superpower Military Balance (New York: Praeger Publishers, 1978), p. 88.

⁷ Roger E. Kanet and David R. Kempton, "Global Correlation of Forces," in Ray S. Cline, James Arnold Miller and Roger E. Kanet, eds., Western Europe in Soviet Global Strategy (London: Westview Press, 1987), p. 93. See also Robert Levgold, "Military Power in International Politics: Soviet Doctrine on its Centrality and Instrumentality," in Uwe Nerlich, The Soviet Asset: Military Power in the Competition over Europe (Cambridge, Massachusetts: Ballinger Publishing Company, 1983), pp. 129-130.

⁸ R. W. Barnett, "Soviet Strategic Reserves and the Navy," in Kenneth M. Currie and Gregory Varhall, eds., The Soviet Union: What Lies Ahead? (Washington, D.C.: USGPO, 1984), p. 585.

forces gave the Soviet military an important ideological tool with which to justify fairly open ended force structure requests to Soviet leaders. Given the Soviet strategic inferiority with respect to the United States prior to the Soviet achievement of parity, Soviet military analysis appeared extremely concerned with the detailed planning of a nuclear war.⁹

If the correlation of forces concept had any specific part to play in the postwar development of strategic thought, it was in assessing the overall strategic relationship in favour of the United States and providing the Soviets with an overriding goal: the immediate rectification of their strategic weakness.¹⁰

The key problem for Soviet leaders in defining the necessary force structure is the fact that the correlation of forces can change extremely fast, depending on who strikes first.¹¹ Notwithstanding the limitations and difficulties in such analysis, there appears little doubt that in the Soviet Union, the correlation of forces concept has at least influenced, if not determined, the present nuclear force structure.¹²

As noted in the preceding chapter, the correlation of nuclear forces modelling allows a scientific basis for strategic decision making that

⁹ Julian Lider, The Political and Military Laws of War: An Analysis of Marxist-Leninist Concepts, p. 208.

¹⁰ Richard E. Porter, "Correlation of Forces: Revolutionary Legacy," Air University Review 28 (March/April 1977), p. 29.

¹¹ Stephan A. Tyushkevich, "The Methodology for the Correlation of Forces in War," in Joseph D. Douglass and Amoretta M. Hoeber, eds., Selected Readings from Military Thought 1963-1973 (Washington: USGPO, 1983), p. 65.

¹² Post 1986, however, it has become evident that Gorbachev believes that increased Soviet military power has also increased American fears as to their security. Vyacheslav Dashichev, a Soviet historian, notes that the Soviet Union erred by relying so heavily on correlation of forces analysis. See David Hallway, "Gorbachev's New Thinking," p. 68.

provides a means of objective analysis that has assisted the Soviet Union to manage its strategic affairs with appropriate prudence.¹³ Even Khrushchev insisted, one must "always calculate, calculate, calculate" to ensure success.¹⁴ In conducting these force calculations in the modern Soviet military, a great deal of emphasis is placed on operational research. Not only does every significant Soviet institution that studies military practice, including the Institute of World Economy and International Relations, conduct its own computer analysis, but all major Soviet military academies and colleges have their own operational research sections.¹⁵

Increasingly, Western observers have come to attribute greater import to the Soviet views with respect to nuclear use. The correlation of nuclear forces model is a fundamentally important means to help ascertain true Soviet objectives. Soviet literature has repeatedly acknowledged that if central nuclear war occurs, it will not be caused by mechanistic instabilities in force structure, but "rather from real and enduring differences between competing political systems and national interests."¹⁶ Soviet nuclear force structure has been developed for reasons only clear

¹³ The correlation of forces model can be used for detailed nuclear mission planning. B. Khabarov, et al, "Methodology for Determining the Correlation of Nuclear Forces," translated and reprinted in Selected Readings from Military Thought 1963-1973, Vol. 5, Part 1 (Washington: USGPO, 1982), p. 240. See also James Sherr, Soviet Power: The Continuing Challenge (London: MacMillan Press, 1987), p. 170.

¹⁴ Nathan Leites, Soviet Style in War (New York: Crane Russak, 1982), p. 378.

¹⁵ Alexei Arbatov, "START: Good, Bad or Neutral," Survival (July/August 1989), p. 296. See also John Erickson, "Soviet Military Operational Research: Objectives and Methods," Strategic Review 5 (Spring 1977), pp. 69-70.

¹⁶ Richard Burt, "Arms Control and Soviet Strategic Forces: The Risks of Asking SALT to do Too Much," The Washington Review 1 (January 1978), p. 22.

to the Soviet leadership, but to a degree these decisions have probably been based on detailed correlation of forces analysis. The use of a Soviet correlation of nuclear forces model thus allows this study to present a unique Soviet view of what the West calls the nuclear balance.

II. STRATEGIC NUCLEAR FORCES - QUANTITATIVE FACTORS

The paradigmatic analysis of the Soviet nuclear force structure from 1970-1986 reflects the same methodology and mathematical models used in chapter seven.¹⁷ This section will address the quantitative factors while subsequent sections will deal with the qualitative and dynamic attributes of the Soviet nuclear forces.

The first level of the paradigmatic framework, the quantitative analysis, not only includes the same static indicators as those used to assess the United States nuclear force structure, but some mention must also be made of the Soviet efforts to create strategic defences. This section therefore will analyze the number of strategic nuclear delivery vehicles (SNDV's), the number of nuclear warheads or reentry vehicles, the equivalent megatonnage values for Soviet intercontinental forces and a static measurement of Soviet strategic defence efforts.

In the Soviet Union, it is likely that quantitative analysis may have more impact due to the fact that the ground forces, with their emphasis on mass, are so predominant. This influence is evident in the key Soviet military academies to the degree that John Erickson, a highly respected analyst of the Soviet military, concludes that the ground forces have had "a persistent influence on Soviet military policy and organization."¹⁸ To

¹⁷ See Annex A for a review of the methodology used throughout this study.

¹⁸ John Erickson, "The Ground Forces in Soviet Military Policy," Strategic Review 6 (Winter 1978), p. 78.

the ground forces, numbers matter perhaps more so than in the other services, and thus it is reasonable to expect that the numbers of intercontinental nuclear systems may tend to be higher than in the United States.

From the years 1970 to 1986 the Soviet total of SNDV's increased from 1686 to 2541 although most of this growth occurred by 1976 when the Soviet force structure appeared to level off.¹⁹ Of this SNDV total, the Soviet bomber force contribution has increased only slightly over the period while the SLBM force increased markedly from 1970 to 1978 and since that time has more or less levelled off. The main component of the Soviet strategic nuclear forces remains its ICBM's; these forces increased from only 400 ICBM's in 1964 to over 1600 ICBM's in 1976, but have since stabilized at about 1400 ICBM's in 1978.²⁰ Although at one time as many as 240 ICBM's may have had targets in China or in Europe, many of these could have been available for intercontinental use, especially in the 1980's when the SS-20 could have covered these targets.²¹ Some ICBM's not intended for intercontinental use may, however, partially be offset by Soviet efforts at nuclear force reconstruction in the event of war.

Some Soviet ICBM's use cold launch procedures which create less damage to the launching silo, thereby allowing the silo to be re-used in about two days. Extra ICBM's have been stocked in the USSR, and the United States Defence Intelligence Agency (DIA) considers that these

¹⁹ See Annex H for details on SNDV deployments for the Soviet Union.

²⁰ See Myron J. Smith, The Soviet Air and Strategic Rocket Forces, 1939-1980 (Oxford: Clio Press, 1981), p. xxiv.

²¹ Raymond L. Garthoff, Detente and Confrontation: American Soviet Relations from Nixon to Reagan (Washington, D.C.: Brookings Institution, 1985), pp. 873-875.

"hidden reserves" are at a significant level.²² Senior American officials are convinced that the Soviet Union has a reload capability which allows a degree of nuclear force reconstitution.²³ There is some concern in the West that Soviet strategic reserves (at sea and on land) could be crucial to the determination of a victor in war."²⁴ Most Soviet analysts indeed recognize the operational requirement for strategic reserves, but realize that the outcome of nuclear war will depend primarily on the available forces at the beginning of the war.²⁵ Since no quantitative data is available, this study deals only with those forces available for combat in operational units.

If the number of Soviet SNDV's has leveled off somewhat after 1976, the total number of intercontinental capable warheads has not. From 1970 to 1986 the total number of warheads the Soviet Union could use against the United States has increased by a factor of six, from 1686 to 10,139.²⁶ From the years 1976 to 1986 they have increased by a factor of three. To some degree the Soviet force planners must have realized that to stay in strategic competition with the United States, at least in terms of SNDV's, the minimum size of the Soviet response was "pretty well dictated by the

²² Soviet Military Power, (Washington, D.C.: USGPO, 1985), p. 28. For the DIA assessment see Carl G. Jacobsen, ed., The Soviet Defence Enigma: Estimating Costs and Burdens (Oxford: Oxford University Press, 1987), p. 5.

²³ See Dean Rusk's comments in Michael Charlton, From Deterrence to Defence: The Inside Story of Strategic Policy (Cambridge, Massachusetts: Harvard University Press, 1987), p. 12.

²⁴ R. W. Barnett, "Soviet Strategic Reserves and the Soviet Navy," in Kenneth M. Currie and Gregory Varhall, eds., The Soviet Union: What Lies Ahead?, p. 581.

²⁵ Y. E. Savkin, The Basic Principles of Operational Art and Tactics (Moscow: Ministry of Defence Publishing House, 1972) translated and published under the auspices of the United States Air Force, pp. 89-92.

²⁶ See Annex J. Soviet Warhead Totals.

U.S. programmes which levelled out at fixed ceilings by the mid-1960's."²⁷ Thus it may be that Soviet leaders viewed the American decision to deploy MIRV, before the Soviet Union could establish numerical equivalence in ICBM's, as a deliberate escalation of the strategic arms race.²⁸ In any event, the first Soviet MIRV tests took place in 1973, and the first Soviet MIRV operational deployments began in 1975 and continued until 1986.²⁹ This massive MIRV programme more than any other factor accounts for the sharp rise in warheads throughout this period, as first ICBM's and then SLBM's were converted to MIRV systems. The number of warheads available to the strategic bomber force also appears to have increased over this period as additional bombs, air to surface missiles, and cruise missiles were quietly introduced.³⁰

This substantial increase in nuclear strategic warheads appears for the most part the result of Soviet funding decisions taken either prior to or during this period. From 1968 to 1978 Soviet funding to strategic programmes increased about threefold.³¹ Since that time, however, Soviet military spending has levelled off and major programmes appear to have

²⁷ Thomas W. Wolfe, The Global Strategic Perspective from Moscow (Santa Monica, California: Rand Corporation P-4978, 1973), pp. 7-8.

²⁸ Harland B. Moulton, From Superiority to Parity: The United States and the Strategic Arms Race (Westport, Connecticut: Greenwood Press, 1973), p. 293.

²⁹ Raymond L. Garthoff, Detente and Confrontation: American Soviet Relations from Nixon to Reagan, p. 793.

³⁰ See data in Annex J. The main source is John M. Collins, U.S.-Soviet Military Balance 1980-1985, p. 180, and by the same author, Imbalance of Power: An Analysis of Shifting U.S.-Soviet Military Strengths, p. 59. Average bomb loads were used in this study. See Phillip A. Petersen, Soviet Air Power and the Pursuit of New Military Options (Washington, D.C.: USGPO, 1978), p. 24, and Kenneth R. Whiting, Soviet Air Power (London: Westview Press, 1986), p. 108.

³¹ William T. Lee, Soviet Defence Expenditures in an Era of SALT (Washington, D.C.: United States Institute Report 79-1, 1979), p. 5.

been "stretched out" over longer time periods.³² The fact that the numbers of strategic warheads steadily increased reflected the continuing and cost effective MIRV installation that demonstrated a continuing Soviet priority on central nuclear systems. Another important and often overlooked facet of Soviet strategic resource allocation is that which is spent on strategic defence. At least one informed analyst has determined that from 1970 to 1985, the Soviet Union has spent about as much on defence as on offence.³³

The next major quantitative variable used to measure strategic nuclear forces is the summation of Equivalent Megatonnage (EMT). From 1970 to 1986 the Soviet Union increased its EMT total by about 250 percent, adding more firepower in every year but one.³⁴ The ability to put several MIRV's on the larger Soviet ICBM's allowed Soviet totals to grow throughout this period and helps explain the Soviet military's unwillingness to negotiate large Soviet ICBM's in SALT.³⁵ As the scope of the Soviet ability to translate its significant throw weight advantage into greater numbers of warheads and higher EMT totals became apparent in the late 1970's, those that criticized throw weight as a meaningless value seemed to lose some influence.³⁶ During the period 1970 to 1986 it

³² Richard F. Kaufman, "Causes of the Slowdown in Soviet Defence," Survival (July/August 1985), p. 181.

³³ Paul Nitze, SDI: The Soviet Programme, Current Policy No. 717 (Washington, D.C.: U.S. Department of State, 28 June, 1985), p. 1.

³⁴ See Annex K. The exception was 1980-1981 when EMT totals declined slightly, primarily due to the MIRVing of ICBM's with lower yield warheads.

³⁵ Paul Nitze cited in Michael Charlton, From Deterrence to Defence: The Inside Story of Strategic Policy, p. 67.

³⁶ The Committee on the Present Danger made much use of these facts to discredit the idea that throw weights did not matter. For one critic of throw weight see Les Aspin, "How to Look at the Soviet American Balance," Foreign Policy 22 (Spring 1976), p. 103.

appeared as if steady Soviet efforts were dedicated to increasing the Soviet EMT totals.

The last quantitative variable relates to strategic defence of the Soviet Union from American nuclear attack. Although ballistic missile defence deployment is regulated by treaty, within the Soviet military and political community there has not been any significant questioning of the theoretical desirability of missile defence.³⁷ If the Soviets did accept assured destruction logic, one would have expected the Soviet Union to have quickly built to an assured destruction level and then stopped building warheads, let alone defences.³⁸ Since the Soviet Union had an assured ability to destroy the United States in 1970 and still continued massive force structure improvements into the 1980's, it appears that assured destruction in itself did not motivate this build up. This fact, along with the considerable ambiguity over the degree of Soviet commitment to strategic defences, raised serious concerns in the West over Soviet long term intentions. The continued Soviet emphasis on strategic defences, active and passive, throughout this period seems to indicate that mutual assured destruction was not necessarily the most valued product of Soviet strategy.³⁹

Although strategic defence against nuclear attack is an extremely

³⁷ Michael J. Deane, Strategic Defence in Soviet Strategy (Miami: Advanced International Studies Institute, 1980), p. 107. See also William T. Lee, Rationale Underlying Soviet Strategic Forces (Washington, D.C.: Stanford Research Institute, 1969), p. 22.

³⁸ Michael Mandelbaum, The Nuclear Revolution (Cambridge, Massachusetts: Cambridge University Press, 1981), p. 120.

³⁹ For an assessment of Soviet ballistic missile defence efforts see testimony of Dr. Robert Cooper, Director of the Defence Advanced Research Project Agency before the Committee on Armed Services, United States Senate, Department of Defence Appropriations for Fiscal Year 1985 (Washington: USGPO, 1984), p. 2974. See also George Kolt, "The Soviet Civil Defence Programme," Strategic Review 5 (Spring 1977), p. 54.

difficult objective to achieve, the USSR has seemingly devoted considerable efforts to that end.⁴⁰ Soviet programmes to protect the essential elements for the preservation of their system and major industrial dispersion to reduce strategic vulnerability attest to Soviet seriousness.⁴¹ While Soviet active missile defences may not have overtly exceeded treaty limits, the United States fears that the Soviet Union has given about 2000 SA-5 surface to air missiles a limited ABM capability in the 1980's.⁴² When all these efforts are combined with improvements in radars and more capable ABM missiles, a picture appears of a general improvement in Soviet strategic defence from 1970 to 1986. Soviet journals display three levels of strategic defence: exoatmospheric, endoatmospheric and point defence.⁴³ Slowly but surely, a comprehensive Soviet strategic defence system has been improved to achieve this end. Operational research data shows the impracticality of defending the whole country but does demonstrate the feasibility of successful point defence.⁴⁴ From data of this ilk, it appears that Soviet defences are

⁴⁰ Fred Iklé suggests that the uncertainties of nuclear attack and defence are so great that it is not really possible to predict under what circumstances a nation might survive. See his "Nether World of Nuclear Megatonnage," Bulletin of the Atomic Scientists (January 1975), pp. 20-25.

⁴¹ Leon Gouré, War Survival in Soviet Strategy--USSR Civil Defence (Miami, Florida: University of Miami Centre for Advanced International Studies, 1976), p. 138.

⁴² Admiral Elmo Zumwalt in testimony before the Committee on Appropriations, United States Senate, SALT 2 Violations, 28 March 1984 (Washington, D.C.: USGPO, 1984), pp. 68-69.

⁴³ David S. Yost, "Strategic Defences in Soviet Doctrine and Force Posture," in Fred S. Hoffman, Albert Wohlstetter and David S. Yost, Swords and Shields: NATO, the USSR and New Choices for Long Range Offence and Defence (Toronto: Lexington Books, 1987), p. 125.

⁴⁴ Gordon MacDonald, Jack Ruina and Mark Balaschak, "Soviet Strategic Air Defence," in Richard K. Betts, ed., Cruise Missiles: Technology, Strategy, Politics (Washington, D.C.: Brookings Institution, 1981), pp. 78-79.

being gradually optimized to provide at least some protection for point targets from strategic attack.

The measure of Soviet quantitative factors tends to show a stable number of SNDV's by the mid 1970's, but significant improvements to those systems have steadily increased the numbers of warheads and EMT totals throughout this period. The steady growth in the number of warheads and total EMT have occurred in spite of reduced growth in military funding. When taken in conjunction with a possible bias toward strategic defence, this growth appears to exhibit the quantitative characteristics of compellence.

III. STRATEGIC NUCLEAR FORCES - QUALITATIVE FACTORS

From 1970 to 1986, not only did the Soviet leaders increase their quantitative measures of strategic power, but they also pursued qualitative improvements. Increasingly over the period, Moscow perceived that upgrading the quality of Soviet weapon systems was a critical factor in determining the correlation of forces.⁴⁵

Now that the quality of weapons is assuming increasing significance, it is becoming more difficult to determine the correlation of forces on the basis of traditional quantitative calculations alone. The role of technology is growing steadily and the interdependence of the qualitative and quantitative factors is becoming more complex. Therefore, it is the analysis of the qualitative aspect which is increasingly coming to the fore in calculating the correlation of forces.⁴⁶

The qualitative factors that make a long range nuclear delivery system more effective include improving the availability, the reliability, the

⁴⁵ Jacquelyn K. Davis and Robert L. Pfaltzgraff, Soviet Theatre Strategy: Implications for NATO (Washington, D.C.: United States Strategic Institute, 1978), p. 5.

⁴⁶ D. M. Proektor, "Qualitative Aspect of Forces Stressed," Novoye Vremya, 18 March 1977 reprinted in FBIS, Soviet Union, 22 March 1977, pp. AA1-2.

accuracy, the precision, the yield, the penetration ability, the hardness and the survivability of each individual weapon. During the period 1970 to 1986, the Soviet leaders appeared to have taken a rather systemic approach to the introduction of new technology that included coping with its impact on force development where a continual dialectic process takes place between science and the political-military leadership.⁴⁷ This longer term view helps to explain the steady improvements to the qualitative variables in Soviet nuclear force posture during this period of analysis.⁴⁸

1. Overall Availability and Reliability

The availability of Soviet nuclear forces in peacetime is generally felt to be lower than that of the United States. Early Soviet liquid fuel ICBM's were so unstable that they were not routinely held on alert and took a great deal of time to generate due to the fueling process. Early Soviet missiles also lacked strong enough ball bearings to allow the guidance system to be run continuously and maintain its alignments, a requirement for ICBM's on alert status.⁴⁹ Very few bombers, if any, appear to be held on peacetime alert status and only about 15% of Soviet

⁴⁷ Phillip A. Petersen, "The Modernization of the Soviet Armed Forces," NATO's Sixteen Nations 31 (July 1986), p. 32. For a view that science is driving technological developments not the military, see V. M. Bondarenko's comments cited in Jerry F. Hough, "The Historical Legacy of Soviet Weapons Development," in Jiri Valenta and William Potter, eds., Soviet Decision Making for National Security (London: George Allen and Unwin, 1984), pp. 108-109.

⁴⁸ See Annex M for data on Soviet ballistic missiles. This annex summarizes the key variables that will be addressed in this section.

⁴⁹ Robert P. Berman and John C. Baker, Soviet Strategic Forces: Requirements and Responses, p. 88. This issue became a significant factor in the United States decision to reduce trade with the Soviet Union. It was claimed that the Soviet Union had imported this technology from the West.

SSBN's are at sea at any given time.⁵⁰ The low levels of peacetime alert nuclear forces, however, probably reflect the Soviet view of how such a war might start rather than any serious shortcomings in wartime availability. The Soviet Union appears to consider that nuclear war, if it occurs at all, will be the result of a serious political crisis or a conventional war. In a generated condition, this study assumes that about 100% of Soviet ICBM's are available, 80% of SSBN's are at sea and that 80% of strategic bombers are on alert status.

The second major qualitative aspect is the overall reliability (OAR), the probability that a given weapon system and its nuclear warhead will perform as designed. Due to the difficulty of obtaining accurate data on Soviet intercontinental nuclear systems, Western assessments of Soviet reliabilities are quite variable.⁵¹ Earlier Soviet missiles such as the SS-7 and SS-8 were assessed as having reliabilities that averaged about .6 by the early 1970's.⁵² The SS-9 and subsequent ICBM's appeared to have increasingly better OAR's as Soviet engineers improved their products.⁵³ By the 1980's, Soviet ballistic missile reliabilities appeared to have reached a level comparable to the United States, and this improvement was reflected in actual missile tests in the USSR. The SS-18 had only seven

⁵⁰ See William M. Arkin and Richard W. Fieldhouse, Nuclear Battlefields: Global Links in the Arms Race (Cambridge, Massachusetts: Ballinger Publishing Company, 1985), p. 41. But some other SSBN's probably remain on alert status.

⁵¹ Barton Wright, World Weapon Database: Volume 1, Soviet Missiles (Toronto: Lexington Books, 1986), pp. 200-291. This study reviews the literature and provides reliability data reported in various sources. The reliabilities of Soviet ballistic missiles vary from .2 to .95.

⁵² Edward Luttwak The US-USSR Nuclear Weapons Balance (Washington, D.C.: Center for Strategic and International Studies, 1974), p. 58. A reliability of .6 means that a given system will be 60% reliable.

⁵³ For example the SS-9 was given an OAR of .76 by Lynn E. Davis and Warner R. Schilling, "All you ever wanted to know about MIRV and ICBM Calculations But were not Cleared to Ask," p. 233.

failures in its first 29 test flights, and the SS-19 had only two failures out of 27 tests.⁵⁴ The relatively modern family of SS-17, SS-18 and SS-19 ICBM's are thought to be highly reliable and not suffer from serious availability problems associated with earlier systems. The United States Department of Defence reportedly considers these ICBM's to be .8 to .85 reliable.⁵⁵

This study has selected OAR's for Soviet intercontinental nuclear delivery systems based on average projected improvements over time. The OAR's for ICBM's range from .6 for the SS-7 to .85 for the more recent modifications on the SS-17, SS-18 and SS-19. The OAR for SLBM's is slightly lower than those for ICBM's due to the added variable of SSBN reliability. The Soviet long range aviation forces are assessed as having an overall system reliability of .7/.8 for the Bear/Bison bombers including all warheads, missiles and the aircraft.

2. Lethality

The variables of accuracy, precision and yield combine to make up the lethality or counter military potential (K) of a given system against hard targets. Annex M indicates that the K value for certain Soviet ICBM's has been consistently high throughout this period of analysis, but the total number of hard target capable systems has significantly increased.

As early as 1962, the USSR appeared to begin a project aimed at acquiring a highly accurate missile force to destroy United States ICBM's

⁵⁴ Barry R. Schneider, Colin Gray and Keith Payne, Missiles for the Nineties: ICBM's and Strategic Policy, p. 122.

⁵⁵ Andrew Cockburn, The Threat: Inside the Soviet Military Machine (New York: Random House, 1983), p. 198.

on the ground.⁵⁶ Because missile accuracies were poor, the SS-9 was probably built large enough to carry a sufficiently large warhead so that its yield/accuracy combination would guarantee a hard target kill capability.⁵⁷ By the time the United States began to harden its ICBM silos beyond 300 PSI such that the SS-9 kill probability became significantly reduced, the Soviet Union began testing more accurate missiles. It appeared that the Soviet Union was making a determined effort to construct and maintain a hard target kill strategic capability. From 1975 to 1984 a series of improved ICBM's entered the Soviet nuclear force structure, each with an improved CEP over its immediate predecessor.⁵⁸ Although United States intelligence may have overestimated the Soviet accuracy in some years,⁵⁹ the overall accuracy improvements to Soviet ICBM's indicates a conscious drive on the part of Soviet military leaders to increase the lethality of their intercontinental weapons.

As Soviet ICBM's began to carry MIRV's, the average yield per warhead became smaller. Although the total megatonnage was reduced with smaller warheads, this was more than offset by the accuracy improvements such that

⁵⁶ The SS-9. See John M. Collins, U.S.-Soviet Military Balance: Concepts and Capabilities, 1960-1980 (Washington, D.C.: McGraw Hill, 1980), p. 118. See also John Van Oudenaren, Deterrence, Warfighting and Soviet Military Doctrine, Adelphi Paper 210 (London: International Institute of Strategic Studies, 1983), p. 28.

⁵⁷ Ian Bellany, "More Arithmetic of Deterrence: Throw Weight, Radioactivity and Limited Nuclear War," RUSI Journal (June 1979), p. 37. Design contracts for the SS-17, SS-18 and SS-19 were let in 1966. Both the SS-18 and SS-19 were designed to destroy hard targets. See Rolf Engel, a leading German missile expert, "The SS-18 Weapon System," and "The SS-19 Weapon System," Military Technology 13 (March 1989) and (June 1989), pp. 112-114 and p. 77.

⁵⁸ Some solid research by Donald MacKenzie concludes that greater accuracy has been a deliberate Soviet goal, "Soviet Union and Strategic Missile Guidance," International Security (Fall 1989), p. 45.

⁵⁹ Lawrence Freedman, U.S. Intelligence and the Soviet Strategic Threat, 2nd edition (Princeton, New Jersey: Princeton University Press, 1986), p. xx.

overall lethality increased. By 1983, about 80% of warheads on ICBM's appeared designed for counterforce applications, and the remainder appeared tailored for attacking soft targets.⁶⁰ The Soviet ICBM force clearly reflected the tendency of Soviet nuclear strategy toward war fighting that fueled hawkish fears over Soviet intentions.

Soviet nuclear targeting strategy is consistent with the Soviet objective to fight and win a nuclear war. This strategy rejects all premises of U.S. assured destruction targeting and most of the premises of U.S. countervalue targeting strategies.⁶¹

Overall, the Soviet Union has increased its nuclear force lethality by striving for accuracy improvements, even if at the expense of yield. Early during this period, the intensity and scope of the SS-18 and SS-19 testing raised the possibility that the Soviet Union might have in mind the use of its strategic arsenal for purposes other than for deterrence.⁶² Towards the close of this period, the Soviet Union began MIRVing SLBM's, and although accuracy and lethality have increased, Soviet SLBM's are not yet hard target capable. Beginning in 1984, the Soviet Union has also deployed air launched cruise missiles on its new Bear H bombers, giving its bomber force a renewed flexibility in its ability to strike accurately the United States.

The Soviet Union appears to have pursued a minimum level of lethality as a principle objective in its nuclear force development. As targets increased in hardness, the lethality of Soviet ICBM's increased to compensate, and the Soviet Union appears to have dedicated most of its

⁶⁰ The SS-18 Mod 4 and SS-19 Mod 3 warheads are hard target capable. They total 5240 warheads out of 6420. See Annex J.

⁶¹ William T. Lee, "Soviet Nuclear Targeting Strategy," in Desmond Ball and Jeffrey Richelson, Strategic Nuclear Targeting (London: Cornell University Press, 1986), p. 107.

⁶² Joseph L. Noguee and Robert H. Donaldson, Soviet Foreign Policy Since World War II (Oxford: Pergamon Press, 1981), p. 282.

ICBM warheads to this combat task. These improvements reflect a nuclear force structure designed to fight in a flexible and traditional manner.

3. Penetration

To be effective, a given weapon system must be able to penetrate to its target. Since the United States has not deployed any significant defences, the Soviet ability to penetrate is relatively high. Since the withdrawal of Safeguard in the mid-1970's, the United States has had no ballistic missile defence beyond strategic warning. Given that Safeguard covered so few strategic targets in the United States for such a short time, it has been ignored; therefore this study has used a Soviet missile penetration factor equal to the missile OAR for the whole period.

To defend against bomber penetration, the United States and Canada have formed a combined North American Air Defence system. From 1970 to 1986, however, this system remained relatively thin and vulnerable to nuclear attack, an essential component of modern penetration.⁶³ According to Dr. Bob Brereton, the Director of Air Operational Research, in the Operational Research and Analysis Establishment in Ottawa, Soviet bombers in such a situation would likely experience a penetration probability of .95.⁶⁴ This study has therefore used a flat .95 penetration rate from 1970 to 1980 when new fighters with pulse dopler radars and airborne command and control aircraft began to introduce more defensive capability.⁶⁵ The Soviet bombers are relatively old and are only

⁶³ James N. Constant, Fundamentals of Strategic Weapons: Offence and Defence Systems (The Hague: Martinus Nijhoff, 1981), p. 97.

⁶⁴ Interview: 12 Jan. 88.

⁶⁵ See Annex F.

beginning to be replaced in the mid 1980's.⁶⁶ Eventually, the Bear H and the Blackjack, a new high speed long range strategic bomber, will replace the current bombers, and ALCM will be their major weapon.⁶⁷

The United States has fielded no effective defence against strategic attack, but in the 1980's it began devoting significant research and development efforts toward strategic defence. It appears that the United States, at least since 1983 when the Strategic Defence Initiative was launched, does not regard its defencelessness as a strategic asset. But from 1970 to 1986, to all intents and purposes, the Soviet offensive nuclear forces enjoyed extremely high penetration rates.

4. Survivability

Because most of the Soviet nuclear force is based on ICBM's, the Soviet Union faces the prospect that a greater percentage of its nuclear strike force could eventually become vulnerable to attack. In 1970, 80% of Soviet EMT was carried by ICBM, and although over this period many more SLBM's were added, by 1986, 60% of the Soviet EMT was still mounted on ICBM's.⁶⁸ The reasons for this strategic reliance on ICBM's mostly stem from the historical development of the Strategic Rocket Forces. It was formed from, and still wears the uniform of, elite artillery troops and has always enjoyed a special position in the Soviet military with its

⁶⁶ Soviet sources acknowledge shortcomings in the Bear and Bison fleets. See B. A. Vasil'yev, Long Range Missile Equipped (Moscow, 1972) translated by DGIS Multilingual Section, Secretary of State Department, Ottawa, under the auspices of the U.S.A.F. P. 70 notes the heavy fuel consumption, and p. 77 refers to how even tested and reliable equipment does not always stand up.

⁶⁷ David Wragg, The Offensive Weapon: The Strategy of Bombing (London: Robert Hale, 1986), p. 184.

⁶⁸ See Annex K. As a percentage of total force in 1970 SLBM's comprised less than 10% of the Soviet long range nuclear force, and by 1986, it made up 25%.

heavy emphasis on ground forces.⁶⁹ As discussed in chapter seven, each component of the strategic nuclear forces faces a different survivability problem, and each Soviet nuclear "leg" will be addressed in turn.

The standard measure of Soviet ICBM ability to survive an attack is silo hardness, but determining the hardness of Soviet ICBM silos is difficult. Estimates in open sources vary considerably, from the SS-7 "coffins" which were considered soft targets to super hard silos that theoretically could survive up to 50,000 lbs. of overpressure.⁷⁰ No specific silo hardening programmes in the Soviet Union have appeared in open sources, but over the years each Soviet modification to its ICBM fleet often included new silos or other efforts to improve silo hardness.

In the 1960's, for example, most Soviet ICBM's were considered soft targets, but gradually those missiles were separated and placed in hardened silos. By 1970 most Soviet ICBM's were hardened to a level estimated to be able to withstand about 300 psi.⁷¹ In this study, all of the SS-7 and SS-8 ICBM's are considered soft targets even though a small number were reportedly placed in silos. The large SS-9 which was being upgraded in the early 1970's is assessed at 400 psi.⁷² As the Soviet Union modernized its ICBM force, new silos were being increasingly hardened, and improved SS-11 silos in this study are assessed at about

⁶⁹ Harriet Fast Scott and William F. Scott, The Armed Forces of the USSR, third edition (Boulder, Colorado: Westview Press, 1984), p. 145.

⁷⁰ Barton Wright, World Weapon Database: Volume 1, Soviet Missiles, pp. 200-222. Testing of scale models Soviet modern silos indicated that they could survive 50,000 psi with only moderate damage. See also David R. Jones, Soviet Armed Forces Review, Annual (Gulf Breeze, Florida: Academic International Press, 1983-1984), p. 100.

⁷¹ Robert P. Berman and John C. Baker, Soviet Strategic Forces: Requirements and Responses, p. 91. See Annex M for the various hardnesses used for Soviet ICBM's.

⁷² Barton Wright, World Weapon Database: Volume 1, Soviet Missiles, p. 133.

1000 psi. In 1975, the fourth generation Soviet ICBM's (SS-17, SS-18, SS-19) were being introduced into service, and concurrent with their introduction, existing silos were totally replaced by massive improvements.⁷³ By 1976, there were reports that these large Soviet silos were being upgraded to withstand 3000 psi,⁷⁴ and by 1985 John Collins reported that new Soviet silos could withstand 4000 psi.⁷⁵ By 1986, one study reasoned that the USSR was attempting to harden its silos to 5000-7000 psi.⁷⁶ The United States has openly acknowledged that the Soviet silos housing the SS-17, SS-18 and SS-19 missiles are the world's hardest operational silos.⁷⁷ This study has selected hardness values for these silos that vary from 2000 psi for the first silos deployed in 1975 to 3000 psi for the latest modifications in 1983.

These values remain conservative due to the tremendous uncertainty of attempting to measure the resistance to a nuclear blast. Not only is it extremely difficult to provide a comparable degree of shock protection for the ICBM within its hard silo, but the traditional method of SS_{KP} calculation does not account for nuclear pulse duration, the time that a

⁷³ Roger Speed, Strategic Deterrence in the 1980's (Stanford, California: Hoover Institution Press, 1979), p. 141.

⁷⁴ Ray Bonds, The Soviet War Machine (New York: Chartwell Books, 1976), p. 210.

⁷⁵ John M. Collins, U.S.-Soviet Military Balance, 1980-1985, p. 57. See also Aviation Week and Space Technology, 16 June 1980, p. 67.

⁷⁶ William C. Martel and Paul L. Savage, Strategic Nuclear War: What the Superpowers Target and Why (London: Greenwood Press, 1986), p. 42. See also Doug Richardson, "World Missile Directory," Flight International (1 October 1980), p. 35.

⁷⁷ Soviet Military Power (1987), p. 27. See also Caspar Weinberger, statement to the House Committee on Armed Services, Strategic Programmes, Hearings on Military Posture and H.R. 5968 (Washington, D.C.: USGPO, 1982), pp. 83-85.

given overpressure lasts on a target.⁷⁸ Both these variables suggest that a conservative hardness level is warranted. Although calculations based on open source data have tended to produce smaller estimates of surviving silos than classified official estimates, this variance is mostly attributable to reliability, yield, accuracy and fratricide uncertainties.⁷⁹ The key point in this analysis is the inherent physical limitation of the capacity to harden a target, which ultimately means that a fixed silo will always be vulnerable once the attacking ICBM force can achieve the requisite combination of numbers, accuracy and yield.⁸⁰

The Soviet Union has striven to improve its ICBM hardness and survivability continuously over the time frame of this study. Not only have the silos been progressively hardened, but Soviet leaders have invested heavily in providing for the survivability of strategic command, control, and communication systems.⁸¹ Launch control centres in the Soviet Union are to a significant degree interconnected so that there is high confidence that most of the Soviet ICBM force could be responsive in the event of a nuclear attack.⁸² This study assumes that decapitation

⁷⁸ Bruce Bennett, How to Assess the Survivability of ICBM's (Santa Monica, California: Rand Corporation R-2577-FF, 1980), p. 10. To obtain more accurate results, a lognormal damage density function can be used, but to be meaningful it required very accurate data not generally available, even in classified sources. The traditional or "cookie cutter" method was described in chapter seven.

⁷⁹ John D. Steinbruner and Thomas M. Garwin, "Strategic Vulnerability: The Balance Between Prudence and Paranoia," pp. 145-148. Fratricide was described in chapter seven.

⁸⁰ Robin Ranger, The Implications of the Possible U.S. Introduction of Ballistic Missile Defence into the North American Air Defence System (Ottawa: Operational Research and Analysis Establishment, 1981), p. 17.

⁸¹ Soviet Military Power (1987), p. 27.

⁸² William C. Martel and Paul L. Savage, Strategic Nuclear War: What the Superpowers Target and Why. p. 197. See also David R. Jones, Soviet Armed Forces Review, Annual, p. 95.

strategy on the part of the United States would render 50% of those ICBM's inoperable should its LCC be destroyed. As some LCC's are sited in hardened silos, the LCC's are assessed as having the same hardness as the ICBM it controls.

Although the Soviet Union does not have a significant amount of its nuclear weapons on its bomber force, it appears prepared to increase its reliance on bombers in the future. Long range bombers are flexible tools of war fighting, but they are expensive to acquire and operate. From 1970 to 1986 the amount of Soviet EMT carried by bombers has climbed slightly from about 11% to 14%. Soviet bombers can only survive if they are on alert status and receive adequate warning of attack. Soviet bombers not on alert are assumed destroyed on the ground at the few Soviet bomber bases. This study has assumed that Soviet bombers have a survivability factor of .7 in a generated alert condition.

The survival of Soviet SSBN's represents a far more critical component in the correlation of forces model. This study assumes that in a fully generated condition, about 80% of Soviet SSBN's can be kept at sea. Those in port are vulnerable to strategic attack and are assumed destroyed, even though some may be somewhat protected in bases where tunnels have been constructed for their concealment and protection.⁸³ The survivability of Soviet SSBN's is a function of several factors, but the most important appears to be Soviet naval deployments that appear designed to protect their SSBN's against the United States ASW threat.

The Soviet navy regards its SSBN's as its most important strategic assets, and since the 1960's the Soviet Navy has contemplated using the

⁸³ Ray Bonds, The Illustrated Directory of Modern Soviet Weapons (New York: Prentice Hall Press, 1986), p. 173. See also Soviet Military Power, p. 28.

fleet to protect its SSBN force.⁸⁴ These SSBN's form an important strategic reserve in war, one of the navy's most important national defence tasks.⁸⁵ Soviet naval policy therefore appears directed at establishing "bastions" within which these submarines can operate in wartime, and the bulk of the Soviet surface fleet has been tasked to defend them⁸⁶ Major Soviet efforts are required primarily because the United States has significant naval advantages, specifically, its free access to open oceans and its lead in ASW and submarine technology. According to ASW experts, the survivability of Soviet SSBN's is at best one-half that of those of the United States.⁸⁷

In the early 1970's all Soviet SSBN's were compelled to transit constricted waters controlled by the United States or its allies in order to threaten the United States. Not only were these submarines relatively noisy, but they were vulnerable to attack for a considerable period of time prior to reaching a strategic launch position.⁸⁸ In 1973, however,

⁸⁴ The mission of countering U.S. SSBN's and protecting Soviet SSBN's are top priority according to Michael MccGwire, "Naval Power and Soviet Global Strategy," International Security 3 (Spring 1979), pp. 167-169. See also R. W. Barnett, "Soviet Strategic Reserves and the Soviet Navy," p. 592.

⁸⁵ Bradford Dismukes and James M. McConnell, Soviet Naval Diplomacy (New York: Pergamon Press, 1979), p. 285. This book is very useful.

⁸⁶ Michael MccGwire, "The Changing Role of the Soviet Navy," Bulletin of the Atomic Scientist (September 1987), pp. 34-39. See also Anthony Preston, "U.S. Strategy and ASW," Defence Weekly 6 (29 November, 1986), p. 1274.

⁸⁷ Edward Luttwak, The U.S.-USSR Nuclear Weapons Balance, p. 11. This is a conservative assessment. See Vice Admiral DeMars testimony in hearings before the House Committee on Armed Services, Defence Department Authorization and Oversight (Washington, D.C.: USGPO, 1986), pp. 79-82. Vice Admiral DeMars expects a 5 or 6 to 1 kill ratio in favour of the United States in war (reflects SSN versus SSN combat).

⁸⁸ See Annex G, SSBN Survivability. The very low survivability of SS-N-4, SS-N-5 and SS-N-6 is attributable to the long SSBN transit period through NATO-controlled waters.

the first long range SS-N-8 equipped SSBN of the DELTA class came into Soviet service. From this point on, as more longer range SLBM's joined the fleet, Soviet SSBN's could be made more survivable by holding them in defended seas close to Soviet coasts.

Anti-submarine warfare capability in the West has advanced steadily from 1970 to 1986 and threatens Soviet SSBN's significantly. Soviet efforts to increase the survivability of their new SSBN's include building faster and quieter designs, degaussing prior to each patrol, coating submarine hulls with anechoic tiles to minimize sonar reflections, and building double hull SSBN's to reduce damage due to attack.⁸⁹ Each generation of Soviet SSBN's has been getting more survivable and in some respects been catching up to the United States.⁹⁰

To counter Soviet efforts at enhancing SSBN survivability, American SSN's routinely attempt to locate and trail Soviet SSBN's within their defended "bastions." Since the Soviets must send their best SSN's to attempt to locate and trail United States SSBN's, only their older models are available to protect their SSBN's.⁹¹ Recently, the United States has adopted a "forward strategy" where it would seek to penetrate Soviet bastions with surface units including carriers and destroy Soviet nuclear

⁸⁹ Donald C. Daniel, Anti-Submarine Warfare and Superpower Strategic Stability (Chicago, Illinois: University of Illinois Press, 1986), pp. 100-102. See comments by William Perry, Carter's undersecretary for Defence Research and Engineering. See also David Underwood, "The Eyes and Ears of NSA," Canadian Aviation 60 (December 1987), p. 23.

⁹⁰ Admiral Rickover before Congress, cited in Norman Polmar, "Soviet Nuclear Submarines," United States Naval Institute Proceedings 107 (July 1981), pp. 36-37. See also John E. Moore and R. Compton-Hall, Submarine Warfare: Today and Tomorrow (London: Michael Joseph, 1986), pp. 151-153.

⁹¹ Derek da Cunha, "The Growth of the Soviet Pacific Fleet's Submarine Force," International Defence Review 21 (No. 2, 1988), p. 129.

submarines even in a conventional conflict.⁹² To increase SSBN survivability against these threats, the Soviet Navy has begun deploying SSBN's under the Arctic ice for greater protection of their strategic reserves.⁹³ The latest Soviet SSBN has apparently been designed with a top structure engineered to facilitate breaking ice to allow it to launch its SLBM's from under parts of the ice pack.⁹⁴

The Soviet Union has pursued every reasonable means of making their strategic forces more survivable, but the hardening of ICBM silos and the defending of their SSBN's in particular demonstrate a Soviet dedication to the enhancement of its nuclear combat effectiveness. These survivability measures enhance both deterrent and war fighting aspects of the Soviet nuclear force posture.

5. Strategic Defence

Closely linked to the concept of making one's force structure survivable is the notion of defending it against direct attack. In Anureyev's correlation of nuclear forces model, defences are vital. The correlation of nuclear forces can be drastically changed to one's advantage "by means of the mass application of nuclear weapons with the simultaneous repulsing of a sudden attack by the air-space means of the

⁹² This strategy was announced in December, 1985. See Michio Kaku and Daniel Axelrod, To Win A Nuclear War: The Pentagon's Secret War Plans (London: Zed Books, 1987), p. 311. Even before this announcement, United States policy was to attack SSBN's; see James Schlesinger's testimony before the Committee on Foreign Relations, United States Senate, Nuclear Arms Reduction Proposals (Washington: USGPO, 1982), p. 82.

⁹³ Carl G. Jacobsen, "The Central Balance in the 1980's - No Longer Central," in William Gutteridge, European Security, Nuclear Weapons and Public Confidence (London: MacMillan Press, 1982), p. 28.

⁹⁴ David R. Jones, Soviet Armed Forces Review (1983-1984), p. 167.

enemy."⁹⁵ Thus offensive and defensive forces together are essential to the achievement of an advantageous correlation of nuclear forces.

From 1970 to 1986 the Soviet Union has slowly but deliberately improved its strategic defences. As early as 1955, air defence was elevated to a separate branch equal to the three traditional services in order to counter the massive United States bomber threat.⁹⁶ By 1970, the USSR had already deployed an anti-ballistic missile (ABM) system and made improvements to it, indicating an unwillingness to allow its security to depend solely on the combat value of its offensive forces.⁹⁷ These defensive forces were part of PVO Strany, the Soviet air defence branch, whose mission was "to repel enemy attack from the air and from outer space."⁹⁸ In the early 1970's the Soviet Union constructed the Tallin line across the ballistic missile approaches to Moscow. It was equipped with long range high altitude surface to air missiles that were then tested 50-60 times in an ABM role.⁹⁹ By the 1980's the number of SA-5 high altitude air defence missiles deployed in the Soviet Union doubled, even though the bomber threat at high altitude was significantly reduced.

⁹⁵ I. Anureyev, "Determining the Correlation of Forces in Terms of Nuclear Weapons," p. 164. See also William T. Lee and Richard F. Staar, Soviet Military Policy Since World War II, p. 211.

⁹⁶ J. M. MacIntosh, "The Development of Soviet Military Doctrine," in Michael Howard, ed., The Theory and Practice of War (London: Cassell and Company, 1965), p. 264.

⁹⁷ David R. Jones, ed., The Military-Naval Encyclopedia of Russia and the Soviet Union (Gulf Breeze, Florida: Academic International Press, 1978), p. 82.

⁹⁸ V. Kruchinin, "Contemporary Strategic Theory on the Goals and Missions of Armed Conflict," in Selected Readings From Military Thought 1963-1973, Vol. 5, Part 1 (Washington: USGPO, 1982), p. 9. See also Kenneth R. Whiting, Soviet Air Power, p. 141.

⁹⁹ Carnes Lord, "Taking Soviet Defences Seriously," Washington Quarterly 9 (Fall 1986), p. 90. See also Robert Jastrow, "Reagan vs the Scientists," Commentary (January 1983), p. 24.

The defences around Moscow appear designed to protect a significant part of European USSR from any form of aerospace attack. This area encompasses the strategic leadership of the USSR as well as about 300 ICBM's.¹⁰⁰ The Soviet development of large phased array and other modern radars, including the one at Krasnoyarsk that allegedly violates the ABM Treaty, has given the Soviet leadership some ability in the 1980's to protect this core area from ballistic missile attack from any direction.¹⁰¹ Modern surface to air missiles also appear to have some capability against ballistic reentry vehicles, and it appears evident that the USSR is maintaining some form of near term ballistic missile defence capability.¹⁰²

This study has already introduced a penetration factor that slightly degrades United States ballistic missile attack against point targets. This Soviet ABM capability, however, would likely be far more effective against SLBM RV's than against ICBM RV's. The latter, because of their speed and reentry angle, tend to be faster, smaller and are often accompanied by several penetration aids. SLBM RV's, on the other hand, tend to be slower, larger, more rounded and unable to carry as many penetration aids, making it easier for ABM systems to track and engage them.¹⁰³ Thus the Soviet defensive force structure, whatever its real

¹⁰⁰ Desmond Ball, "Soviet ICBM Deployments," Survival 22 (July/August 1980), p. 168.

¹⁰¹ Geoffrey Manners, "If Krasnoyarsk begins to bleep...", Janes Defence Weekly (8 November 1986), p. 1097.

¹⁰² William Davis Jr. Asymmetries in U.S. and Soviet Strategic Defence Programmes: Implications for Near Term American Deployment Options (Washington, D.C.: Pergamon-Brassey's, 1986), p. vi.

¹⁰³ Carnes Lord, "Taking Soviet Defences Seriously," p. 92. Some feel that Soviet defences are designed primarily to neutralize the sea based component of the U.S. strategic triad. See Jacquelyn K. Davis, et al, The Soviet Union and Ballistic Missile Defence (Washington: Institute for Foreign Policy Analysis, 1980), p. 31.

capability, will probably be more effective against a ragged retaliation, primarily from SSBN's than be able to defend against a massive and coordinated first strike.

6. The Implications of the Qualitative Analysis

From 1970 to 1986 the Soviet Union has continuously improved the quality of its long range nuclear forces. During the early 1970's the Soviet Union was still in the process of building its nuclear force structure, but significant quantitative improvements in reliability, lethality, hardening and strategic defence occurred regularly. Throughout the late 1970's and early 1980's, the Soviet leaders improved their strategic nuclear force structure each year, making it more accurate, flexible and combat capable. The Soviet Union has methodically developed and deployed a comprehensive hard target kill capability and an impressive damage limiting ability. There can be little doubt that this Soviet force structure is primarily designed to fight wars in the traditional sense and not simply to retaliate against American urban industrial strength. The Soviet Union's strategic force posture appears to reflect a compelling approach to qualitative improvements that was designed primarily to optimize a Soviet correlation of nuclear forces advantage.

IV. STRATEGIC NUCLEAR FORCE - COMBAT UTILITY

While the quantitative and qualitative aspects of Soviet strategic nuclear weapons have a bearing on how these various forces will interact in actual combat, perhaps the most important variable and the most difficult to determine is the operational policy. The dynamic analysis helps reveal any differences between operational and declaratory strategy. This section will briefly review the methodology used to create the

requisite data, some important command and control considerations, some plausible Soviet combat options and finally describe the major outcomes of the correlation of forces model.

This study used the same method of analysis for the Soviet force structure as it did for the analysis of the American force structure. The more lethal Soviet systems were targeted on the American targets that provided the greatest payoff in terms of the correlation of forces baseline.¹⁰⁴

The Soviet force structure in 1970, as demonstrated by the C-1 correlation of forces baseline, suffered from an obviously inferior position. The threat of United States nuclear attack forced the Soviet military leadership to place a significant emphasis on their very survival in a possible war. During this period of analysis, at least 75 hardened shelters for senior Soviet leaders were constructed around Moscow alone.¹⁰⁵ Major Soviet efforts were also made to provide a high confidence level that the strategic force structure could be controlled in war, and to that end nine major headquarters and about 300 launch control centers are now highly interconnected.¹⁰⁶ The Soviet Union has also provided excellent early warning facilities that enable a launch on warning option. One other aspect which the USSR has developed is an anti-satellite capability that threatens American "low" reconnaissance

¹⁰⁴ See Chart 2. The C-1 line is the same on each chart.

¹⁰⁵ Desmond Ball, "Soviet Strategic Planning and the Control of Nuclear War," in Roman Kolkowitz and Ellen Propper Mickiewicz, eds., The Soviet Calculus of Nuclear War, p. 64.

¹⁰⁶ William M. Arkin and Richard W. Fieldhouse, Nuclear Battlefields: Global Links in the Arms Race, pp. 86-88. See also William C. Martel and Paul L. Savage, Strategic Nuclear War: What the Superpowers Target and Why, p. 197.

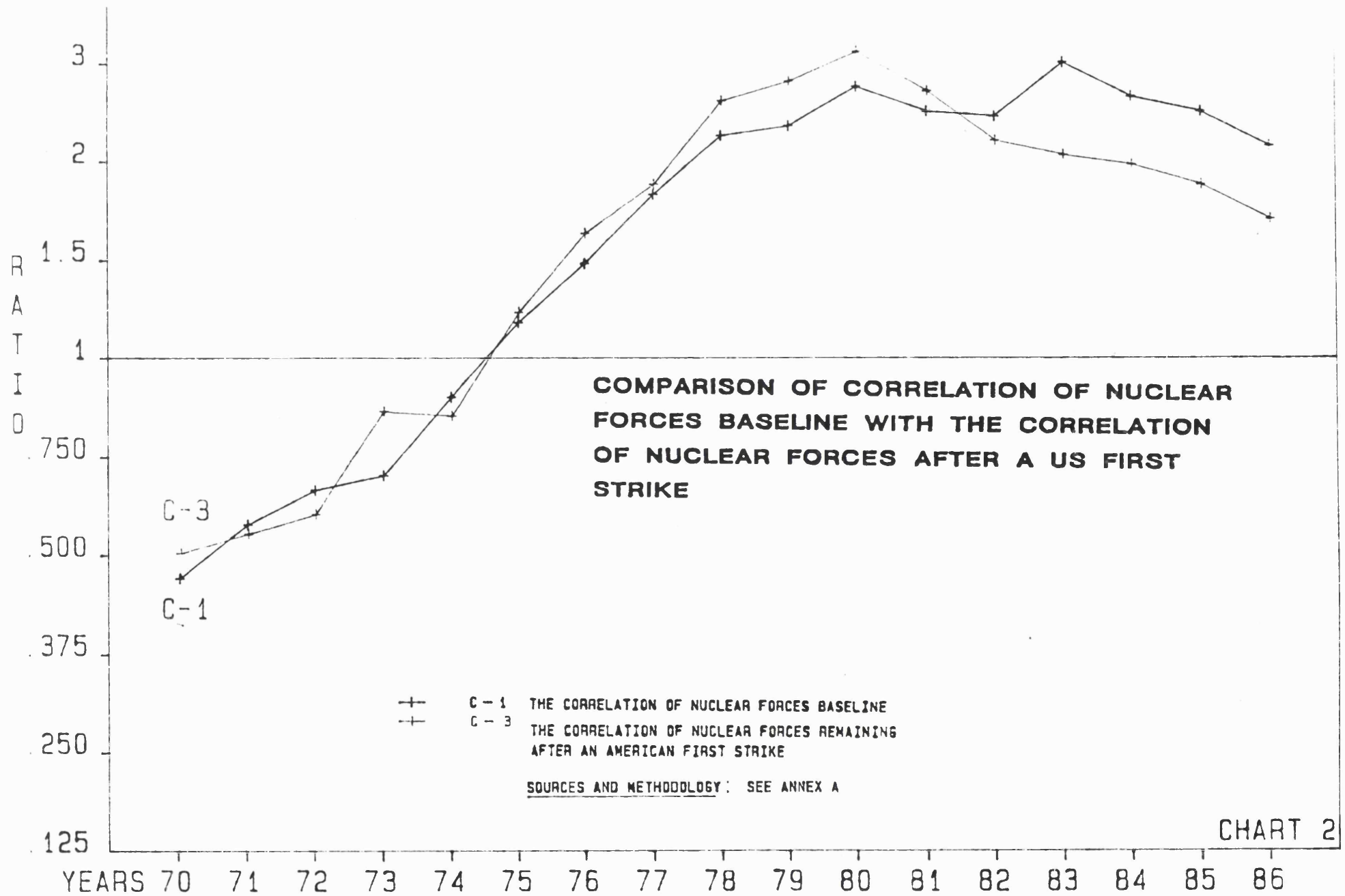


CHART 2

satellites.¹⁰⁷ This could seriously degrade American attempts to assess the damage created by nuclear attack in war.

Given the rapid buildup of Soviet warheads in the 1970's, one assumes that in the early 1970's the Soviet force structure was simply not able to cover its full array of major potential targets. The primary target, according to the commander of the SRF, Marshal Krylov, was the American nuclear delivery systems in a prioritized target set as follows:¹⁰⁸

1. Nuclear delivery systems (weapons storage/fabrication sites)
2. Armed forces (Military Installations)
3. Military Industries
4. Centres of Politico-Military Administration

To handle this target set, Soviet ICBM's appeared designed for specific missions; heavy, medium and light ICBM's were developed.¹⁰⁹ The SS-9, the first heavy ICBM, and the SS-18, its replacement, were most surely intended for counterforce and command structure attacks. In particular, the very high yield modifications were probably targeted against the command structure.¹¹⁰ To cover all of the critical strategic weapons targets in the United States, about 3000 warheads would probably have been required.¹¹¹

¹⁰⁷ George Salsky, Disparity in Space Programmes of the Two Superpowers (Ottawa: Operational Research and Analysis Establishment, 1981), p. 22.

¹⁰⁸ Cited in William T. Lee, Rationale Underlying Soviet Strategic Forces, p. 24. See also Thomas W. Wolfe, Soviet Military Theory: An Additional Source of Insight into its Development (Santa Monica, California: Rand Corporation P-3258, 1965), p. 12.

¹⁰⁹ Edward N. Luttwak, Strategic Power: Military Capability and Political Utility (Washington, D.C.: Sage Publications, 1976), p. 21.

¹¹⁰ Paul Bracken, Command and Control of Nuclear Forces, p. 235. The SS-9 in the early 1970's had to be used to target command and control (LCC's) to degrade American strategic response.

¹¹¹ Kosta Tsipis, Arsenal, pp. 78-79. His list of targets excludes command and control, military and military industrial targets, but he does include specific counter recovery industries.

The Soviet Union has placed considerable importance on the withholding of combat reserves, even in terms of nuclear strategic warheads.¹¹² Since this role falls primarily to the SSBN force, one must address how it will be used in combat. The Soviet Union does not maintain two crews per submarine as does the United States, but some SSBN's may be on alert in port, probably to enhance their survivability. As the Soviets intend to attack American SSBN's in the conventional phase of combat, they have undoubtedly attributed a similar strategy to the United States.¹¹³ One unique aspect of the Soviet SSBN fleet is the possibility that the Yankee, with its shorter range SS-N-6 missile, may also have had a counter SSBN or counter aircraft carrier role.¹¹⁴ It is in keeping with Soviet conceptualization of war fighting to use nuclear missiles in flexible and imaginative ways to accomplish combat related tasks.

In terms of actually conducting a nuclear war plan, very little is known about Soviet specific intentions. What is clear is that the Soviet experience in 1941 has fostered the determination never to be caught unprepared and to seize the initiative as soon as possible.¹¹⁵ As a consequence of this sentiment, the Soviet Union has absolutely no

¹¹² John J. Dziak, Soviet Perceptions of Military Power: The Interaction of Theory and Practice (New York: Crane Russak and Co., 1981), pp. 27-28.

¹¹³ Donald C. Daniel, Anti-Submarine Warfare and Superpower Strategic Stability, p. 154.

¹¹⁴ Richard T. Ackley, "The Wartime Role of Soviet SSBN's," United States Naval Institute Proceedings 104 (June 1978), pp. 34-42. See also Carl H. Clawson, "The Wartime Role of Soviet SSBN's - Round Two," United States Naval Institute Proceedings 106 (March 1980), pp. 64-71.

¹¹⁵ John Erickson, The Soviet High Command: A Military Political History 1918-1941 (Boulder, Colorado: Westview Press, 1984), p. xix. See also S. P. Ivanov, The Initial Period of War (Moscow, 1974) translated and published under the auspices of the USAF (Washington, D.C.: USGPO, 1986), p. 307.

intention of absorbing a first strike.¹¹⁶ Thus Soviet efforts to improve their early warning systems and missile alert rates probably reflect a willingness to launch under attack if not on warning.¹¹⁷ What interests the Soviet military most is being allowed to deliver the first "mass" or major nuclear strike, although close reading of the literature reveals that "mass" nuclear strikes could describe a number as low as 50 weapons.¹¹⁸

The Soviet declaratory strategy has consistently denied the feasibility of conducting a limited nuclear war, yet the Soviet force structure may be increasingly designed to fight one. According to one hard line analyst, this denial is merely a psychological device to manipulate Western behaviour, since the Soviet nuclear deployments provide Moscow with a variety of its own "flexible responses."¹¹⁹ Secretary of Defence James Schlesinger noted that the Soviet military, in their exercises, have indicated far greater interest in the notions of controlled nuclear war than has ever been reflected in Soviet doctrine.¹²⁰ Others have also concluded that Soviet leaders "almost certainly envision

116 Nathan Leites, Soviet Style in War, p. 376.

117 Robert P. Berman and John C. Baker, Soviet Strategic Forces: Requirements and Responses, p. 68. See also David R. Jones, Soviet Armed Forces Review, p. 100.

118 Joseph D. Douglass and Amoretta M. Hoeber, Conventional War and Escalation: The Soviet View (New York: Crane and Russak, 1981), p. 43.

119 Richard Pipes, Survival is Not Enough: Soviet Realities and America's Future (New York: Simon and Schuster, 1984), p. 66.

120 James Schlesinger, U.S. Nuclear Weapons in Europe and U.S.-USSR Strategic Doctrines and Policies, Hearings before the Subcommittee on U.S. Security Agreements and Commitments Abroad and the Subcommittee on Arms Control, International Law and Organization of the Committee on Foreign Relations, United States Senate, (Washington: USGPO, 1974), p. 183.

the conduct of limited nuclear operations.¹²¹ Operational strategy appears to contradict declaratory strategy in this case.

The rationale for this dichotomy probably relates to the overall Soviet objective of deterring Western first use of nuclear weapons in Europe. If this were the case, Soviet declaratory policy and Soviet action policy would seek the same objective: military and political advantage in Europe.¹²² A solid analysis indicates that the Soviet leaders realized that stalemate at the global nuclear level means that war can be realistically confined to "lower levels of intensity."¹²³ It is in the Soviet interest to maximize the value of its conventional advantage by accepting no first use and by confining any war to a level below the nuclear threshold.¹²⁴ In short, the Soviet planners do not intend to engage the United States where the United States is stronger, in the more flexible realm of nuclear war fighting, but they must plan to be able to fight such a war and survive should it be forced upon them.

The Soviet nuclear strategic force structure thus contradicts the Soviet declaratory strategy of not seeking military advantage or superiority in strategic nuclear weapons. Rather, it implies that the USSR is deliberately seeking the ability to disarm the United States, or at least it gives the Soviet Union the ability to have the last move in

¹²¹ Notra Trulock, "Soviet Perspectives on Limited Nuclear Warfare," in Fred S. Hoffman, Albert Wohlstetter and David S. Yost, Swords and Shields: NATO, the USSR, and New Choices for Long Range Offence and Defence, p. 76.

¹²² Dennis M. Gormley and Douglas M. Hart, "Soviet Views on Escalation," The Washington Review (Fall 1984), p. 81.

¹²³ John G. Hines, Phillip A. Petersen and Notra Trulock, "Soviet Military Theory from 1945-2000: Implications for NATO," Washington Quarterly 9 (Fall 1986), p. 126. This is a very useful article.

¹²⁴ Benjamin S. Lambeth, "Has Soviet Nuclear Strategy Changed?", in Roman Kolkowicz, ed. The Logic of Nuclear Terror (London: Allen and Unwin, 1987), p. 218.

any limited nuclear exchange since only they can retain effective strategic reserves.¹²⁵ The Soviet emphasis on military offensive and defensive hardware is complemented by its emphasis on civil defence that exposes school children to its principles as early as the second grade.¹²⁶

The Soviet Union, through the quantitative and qualitative improvement of its nuclear force posture, has achieved a very balanced and robust war fighting capability. Such information as is freely available on the Soviet forces indicates that the USSR is able to field modern equipment as fast as the United States. It is thus plausible to expect that the USSR in the 1980's has built a reprogramming and retargeting capability into its missile force. In the early 1970's, the Soviet Union had a poor correlation of nuclear forces and could not even improve it with a nuclear first strike; the American forces were too strong.¹²⁷ By 1979, however, the new ICBM's gave the Soviet Union an advantage after such a strike. From 1979 to 1986 the Soviet Union managed to increase its C-2 advantage, primarily due to qualitative improvements in Soviet offensive and defensive forces. As the Soviet Union deployed greater numbers of land mobile ICBM's, it remained competitive with improvements in United States strategic systems. The effort to maintain the combat capability of the Soviet nuclear forces implied a determination on the part of the Soviet military leadership to maintain at least the objective possibility of achieving some success in war.¹²⁸

¹²⁵ Victor Utgoff, "In Defence of Counterforce," International Security 6 (Spring 1982), p. 58.

¹²⁶ Herbert Goldhammer, The Soviet Soldier: Soviet Military Management at the Troop Level (London: Leo Cooper, 1975), p. 75.

¹²⁷ See Chart 1.

¹²⁸ N. V. Ogarkhov, "Military Strategy," in Harriet Fast Scott and William F. Scott, eds., The Soviet Art of War: Doctrine, Strategy, Tactics (Boulder, Colorado: Westview Press, 1982), p. 247.

V. FORCE STRUCTURE IMPLICATIONS

The Soviet correlation of nuclear forces model is particularly illuminating when viewed from the Soviet perspective. The graphic portrayal in Charts 1 and 2 of the relative nuclear force posture development provides a clear rationale for the massive Soviet force construction that took place in the 1970's and early 1980's.

In the early 1970's, the Soviet disadvantage was far greater than reflected by static indicators, and this fact helps account for the magnitude of new Soviet nuclear construction. The Soviet Union was undoubtedly trying to improve an evidently unsatisfactory correlation of nuclear forces. The mid 1970's saw the Soviet Union catch up in quantitative terms. However, the post Soviet first strike correlation of nuclear forces was still not to the Soviet advantage.

By the late 1970's the qualitative improvements to the Soviet nuclear force posture were sufficient to finally give the Soviet Union a correlation of nuclear forces advantage both before and after a Soviet first strike. Additional warheads and improvements in ICBM lethality and hardening were the key factors that provided the Soviet leaders with an almost 3 to 1 correlation of nuclear forces advantage by 1983, a significant improvement from the 1 to 2 disadvantage in 1970. There appears no doubt that the Soviet leaders aspired to achieve this improvement in the nuclear correlation of forces.¹²⁹ To them the earlier American nuclear construction probably indicated a desire on the part of the United States to develop capabilities well beyond those needed for

¹²⁹ The Soviet decision-making system is set up to ensure the application of political judgement to technical issues. See Mathew P. Gallagher and Karl F. Speilman Jr., Soviet Decision-Making for Defence: A Critique of the U.S. Perspective on the Arms Race (New York: Praeger Publishers, 1972), p. 79.

deterrence by punishment.¹³⁰ The Soviet strategic elite had never thought that a situation of mutual deterrence through the threat of assured destruction was "the highest theoretical achievement."¹³¹

That is not to say that the Soviet leadership intend war, far from it. The Soviet leaders have no desire for war unless it can permanently advance their interests without significant risk, and in the nuclear age the risk is simply unacceptable.¹³² Yet, the Soviet ideological framework admits that an antagonistic class relationship could spark war due to fundamental political conflict. Should war ever occur, the Soviet Union requires an ability to protect its revolutionary gains in all possible conditions. Consequently, for most of this period, the Soviet system has sought powerful military forces that reduced the risk of attack and, perhaps more importantly, provided coercive leverage by shifting the correlation of forces toward the USSR.¹³³ The Soviet Union therefore constructed an impressive nuclear force structure that gave it a substantial ability to fight and a possible chance, however remote, to survive and recover from nuclear war.¹³⁴ There is ample evidence that the Soviet political leadership authorized the military to pursue a damage

130 John Erickson, "The Soviet View of Deterrence: A General Survey," Survival 24 (November/December 1982), p. 249.

131 Henry Trofimenko, "Counterforce: Illusion of a Panacea," International Security 5 (Spring 1981), p. 35.

132 George F. Kennan, The Nuclear Delusion: Soviet-American Relations in the Atomic Age (New York: Pantheon Books, 1983), p. 129.

133 By 1986, however, the correlation of forces appears to have been implicitly downgraded by Gorbachev's emphasis on interdependence. For a good analysis, see Stephen Shenfield, The Nuclear Predicament: Explorations in Soviet Ideology (London: Routledge and Kegan Paul, 1987), pp. 70-71.

134 William R. Van Cleave, "The Requirement for and Purpose of Quick Fixes to American Strategic Nuclear Forces," in William R. Van Cleave and W. Scott Thompson, eds., Strategic Options for the Early Eighties: What Can be Done (New York: National Strategy Information Centre, 1979), p. 3.

limiting strategy, combining strategic offence with passive and active defence.¹³⁵

Since Brezhnev altered Soviet declaratory policy in 1977,¹³⁶ Soviet action policy, at least until 1986, appeared to have remained the same. Although force structure changes take several years to implement when additions are needed, deletions from force structure can happen more quickly. Between 1977 and 1986, however, Soviet force structure continued to grow, if at a decreasing rate. There was no hard evidence among visible Soviet force structure decisions that indicated any significant change in operational policy. The Soviet long term objectives appeared to be the same as those stipulated in the 1928 Five Year Plan, to achieve "quantitative and qualitative technological superiority."¹³⁷ The key barriers to achieving these goals included financial constraints and the determination of the United States to compete.

From 1970 to 1986 Soviet nuclear force planners have manifested a consistency that can be readily explained by the correlation of nuclear forces model. The quantitative competition has been limited by agreement with the United States, but qualitative competition has not. The Soviet Union has developed forces well in excess of those required for deterrence; the Soviet nuclear force structure is fully capable of supporting compellent as well as deterrent threats.

¹³⁵ Stephen M. Meyer, "Soviet Strategic Programmes and the U.S. SDI," Survival 27 (November/December 1985), p. 278.

¹³⁶ Leonid Brezhnev, Peace, Detente and Soviet American Relations (London: Harcourt Brace Jovanovich, 1979), p. 190.

¹³⁷ John J. Dziak, Soviet Perceptions of Military Power: The Interaction of Theory and Practice, p. 28.

Chapter Nine

THE CORRELATION OF SUPERPOWER NUCLEAR FORCES

In the previous two chapters the actual nuclear force structure of each superpower has been analyzed in isolation to determine to what degree nuclear procurement and force structure reflect paradigmatic models or match declaratory policy. What complicates the analysis of military policy, however, is the degree to which the opponent's strategic actions create perceptions and reactions that highlight the dynamic nature of strength comparisons. How this dynamic reaction would result in an actual outcome in war is a tremendous intellectual challenge which the correlation of nuclear forces model approximates in a very rudimentary fashion. Even though the military aspect is the most quantifiable factor of the correlation of forces, its calculations are only meaningful as a rough order of magnitude indication of potential advantage.¹ This chapter compares the Soviet and American trends in nuclear force structure during the 1970-1986 period, and then analyzes them from the paradigmatic perspectives of deterrence and compellence.

I. COMPARISON OF UNITED STATES - SOVIET TRENDS

To a perceptible degree the nuclear strategy of each superpower appears to have been at least influenced by that of its major rival. Certainly both the United States and the Soviet Union very carefully monitor the trends evidenced by each other's nuclear construction programmes, and advocates of specific policies seem prepared to use these trends to aid in achieving their objectives in internal political

¹ Julian Lider, Military Force: An Analysis of Marxist Leninist Concepts (Westmead, Farnborough: Gower Publishing, 1981), p. 215.

struggles. This section will examine those trends highlighted by the correlation of nuclear forces model.

1. Strategic Intentions

While each superpower appears to have changed its declaratory strategic intentions over time, the results of the correlation of forces model do not fully reflect these changes. Rather, in both the Soviet Union and the United States the results of nuclear force structure analysis demonstrate strong continuity in force development. As a consequence, each superpower has sufficient evidence to support the belief in at least some quarters that the other's "real" strategic intentions are not reflected by its declaratory policy. Confidence in using declaratory policy as a guide to interpreting nuclear strategy is thereby reduced.

The United States political elite has always had serious reservations about Soviet intentions. President Kennedy expressed concern that "Soviet missile power" would provide the Soviet Union with a shield behind which it could intensify pressure on the free world through "Sputnik" diplomacy.² Such rhetoric inherently assumes that the Soviet Union continually seeks, through a variety of means, to expand its circle of 'friendly' regimes. Given this underlying political objective often ascribed to the Soviet Union, it is not unreasonable that at least some American leaders tend to link this political goal to the expanding capability displayed in Soviet military force structure.³ To explain Soviet military doctrine, which is primarily a political doctrine, the

² Cited in Michael Charlton, From Deterrence to Defence: The Inside Story of Strategic Policy (Cambridge, Massachusetts: Harvard University Press, 1987), p. 38.

³ Christopher D. Jones, "Just Wars and Unlimited Wars," World Politics 28 (October 1975), p. 59.

more 'hawkish' United States leaders, in particular, have pointed to the growing Soviet nuclear force structure.⁴ Although this link is considered tenuous by some, it is nevertheless apparent that a strong segment of the United States leadership is suspicious of actual Soviet intentions.

The Soviet Union appears equally suspicious that 'real' American objectives include something beyond deterrence. That suspicion can hardly be alleviated by important official documents such as the 1957 Gaither Committee report (declassified in 1973), which recommended negotiating from strength with the Soviet Union.⁵ A significant segment of the Soviet hierarchy still appears convinced that the United States has not abandoned its goal of world leadership.⁶ For Soviet analysts, the American political elite has aggressive global political and economic interests that influence United States foreign policy and require substantial military backing.⁷ These interests play an important part in determining perceptions of resolve, but they are perceived to have a distinct anti-Soviet bias.⁸ In this context, United States force structure improvements

⁴ Soviet discussions of nuclear war fighting are really in the realm of "theory of military art," part of the subfield of "military science" which is one component of military doctrine. See Christopher D. Jones, "Soviet Military Doctrine: The Political Dimension," in William Kincaide and Jeffery D. Porro, eds., Negotiating Security (Washington: Carnegie Endowment for International Peace, 1979), p. 114.

⁵ Deterrence and Survival in the Nuclear Age (Washington, D.C.: USGPO, 1976), p. 24 or p. 13 in the original.

⁶ Colonel General G.V. Sredin, "The Problems of War and Peace Today," The Soviet Review 24 (Summer 1983), p. 10. See also Sh. Sanakoyev, "The World Today: Problem of the Correlation of Forces," International Affairs 11 (1974), p. 45.

⁷ Timur Dmitrichev, "Today's Realities and the Nuclear Deterrence Doctrine," International Affairs (No. 5, 1986), p. 63. Even Gorbachev at the 27th party congress took a firm anti-West line. See Zhores Medvedev, Gorbachev (New York: W.W. Norton and Company, 1986), p. 247.

⁸ Sh. Sanakoyev, "The Revolutionary Renewal of the World and the Militaristic Policy of Imperialism," International Affairs (No. 5, 1985), p. 120.

and especially the Reagan administration's efforts to strengthen strategic forces take on more sinister overtones, at least from the Soviet perspective.

Mutual suspiciousness thus marks the superpower attitudes toward their opponent's declaratory nuclear strategy, fueled to a large degree by each other's intelligence assessments of the other's nuclear force construction. Determining real superpower strategic intentions then may hinge on the degree to which the nuclear force postures are really responsive to political direction or to what degree military bureaucracy can actually influence that direction.

2. The Use of Threats

The dynamic of explicit or implicit nuclear threats provides the link between a declared strategy and the actual force structure. A state's use of nuclear threats signifies a certain belief in the utility of nuclear strategic military forces to support foreign policy. One very good review of past nuclear threats indicates a trend toward more general rather than specific threats, but those that were considered most seriously were specifically designed to coerce another state.⁹ That same study, however, also concluded that the impact of nuclear threats has been consistently misinterpreted by bureaucratic elites who have consequently tended to overvalue their effects.¹⁰

From the military perspective, for a threat to have any credibility it must be capable of implementation with a reasonable chance of success. Once engaged in combat, however, the military has its own special needs

⁹ Morton H. Halperin, Nuclear Fallacy: Dispelling the Myth of Nuclear Strategy (Cambridge, Massachusetts: Ballinger Publishing Company, 1987), see chapter two, pp. 23-47.

¹⁰ Ibid.

affecting implementation options and cannot be simply the "neutral executor of diplomatic policy" that some theory prescribes.¹¹ Military forces therefore place considerable emphasis on obtaining the requisite resources from their political systems often to the point of overstating their requirements.¹² Since the dominant weapons of the age are offensive missiles, a dangerous situation may well be exacerbated by military efforts to enhance offensive nuclear force structures.¹³ Military forces in each superpower place a high value on flexible systems which contribute to the war fighting potential of their country.

While most nuclear threats were made at a time of nuclear or conventional advantage in a specific area, Carter's threat to use force in the Persian Gulf area in 1980 was an exception. The Soviet leaders reacted harshly to the "brainless" threats to use any means to control the Persian Gulf.¹⁴ The American fundamental policy objective in the region was to bring about the withdrawal of Soviet forces from Afghanistan and to make the Soviet Union "pay" for this "brutal" invasion.¹⁵ The Soviet reaction to this threat may have been as strong as it was in part because they perceived the military correlation of forces in the region to have

¹¹ Stephen Peter Rosen, "Vietnam and the American Theory of Limited War," International Security 7 (Fall 1982), pp. 112-113.

¹² See David Packard, "A Quest for Excellence," Final Report to the President by The Presidents Blue Ribbon Commission on Defence Management (Washington, D.C.: USGPO, 1986), p. xxiii.

¹³ George H. Quester, Offence and Defence in the International System (New York: John Wiley and Sons, 1977), p. 213.

¹⁴ Leonid Brezhnev, cited in Albert Wohlstetter, "Meeting the Threat In the Persian Gulf," Survey 25 (Spring 1980), p. 139.

¹⁵ Cyrus Vance, Hard Choices: Critical Years in America's Foreign Policy (New York: Simon and Schuster, 1983), p. 389.

been much to their advantage.¹⁶

The Soviet military have been able to construct an impressive force structure that could support a flexible range of threats. Kissinger noted that this flexibility gave the Soviet Union an advantage in that it had more military options and could force the United States into the position of initiating the destruction of civilian targets.¹⁷ This flexibility gave the Soviet leaders the option to respond to limited American attacks in a parallel fashion or to threaten intercontinental exchanges in the hope of deterring the United States or NATO from resorting to nuclear weapons during a conventional war.¹⁸

To support foreign policy with credible forces that could back potential threats, both superpowers have steadily improved the accuracy and survivability of their nuclear weapons as well as their ability to penetrate to proposed targets. Military forces can probably be expected to demand a force structure consonant with the compelling paradigm as long as their leaders task them to support their state's global policy.

3. The Correlation of Nuclear Forces

The efforts of each superpower to improve the combat effectiveness of its strategic nuclear systems provide an indication of a competition to achieve a more favourable correlation of nuclear forces. These trends imply a belief by superpower elites that "military force can be used for

¹⁶ The events in this era may have also prompted the Soviet Union to reconsider its military strategy of launching a major offensive into Europe at the onset of war. See Michael MccGwire, "Rethinking War: The Soviet and European Security," The Brookings Review (Spring 1989), p. 7.

¹⁷ See Michael Charlton, From Deterrence to Defence: The Inside Story of Strategic Policy, p. 54.

¹⁸ Jeffrey T. Richelson, "Soviet Strategic Doctrine and Limited Nuclear Operations," Journal of Conflict Resolution 25 (June 1975), p. 336.

coercive purposes in ways that the countervailing threat of massive city attack is totally incapable of counteracting."¹⁹ This section will examine those trends in nuclear force structure development that indicate that each superpower has a growing propensity to measure the value of its nuclear forces by its ability to engage successfully in combat.

Major indications of this competition surfaced very early in the 1970-1986 period. Melvin Laird, the United States Secretary of Defence, declared that if the new SS-9 follow-on had accurate MIRV's, the utility of the United States Minuteman force would be virtually nil by the late 1970s.²⁰ Not only did the Soviet Union deploy accurate MIRV's on the SS-18, but Soviet leaders also upgraded other ICBM's and SLBM's in significant ways that indicated a conscious determination to maximize a strategic advantage.²¹ This competition also extends to the attempts of each side to trail SSBN's with SSN's, a competition in which the United States appears to hold a significant edge. Although the Soviets invariably attempt to trail each American SSBN as it leaves its home port to conduct a patrol, the Soviet Navy apparently "has never successfully tracked a United States submarine"; the United States however is approaching the capability to track Soviet submarines and even bottle them up at crucial choke points.²² The oft expressed concerns over strategic stability that permeated the early 1970s are no longer heard in the 1980s,

¹⁹ Amoretta M. and Francis P. Hoerber, The Fallacies of Sherman's Arguments Against Counter Force, Unpublished paper (June 1975), p. 3.

²⁰ Benjamin S. Lambeth, "Deterrence in the MIRV Era," World Politics 24 (January 1972), p. 225.

²¹ Edward N. Luttwak, The Grand Strategy of the Soviet Union (London: Weidenfeld and Nicolson, 1983), p. 31.

²² This point may have been somewhat overstated by the physicists, Michio Kaku and Daniel Axlerod, in their biased but interesting book, To Win a Nuclear War: The Pentagon's Secret War Plans (London: Zed Books, 1987), p. 311.

and SSBN's appear to have become acceptable targets early in any conflict.

Another important aspect of the strategic competition is that of strategic defences. Both the Soviet Union and the United States have conducted extensive research in strategic defence technologies notwithstanding the agreement to limit the deployment of strategic defences. While most deployed defences in the 1970-1986 time frame in the Soviet Union were directed primarily toward the United States bombers, the United States has continually sought some form of effective defence against Soviet ICBM's. It is worth noting that each superpower has emphasized defences to counter the opponent's strategic system that threatens to deliver the greatest amount of megatonnage and thus can be explained as a means to enhance its correlation of forces ratio.²³

The Soviet Union continues to view strategic defence as a means of seizing the strategic initiative, not unlike what occurred during the 1941 Battle for Moscow.²⁴ This same concept applies to modern strategic defence which would initially not be capable of assuring survival under all conditions, but could provide one power the ability to survive a ragged retaliation after its own first strike.²⁵ Such an intermediate level of ballistic missile defence would probably favour the Soviet Union because of its advantage in hard target capable RV's.²⁶ If United States defences, however, could be made more effective than Soviet defences, then

²³ Robert York, Does Strategic Defence Breed Offence? (London: University Press of America, 1987), p. 35.

²⁴ Stephen R. Covington, The Role of Defence in Soviet Military Thinking (Sandhurst: Soviet Studies Research Center, 1987), p. 68.

²⁵ Glenn A. Kent and Randall J. DeValk, Strategic Defences and the Transition to Assured Survival (Santa Monica, California: Rand Corporation, R-3369-AF, 1986), pp. v-viii

²⁶ Ibid., pp. 11-12. See also Warner R. Schilling, "U.S. Strategic Nuclear Concepts in the 1970's: The Search for Sufficiently Equivalent Countervailing Parity," International Security 6 (Fall 1981), p. 72.

the Soviet strategic problem could be significantly worsened. For example, a 50% effective American defence against ballistic missiles in the 1990s could possibly degrade the correlation of nuclear forces to less than unity.²⁷ Such a result would seriously undermine Soviet objectives and probably render Soviet war plans operationally ineffective.²⁸ Consequently, even though the Soviet Union is actively engaged in defence research and may even have a lead in deployed systems, the United States' SDI programme in the 1980s has become symbolic of a fundamental challenge that involves the political, economic, industrial, scientific, technological, and military potentials of the superpowers.²⁹

Perhaps the most frequently used method of comparing the strategic balance is to determine the probable results after an international strategic exchange. In chapters seven and eight the correlation of nuclear forces baseline was compared to what would occur if either superpower launched an unanswered first strike, acknowledging that initiators of wars tend to emerge victorious more often than not.³⁰ In today's reality, however, neither side can risk being caught by surprise and a true reflection of relative combat utility may be the changed correlation of nuclear forces after a nuclear exchange.³¹ Chart three

²⁷ Stephen M. Meyer, "Soviet Strategic Programmes and the U.S. SDI," Survival 27 (November/December 1985), p. 284. See also Chart 3.

²⁸ Colin S. Gray, "SDI's Effects on East-West Relations," in Dorinda G. Dallmeyer, The Strategic Defence Initiative: New Perspectives on Deterrence (London: Westview Press, 1986), p. 86.

²⁹ Stephen M. Meyer, "Soviet Strategic Programmes and the U.S. SDI," p. 290.

³⁰ Bruce Bueno de Mesquita, The War Trap (New York: Yale University Press, 1981), p. 22.

³¹ I. Anureyev, "Determining the Correlation of Forces in Terms of Nuclear Weapons," Voyennaya Mysl 6 (June 1967), in Selected Readings from Military Thought, 1963-1973: Studies in Communist Affairs, Vol. 5, Part 1 (Washington, D.C.: USGPO, 1982), p. 166. For a critique of American

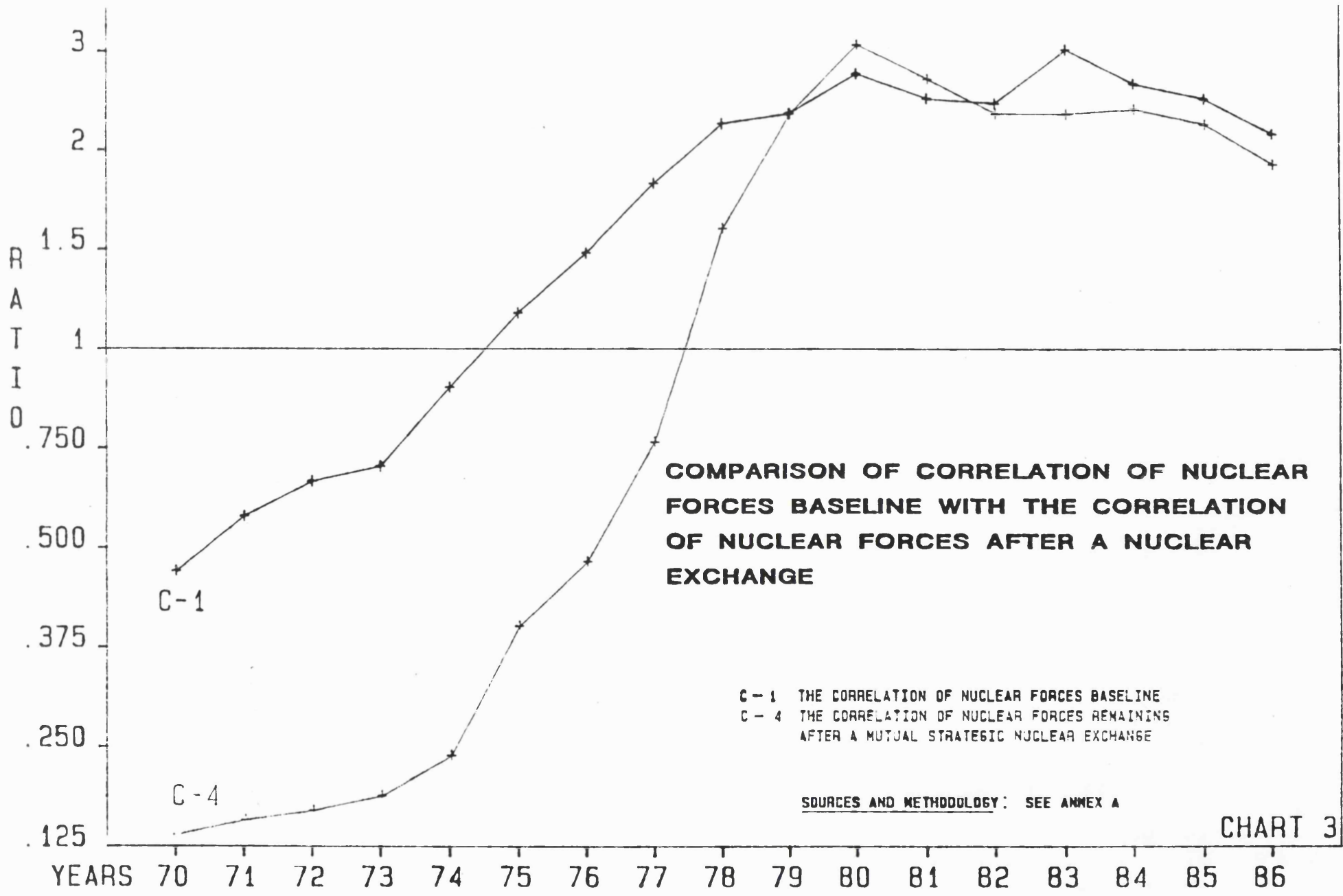


CHART 3

demonstrates the trend in the residual correlation of nuclear forces in the event of a mutual exchange using the previously described exchange model. It is apparent that the Soviet Union was at a serious disadvantage prior to 1978 when the correlation sharply changed to its advantage, an edge lasting until 1981 when the effects of the Mark 12A warhead and Ohio SSBN's are noted. This chart clearly supports the contention that the Soviet Union methodically constructed a combat effective ICBM force during the period of détente in the 1970's probably with the express purpose of enhancing their prospective outcomes in a nuclear exchange.

Even though the overall correlation of nuclear forces ratio still remains in favour of the Soviet Union, the impact of the United States strategic modernization programme in the 1980s can also be clearly seen on chart three. In spite of any possible advantage, however, neither the Soviet Union nor the United States military are keen to be in a retaliatory mode, and a major feature of modern strategic systems is that they are continuously programmed for first strikes.³² Thus the pressure to launch on warning or launch under attack to minimize one's disadvantage would be extremely high; otherwise the correlation of nuclear forces could be adversely affected.³³ The trends in each superpower to improve the quality of their strategic forces implies that

each is striving with incredible resources to cut holes in the security blanket of the other, to produce more bombs of greater accuracy which would permit a preemptive first

exchange model assessments see Garry D. Brewer and Bruce G. Blair, "War Games and National Security with a Grain of SALT," Bulletin of the Atomic Scientists 35 (June 1979), pp. 20-21.

³² Daniel Ford, The Button: The Nuclear Trigger - Does It Work? (London: George Allen and Unwin, 1985), p. 240. See also Thomas C. Schelling, "Confidence in Crisis," International Security 8 (Spring 1984), p. 65.

³³ Raymond L. Garthoff, Perspectives on the Strategic Balance (Washington, D.C.: Brookings Institution, 1983), p. 10.

strike, despite pious foreswearing of such an objective by each.³⁴

Another interesting aspect of the mutual exchange analysis is the fact that even after a counterforce exchange, each side from 1970-1986 retained at least 400 EMT, the approximate EMT required to cause assured destruction of the other side. Thus any initiator cannot expect to completely disarm his opponent, and the impact of uncertainty in any proposed attack against the diverse and robust strategic forces that now exist means that one's confidence in achieving victory without sustaining major and probably unacceptable damage would remain fairly low.³⁵ Nevertheless, each superpower has demonstrated a propensity to seek relative advantage from its nuclear force structure.

While the dominant trend of the correlation of nuclear forces from 1970 to 1986 has been in favour of the Soviet Union, the C-4 slope from 1974-1980 dramatically demonstrates the potentially decisive impact of the Soviet deployment of the third generation ICBM's. As the Soviet construction programme was completed and new American strategic construction began, the correlation of nuclear forces has more or less stabilized and even moved to reflect a decrease in the Soviet advantage in 1984-1986. The key findings in the 1970-1986 period, however, supported by another detailed study, is that the Soviet Union has neutralized the previous United States advantage in the development and deployment of

³⁴ Richard L. Ottinger, First Use of Nuclear Weapons: Preserving Responsible Control. Hearings before the Subcommittee of International Security and Scientific Affairs of the Committee on International Relations, United States House of Representatives, (Washington, D.C.: USGPO, 1976), p. 11.

³⁵ Stanley Sienkiewicz, "Observations on the Impact of Uncertainty in Strategic Analysis," World Politics 32 (October 1979), p. 98. See also Maxwell D. Taylor, "The United States - A Military Power Second to None?" International Security 1 (Summer 1976), p. 50.

sophisticated nuclear weapons.³⁶ This fact appears to have been recognized by the Reagan administration which deliberately sought to improve the United States' strategic forces so the United States could "stand tall."³⁷ If these strategic programmes continue, and if there is no comparable Soviet response, the projected correlation of nuclear forces will probably continue to move toward unity.³⁸

4. Implications of the Force Structure Analysis

As long as both sides, regardless of what the other does, are capable or appear to be capable of destroying their opponent, a situation of mutual deterrence probably exists. Until it can be proven, however, that the achievement of victory is futile, there appears little likelihood of abolishing the possibility of war, even nuclear war.³⁹ As long as the possibility of nuclear war, however remote, appears to exist, then the possibility of using the threat of such a war, even though it includes a strong possibility of mutual destruction, has enough credibility for it to be taken seriously. Given that some form of victory cannot be discounted as a theoretical possibility and that the threat of war exists, there is strong logical or deductive support for attempting to use the threat of nuclear war to political advantage.

³⁶ See James H. Hansen, Correlation of Forces: Four Decades of Soviet Military Development (New York: Praeger Publishers, 1987), p. xvii.

³⁷ Alexander Dallin and Gail Lapidus, "Reagan and the Russians: American Foreign Policy Toward the Soviet Union," in Kenneth A. Oye, Robert J. Lieber and Donald Rothchild, eds., Eagle Resurgent? The Reagan Era in American Foreign Policy (Boston, Massachusetts: Little, Brown and Company, 1987), p. 238.

³⁸ For one projection, see Edward Luttwak, On the Meaning of Victory: Essays on Strategy (New York: Simon and Schuster, 1986), p. 185. See also charts on pp. 205-206.

³⁹ Edward N. Luttwak, "On the Meaning of Victory," The Washington Quarterly 5 (Autumn 1982), p. 17.

Both the deterrent and the compellent paradigms are based on such logic; the compellent simply seeks to obtain advantage while the deterrent seeks to avoid disadvantage. The key factor central to the success of either a deterrent or compellent nuclear strategy is having the will or appearing to have the will to follow through with nuclear threats if necessary. Perceptions are thus extremely important and may in part account for the difference between the amount of strategic force necessary to assure the opponent's destruction and the tremendous scale of nuclear forces presently deployed by the superpowers.⁴⁰ To the extent that nuclear weapons are specifically designed to complement one another in a given combat situation and are clearly tailored to fight if required, the notion of nuclear symbolism by itself may not be a sufficient explanation. Each level of combat (strategic, theatre, tactical) is closely interrelated, but for the superpowers it is the intercontinental nuclear forces that provides the "fulcrum upon which all other means of influence, coercion or deterrence depend."⁴¹

The comparison of the strategic nuclear force structure of the superpowers reveals a competitive process. The massive change in the correlation of nuclear forces 1974-1980 thus has probably been quite deliberate and may have even contributed to increased Soviet confidence in the use of force in the third world.⁴² To the Soviet Union, powerful nuclear forces guarantee that the United States will never again compel

⁴⁰ Philip A.G. Sabin, Shadow or Substance? Perceptions and Symbolism in Nuclear Force Planning. Adelphi Paper 222 (London: International Institute for Strategic Studies, 1987), p. 12.

⁴¹ Paul Nitze, "The Relationship of Strategic and Theatre Nuclear Forces," International Security 2 (Fall 1977), p. 123.

⁴² J.J. Collins, The Soviet Invasion of Afghanistan (Toronto: Lexington Books, 1986), p. 171.

the USSR to retreat under a nuclear threat as it had to do in Cuba.⁴³ Because of a natural inclination or dynamic in military planning to conservatively resolve uncertainty, there is a tendency to be suspicious of the other side's force structure improvements and to search for absolute security.⁴⁴ This military imperative creates a powerful rationale for a war fighting orientation and may well contribute to both the United States' and Soviet Union's propensity to engage in a nuclear force structure competition.

The degree of superpower competition in nuclear force construction from 1970-1986 strongly implies, but does not prove, that compellent thinking has influenced this process. Deterrent requirements could also be made subject to a competitive process, either to maintain an assured ability to destroy the other or to ensure that the threat is credible. A paradigmatic assessment of the force structure dynamic is now in order.

II. THE DETERRENT PARADIGM AS AN EXPLANATION

Both superpowers officially insist that their respective strategic nuclear forces are necessary simply to deter the other side from starting a war, and describe improvements in their force structures in terms of the requirement to maintain the efficiency or credibility of deterrence. According to this logic, more capable weapons systems and increased numbers of nuclear weapons on the other side justify one's own weapon programmes. Yet the analysis in chapters seven and eight indicates that in both the Soviet Union and the United States, this explanation is

⁴³ Richard Pipes, Survival is Not Enough: Soviet Realities and America's Future (New York: Simon and Schuster, 1984), p. 91.

⁴⁴ Raymond L. Garthoff, Detente and Confrontation: American-Soviet Relations from Nixon to Reagan (Washington, D.C.: Brookings Institution, 1985), pp. 1070-1071.

insufficient to account for all major weapons equipment decisions.

What may be happening is that the definition of deterrence has become so elastic that all potentially coercive uses of nuclear weapons are described as instances of deterrence.⁴⁵ If this is so, perhaps the analysis of the nuclear force structure competition can provide the "detailed factual observations" necessary to conduct a more rigorous analysis of deterrence.⁴⁶ In the deterrent paradigm, strategic competition should follow directions that would enhance deterrence without at the same time increasing the prospects for compellence.

A reasonable first step in this analysis is to examine the very nature of the strategic competition that many have called an arms race. Although arms races themselves are not necessarily causal to war, they are symptomatic of conditions that could lead to war.⁴⁷ While several analysts have described the growth of strategic nuclear weapons as an arms race, some important research has included that no "arms race" per se exists and that in terms of strategic spending neither country has been reacting to the other.⁴⁸ Each superpower could spend far more on its strategic forces as a percentage of its defence spending if it so wished. The strategic competition evidenced by the trends in Soviet and American nuclear force construction appears to be different than in previous arms

⁴⁵ Adam M. Garfinkle, "The Attack on Deterrence: Reflections on Morality and Strategic Praxis," Journal of Strategic Studies (March 1989), p. 169. See also Jeff McMahan, "Nuclear Blackmail," in Nigel Blake and Kay Pole, eds., Dangers of Deterrence: Philosophers on Nuclear Strategy (London: Routledge and Kegan Paul, 1983), p. 86.

⁴⁶ Edward N. Luttwak, "SALT and the Meaning of Strategy," The Washington Review 1 (April 1978), p. 27.

⁴⁷ Michael D. Wallace, "Armaments and Escalation: Two Competing Hypothesis," International Studies Quarterly 26 (March 1982), pp. 37-56.

⁴⁸ A.F.K. Organski and Jacek Kugler, The War Ledger (Chicago: University of Chicago Press, 1980), pp. 199-216.

races which could easily be quantified on the basis of spending.

Another frequently proposed theory posits that the construction of massive military force is based primarily on the internal dynamics of the arms procurement process in each superpower.⁴⁹ This could well be the case, but even if it were, the linking of this internal process to deterrent or compellent thinking would probably greatly facilitate the transcending of military, political, industrial and academic boundaries by providing an overarching direction to force development. The notion that a strategic weapons competition is necessary for purely internal reasons to sustain deterrence remains unconvincing, especially when each strategic force already retains an assured retaliatory capability.

Deterrence rests ultimately on the ability to destroy countervalue targets, hence a counterforce nuclear force posture which threatens to destroy the other side's retaliatory capability appears at first glance to be inimical to deterrence.⁵⁰ Yet, even as early as 1970 an informed strategic assessment declared that both superpowers have capabilities which, at least in theory, went beyond reciprocal deterrence.⁵¹ Since that time the efforts of the superpowers to enhance their hard target kill capability has led a 1986 study to conclude that the strategic nuclear doctrines of the United States and the Soviet Union have "converged at a

⁴⁹ See Richard Ned Lebow, "Malign Analysis or Evil Empire," International Journal 44 (Winter 1988-1989), p. 32.

⁵⁰ George Quester, "Some Basic Tensions in Nuclear Deterrence," in George E. Thibault, ed., The Art and Practice of Military Strategy (Washington, D.C.: National Defence University, 1984), pp. 640-642. See also W.F. Biddle, Weapons Technology and Arms Control (New York: Praeger Publishing, 1972), p. 193.

⁵¹ The Military Balance 1971-1972 (London: International Institute for Strategic Studies, 1971), p. 1.

startling rate."⁵² To a large degree these trends toward counterforce targeting are fully supported by the correlation of nuclear forces model and the analysis in chapters seven and eight.

The competitive nature of counterforce targeting has propelled the superpowers to seek counter-military advantages that seem to have played a significant role in force acquisition. According to the United States Chairman of the Joint Chiefs of Staff:

As we look at the Soviet Union, we see a target structure that is about twice as large as the one the Soviet Union looks at when they look at us. We also see one that is roughly _____ times as hard when it comes to attacking the target with nuclear weapons.⁵³

This testimony was intended to gain committee support for hard target capable United States programmes, ostensibly to enhance deterrence. If the deterrent paradigm is operating, the distinction between counterforce, damage limitation, and war fighting on the one hand and deterrence on the other, may be clearer in theory than in practice.⁵⁴ The recent emphasis on strategic defence in the United States, however, implies "an impending American cultural rejection of a strategy of deterrence."⁵⁵ The nature of

⁵² William C. Martel and Paul L. Savage, Strategic Nuclear War: What the Superpowers Target and Why (London: Greenwood Press, 1986), p. 181.

⁵³ General Vessey, Hearings Before the Committee on Appropriations, United States House of Representatives, Department of Defence Appropriations for 1984 Part 8 (Washington, D.C.: USGPO, 1983), p. 257. Although the figure amplifying hardness has been deleted, other open sources indicate that Soviet silos are at least two and quite possibly three times as hard as American silos.

⁵⁴ Aaron L. Friedberg, "The Evolution of U.S. Strategic Doctrine, 1945 to 1981," in Samuel Huntington, ed., The Strategic Imperative: New Policies for American Security (Cambridge, Massachusetts: Ballinger Publishing Company, 1982), p. 84.

⁵⁵ Michael Vlahos, Strategic Defence and the American Ethos (London: Westview Press, 1986), p. 4. For the United States to defend ICBM's does not significantly enhance stability when over 50% of its nuclear power is

nuclear threats generated by strategic defence postures of the superpowers makes it difficult to support a deterrent explanation. To the extent that deterrence does provide a reasonable explanation, it is in the realm of perception, demonstration of will, and determination to deter.

A more convincing argument to account for massive nuclear forces within the deterrent paradigm explicitly links combat utility to deterrence. In this explanation, strategic nuclear forces can deter only to the extent that they provide an adequate war fighting capability.⁵⁶ What is an "adequate" war fighting capability, however, remains undefined, and what one superpower may regard as a prudent hedge against the failure of deterrence, the other interprets as evidence of at least a lingering or implicit interest in strategic superiority.⁵⁷ This view of a war fighting requirement for deterrence is not shared universally, and some maintain that much of the present nuclear arsenals could be scrapped without any loss of national security.⁵⁸ Nevertheless a frequently heard argument insists that powerful nuclear arsenals are necessary to sustain deterrence "at all levels."

From 1970 to 1986, each superpower clearly manifested a distinct strategic doctrine. Throughout this period the United States held a fairly consistent attitude with respect to the overriding relevance of

in SSBN's. This author's thinking is close to the compelling paradigm.

⁵⁶ Robert W. Komer, "Thinking About Strategy: A Practitioner's Perspective," in Keith A. Dunn and William O. Staudenmaier, eds., Alternative Military Strategies for the Future (Boulder, Colorado: Westview Press, 1985), p. xii.

⁵⁷ Coit D. Blacker, Reluctant Warriors (New York: W.H. Freeman and Company, 1987), p. 126.

⁵⁸ William G. Shepherd, The Ultimate Deterrent: Foundations of US-USSR Security Under Stable Competition (New York: Praeger Publishers, 1986), p. 51.

deterrence.⁵⁹ Thus the United States initially constructed nuclear forces up to a certain level and then stopped. As long as the United States military policy was based on deterrence and its foreign policy based on the status quo, then having nuclear weapons beyond parity did not seem to matter.⁶⁰ This same logic, however, no longer seemed sufficient when the USSR not only reached strategic parity, but continued building strategic weapons and improving them.⁶¹ The Soviet military doctrine in the 1970's contrasted with that of the United States in that it called for forces capable of fighting a nuclear war. Although the Soviet and American military establishments appear to share a war fighting approach, American strategy has been dominated by a cost avoiding civilian deterrent approach and Soviet strategy by more open ended military requirements for war fighting.⁶² The qualitative competition in force structure improvements in the 1980's implied that the United States military has had a greater impact on the Reagan administration's strategic policies than it has had on any other American administration.

In contrast, the Soviet political elite's adherence to war fighting, possibly due to funding difficulties, has begun to slip somewhat in the 1980's. While some observers feel that the Soviet Union may not have changed its long term objectives and will continue to push for military

⁵⁹ Harold Brown, Strategic Forces and Deterrence. ACIS Working Paper 42 (Los Angeles, California: Center for International and Strategic Affairs, 1983), pp. 2-3.

⁶⁰ Bruce D. Hamlett, "SALT: The Illusion or the Reality," Strategic Review 3 (Summer 1975), p. 76.

⁶¹ One right wing author labelled American doctrine incorrect. See Daniel O. Graham, A New Strategy for the West (Washington, D.C.: The Heritage Foundation, 1977), p. 66.

⁶² Stanley Sienkiewicz, "SALT and Soviet Nuclear Doctrine," International Security 2 (Spring 1978), pp. 92-97. To a degree, however, these stereotypic roles may have reversed by the late 1980's.

improvements "to the limit drawn by Soviet resources and United States forbearance,"⁶³ others note that the key element in this dynamic is Soviet "adherence to deterrence as a primary value."⁶⁴ The correlation of nuclear forces analysis indicates that the Soviet leaders built an approximate 3:1 nuclear strategic advantage and then stopped. While it is possible that the Soviet military did not feel they had an adequate deterrent posture against the United States unless they had such an advantage, this explanation is weak.

Deterrence appears to rely on creating the perception of strength; the greater the strength of one's nuclear forces, the less likely they are to be challenged. Deterrence also has a punitive tone and an active nature in that it threatens wholesale destruction should an undesired act take place.⁶⁵ Because it would be psychologically easier to use nuclear weapons in response to a nuclear attack on one's own territory, extended deterrence requires more effort. To deter other lesser acts or to protect allies, appears to demand far more "deterrent" forces and raises the requirement to at least match the opponent's nuclear forces at each level of potential conflict. If one side had a dominant or superior strategic nuclear force, it could in theory enjoy sufficient escalation dominance to render its deterrence more credible than the other's. To make extended deterrence more believable, the most logical step is to then consider what

⁶³ Ilana Kass and Fred Clark Boli, "Dangerous Terrain: Gorbachev's New Thinking," Signal (December 1988), p. 71, and Benjamin S. Lambeth, "The Political Potential of Soviet Equivalence," International Security 4 (Fall 1979), p. 39. See also Paul Dibb, "Is Soviet Military Strategy Changing," The Changing Strategic Landscape Adelphi Paper 235 (London: International Institute for Strategic Studies, 1989), pp. 35-47.

⁶⁴ Donald M. Snow, Nuclear Strategy in a Dynamic World: American Policy in the 1980's (University, Alabama: University of Alabama Press, 1981), p. 222.

⁶⁵ Michael MccGwire, "The Insidious Dogma of Deterrence," Bulletin of Atomic Scientists 42 (December 1986), p. 25.

forces would be required to fight and hopefully win should deterrence fail. Thus, war fighting and damage limitation are defined as enhancing deterrence.

Clearly these expressions of extended deterrence have called up force requirements far in excess of those required to deter a direct nuclear attack. Yet the conceptual basis of deterrence remains essentially dyadic, and its abstract deductions apply to a very narrow range of specific circumstances, more appropriate in many ways to that of deterring a direct nuclear attack than to any version of extended deterrence.⁶⁶ Deterrence has thus been theoretically expanded and applied to grand strategy and military strategy. Notwithstanding the deterrent assertions of the superpowers, they have constructed massive and competitive nuclear arsenals more appropriate to fighting wars than simply deterring a direct nuclear attack. The real operational basis of nuclear strategy appears well out of line with the generally accepted concepts of deterrence.⁶⁷

By enhancing deterrence at all levels and in all situations, the superpowers have so stretched the conceptual definition of deterrence that it bears little resemblance to the original deterrent paradigm. While increased numbers of more capable systems have undoubtedly enhanced their ability to deter, they have also perhaps enhanced their ability to compel. The reality that each superpower can guarantee the destruction of the other at least in the 1980's may have more to do with the limitations of

⁶⁶ See the useful discussion of this point in Alexander L. George and Richard Smoke, Deterrence in American Foreign Policy: Theory and Practice (New York: Columbia University Press, 1974), p. 71.

⁶⁷ R.B. Byers, "Thresholds and Deterrence Credibility: The European Perspective," in William Gutteridge and Trevor Taylor, eds., The Dangers of New Weapon Systems (London: Macmillan Press, 1983), pp. 109-110.

technology than deliberate policy choice.⁶⁸

III. THE COMPELLENT PARADIGM AS AN EXPLANATION

The correlation of strategic nuclear forces method of analysis reveals a competitive aspect to force structure that may be more appropriate to the compellent paradigm. The problem of isolating compellence from deterrence however is not as easily done in practice as it is in theory because each side may have deterrent and compellent motives at the same time.⁶⁹ Thus one side can claim to be making a deterrent threat while the other side may see it as a compellent threat. Some observers genuinely believe that nuclear weapons have major "deterrent-compellent duties that extend far beyond the elementary function of deterring."⁷⁰ This section will examine the suitability of the compellent paradigm as an explanation for the superpower nuclear force structures.

Both superpowers are pursuing competitive foreign policy objectives that could plausibly at some point require military support. Although many American observers have not fully agreed on what means the Soviet leaders would employ to pursue their aims, there was general agreement that the "leitmotif" of Soviet attitudes toward international relations hinged on its belief that the Soviet Union's ability to achieve an objective was determined by its power relative to that of other

⁶⁸ Glen C. Buchan, "The Anti-MAD Mythology," Bulletin of the Atomic Scientists 37 (April 1981), pp. 13-17.

⁶⁹ Richard K. Betts, Nuclear Blackmail and Nuclear Balance (Washington, D.C.: The Brookings Institution, 1987), p. 139. This book combines a thorough review of nuclear threats with very good analysis.

⁷⁰ Colin S. Gray and Keith Payne, "Nuclear Strategy: Is There a Future?" Washington Quarterly 6 (Summer 1983), p. 66.

countries.⁷¹ Although power is a multi-faceted concept, a major determinant is military power, and clearly strategic nuclear weapons provide its fundamental backbone.

The Soviet assessment of American strategy of nuclear deterrence indeed places it in the context of its links with foreign policy objectives such as containment and thus portrays it as having a substantial offensive component that makes it synonymous with compellence.⁷² Even those Soviet analysts that assess the United States nuclear strategy in terms of deterrence use a description that more closely resembles compellence.⁷³ On one hand the Soviet leaders express great pride in the achievement of at least parity in strategic systems, but on the other hand they express serious reservations about future developments in terms of technological competition. In this context many Russians believe, and were repeatedly told,

that the Americans do not accept the position of the USSR as a co-equal superpower and that they are trying to destroy the source of its power.⁷⁴

Even in the United States arms control community the notion surfaced that the United States must have a comprehensive strategy "to achieve" peace,⁷⁵ the implication being that peace did not obtain. The concept of

⁷¹ Samuel B. Payne, The Soviet Union and SALT (Cambridge, Massachusetts: MIT Press, 1980), p. 106.

⁷² Henry Trofimenko, Changing Attitudes Toward Deterrence, ACIS Working Paper 25 (Los Angeles, California: Center for International and Strategic Affairs, 1980), p. 5.

⁷³ See Vitaly V. Zhurkin, comments on USSR in Barry Buzan, ed., The International Politics of Deterrence (London: Francis Pinter, 1987), p. 114.

⁷⁴ G.P. Armstrong, The Soviet Reaction to the Strategic Defence Initiative (Ottawa: Operational Research Analysis Establishment, PR304, 1985), p. 14.

⁷⁵ United States Arms Control and Disarmament Agency, 1981 Annual Report (Washington, D.C.: USGPO, 1982), p. 17.

strategic competition pervades relations between the superpowers and implies powerful compellent tendencies.

Massive nuclear force structure construction also creates potential threats that may imply a degree of political posturing in an attempt to achieve some advantage. When the concepts of nuclear deterrence and compellence were originally defined, decision making was assumed to be rational such that a coercive response strategy could be closely controlled.⁷⁶ This conceptualization implied that the threat projected would be understood by the opposite side in exactly the manner intended, and a precise response would be carefully formulated. This notion of rationality is increasingly considered implausible, but other theoretical approaches to decision making produce significantly different outcomes that raise questions about the advisability of coercive bargaining at that level.⁷⁷ Some observers have attempted to account for the accumulation of nuclear weapons as an example of "posturing" or "swaggering," a phenomenon readily observable in the animal world.⁷⁸ In this sense nuclear weapons imply potential threats that create an image of strength, thus enhancing a given state's impression of power. An example of this concern is American fears that the Soviet strategic build up creates an image of ascendancy that may undermine United States political influence in crisis

⁷⁶ Thomas C. Shelling, Controlled Response and Strategic Warfare. Adelphi Paper 19 (London: Institute for Strategic Studies, 1965), p. 11.

⁷⁷ John Steinbruner, "Beyond Rational Deterrence: The Struggle for New Conceptions," World Politics 28 (January 1976), pp. 234-237. The ability to control nuclear war is less when command and control centers are targets. See Stephen J. Cimbala, "Strategic Vulnerability: A Conceptual Reassessment," Armed Forces and Society (Winter 1988), p. 200, and Desmond Ball, Can Nuclear War Be Controlled. Adelphi Paper 169 (London: International Institute for Strategic Studies, 1981), p. 37.

⁷⁸ Kosta Tsipis, "The Arms Race as Posturing," in David Carlton and Carlo Schaerf, eds., The Dynamics of the Arms Race (New York: John Wiley and Sons, 1975), p. 78. See also Robert J. Art, "To What Ends Military Power," International Security 4 (Spring 1980), p. 10.

situations.⁷⁹ This notion of posturing in theoretical terms lies between simple deterrence and outright compellence; unhedged compellent threats are simply too dangerous, due to the fact that one side must openly back down to avoid war.⁸⁰

Another observation that impacts greatly on the nature of the strategic competition is the geographical and cultural asymmetry of the two superpowers. Each is faced with a significantly different strategic problem and, over the years, has developed significantly different means to ensure its security. While the United States has tended to rely on its geographic isolation and its maritime power, the Soviet Union and Russia have a long history of close involvement along the periphery and have traditionally relied on large armies. Consequently the Soviet Union is extremely sensitive to American nuclear involvement in Europe and practically paranoid in its concern over the American rapprochement with China in the 1970s with its immediate impact on the correlation of forces.⁸¹

Strategic asymmetry in effect means that nuclear weapons may serve slightly different functions in the arsenals of the superpowers, particularly with respect to their potential in Europe. As early as 1946 William Borden noted that the USSR may be tempted to do away with nuclear weapons once it has its own nuclear arsenal because the "Red Army would

⁷⁹ Barry Blechman, et al., The Soviet Military Buildup and United States Defence Spending (Washington, D.C.: The Brookings Institution, 1977), pp. 20-21.

⁸⁰ Robert J. Art, "To What Ends Military Power," pp. 20-23.

⁸¹ See comments by Valentin Falin, a Soviet Central Committee official, on Moscow Domestic Television, March 1, in FBIS Soviet Union, 14 March 1980.

count for a great deal more if atomic weapons could be eliminated."⁸² This option remains plausible because the Soviet Union need only have sufficient nuclear forces to make American nuclear threats unbelievable to recover the invasion potential of its armies, thus restoring Soviet power to intimidate Western Europe.⁸³ In this sense the superpower strategic forces do not have the same task. This notion becomes more significant if one doubts, as many do, that nuclear advantages which do not reach the level of first strike superiority

affect significantly the practical ability of one nation to threaten to impose its will on another or to shape the outcome of political crises, other than those in which the continued existence of the nation is at stake.⁸⁴

Thus if the credibility of using nuclear weapons may be reduced, a primary obstacle to the Soviet military's preferred form of war, the conventional offensive, would be removed.⁸⁵

At the strategic level, neither superpower appears content with nuclear parity, and both have made efforts to achieve an advantage in actual forces. Those of the American right wing that focus on the Soviet nuclear construction of the late 1970's, calling it a build up "without precedent in history," have overlooked the American strategic arms build up in the 1960's.⁸⁶ The American strategic nuclear construction programme

⁸² William L. Borden, There Will Be No Time: The Revolution in Strategy (New York: Macmillan Company, 1946), p. 224.

⁸³ Edward N. Luttwak, "Delusions of Soviet Weakness," Commentary (January 1985), pp. 37-38.

⁸⁴ Walter Slocombe, The Political Implications of Strategic Parity. Adelphi Paper 77 (London: International Institute for Strategic Studies, 1971), p. 2.

⁸⁵ Yossef Bodansky, "Nuclear Strike: A Soviet View," Jane's Defence Weekly, 28 November 1987, p. 1278.

⁸⁶ Bernard Brodie, "The Development of Nuclear Strategy," International Security 2 (Spring 1978), p. 75.

resulted in the United States fielding an advantage of about 8:1 by 1970, the first year portrayed by the C-4 line on chart three. The Soviet Union could not equalize this ratio until 1978. The implication of these massive construction programmes is that perhaps domination is, in theory, a more promising route to the disappearance of nuclear weapons.⁸⁷ The extremely large numbers of nuclear weapons that make up the American and Soviet strategic forces probably result from the requirement to increase war termination options and maintain freedom to conduct limited coercive action, in spite of combat losses.⁸⁸

The strategic competition is also clearly evidenced by the marked increases in warheads and their increasing counterforce capability from 1970 to 1986. The Soviet advantage after 1978 may have given the Soviet Union a political edge in compelling scenarios in the sense that they would have greater wartime reserves and have the "last strategic move."⁸⁹ Because the Soviet Union has shown in the past a propensity to value force, many American observers have expressed concerns that the Soviet Union would at some point expect to be able to achieve political objectives without overt military activities.⁹⁰ Implicit in these concerns is the belief that decision makers in Moscow and Washington are

⁸⁷ Michael Mandelbaum, The Nuclear Revolution: International Politics Before and After Hiroshima (London: Cambridge University Press, 1981), p. 49.

⁸⁸ See Leon Sloss and Paolo Stoppa Liebl, "War Termination: Targeting Objectives and Problems," in Stephen J. Cimbala, ed., Strategic War Termination (New York: Praeger Publishers, 1986), p. 118.

⁸⁹ Victor Utgoff, "In Defence of Counterforce," International Security 6 (Spring 1982), p. 51.

⁹⁰ Amoretta M. Hoeber, "Soviet Strategic Intentions," in Kenneth M. Currie and Gregory Varhaul, eds., The Soviet Union: What Lies Ahead? (Washington, D.C.: USGPO, 1984), p. 669. See also Edward N. Luttwak, "Strategies of the Nuclear Age," a book review of Fred Kaplan's The Wizards of Armageddon: Strategists of the Nuclear Age, Commentary (August 1983).

convinced that political gains can be achieved through the manipulation of nuclear risks and that the nuclear "balance" can affect outcomes.⁹¹

Many analysts however also feel that to achieve political objectives requires an inherent superiority in either the will to fight or the capability to win. In the realm of strategic nuclear weapons, each superpower has in practice adopted a war fighting strategy through counterforce or first strike capability that considerably exceeds the requirements for deterrence.⁹² Although the United States strategic arsenal did reflect some deterrent restrictions in the early 1970s, by the 1980s the United States nuclear weapons as well as those of the Soviet Union were being increasingly improved to enhance counterforce and war fighting.⁹³ Both superpowers were engaged in a qualitative competition to field precise and flexible nuclear weapons that could provide selective nuclear options in war fighting scenarios. To support such options each superpower also sought an expanded mobilization potential, a feature of central importance in conventional or limited nuclear war.⁹⁴

The nature of strategic competition also reveals a propensity for each superpower to construct its force structure in such a way as to improve its prospects for success against the other's strategy. In the United States this process has been called "competitive strategies," and

⁹¹ Richard K. Betts, Nuclear Blackmail and Nuclear Balance, p. 132 and p. 214.

⁹² Albert Langer, "Accurate Submarine Launched Ballistic Missiles and Nuclear Strategy," Journal of Peace Research 14 (November 1977), pp. 41-58.

⁹³ P. Edward Haley, David M. Keithly and Jack Merritt, Nuclear Strategy, Arms Control and the Future (Boulder, Colorado: Westview Press, 1985), p. 31. Annexes E and M also show increasing CMP capability of modern weapons.

⁹⁴ Paul Bracken, "Mobilization in the Nuclear Age," International Security 3 (Winter 1978/1979), pp. 91-92.

the United States Secretary for Defence claims that its objective is to align Western strengths against persistent Soviet weakness in order to influence Moscow to allocate defence resources to purposes that are less threatening toward the United States.⁹⁵ The United States has long taken advantage of its maritime strength by placing a high percentage of its strategic firepower at sea and, through arms control proposals, by attempting to encourage the Soviet Union to do likewise. The Soviet Union has attempted to maximize its potential leverage over Western Europe by building a nuclear force completely capable of exercising limited options, yet it denies its willingness to engage in limited nuclear war. The Soviet adoption of the pledge to not be the first to use nuclear weapons also serves to maximize the utility of its conventional army without really diminishing the impact of its nuclear weapons. Recent Soviet defence policy, which appears increasingly defensive in orientation, may in reality be an attack on NATO strategy.⁹⁶

The implications of strategic competition seem to support the compelling paradigm as an appropriate explanation. Both superpowers have strategic belief systems that hold apparently different orthodoxies, but when analyzed from a force structure perspective, they may not be as mutually exclusive as many have assumed.⁹⁷ As long as the Soviet Union

⁹⁵ Frank Carlucci, cited by Paul Mann, "Competitive Strategies Doctrine Pushed by Defence Department for Post-INF Planning," Aviation Week and Space Technology, 1 February 1988, p. 25.

⁹⁶ See Christopher Bellamy, "What the Warsaw-Pact Doctrine Means for the West," Jane's Defence Weekly, 5 December 1987, p. 1310. Soviet Army General Peter G. Lushev, in an address in London, emphasized the restructuring underway to render the Warsaw Pact incapable of conducting large scale offensive operations, "Soviet and Warsaw Pact Goals and Developments," RUSI Journal (Autumn 1989), p. 5.

⁹⁷ See Roman Kolkowicz, "Military Strategy and Political Interests: The Soviet Union and the United States," in Bernard Brodie, Michael D. Intriligator and Roman Kolkowicz, eds., National Security and International Stability (Cambridge, Massachusetts: Oelgeschlager, Gunn

and the United States have deployed a variety of comparable nuclear weapons systems, it may be that the asymmetry in conventional forces in Europe may be the most important military factor.⁹⁸ Each nation appears to have methodically and deliberately constructed a nuclear force posture that optimizes counterforce targeting for war fighting objectives. Although the Soviet Union and the United States define the requirement for nuclear forces in terms of deterrence, the actual nuclear forces lend themselves well to compellent objectives should deterrence fail. In fact these massive forces would make little sense in retaliation, but they could further national objectives prior to, during and subsequent to war in significant ways.⁹⁹ In terms of competitive strategies, the major consequence of a strategic advantage and the natural home of compellence is not so much war as the domain of crisis-management.

Compellence is not new to the history of international diplomacy. A widely respected study of force as an instrument of foreign policy determined that since World War Two, armed force, including strategic weapons, has been used more frequently to compel than to deter.¹⁰⁰ This same study further noted that when the use of force was backed with strong strategic forces, whether or not nuclear force was threatened, the outcomes tended to be more favourable.¹⁰¹ Clearly such evidence supports

and Hain, 1983), p. 285.

⁹⁸ John G. Hines, Phillip A. Peterson and Notra Trulock, "Soviet Military Theory from 1945-2000: Implications for NATO," Washington Quarterly 9 (Fall 1986), pp. 133-134.

⁹⁹ Michael M. May, "Some Advantages of a Counter Force Deterrence," Orbis 14 (Summer 1970), p. 271.

¹⁰⁰ Barry M. Blechman and Stephen S. Kaplan, Force Without War (Washington, D.C.: Brookings Institution, 1978), p. 85. From a sample of 79 cases, force was used to compel 31 times, about 27%.

¹⁰¹ Ibid., p. 531.

not only the notion that strategic forces can support foreign policy, but also that nuclear threats undoubtedly can at times support specific political interests quite successfully. This belief possibly underlay Kissinger's deliberate attempts to magnify the symbolic importance of, and to use threats to moderate Soviet policy in, what many considered to be non vital "outposts."¹⁰²

The belief that the correlation of nuclear forces matters is fundamental to the compellent process. The competition in nuclear force construction demonstrates that the two strategic rivals from 1970 to 1986 seemed genuinely interested in achieving any possible advantages that could be achieved without triggering an unwanted reaction on the other side. Although nuclear parity may have encouraged increased correlation of force competition in the political, economic and ideological "fronts," the military competition for strategic advantage was quite strong notwithstanding occasional thaws in political relations.¹⁰³

IV. CONCLUSIONS

Each superpower from 1970-1986 has built a massive nuclear force structure on what appears to be a competitive basis, ostensibly to deter the other from initiating a war which neither power wants. This strategic competition has focused on qualitative improvements primarily designed to enhance hard target kill, damage limitation and nuclear war fighting capabilities.

¹⁰² Alexander L. George, Managing U.S.-Soviet Rivalry: Problems of Crisis Prevention (Boulder, Colorado: Westview Press, 1983), p. 387. For example, Kissinger tended to view events in a global geopolitical perspective when he attempted to link American arms control negotiating behaviour to Soviet political behaviour in Angola.

¹⁰³ Michael Deane, "The Soviet Assessment of the Correlation of World Forces: Implications for American Foreign Policy," Orbis 20 (Fall 1976), p. 630.

At the start of the period, the United States enjoyed approximately an 8:1 correlation of nuclear forces advantage in the event of nuclear counterforce exchange. Ten years later however, the Soviet Union had constructed a force that completely reversed this correlation and provided the USSR with a 3:1 ratio over the United States. Since that time the United States has struggled with limited success to reduce the Soviet's correlation of nuclear force lead. This enduring and long term competitive process to achieve military advantages in strategic force structure seems to contradict the declaratory strategic policies of both superpowers which imply less not greater reliance on nuclear power.

The deterrent explanation for such massive nuclear forces and intense strategic competition relate directly to the concepts of demonstrating superior will, extending deterrence, war fighting as deterrence and being in a position to win should deterrence fail. These concepts have drastically stretched if not departed from the theoretical basis of deterrence established in the deterrent paradigm. While it is likely true that these massive nuclear arsenals have enhanced the superpowers' ability to deter, they have also given them a concurrent capability to compel.

The compellent explanation provides a coherent rationale for these massive nuclear arsenals which are increasingly characterized by hard target kill capability, strategic defences and flexible counterforce targeting. Compared to nuclear forces that existed in 1970, those forces accumulated as of 1986 more closely represent those required to support the compellent paradigm. It also seems highly possible that the military leadership of each superpower has contributed to the continuity of force structure development in order to achieve war fighting objectives. That these tendencies have been allowed to succeed in bureaucratic battles in Washington or Moscow may well be in large part due to the wider belief

that a favourable correlation of nuclear force is better than an unfavourable one; in other words, it matters.

For the compelling paradigm to obtain, however, the possibility of some form of advantage through nuclear war must clearly exist. Even in 1946, Bernard Brodie placed a caveat on his belief that the chief purpose of military forces in the nuclear age must now "almost" be to avert or deter wars.¹⁰⁴ When Albert Wohlstetter published his famous 1959 article noting the vulnerability of United States bombers to a surprise attack, he also demonstrated that victory in a nuclear war was still a significant possibility.¹⁰⁵ Because the Soviet Union has consistently demonstrated an unsentimental rigour in matching means to ends,¹⁰⁶ it is highly probable that a compelling view has influenced Soviet force structure decisions. If the Soviet and the American nuclear strategic force structures are increasingly similar in their war fighting orientation and the Soviet force structure rigorously matches their operational doctrine, then the concept of deterrence appears to have had far less impact on United States nuclear strategic force structure than has been commonly understood.¹⁰⁷

The correlation of nuclear forces model is particularly useful in

¹⁰⁴ Bernard Brodie, The Absolute Weapon: Atomic Power and World Order (New York: Yale Institute of International Studies, 1946), p. 76. See chapter one, footnote 32 where Brodie says "It can have almost no other purpose."

¹⁰⁵ Henry Kissinger, "American Strategic Doctrine and Diplomacy," in Michael Howard, ed., The Theory and Practice of War (London: Cassell and Company, 1965), p. 280.

¹⁰⁶ James Sherr, Soviet Power: The Continuing Challenge (London: Macmillan Press, 1987), p. 5.

¹⁰⁷ Desmond Ball, "The Role of Strategic Concepts and Doctrine in U.S. Strategic Nuclear Force Development," in Bernard Brodie, Michael Intriligator and Roman Kolkowicz, eds., National Security and International Stability, p. 39. See also Desmond Ball, Developments in United States Strategic Nuclear Policy Under the Carter Administration. ACIS Working Paper 21. (Los Angeles: Center for International and Strategic Affairs, 1980), p. 16.

highlighting the competition in superpower strategic force construction programmes during 1970-1986. The competition to obtain military advantages beyond parity implies that compellence has been a significant factor in justifying strategic programmes, more so than deterrence. In spite of the ultimate requirement to deter, it appears that operational nuclear strategies are, at least in part, based on compellent thinking.

Chapter 10

CONCLUSIONS: STRATEGY OF AMBIGUITY

This dissertation has postulated that superpower nuclear strategy from 1970 to 1986 can no longer be adequately described by deterrence, that a significant degree of compellence exists in what are nominally deterrent strategies, and that a compellent paradigm may therefore also be necessary for the analysis of intercontinental nuclear strategy. Chapters one and two established deterrent and compellent paradigms based on the theoretical literature of the nuclear dilemma. To distinguish between the two paradigms, a framework for analysis was created which provided the tool used in chapters three to six for analyzing the declaratory strategy of the superpowers. To analyze the operational nuclear strategies more deeply, a Soviet designed correlation of nuclear forces model provided the necessary data for chapters seven to nine. This chapter will attempt to place this research into some historical perspective and present its major findings.

Warfare is not new to mankind, nor has it been made obsolete by the invention of nuclear weapons. Thus the possibility of nuclear war makes the degree to which nuclear weapons can be used to support foreign policy initiatives highly contentious and problematic. Michael Howard notes that most of mankind, throughout most of its history, "has lived in a condition of approximating more closely to war than to peace."¹ This view is supported by Lynn Montross who goes so far as to say that

if the experience of the centuries teaches any enduring lesson about war, it is that the heart of man has never been changed by any weapon his mind has conceived.²

¹ Michael Howard, "The Causes of War," in Oyvind Osterud, ed. Studies of War and Peace (Oslo: Norwegian University Press, 1986), p. 18. This is an excellent article.

Because the superpowers see each other as primary rivals, political, economic and military competition punctuates their mutual relationship, and therefore the risk of conflict escalating to war is very real. As no country (or alliance) facing the possibility of war can consider itself adequately defended against any other country (or alliance) "unless it has a range of capabilities matching those available to its opponents,"³ both the Soviet Union and the United States have developed a nuclear weapons capability that can fight at various levels of intensity. When the degree of superpower political competition degenerates, however, to the point of questioning the legitimacy or sovereignty of a given regime (and each superpower has questioned the other's legitimacy), one is in fact challenging the basic organizing principle of international society.⁴ The fundamental question underlying superpower nuclear strategy is to what extent can nuclear weapons be used to support political strategy, even in the state-centric or realist school of international relations.

I. TWO COMPETING PARADIGMS

The deterrent and compellent paradigms differ significantly as to the degree that nuclear weapons can be used to support policy in the same way that other weapons do. Essentially, the deterrent paradigm accepts the premise that deterrence has replaced the traditional theory of war because nuclear weapons have created a revolution in security policy. Nuclear war is simply not a realistic policy option because it is

² Lynn Montross, War Through the Ages, Third Edition (New York: Harper and Brothers, 1960), p. xiii.

³ Frank Kitson, Warfare as a Whole (London: Faber and Faber, 1987), p. 9.

⁴ Alan James, Sovereign Statehood: The Basis of International Society (London: Allen and Unwin, 1986), p. 25.

uncontrollable and results in mutual devastation. The compelling paradigm, on the other hand, reflects more traditional strategy in that war, even nuclear war, is still a policy option that could occur and must therefore be prepared for in strategic planning. A compelling strategy therefore would seek any nuclear advantage possible to ensure deterrence or to engage in compellence through the medium of threats, the aim of which is to encourage political accommodation to one's interests without fighting.

The deterrent paradigm gained a very influential position in the West during the 1960's due to the confluence of a number of factors, but one important factor was the intellectual power and eloquence of its proponents.⁵ Primarily civilian, these proponents of deterrence at the time received widespread acceptance as providing "solid intellectual fare that has served us well"⁶, but during the period 1970 to 1986 their view of international politics "has come increasingly to be challenged."⁷ Some have supported deterrence by maintaining that "strategy must be reconceptualized in the era of nuclear weapons", but others have insisted that deterrence is flawed and pre-nuclear strategy continues to have great relevance.⁸ Thus the Western consensus favouring deterrence as the

⁵ Robert Jervis, "Deterrence Theory Revisited," World Politics 31 (January 1979), p. 289.

⁶ Hedley Bull, "Strategic Studies and its Critics," World Politics 20 (July 1968), p. 605.

⁷ Colin S. Gray, Strategic Studies and Public Policy: The American Experience (Lexington: University Press of Kentucky, 1982), p. 188.

⁸ For the citation see Morris Janowitz, "Towards a Redefinition of Military Strategy in International Relations," World Politics 26 (July 1974), p. 474. See also Hans Morgenthau, "The Fallacy of Thinking Conventionally About Nuclear Weapons," in David Carlton and Carlo Schaerf, eds. Arms Control and Technological Innovation (New York: John Wiley and Sons, 1976), p. 256. For the opposite view see Colin S. Gray, "Across the Nuclear Divide - Strategic Studies, Past and Present," International Security 2 (Summer 1977), p. 46.

dominant paradigm has begun to unravel, helped by a growing belief in the 1970's that the Soviet Union did not necessarily share the assumptions of deterrence.

The modern proponents of deterrence, however, still rely heavily on previous works. Donald Snow, for example, believes that there is a growing consensus that Bernard Brodie was correct in 1946 in saying that the role of armed force in the nuclear age must be to avoid wars.⁹ To Snow, nuclear weapons are only useful for deterring nuclear first use. Others feel that the traditional confluence of "realism" and "prudentialism" have been undermined by the awesome destructive power of nuclear weapons.¹⁰ Deterrence is becoming increasingly understood to imply no first use such that the utility of nuclear weapons according to the deterrent paradigm appears to be decreasing in international politics.

Although deterrence has a powerful appeal as a coherent rationale for nuclear weapons, it falls short in heuristic terms in that it cannot explain the resort to force in many cases.¹¹ Thus a big problem for deterrence is its inability to delineate the conditions under which it will succeed unless one's opponent is extremely "risk adverse".¹² For the United States, the fact that the Soviet Union had adopted a "risk minimizing" attitude for much of the period under discussion meant that

⁹ Donald M. Snow, National Security: Enduring Problems of United States Defence Policy (New York: St. Martin's Press, 1987), p. 176.

¹⁰ Avner Cohen and Steven Lee, "The Nuclear Predicament," in their Nuclear Weapons and the Future of Humanity: The Fundamental Questions (Totowa, New Jersey: Rowman and Allanheld, 1986), p. 29.

¹¹ Robert Jervis, Richard Ned Lebow and Janice Gross Stein, Psychology and Deterrence (London: John Hopkins Press, 1985) p. 203. See also Michael E. Brown, Deterrence Failures and Deterrence Strategies (Santa Monica, California: Rand Corporation P-5842, 1977), pp. 1-2.

¹² Frank C. Zagare offers a very good analysis in The Dynamics of Deterrence (Chicago: University of Chicago Press, 1987), p. 7 and p. 76.

deterrence advocates continued to believe that deterrence "worked." For the Soviet Union, however, the "risk maximizing" attitude of the United States probably minimized the influence of deterrent advocates in the Soviet Union or at least made them define deterrence in significantly different ways.¹³ The confusion and ambiguity surrounding the appropriate uses of nuclear weapons in each superpower have served to mask the compelling aspects of what were nominally deterrent strategies.¹⁴

The compelling paradigm accounts for offensive strategy in the nuclear era; it is to conventional offence as deterrence is to conventional defence. As soon as deterrence strategy inherits the requirement to fight should deterrence ever fail, then from a theoretical viewpoint, it confuses the conceptual paradigm of deterrence with the necessities of fighting a war.¹⁵ The compelling paradigm accounts for these war fighting necessities. It removes much of the distinction between aggressor and defender as it is available to either side.¹⁶ It involves accepting risks to force the opponent to act in a certain manner. Even though the probability of compelling success when the stakes are extremely high may actually be relatively low,¹⁷ the compelling paradigm

¹³ For a discussion of risk minimizing and risk maximizing approaches see Richard K. Betts, Nuclear Blackmail and the Nuclear Balance (Washington, D.C.: The Brookings Institution, 1987), pp. 213-214.

¹⁴ See Edward A. Kolodziej, "Nuclear Weapons in Search of a Role: Evolution of Recent American Strategic Nuclear Arms Control Policy," in Paul R. Viotti, ed., Conflict and Arms Control: An Uncertain Agenda (London: Westview Press, 1985), p. 16.

¹⁵ William C. Martel and Paul L. Savage, Strategic Nuclear War: What the Superpowers Target and Why? (London: Greenwood Press, 1986), p. 12.

¹⁶ Lawrence Freedman, The Evolution of Nuclear Strategy (London: MacMillan Press, 1982), p. 222.

¹⁷ Walter J. Petersen, "Deterrence and Compellence: A Critical Assessment of Conventional Wisdom," International Studies Quarterly 30 (September 1986), p. 284.

provides for optimizing the chances of success through the medium of perceived advantage wherever possible.

Compellent thought thus encompasses the traditional meaning of strategy. It implies a continuity in the operating principles of international politics in that the traditional meaning of power still has some relevance.¹⁸ During the period 1970 to 1986 at least one observer, in his criticism of minimum deterrence, noted that it is through the medium of perceptions that strategic arsenals generate political power; thus nuclear suasion exists, whether we recognize it or not.¹⁹

Although the deterrent and compellent paradigms stem from the same original theory, "the diplomacy of violence",²⁰ they separate quickly into distinct patterns of thinking. The fundamental problem with the rather loose label of deterrence theory is that neither its proponents nor its assailants have fully recognized these distinct thought patterns. This may have a great deal to do with the fact that declaratory strategy has been overly focused on deterrence, not compellence. These two ways of thinking are sufficiently different to warrant being placed into paradigmatic constructs, but only the compellent paradigm provides an explanation to account for the co-existence of deterrent and compellent motivations in nuclear strategy.

II. THE PARADIGMATIC FRAMEWORK

The framework used in this thesis seeks to differentiate deterrent

¹⁸ Ian Clark, Reform and Resistance in the International Order (London: Cambridge University Press, 1980), p. 174.

¹⁹ Edward N. Luttwak, Strategic Power: Military Capabilities and Political Utility (Washington, D.C.: Sage Publications, 1976), p. 7.

²⁰ Thomas C. Schelling, Arms and Influence (London: Yale University Press, 1965), pp. 2-18.

from compelling thought, based on discussions found in contemporary theoretical literature. It is simply a heuristic tool to assist in organizing the large quantity of material available and to guide the analysis in such a way as to distinguish those elements of compellence that may be found in modern nuclear strategies. Table One presents this framework in summary form.

TABLE 1

FRAMEWORK FOR PARADIGMATIC ANALYSIS

	<u>Deterrence</u>	<u>Compellence</u>
<u>STRATEGIC INTENTIONS</u>		
Utility of Nuclear Weapons	Limited	Expanded
Status Quo	Supports	Attacks
Political Values at Stake	Core	Peripheral
<u>THE THREAT TO USE FORCE</u>		
Frequency of Threats	Lower	Higher
Nuclear Targeting	Countervalue	Counterforce
Limited Nuclear War?	No	Yes
Contingency	General	Specific
Perceptions of Other's Threat	To Deter	To Compel
<u>CORRELATION OF NUCLEAR FORCES</u>		
Quality of Nuclear Systems	Lower	Higher
Quantity of Nuclear Systems	Lower	Higher
Expected combat ability (in relation to opponent)	Low	High

This section will review some key elements that surfaced from the paradigmatic analysis of superpower nuclear strategy. It will conclude with a net assessment of that framework for future applications.

1. The Strategic Intentions

Both the United States and the Soviet Union have demonstrated deterrence and compellence in their nuclear strategies during the period

in question. In terms of superpower strategic intentions from 1970 to 1986, declaratory policy tended to stress deterrence, but acquisition and operational policies tended to indicate the presence of significant compellent thinking.

With respect to the utility of nuclear weapons in supporting foreign policy, both superpowers have shown tendencies that engender the belief that nuclear weapons do have an impact. The relevance of force in the world is not necessarily diminishing,²¹ and the United States and the Soviet Union have created tens of thousands of nuclear warheads in the belief that their existence matters.

In general the United States supported the status quo on a broad basis, but the Soviet Union limited its support for the status quo for the most part to Eastern Europe. The Soviet Union sought greater political accommodation from Western Europe while the United States pursued a policy that sought to modify Soviet behaviour. To the extent that nuclear weapons support any threat of military action and to the extent that each superpower's foreign policy is at times clearly backed by its military power, those aims that seek a change in the opponent's foreign, military or domestic policies imply a degree of compellence. One observer even felt that the intensity of the superpower competition was comparable to a war.²² In this competition, reliance on deterrence alone to achieve one's aims, according to recent research, "can be difficult if not impossible".²³ An additional variable from 1970 to 1986 appeared to

²¹ Andrew P. Rasilius, On the Utility of War in the Nuclear Age Wellesley Paper 8/1981 (Toronto: Canadian Institute of International Affairs, 1981), p. 86.

²² Brian Crozier, Strategy of Survival (London: Temple Smith, 1978), p. 9.

²³ Robert Jervis, "Deterrence and Perception," International Security 7 (Winter 1982/1983), pp. 29-30.

be the fact that the Soviet Union as a newly powerful state has felt that its growing military strength was not matched by the appropriate degree of recognition.²⁴

Even though political relations between the superpowers are at times good, the contest between them is clearly based on a difference of fundamental values. Not only did Marxism-Leninism question the legitimacy of the American regime, but Western morality also questioned the legitimacy of the Soviet regime.²⁵ The prospect that these fundamental beliefs will moderate sufficiently to end political conflict appear illusory. In spite of the improvement in Soviet-American relations, the United States recognized the fundamental fact that the American-Soviet relationship is essentially adversarial and will likely remain so for the foreseeable future.²⁶ Gorbachev reflected the same tone when he noted that there is an intense class struggle with sharp clashes between two dramatically opposed approaches to international relations.²⁷

A key finding from the analysis of strategic intentions is the degree of ambiguity in superpower objectives. The ambiguity appears deliberate, and it allows compellence to exist in what are nominally deterrent policies. All three variables assessed in this section proved useful in this paradigmatic analysis but the degree to which policy

²⁴ Bruce Russett, The Prisoners of Insecurity: Nuclear Deterrence, The Arms Race and Arms Control (New York: W.H. Freeman and Company, 1983), p. 64. This may in part be due to the structure of the international system. See William R. Thompson, On Global War: Historical-Structural Approaches to World Politics (Columbia, South Carolina: University of South Carolina Press, 1988), p. 14.

²⁵ John Lenczowski, Soviet Perceptions of U.S. Foreign Policy (London: Cornell University Press, 1982), p. 274.

²⁶ Ronald Reagan, National Security Strategy of the United States: The White House (Washington, D.C.: USGPO, 1987), p. 17.

²⁷ Mikhail Gorbachev, A Time for Peace (New York: Richardson and Steirman, 1985), p. 23.

supports or rejects the status quo is perhaps the clearest indicator.

2. The Threat to Use Force

During 1970 to 1986 the threat to use force, especially nuclear weapons, remained primarily covert and indirect. In fact no nuclear power has ever openly used a direct nuclear threat against another nuclear power to force it to retreat from a given position.²⁸ Due to the hedged or uncertain nature of most superpower threats to use force, the same ambiguity as noted in the previous section surrounds nuclear strategy.

Although there is increasing support that a revolution in strategic warfare may be beginning and that nuclear weapons may eventually be replaced by conventional weapons,²⁹ from 1970 to 1986 no decrease in superpower reliance on nuclear force was evident. If anything, increased counterforce targeting strategies and the enhanced flexibility of modern nuclear weapon systems appeared to increase reliance on credible nuclear threats to support conventional forces. In the 1960's deterrence and defence were defined as being substantially antithetical, but by the 1980's it appeared that the defence and deterrent functions were being viewed as complementary.³⁰ Throughout this period, war fighting at levels far short of striking countervalue targets seemed to be the driving force behind nuclear strategy.

²⁸ Patrick M. Morgan, "New Directions in Deterrence Theory," in Avner Cohen and Steven Lee, eds., Nuclear Weapons and The Future of Humanity: The Fundamental Questions, p. 178.

²⁹ Barry M. Blechman, U.S. Security in the Twenty First Century (Boulder, Colorado: Westview Press, 1987), p. 19, and Carl H. Builder, Strategic Conflict Without Nuclear Weapons (Santa Monica, California: Rand Corporation R-2980-FF/RC, 1983), p. 9.

³⁰ Donald M. Snow, "Deterrence and Ballistic Missile Defence: Complements or Antagonists," in Alvin M. Weinburg and Jack N. Barkenbus, eds. Strategic Defences and Arms Control (New York: Praeger Publishers, 1988), p. 190.

Even though each superpower professes deterrent motivations, it tends to perceive the other's nuclear strategy as being particularly dangerous. When the United States and NATO emphasize their deterrent aspirations, the Soviet Union and the Warsaw Pact likewise emphasize the priority need to use "political measures as the means of first resort" in pursuit of foreign policy objectives.³¹ In spite of this,

American politicians perceive the Soviet doctrine of preemption as clear evidence of malign intent, while Soviet leaders feel threatened by American tactical nuclear deployments close to Soviet borders.³²

As long as each perceives the other as a dangerous rival seeking some form of strategic advantage to support its quest for increased global influence, the prospects for strategic arms control are poor. Furthermore, these perceptions demonstrate the possibility that certain people tend to ascribe compelling tendencies to the rival superpower because they themselves tend to view the world from such a paradigm.

Whenever political relations deteriorate between the superpowers, as inevitably they will from time to time, the spectre of nuclear war looms larger, and this fuels public fear that in some ways parallel the British fears of German bombing in the 1930's.³³ The Soviet Union has been particularly adept at using these fears to political advantage by offering to "spare" certain NATO countries if they renounce nuclear weapons. The Soviet suggestion that they would respect a Nordic nuclear weapons free zone in Norway which lies adjacent to the Kola Peninsula

³¹ Lev Yudovich, "Warsaw Pact's New Military Doctrine: More Velvet Glove, Less Iron Fist," Armed Forces Journal 125 (February 1988), p. 38. See also article by Marshal Kulikov cited in footnote 103, chapter six.

³² Freeman Dyson, Weapons and Hope (New York: Harper and Row, 1984), pp. 277-278.

³³ Uri Bialer, Shadow of the Bomber: The Fear of Air Attack and British Politics 1932-1939 (London: Royal Historical Society, 1980), p. 151.

(perhaps the most heavily armed area in the world) is a case in point.

Among the variables used to analyze the threat to use force, the nature of nuclear targeting, the flexibility of nuclear forces to engage in limited war and the perceptions of the other superpower's threats appear the most promising as paradigmatic indicators. On balance the years 1970 to 1986 show a significant presence of compellence in these key areas.

3. Correlation of Nuclear Forces

The analysis of the correlation of nuclear forces reflects a belief in each superpower that the balance of forces does in fact matter, perhaps to a significant degree. If the nuclear future continues to offer neither use of nuclear weapons nor disarmament as has been the case during this period,³⁴ then both deterrence and compellence will probably continue as determinants of nuclear strategy. Through the medium of the correlation of nuclear forces model in chapters seven to nine, the compellent paradigm clearly explained more fully the development of superpower nuclear force structure from 1970 to 1986. The quantity, quality and the expected combat ability of nuclear strategic systems all proved useful aids to the identification of compellence.

Deterrence does not require a power advantage as a necessary nor sufficient condition to work, but to be successful compellence usually does.³⁵ Should a clear nuclear disparity arise, it became increasingly accepted that the stronger would be able to act strongly and the weaker

³⁴ Michael Mandelbaum, The Nuclear Future (London: Cornell University Press, 1983), p. 121.

³⁵ Frank C. Zagare, The Dynamics of Deterrence, p. 176.

must act with great circumspection.³⁶ The correlation of nuclear forces model, therefore, not only represents a significant Soviet view at an important time, but it also graphically illustrates, albeit in a rough order-of-magnitude fashion, the tendency of each superpower to enhance its strategic position vis-à-vis the other.

What this model in fact demonstrates is a tendency for each superpower to accept the combat utility of a given weapon system as apparent justification for its construction. This process has also been labelled "nuclearism" by one author who further describes it as a commitment to possess large numbers of increasingly refined nuclear weapons that is "rooted in the statist politics of the survival of the fittest."³⁷ Although this whole evolution has been for the most part justified under the rubric of deterrence, according to Colin Gray, the concept of mutual deterrence has not been the primary determinant of nuclear strategy in either superpower.³⁸ The evidence from the correlation of nuclear forces model tends to support the contention that a situation of mutual deterrence through assured destruction exists in spite of the superpower competition to find strategic advantage.

4. Implications of The Paradigmatic Analysis

Although significant ambiguity exists in declaratory nuclear

³⁶ David C. Gompert, "Strategic Deterioration: Prospects, Dimensions and Responses in a Fourth Nuclear Regime," in David C. Gompert, et al., Nuclear Weapons and World Politics: Alternatives for the Future (New York: McGraw Hill, 1977), p. 297.

³⁷ Philip K. Lawrence, Preparing For Armageddon: A Critique of Western Strategy (Sussex: Wheatsheaf Books, 1988), p. 12. This author is in the deterrent paradigm and is highly critical of Reagan's strategy.

³⁸ Colin S. Gray, "SDI's Effects on East-West Relations," in Dorinda G. Dallmeyer, The Strategic Defence Initiative: New Perspectives on Deterrence, (London: Westview Press, 1986), p. 83. Gray is highly critical of deterrence strategy.

strategy, the operational nuclear strategies, as evidenced by superpower nuclear force structures, appear specifically designed to support compellent as well as deterrent policies. Notwithstanding the strong compellent tendencies from 1970 to 1986, however, there remains some evidence that the strategic competition was being conducted within certain limits to avoid provoking a rival superpower reaction.

The notion of restraint is evidenced by the relatively small percentage of funds, in relation to overall defence budgets, spent on strategic forces. Each could devote much more funding to its strategic forces if it wished to do so. There are also clear limits to the feasible degree of flexibility in strategic war planning, which may have already been reached.³⁹ There are still serious arms control negotiations on strategic weapons that to some degree imply a desire to stabilize this nuclear competition. These negotiations and restraints do modify the strategic competition somewhat such that neither pure deterrence nor pure compellence determines the strategic interaction.

One key finding that helps account for the discrepancy between declaratory and operational nuclear strategy is the fact that military officers tend to reflect the compellent thought process in each superpower. Military officers appear to consistently value war fighting systems in order to obtain the advantages necessary to enforce one's will in combat. It may be that political leaders tend to deterrent explanations and rationalizations, but the military officers who eventually may be required to use these weapons have been consistently trained to seek victory in war. During the SALT process Kissinger commented that

³⁹ Stephen J. Gimballa, "The SIOP: What Kind of War Plan?" Air Power Journal (Summer 1988), pp. 8-9.

both sides have to convince their military establishments of the benefits of [arms control] restraint, and that is not a thought that comes naturally to military people on either side.⁴⁰

It may be that some individuals see nuclear strategy from a perspective more accurately described by the deterrent paradigm, but others view it from a compellent perspective. Thus it is possible that some military, industrial and other elites with a primarily compellent perspective could exert significant influence on military requirements, the resultant procurement decisions, and ultimately the implementation of nuclear strategy. This hypothesis warrants future research, but there are significant indications that to some degree, this may be the case.

Another explanation for the ambiguity in nuclear strategy is that it is designed to conceal something. In the United States various administrations have established the present nuclear forces to ensure deterrence of a Soviet threat, thereby perhaps deliberately downplaying their offensive or compellent functions.⁴¹ The Soviet Union appears to have made a significant shift in declaratory strategy towards deterrence, but it has not yet let up in any strategic nuclear construction programmes that tend to give it a compellent advantage.

The ambiguity in strategy fuels the suspicions of the other side, and arms control becomes a political forum wherein it becomes exceedingly difficult to establish accepted rules of behaviour. The paradigmatic framework provides sufficient tools of analysis to identify the extent of compellence in nuclear strategy, and it can be applied to statements, acts, policies or even arms control proposals. The clear evidence of

⁴⁰ Henry Kissinger, "News Conference at Moscow, July 3," Department of State Bulletin vol. 71 (July 29, 1974), p. 216.

⁴¹ Edward A. Kolodziej, "Nuclear Weapons in Search of a Role: Evolution of Recent American Strategic Arms Control Policy", p. 7.

compellent thinking indicates that compellent and deterrent motivations exist in each superpower's nuclear strategy, making the compellent paradigm the more appropriate explanation.

III. SUPERPOWER NUCLEAR STRATEGY - AN ASSESSMENT

Each superpower has displayed tendencies to compellence that are difficult to explain by the accepted or dominant deterrent paradigm. This section will review the key findings and conclusions of this dissertation with respect to the United States and the Soviet Union 1970 to 1986.

1. The United States

In the early 1970's the United States had a significant correlation of nuclear forces advantage, but the deterrent paradigm seemed to dominate nuclear strategy. Arms control talks and détente appeared to many to be leading to a better world where mutual vulnerability would provide a stable strategic relationship. At that time the American operational nuclear planning envisaged the use of tactical nuclear weapons and the consequent threat of uncontrolled escalation as the primary means of deterring the Soviet Union, but at the strategic level no significant flexibility existed. Any American resort to strategic nuclear weapons, its ultimate deterrent, would be massive in scale to guarantee assured destruction of the Soviet Union.

As soon as Nixon came into office as president, he realized the appalling nature of the American choice and began work on more selective options. By 1974, National Security Decision Memorandum 242 provided for a greater variety of options for retaliation using the existing nuclear forces. The trend toward greater flexibility of strategic targeting continued under Carter, and his Presidential Directive 59 sanctioned the

growing desire to build counterforce capable weapons to defeat hardened Soviet ICBM silos and underground command bunkers. Reagan's National Security Decision Document 13 went even further by seeking to prevail in a protracted nuclear war, and by 1986 arms control had almost degenerated into a propaganda exercise for political purposes. Throughout this evolution from deterrence toward compellence, American nuclear targeting strategy focused primarily on military targets, but it was not until the late 1970's that the American technical efforts permitted immediate counterforce applications.

American strategic culture not only permitted but may in fact have encouraged the embracing of technology as the most appropriate means of solving strategic problems. According to one Soviet analyst, the United States' acceptance of nuclear weapons was equivalent to a theology, and this belief drove the United States to seek a more active nuclear strategy in the attempt to solve political problems.⁴² Although the United States was clearly disturbed by Soviet strategic construction programmes, a certain degree of technological momentum marked American acceptance of increasingly sophisticated nuclear systems.⁴³ To support this greater degree of sophistication, defence spending on strategic systems increased steadily and significantly from 1976 to 1986.

Increasing the sophistication of weapon systems created greater obstacles for arms control negotiators, and from SALT I through SALT II

⁴² Henry Trofimenko, "The Theology of Strategy," Orbis 21 (Fall 1977), p. 497.

⁴³ Technological progress on both sides has been steady, incremental and symmetrical. Although it is an important factor, it does not appear sufficient in itself to account for the degree of compellence in superpower strategy. See Eugene B. Skolnikoff, "The Technological Factors Shaping East-West Relations," in Stephen F. Larrabee, ed., Technology and Change in East-West relations (Boulder, Colorado: Westview Press, 1988), p. 36.

to START, the United States placed great faith in its technology, refused to negotiate away its advantages and pressed for Soviet concessions in areas that would improve the correlation of nuclear forces from an American perspective. The deterioration of political relations helped fuel the American drive to regain its previous nuclear advantage, and it contributed toward significantly increased compellent tendencies. The steady shift in the correlation of nuclear forces to a significant Soviet advantage occurred from the mid 1970's until the early 1980's, and it probably contributed to the United States' decision to undertake new strategic programmes. In 1970, when the United States had an eight to one correlation advantage (C-4), its forces appeared designed to attack only soft targets. By 1986, however, the United States had fielded a larger and more flexible nuclear force structure that was increasingly hard target capable and appeared designed to support compellence, not deterrence. Harold Brown offers an explanation:

behaviour in periods of tension can be (and in my judgement is) influenced by the nature of the strategic capabilities and the relative balance of strategic forces, even if the use of those strategic forces is very unlikely.⁴⁴

The NATO alliance appears to have had a marginal impact on American strategic weapons procurement, but the influence it does exert appears mixed. NATO strategy 1970-1986 was to deter any Soviet attack by threatening first use of nuclear weapons to compel a change in Soviet behaviour. In Europe, the major concern is to maintain a credible link to American strategic weapons so that deterrence is maintained and the threat of limited war in Europe is minimized. Nuclear weapons in the Alliance are mostly American and are targeted on military forces such that they

⁴⁴ Harold Brown, Thinking About National Security: Defence and Foreign Policy in a Dangerous World (Boulder, Colorado: Westview Press, 1983), p. 51.

also have a war fighting function. In operational strategy the NATO situation thus creates a requirement for compellent war fighting systems even though the primary objective of the Alliance is deterrence.

Overall, United States nuclear strategy from 1970 to 1986 displays many characteristics of both deterrence and compellence, but in particular the analysis of arms control negotiations and actual nuclear force structure improvements display a significant and steadily increasing propensity to compellent thinking throughout this period. United States leaders, according to George Kennan, have established a self fulfilling prophecy by talking and acting for years "as though the balance of military power was the only significant factor determining the future of Soviet-American relations."⁴⁵ Although American declaratory strategy continues to emphasize its deterrent aspects, the compellent paradigm appears to offer an increasingly appropriate account of American operational nuclear policy and deployment. In 1986 the United States appears to have a significantly greater number of leaders who may find themselves intellectually more comfortable with the compellent paradigm than it had in 1970.

2. The Soviet Union

Soviet nuclear strategy in 1970 appeared to be based on achieving deterrence through defence, and senior military leaders appeared to entertain the notion that nuclear war, as any war, could be won or lost. The primary Soviet strategic requirement was to deter the United States from resorting to nuclear weapons in spite of a significant American correlation of nuclear forces advantage and at the same time to support an

⁴⁵ George F. Kennan, The Nuclear Delusion: Soviet-American Relations in the Atomic Age (New York: Pantheon Books, 1983), p. xxvi.

ideologically motivated and assertive Soviet foreign policy.

The analysis of Soviet strategic culture shows strong support for the war fighting function in nuclear strategy not because it is felt that nuclear war can easily be won, but because the possibility of fighting with nuclear weapons does exist and therefore must be accounted for in strategic planning. Soviet strategy included maintaining an offensive capability supported by a favourable conventional correlation of forces in Europe in order to maintain political control of East Europe, to apply some pressure to encourage greater West European accommodation to Soviet interests, and to ensure that should war occur that it would not be fought again on Soviet soil. Nuclear weapons supported this strategy and the regarding of nuclear war as another form of traditional war implied significant elements of compellent thinking in Soviet strategy in spite of its poor correlation of nuclear forces at the time.

Soviet operational and declaratory nuclear strategy evolved from 1970 to 1986, but, contrary to the American experience where both declaratory and operational strategy drifted to varying degrees towards compellence, in the Soviet Union they took contradictory paths. Soviet declaratory strategy has drifted increasingly towards using deterrent rhetoric in spite of the fact that the

qualitative change in the correlation of forces has granted a new primacy to the Soviet Union, not only in the communist movement, but in world politics generally.⁴⁶

Since Brezhnev's speech at Tula in 1977, the year Brezhnev was appointed Marshal of the Soviet Union and a civilian made Soviet minister of defence, Soviet political leaders have emphasized the fact that nuclear war would have no winner, only losers. By 1982 the Soviet Union

⁴⁶ R. Judson Mitchell, Ideology: Contemporary Soviet Doctrine on International Relations (Stanford, California: Hoover Institution Press, 1982), p. 116.

officially affirmed that it would never be the first to use nuclear weapons and in 1983 the Soviet military chief of staff who had objected to these pronouncements was removed from Moscow. The events of the Reykjavik conference and the INF Treaty provided further indications that Soviet nuclear strategy may in fact be changing. Other indications that could support a deterrent explanation to Soviet strategy included the slowing of growth in Soviet defence spending and the apparent rejection of limited nuclear war.⁴⁷

Other indications, however, demonstrated that significant compellent tendencies remained. In arms control, while it appeared on the surface that the Soviet Union had accepted mutual vulnerability and stability by accepting SALT I and agreeing to curtail strategic defences, the Soviet motives were probably quite different. SALT I sanctioned a significant quantitative Soviet offensive advantage and appeared to permit every strategic force structure improvement that the Soviet Union had planned. During SALT II and START the Soviet Union significantly improved its nuclear forces while insisting on a political arms control agreement that would continue to allow an advantageous correlation of nuclear forces.

Warsaw Pact, or rather Soviet, strategy in Europe also had significant compellent aspects. Although the primary objective of Soviet nuclear strategy in Europe was to deter NATO from resorting to nuclear weapons, operationally, the Soviet military long considered pre-emption as the best way to fight with nuclear weapons. Consequently Soviet nuclear strategy sought first effective use of nuclear weapons in war. From 1970

⁴⁷ After 1988, Soviet defence spending has actually been cut, and in 1987 the Soviet Union/Warsaw Pact adopted the defensive doctrine of "reasonable sufficiency." See "The Foreign Policy and Diplomatic Activity of the USSR" (April 1985 - October 1989), International Affairs (January 1990), pp. 18-26. So far these changes have not had any effect on strategic weapons.

to 1986 the Soviet military held and increased a significant advantage in long range theatre nuclear weapons which implied Soviet escalation dominance and at the same time supported a pre-emptive strategy. The 1987 INF Treaty has only reduced this advantage not eliminated it, but at the same time it removed a major threat to the Soviet strategic correlation of nuclear forces.

NATO Pershing II missiles were judged by the Soviet Union to be capable of destroying hard targets in Moscow within ten minutes of launch, giving the Soviet leadership less than five minutes warning time of a nuclear attack. Given that the SRF and the KGB appear to have a dual key launch arrangement, a good possibility existed that the central leadership could be effectively, if temporarily, incapacitated or destroyed.⁴⁸ This spectre could result in an American first strike being able to neutralize most if not all Soviet strategic defences, attack Soviet ICBM's in their silos and allow superior American submarines a period of time to destroy those SSBN's at sea. In short the Pershing II, in conjunction with MX, Trident II and SDI threatened to alter drastically the correlation of nuclear forces to the detriment of the Soviet Union.⁴⁹

In the Brezhnev era, it is highly probable that correlation of forces analysis of some sort drove Soviet strategic thinking. The correlation of nuclear forces analysis suggests that Soviet operational nuclear strategy, as opposed to declaratory policy, was designed primarily to fight. From

⁴⁸ The Pershing II threatened to destroy the preferred Soviet launch on warning strategy. See Robert S. McNamara, The Military Role of Nuclear Weapons: Perceptions and Misperceptions. ACIS Working Paper 45 (Los Angeles: Center for International and Strategic Affairs, 1984), p. 35.

⁴⁹ Soviet military leaders remain concerned over U.S. objectives. See Major General Alexei Slobodenko, "The U.S. Military Doctrine: Reliance on Force," International Affairs (September 1987), pp. 38-46.

1970 to 1986 strategic nuclear forces have gained a tremendous degree of hard target kill capability, targeting flexibility and survivability. By deliberate policy the Soviet Union designed, developed and deployed a nuclear force structure that completely reversed the correlation of nuclear forces within ten years.

While Soviet declaratory nuclear strategy appeared increasingly deterrent in nature, Soviet operational strategy remained primarily compellent. Even so at least one analyst believes that Soviet strategic policy can be explained in terms of deterrence in spite of the fact that Soviet strategy seeks to achieve deterrence through war fighting and damage limitation concepts.⁵⁰ The Soviet Union appears increasingly able to accept the fact that mutual deterrence obtains, but it does not embrace it as a firm foundation for strategy. The powerful Soviet force construction and significant compellent tendencies in all aspects of strategic policy demonstrated that, although deterrence was important, the compellent paradigm better described Soviet nuclear strategy.

3. The Competition of Unengaged Military Strategies

The deterrent and compellent paradigms are artificial constructs that have different requirements in theory to effect their desired consequences. The preceding analysis demonstrated that significant elements of deterrence and compellence appeared in superpower nuclear strategy as it was practised from 1970 to 1986. As compellence generally requires a significant advantage and its demands for nuclear forces are theoretically higher, a force structure designed to compel can also deter, whereas a force structure designed to deter may not necessarily and

⁵⁰ Dennis Ross, "Rethinking Soviet Strategies Policy: Inputs and Implications," in Wolfram F. Hanreider, ed. Arms Control and Security: Current Issues (Boulder, Colorado: Westview Press, 1979), pp. 138-146.

probably will not be able to compel. Therefore it seems clear that the compellent paradigm and the correlation of nuclear forces model provide far more suitable tools to analyze nuclear strategy.

Both the Soviet Union and the United States appear to have paid close attention to the correlation of nuclear forces in one way or another. The compellent paradigm offers a powerful explanation of each superpower's calls for a nuclear freeze and the Soviet official declaration of no first use. Each initiative occurred at a time when the initiator had recently achieved what appeared to be the most advantageous correlation of nuclear forces in years and faced the prospect of a declining correlation of nuclear forces in subsequent years.⁵¹ Each superpower also appears to hold a slightly more relaxed attitude toward the other power when it has a significant correlation of forces advantage; ie. the United States in the early 1970's and perhaps the Soviet Union in the late 1980's. But when each superpower sees the other developing nuclear systems that threaten to give them a significant correlation of forces advantage, each tends to assume the worst of its opponent.

The increasing competition in arms control from 1970 to 1986 demonstrated that, even in what is designed to be a cooperative forum, each superpower was engaged in a competition of unengaged military strategies. Deterrence simply cannot properly account for this process, but compellence does. The difference between declaratory and operational nuclear strategy confuses the issue by creating significant ambiguity as real capability and apparent intentions diverge. The correlation of forces model reveals these tendencies in a comprehensive and dramatic fashion, and the compellent paradigm more accurately portrays the reality

⁵¹ For the United States the date was 1963 and for the Soviet Union the date was 1982.

of superpower nuclear strategy.

IV. FUTURE APPLICATIONS

The powerful degree to which compelling thinking appears to have penetrated superpower nuclear strategy raises important and fundamental questions that time and space limitations have precluded from this dissertation. It implies a paradigm of domination that could lead to a dangerous diversion of potential resources from investment or even to violence.⁵² To determine how and why this has occurred requires further research. The most important question however may be to what degree compelling thinking would affect a superpower crisis.

In periods of extreme tension, the way leaders and their key advisors think will to a large extent determine how a given crisis unfolds. In the Cuban missile crisis, for example, it now appears that the top American politicians and military leaders held significantly different views as to how to proceed. Kennedy and McNamara appeared to reflect primarily deterrent thinking, but the Joint Chiefs of Staff tended to mirror compelling thought "to rub in Soviet inferiority."⁵³ The more that leaders and their advisors share a compelling view of the world, the more prone that nation may be to compelling action in a crisis. The degree of compellence evident in superpower strategy has grave implications for crisis stability, especially considering that nuclear strategy has not accounted for war termination.

The disturbing nature of these implications may have already been

⁵² See Lloyd J. Dumas, "The Promise of Economic Conversion," in Lloyd J. Dumas and Marek Thee, eds., Making Peace Possible: The Promise of Economic Conversion (Oxford: Pergamon Press, 1989), p. 253. See also Paul Kennedy, The Rise and Fall of the Great Powers (New York: Random House, 1987), pp. xvi - xxiii.

⁵³ See New York Times Magazine, 30 August 1987, pp. 24-61.

recognized, and they may in part account for the increasing momentum toward using conventional weapons only. After the shock of Cuba, the frequency and the severity of nuclear threats has been less, and a general decline in actual nuclear coercion may have occurred.⁵⁴ Because this tendency is not reflected in nuclear force construction in either superpower, its meaning is not yet clear.

Perhaps technological momentum is still a major force behind the degree of compellence found in nuclear strategy. Technology is seldom questioned for it has become the organizing principle of our age.⁵⁵ In fact many believe that in the realm of strategy, we tend to focus unduly on the technological aspects rather than on those regions of human understanding based on our knowledge of social development, cultural diversity and patterns of behaviour.⁵⁶

The correlation of nuclear forces model certainly focuses on the technological nature of modern strategy, but it also highlights an important pattern of human behaviour. It provides a more comprehensive standard to measure the nuclear relationship, and it can be extremely useful in revealing or assessing the thinking behind proposed additions to nuclear forces or specific arms control proposals. The potential impact of a given arms control proposal could in fact be plotted on the various correlation of nuclear forces charts, and thus its real impact could be more readily demonstrated. This model could also be used to conduct mathematical sensitivity analysis to determine the most important

⁵⁴ Richard K. Betts, Nuclear Blackmail and Nuclear Balance, pp. 180-181.

⁵⁵ Tom Darby, "Reflections on Technology," in Tom Darby, ed. Sojourns in the New World (Ottawa: Carleton University Press, 1986), p. 20.

⁵⁶ Michael Howard, "The Future of Deterrence," RUSI Journal 131 (June 1986), p. 10.

strategic variables in a given situation. In this way strategic force improvements can be optimized to obtain the best pay off in terms of the correlation of forces. No doubt a version of this model was probably used in the Soviet Union, 1970-1986.

Compellence is probably playing a much larger role in shaping reality than heretofore recognized, and knowledge of that fact will allow analysts to better deal with the nuclear dilemma. As long as nuclear weapons are considered military weapons and dispersed throughout armed forces, and those armed forces are increasingly capable of fighting nuclear wars, the operating strategic paradigm is critically important. Deterrence and compellence may not be as distinct as theory once postulated. Their subtle interrelationship means that, in practice, all those working within the deterrent paradigm may share an incomplete view of a fundamental problem confronting man. As compared to the deterrent paradigm, the compellent paradigm better explains the reality of nuclear force construction, the ambiguity in current nuclear strategy and the imbroglio in strategic arms control during the late 1970's and 1980's.

Annex A The Methodology Used in Calculating the
Correlation of Nuclear Forces

I. THE CORRELATION OF NUCLEAR FORCES MODEL

The correlation of nuclear forces calculations needed in this study are based on Anureyev's equation:

$$C = C_0 \frac{\sum_i U_i \times P_i \times S_i}{\sum_j U_j \times P_j \times S_j}$$

where

C = the correlation of nuclear forces,

C₀ = the initial ratio of total EMT of country i over the total EMT of country j with all weapon systems summated,

U = the fraction of a given country's EMT that is carried by a given type of weapon system,

P = the probability that a given type of weapon system will successfully penetrate the other country's defences and reach its target, and

S = the probability that a given type of weapon system would survive an attack upon it.

Since C₀ in itself is not terribly important other than for historical reference, this equation can usefully be reduced and expressed as follows:

$$C = \frac{(n_{ia} + n_{ib} \dots) [U_{ia} \times P_{ia} \times S_{ia} + U_{ib} \times P_{ib} \times S_{ib} \dots]}{(n_{jc} + n_{jd} \dots) [U_{jc} \times P_{jc} \times S_{jc} + U_{jd} \times P_{jd} \times S_{jd} \dots]}$$

or

$$C = \frac{\sum_i n_i (EMT_i) \times P_i \times S_i}{\sum_j n_j (EMT_j) \times P_j \times S_j}$$

where n represents the number of a given weapon system, and a, b, c, d represent specific types of weapon systems in each country. Each weapon system for each country must be calculated independently as each will have different values. Within each country the resultants for each weapon systems are added and the final ratio expresses the correlation of nuclear forces. This formula can be derived from Anureyev's original formula, or it can be derived from first principles.

Since ICBM's, SLBM's and bombers all have different strategic problems to overcome, the calculations for each vary somewhat. ICBM survivability is a function of the opposing side's prompt hard target kill capability, thus bomber or ALCM attacks could not be used effectively against ICBM silos. Bombers have the largest difficulty in penetrating to their targets, but depend on adequate early warning for their survivability. SSBN's must be able to withstand specific enemy ASW operations in their patrol areas to survive in combat. Differentiated and detailed calculations are therefore necessary to determine reasonable probabilities of penetration and survival for each specific weapon type. As noted in chapters seven and eight, in this study many judgments had to be made based on the unclassified evidence.

II. ASSUMPTIONS

1. The numbers of weapons systems and their respective yields were derived from standard open sources, the major sources being listed at the

end of this Annex. Reliability, availability and accuracy were also compiled or interpolated from the same open sources.

2. Bias is assumed to not be a significant factor. As noted in chapter seven, because polar trajectories have never been actually attempted, this assumption is not without controversy.¹ Complex mathematical formulae have been developed that defence experts believe result in a rough order of magnitude error of about 15 feet, an error of minimal strategic significance.² Both the United States and the Soviet Union have invested a great deal of effort to make ICBMs as accurate and as precise as possible, and recent technical studies have indicated that bias is not a serious problem.³ One factor that mitigates accelerometer errors (bias) is the increased ability to update INS systems after the boost phase. Thus for the modern missiles fielded in the late 1970's and 1980's, midcourse updates can correct most bias errors. For older systems, their counterforce potential was so low that even if the bias error was significant, the impact on the correlation of nuclear forces calculations would be negligible.

3. New systems or modifications were introduced over a span of 3 years unless more specific information was available.

4. All command and control targets in missile fields were hardened to at least that of the hardest missile silo in that field.

¹ See J. Edward Anderson, "First Strike: Myth or Reality," Bulletin of the Atomic Scientists 37 (November 1981), pp. 6-11.

² General Robert T. Marsh, "Strategic Missile Accuracy: We Do Know," Strategic Review 10 (Spring 1982), pp. 35-37.

³ For a scientific assessment, see T.M. Eubanks, "Developments in Geodesy and the Accuracy of Strategic Weapons," in Dietrich Schroer and David Hafemeister, eds. Nuclear Arms Technologies in the 1990's (New York: AIP Conference Proceedings 178, 1989), pp. 316-340. For a useful assessment of Soviet developments, see Donald MacKenzie, "Soviet Union and Strategic Missile Guidance," International Security (Fall 1988), pp. 5-54.

5. The respective bomber and SSBN forces could be covered by attacking 50 American targets, or 20 Soviet targets.
6. The Soviet Union has 330 nuclear command and control targets and attacks on them are .5 effective due to interconnectivity and redundancy.
7. The United States has 110 nuclear command and control targets and attacks on them are 1.0 effective due to fragility of ground based command and control systems.
8. To calculate exchange models, the highest CMP or K value was targeted on highest overall K value SNDV to optimize counterforce exchange rates.
9. The SS-N-18 warhead yields were undetermined at the time of calculation. This study used those yields allocated by John M. Collins.
10. Since SSBN's can launch independently, the destruction of communications to them in nuclear war had no immediate impact on the correlation of nuclear forces.
11. The scientific revelations of nuclear winter have had no significant bearing on superpower nuclear strategy 1970-1986. Since the nuclear winter theory was only introduced in 1984, it could have had no impact whatsoever prior to that date.⁴ In fact this theory initially was met with certain skepticism, and considerable debate ensued as to the degree of its likely veracity. After intense scientific review and after the 1987 disaster at Chernobyl, however, there is now general acceptance that even a controlled intercontinental nuclear exchange would contaminate vast areas and result in at least some major climatic effects that together

⁴ R.P. Turco, et al, "Nuclear Winter: Global Consequences of Multiple Nuclear Explosions," Science 222 (23 December 1983), pp. 1283-1292. This is the original article referred to as TTAPS after the first letter of the authors names. By fall of 1984 this concept had been given "some" attention in both superpowers. See Carl Sagan, "We Can Prevent Nuclear Winter," Parade Magazine (30 September 1984), p. 35.

would cause a significant reduction in world food production.⁵

III. METHODOLOGY

1. Data collection. The first step was to compile all data available from open sources on Soviet and American delivery systems for a given year (annexes B, C, D, E, H, J and K).
2. Lethality. SSKP and survivability probabilities are calculated to indicate which system could best destroy which target. To determine ICBM survivability or lethality against various hard targets, the formula derived from the General Electric calculator described in chapter seven was used.
3. Exchange model. An exchange model was created whereby each side covered the opposing target array with at least one but optimally two warheads per target. Some SNDV's were to be launched, others to be held in reserve.
4. Overall T_{KP} for each missile target was calculated using the above data. OAR and SSKP values were used to determine T_{KP} as follows:

$$\text{overall } T_{KP} = T_{KP_1} + (1 - T_{KP_1}) T_{KP_2}.$$

5. Survivability, penetration and command and control factors were calculated, and these factors were used to determine the adjusted number of surviving systems on each side should an exchange take place.
6. The EMT that would remain as surviving residuals was calculated.

⁵ See Michael C. MacCracken, "The Environmental Effects of Nuclear War," in Dietrich Schroer and David Hafemeister, eds. Nuclear Arms Technologies in the 1990's, pp. 1-18. Soviet scientists also support this conclusion. See Alexander Bovin's, very good article "New Thinking is the Imperative in the Nuclear Age," Social Sciences 18 (No 3, 1987), p. 166.

7. The correlation of nuclear forces baseline C-1 was completed using Anureyev's formula, assuming the exchange model would be actioned on both sides simultaneously. All forces are treated as residuals for the C-1 calculation.

8. Calculate USSR first strike. Soviet portion of exchange model is actioned while United States forces are withheld. Remaining Soviet forces and surviving American forces are determined. A new exchange model is calculated as steps 2-7 are repeated, and a new correlation of nuclear forces after a Soviet attack is calculated (C-2).

9. Calculate U.S. first strike. The United States portion of the initial exchange model was actioned while Soviet forces were withheld. Remaining American forces and surviving Soviet forces were determined. A new exchange model was created and steps 2-7 were repeated. The new correlation of nuclear forces after an American first strike was calculated (C-3).

10. Calculate mutual exchange. The initial exchange model was actioned by each superpower simultaneously. Surviving weapons on each side were then determined and a new exchange model was created. Once more, steps 2-7 were repeated to produce the new correlation of nuclear forces that would exist after a mutual strategic exchange (C-4).

11. This procedure was repeated for each year 1970-1986.

IV. KEY SOURCES FOR DATA

In many respects, data for this study has been based on most of the bibliography. A wide variety of sources have therefore been used for the compilation of all data in the following annexes. Only the most important sources are listed below:

William M. Arkin and Richard W. Fieldhouse, Nuclear Battlefields: Global Links in the Arms Race (Cambridge, Massachusetts: Ballinger Publishing Company, 1985).

Robert P. Berman and John C. Baker, Soviet Strategic Forces: Requirements and Responses (Washington: Brookings Institution, 1982).

Thomas Cochran, William Arkin and Milton M. Hoenig, Nuclear Weapons Databook: United States Nuclear Forces and Capabilities Vol. 1 (Cambridge, Massachusetts: Ballinger Publishing Company, 1984).

John M. Collins, U.S.-Soviet Military Balance, 1980-1985 (Washington: Pergamon Press, 1985).

John M. Collins, U.S.-Soviet Military Balance: Concepts and Capabilities, 1960-1980 (Washington: USGPO, 1980).

John M. Collins, Imbalance of Power: An Analysis of Shifting U.S.-Soviet Military Strengths (London: Presido Press, 1978).

International Institute for Strategic Studies, The Military Balance (London: International Institute for Strategic Studies, various years).

William Martel and Paul L. Savage, Strategic Nuclear War: What the Superpowers Target and Why (London: Greenwood Press, 1986).

Soviet Military Power (Washington: USGPO, various years).

Barton Wright, World Weapon Database: Volume 1 Soviet Missiles (Toronto: Lexington Books, 1986).

NOTE: Due to the rounding off process some of the totals in some of the charts do not appear to add up. All figures were originally calculated to two decimal places and then rounded off to the nearest whole number to simplify presentation.

ANNEX B: UNITED STATES STRATEGIC NUCLEAR DELIVERY VEHICLES 1970-1986

YEAR	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86
ICBM																	
TITAN 2	54	54	54	54	54	54	54	54	54	54	52	52	49	40	30	24	
MM 1	490	390	290	140	21												
MM 2	500	500	500	510	450	450	450	450	450	450	450	450	450	450	450	450	450
MM 3	10	110	210	350	529	550	550	550	550	550	473	364	257	250	250	250	240
MM 3 (12A)											77	186	293	300	300	300	300
MX																	10
TOTAL	1054	1054	1054	1054	1054	1054	1054	1054	1054	1054	1052	1052	1049	1040	1030	1024	1000
SLBM																	
POLARIS A2	128	128	128	128	64	32											
POLARIS A3	512	416	336	176	208	176	208	160	160	160	80	16					
POSEIDON	16	112	192	352	384	448	448	496	496	480	416	384	320	304	304	304	256
TRIDENT 1										16	80	112	200	264	288	336	384
TRIDENT 2																	
TOTAL	656	656	656	656	656	656	656	656	656	656	576	512	520	568	592	640	640
BOMBERS																	
B-52 C/F/D	315	225	157	157	117	75	75	75	75	75	75	75	58				
B-52 G	150	180	180	180	180	165	152	151	151	151	151	151	151	151	151	151	151
B-52 H		30	60	60	75	90	90	90	90	90	90	90	90	90	90	90	90
B-1																	19
TOTAL	465	435	397	397	372	330	317	316	316	316	316	316	299	241	241	241	260
TOTAL ALL	2175	2145	2107	2107	2082	2040	2027	2026	2026	2026	1944	1880	1868	1849	1863	1905	1900

SOURCE: SAME AS ANNEX A

ANNEX C: UNITED STATES STRATEGIC WARHEAD TOTALS 1970-1986

YEAR	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86
ICBM																	
TITAN 2	54	54	54	54	54	54	54	54	54	54	52	52	49	40	30	24	
MM 1	490	390	290	140	21												
MM 2	500	500	500	510	450	450	450	450	450	450	450	450	450	450	450	450	450
MM 3	30	330	630	1050	1587	1650	1650	1650	1650	1650	1419	1092	771	750	750	750	720
MM 3 (12A)											231	558	879	900	900	900	900
MX																	100
TOTAL	1074	1274	1474	1754	2112	2154	2154	2154	2154	2154	2152	2152	2149	2140	2130	2124	2170
SLBM																	
POLARIS A2	128	128	128	128	64	32											
POLARIS A3	512	416	336	176	208	176	208	160	160	160	80	16					
POSEDON	160	1120	1920	3520	3840	4480	4480	4960	4960	4800	4160	3840	3200	3040	3040	3040	2560
TRIDENT 1										128	640	896	1600	2112	2304	2688	3072
TRIDENT 2																	
TOTAL	800	1664	2384	3824	4112	4688	4688	5120	5120	5088	4880	4752	4800	5152	5344	5728	5632
BOMBERS																	
B-52 C/F/D	1405	1040	766	444	361	150	150	150	150	150	150	150	116				
B-52 G	800	920	920	980	980	1092	870	884	884	884	884	884	802	802	802	802	802
B-52 H		120	300	480	900	1080	1260	1260	1260	1260	1260	1260	1260	1260	1260	1260	1260
B-52 ALCM G													240	600	1008	1080	1080
B-52 ALCM H																200	600
B-1																	228
TOTAL	2205	2080	1986	1904	2241	2322	2280	2294	2294	2294	2294	2294	2418	2662	3070	3342	3970
TOTAL ALL	4079	5018	5844	7482	8465	9164	9122	9568	9568	9536	9326	9198	9367	9954	10544	11194	11772

SOURCE: SAME AS ANNEX A

ANNEX D: UNITED STATES EMT TOTALS 1970-1986

YEAR	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86
ICBM																	
TITAN 2	162	162	162	162	162	162	162	162	162	162	156	156	147	120	90	72	
MM 1	490	390	290	140	21												
MM 2	610	610	610	622	549	549	549	549	549	549	549	549	549	549	549	549	549
MM 3	9	102	195	326	492	512	512	512	512	512	440	339	239	233	233	233	223
MM 3 (12A)											111	268	422	432	432	432	432
MX																	45
TOTAL	1271	1264	1257	1250	1224	1223	1223	1223	1223	1223	1256	1311	1357	1334	1304	1286	1249
SLBM																	
POLARIS A2	110	110	110	110	55	28											
POLARIS A3	527	428	346	181	214	181	214	165	165	165	82	16					
POSEIDON	19	134	230	422	461	538	538	595	595	576	499	461	384	365	365	365	307
TRIDENT 1										28	141	197	352	465	507	591	676
TRIDENT 2																	
TOTAL	697	673	687	714	730	746	752	760	760	769	722	674	736	829	872	956	983
BOMBERS																	
B-52 C/F/D	1405	1040	766	644	581	217	150	150	150	150	150	150	116				
B-52 G	800	920	920	661	661	698	540	554	554	554	554	554	472	472	472	472	472
B-52 H		120	260	322	504	605	666	666	666	666	666	666	666	666	666	666	666
B-52 ALCM G													48	120	202	216	216
B-52 ALCM H																40	120
B-1																	128
TOTAL	2205	2080	1946	1627	1726	1520	1356	1370	1370	1370	1370	1370	1302	1258	1340	1394	1602
TOTAL ALL	4133	4017	3890	3590	3680	3489	3330	3353	3353	3362	3348	3356	3395	3421	3515	3636	3834

SOURCE: SAME AS ANNEX A

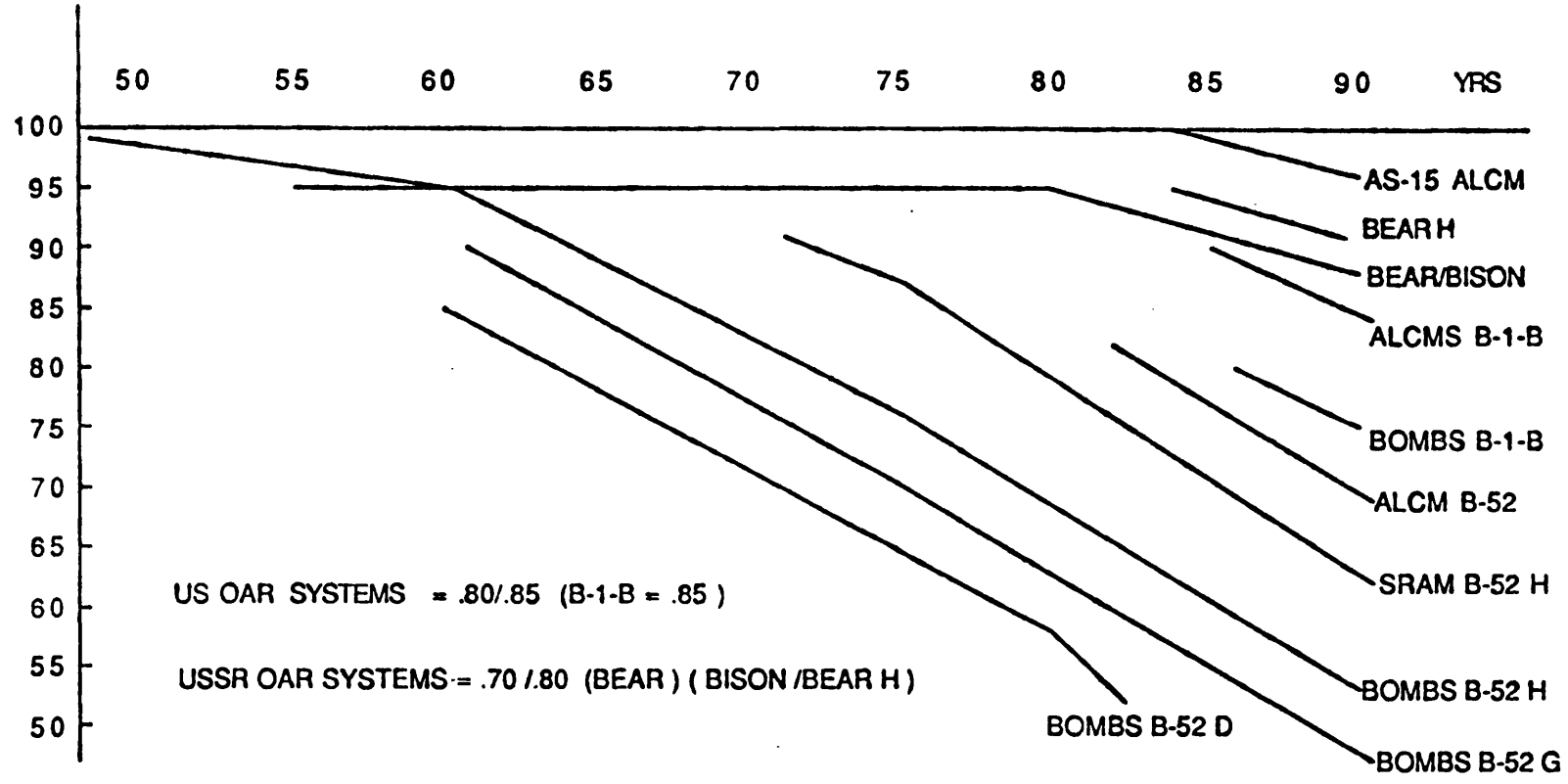
ANNEX E: UNITED STATES BALLISTIC MISSILE DATA

	EMT	YIELD (MT)	CEP (NM)	OAR	CMP	TKP (2000 PSI)
TITAN 2	3.00	9.00	0.80	0.60	6.76	0.09
MM 1	1.00	1.00	0.50	0.70	4.00	0.08
MM 2	1.22	1.50	0.34	0.75	11.34	0.21
MM 3	0.93 (3MIRV)	.17	0.24	0.80	5.33	0.11
MM 3 (NS-20)	0.93 (3MIRV)	.17	0.12	0.80	21.31	0.36
MM 3 (12A)	1.44 (3MIRV)	.34	0.12	0.80	33.48	0.49
MX	4.50 (10 MIRV)	.30	0.05	0.85	179.26	0.85
POLARIS A2	0.86	0.80	0.50	0.70	3.45	0.07
POLARIS A3	1.03	0.20	0.50	0.70	1.37	0.03
POSEIDON C-3	1.20	0.04	0.25	0.75	1.87	0.03
*POSEIDON C-3	1.20	0.04	0.18	0.75	5.20	0.07
TRIDENT 1	1.76	0.10	0.25	0.80	3.45	0.08
*TRIDENT C-4	1.76	0.10	0.15	0.80	9.58	0.19
PERSHING 2	0.14	0.05	0.02	0.85	339.30	0.85
GLCM	0.34	0.20	0.01	0.85	3419.95	0.85

* SLBMS FIRED AT REDUCED RANGE HAVE GREATER ACCURACY

SOURCE: SAME AS ANNEX A

ANNEX F: BOMBER PENETRATION DATA



US OAR SYSTEMS = .80/.85 (B-1-B = .85)

USSR OAR SYSTEMS = .70/.80 (BEAR) (BISON/BEAR H)

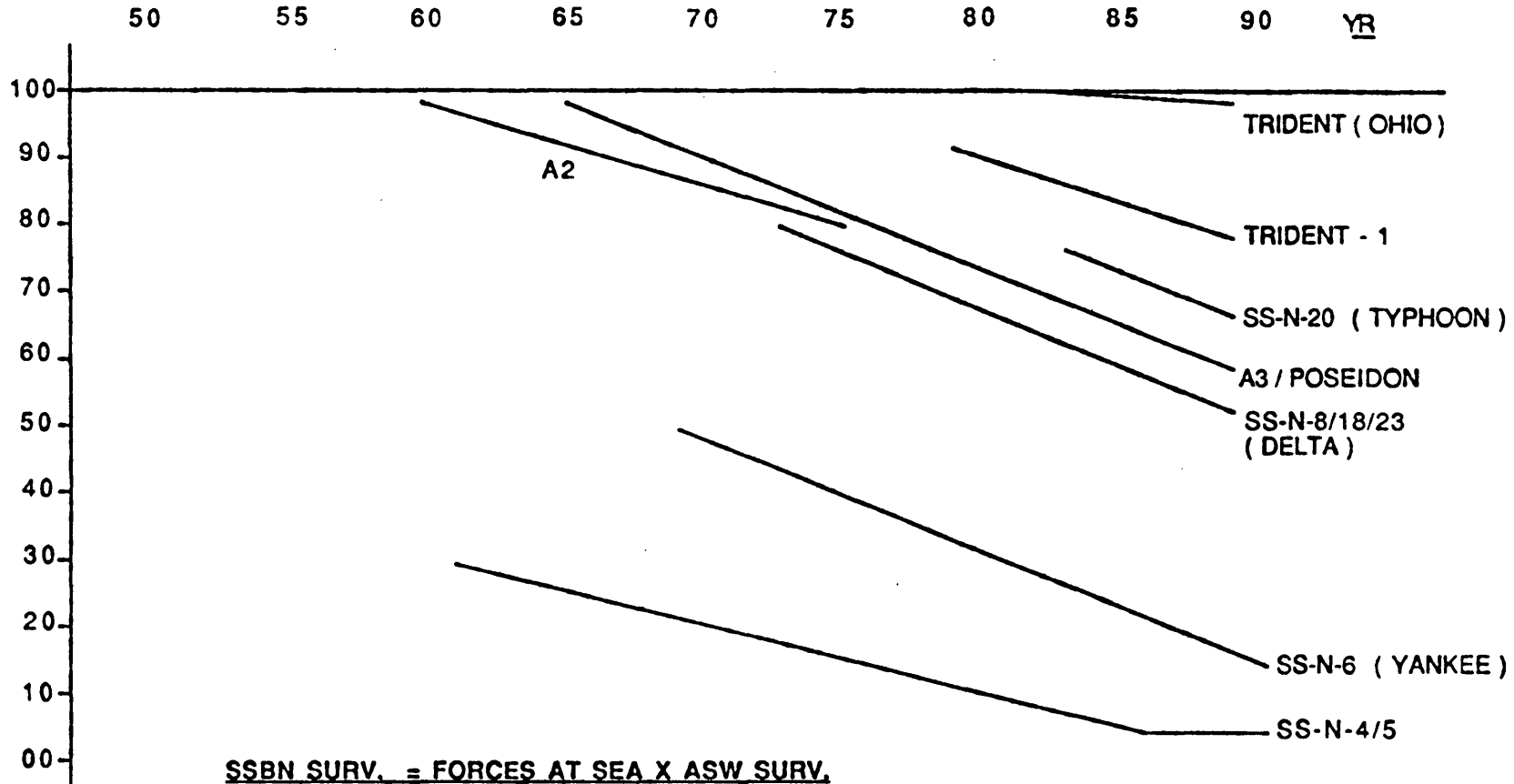
BOMBER SURVIVABILITY DATA

U. S. - ALERT 30% NON GENERATED
80% GENERATED

USSR - ALERT 0% NON GENERATED
80% GENERATED

SOURCE: SAME AS ANNEX A

ANNEX G: ASW SURVIVABILITY DATA



SSBN SURV. = FORCES AT SEA X ASW SURV.

%

US - GENERATED = .85 AT SEA
NON GENERATED = .60 AT SEA

USSR GENERATED = .80 AT SEA
NON GENERATED = .13 AT SEA

SOURCE: SAME AS ANNEX A

ANNEX H: SOVIET STRATEGIC NUCLEAR DELIVERY VEHICLES 1970-1986

YEAR	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86
ICBM																	
SS-7	190	190	190	190	190	190	190	80									
SS-8	19	19	19	19	19	19	19	9									
SS-9	228	270	288	288	288	288	272	208	132	68							
SS-11	800	950	970	970	1018	960	910	850	750	650	640	580	550	520	520	520	448
SS-13	20	40	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
SS-17-1						10	20	50	80	120	130	130	30				
SS-17-2									20	20	20	20	10				
SS-17-3													110	150	150	150	150
SS-18-1/3						10	36	60	36	36	26	26	16				
SS-18-2								40	140	154	162	162	92				
SS-18-4										50	120	120	200	308	308	308	308
SS-19-1						60	100	100	120	160	180	180	80				
SS-19-2								20	60	60	40	40	10				
SS-19-3											20	80	240	360	360	360	360
SS-25																	72
SS-24																	
TOTAL	1257	1469	1527	1527	1575	1597	1607	1477	1398	1398	1398	1398	1398	1398	1398	1398	1398
SLBM																	
SS-N-4	60	60	60	60	60	60	60	60	60	57	57	57	57	45	42	39	39
SS-N-5	21	21	21	21	21	21	15	12	9	3							
SS-N-6	208	320	416	496	528	528	548	532	500	484	468	448	384	368	336	336	304
SS-N-8				12	60	156	220	286	286	292	292	292	292	292	292	292	292
SS-N-17								12	12	12	12	12	12	12	12	12	12
SS-N-18								64	128	150	160	208	224	224	224	224	224
SS-N-20													20	40	60	80	
SS-N-23															16	32	
TOTAL	289	401	487	589	669	765	843	866	995	998	989	1017	969	961	946	979	883
BOMBERS																	
BISON	40	40	40	40	40	45	45	45	45	45	45	45	45	45	45	45	20
BEAR-D	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
BEAR-H															25	25	40
TOTAL	140	140	140	140	140	145	145	145	145	145	145	145	145	145	170	170	160
TOTAL ALL	1686	2010	2164	2256	2384	2507	2595	2588	2538	2541	2532	2560	2512	2504	2514	2547	2541

SOURCE: SAME AS ANNEX A.

ANNEX J: USSR STRATEGIC WARHEAD TOTALS 1970-1986

YEAR	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86
ICBM																	
SS-7	190	190	190	190	190	190	190	80									
SS-8	19	19	19	19	19	19	19	9									
SS-9	228	270	288	288	288	288	272	208	132	68							
SS-11	800	950	970	970	1018	960	910	850	750	650	640	580	550	520	520	520	448
SS-13	20	40	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
SS-17-1						40	80	200	320	480	520	520	120				
SS-17-2									20	20	20	20	10				
SS-17-3													440	600	600	600	600
SS-18-1/3						10	36	60	36	36	28	28	16				
SS-18-2								320	1120	1232	1296	1296	736				
SS-18-4									500	1200	1200	2000	3080	3080	3080	3080	
SS-19-1						360	600	600	720	1080	1080	1080	480				
SS-19-2								20	60	60	40	40	10				
SS-19-3											120	480	1440	2160	2160	2160	2160
SS-25																	72
SS-24																	
TOTAL	1257	1469	1527	1527	1575	1927	2167	2407	3218	4186	5002	5302	5862	6420	6420	6420	6420
SLBM																	
SS-N-4	60	60	60	60	60	60	60	60	60	57	57	57	57	45	42	39	39
SS-N-5	21	21	21	21	21	21	15	12	9	3							
SS-N-6	208	320	416	496	528	528	548	532	500	484	468	448	384	368	336	336	304
SS-N-8				12	60	156	220	286	286	292	292	292	292	292	292	292	292
SS-N-17								12	12	12	12	12	12	12	12	12	12
SS-N-18/2								192	192	192	192	192	192	192	192	192	192
SS-N-18/5									448	602	672	1008	1120	1120	1120	1120	1120
SS-N-20														160	320	480	640
SS-N-23																160	320
TOTAL	289	401	497	589	689	765	843	1094	1507	1642	1693	2009	2057	2189	2314	2631	2919
BOMBERS																	
BISON	40	40	40	40	40	45	45	45	45	45	45	90	90	180	180	180	80
BEAR-D	100	100	100	100	100	100	100	100	100	100	100	200	200	400	400	400	400
BEAR-H															200	200	320
TOTAL	140	140	140	140	140	145	145	145	145	145	145	290	290	580	780	780	800
TOTAL ALL	1686	2010	2164	2256	2384	2837	3155	3646	4870	5973	6840	7801	8200	9189	9514	9831	10139

SOURCE: SAME AS ANNEX A.

ANNEX K: USSR - EMT TOTALS 1970-1986

YEAR	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86
ICBM																	
SS-7	403	403	403	403	403	403	403	170									
SS-8	33	33	33	33	33	33	33	16									
SS-9	1019	1207	1321	1515	1616	1616	1526	1167	741	381							
SS-11	776	903	922	922	1263	1483	1720	1607	1418	1229	1210	1096	1040	983	983	983	847
SS-13	14	28	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43
SS-17-1						28	66	166	266	398	432	432	100				
SS-17-2									40	40	40	40	20				
SS-17-3													277	378	378	378	378
SS-18-1/3						45	181	294	176	176	127	127	78				
SS-18-2								298	1042	1146	1205	1205	684				
SS-18-4										315	756	756	1260	1940	1940	1940	1940
SS-19-1						241	402	402	482	724	724	724	328				
SS-19-2								49	147	147		98	98	25			
SS-19-3											80	322	985	1447	1447	1447	1447
SS-25																	48
SS-24																	
TOTAL	2245	2574	2721	2915	3357	3891	4353	4210	4354	4599	4714	4842	4819	4791	4791	4791	4703
SLBM																	
SS-N-4	60	60	60	60	60	60	60	60	60	57	57	57	57	45	42	39	39
SS-N-5	26	26	26	26	26	26	18	15	11	4							
SS-N-6	173	266	345	412	481	567	690	670	630	610	590	564	484	464	423	423	383
SS-N-8				10	50	129	182	236	236	241	241	241	241	241	241	241	241
SS-N-17								8	8	8	8	8	8	8	8	8	8
SS-N-18								158	158	158	158	158	158	158	158	158	158
SS-N-18-3									153	206	230	345	383	383	383	383	383
SS-N-20														35	70	106	141
SS-N-23																35	70
TOTAL	258	351	431	507	616	782	950	1147	1256	1226	1283	1373	1331	1334	1326	1383	1423
BOMBERS																	
BISON	90	90	90	90	90	101	101	101	101	101	101	146	146	292	292	292	130
BEAR-D	224	224	224	224	224	224	224	224	224	224	224	324	324	648	648	648	648
BEAR-H															80	80	128
TOTAL	314	314	314	314	314	325	325	325	325	325	325	470	470	940	1020	1020	906
TOTAL ALL	2817	3240	3465	3736	4287	4998	5628	5681	5935	6150	6323	6685	6619	7064	7136	7204	7032

SOURCE: SAME AS ANNEX A

ANNEX M: SOVIET BALLISTIC MISSILE DATA

EMT	YIELD (MT)	CEP (NM)	OAR	CMP	TKP (2000 PSI)	
SS-7	2.12	4.50	1.50	0.60	1.21	0.02
SS-8	1.73	3.00	1.00	0.60	2.08	0.04
SS-9/1	4.47	20.00	0.40	0.65	46.05	0.46
SS-9/4	5.61 (3MRV)	3.50	0.40	0.65	14.41	0.52
SS-11/1	0.97	0.95	0.76	0.70	1.67	0.03
SS-11/3	1.89 (3MRV)	.50	0.60	0.70	1.75	0.10
SS-13	0.71	0.60	1.00	0.75	0.71	0.02
SS-17-1	3.32 (4MIRV)	.75	0.24	0.80	14.33	0.27
SS-17/2	2.00	4.00	0.23	0.80	47.63	0.59
SS-17/3	2.52 (4MIRV)	.50	0.20	0.85	15.75	0.31
SS-18/1	4.90	24.00	0.23	0.80	157.28	0.79
SS-18/2	7.44 (8MIRV)	.90	0.23	0.80	17.62	0.32
SS-18/3	4.47	20.00	0.19	0.80	204.10	0.80
SS-18/4	6.30 (10MIRV)	.50	0.14	0.85	32.14	0.51
SS-19/1	4.02 (6MIRV)	.55	0.19	0.80	18.60	0.33
SS-19/2	2.45	6.00	0.16	0.80	128.98	0.78
SS-19/3	4.02 (6MIRV)	.55	0.13	0.85	39.72	0.58
SS-N-4	1.00	1.00	1.50	0.70	0.44	0.01
SS-N-5	1.22	1.50	1.50	0.70	0.58	0.01
SS-N-6/1	0.83	0.75	0.70	0.75	1.69	0.04
SS-N-6/3	1.26 (2MRV)	.50	0.70	0.75	2.58	0.05
SS-N-8	0.83	0.75	0.80	0.70	1.29	0.03
SS-N-17	0.63	0.50	0.75	0.70	1.12	0.02
SS-N-18	2.48 (3MRV)	.75	0.50	0.75	3.53	0.07
SS-N-18/3	2.39 (7MIRV)	.20	0.50	0.75	1.37	0.03
SS-N-20	2.92 (8MIRV)	.22	0.30	0.75	4.05	0.08
SS-N-23	2.20 (10MIRV)	.10	0.26	0.75	3.19	0.07
SS-24	6.30 (10MIRV)	.50	0.10	0.75	63.00	0.64
SS-25	0.67	0.55	0.10	0.80	67.13	0.68

SOURCE: SAME AS ANNEX A

The great number of sources used in this dissertation reflects the attempt to demonstrate the widespread nature of thinking that does not fit comfortably within the deterrent paradigm. Many works can be categorized as appropriate to either the deterrent (Bundy) or compellent approach (Betts), but with others this simplistic delineation does not apply.

In the West, two schools of thought tend to dominate the discussion of superpower nuclear strategy, a liberal-enlightened approach and a strident-ideological one. The key difference between them is their view of the Soviet Union; the former sees the U.S.S.R. as being far more benign than the latter. Each tends to disregard the other, yet both schools have produced major works that, if nothing else, reflect the tremendous ambiguity in superpower plans for nuclear weapon use in war. To a degree, works like those of McGwire and Garthoff reflect a deterrent approach to Soviet military doctrine (peacetime), yet they acknowledge a more complex explanation is needed to account for Soviet military strategy (wartime). Those of the right wing like Kolkowicz and Douglas tend to accept a compellent approach and focus on Soviet military strategy acknowledging that a war fighting force structure begets deterrence.

The main theoretical base for this paradigmatic distinction is provided by Schelling; what he refers to as compellence, George calls coercive diplomacy and Betts calls nuclear blackmail. The concept of trying to achieve some political leverage from some military advantage is not new, but Mandelbaum's reference to "strategic mercantilism" is particularly illuminating.

Some western analysis of deterrence confuses deterrence and compellence by treating them as one thing in the inclusive expression,

deterrence theory (Zagare, Morgan). This invites the conceptual danger wherein those that intend to attack compellence also attack deterrence and those that intend to attack deterrence also attack compellence. At times it is all of deterrence theory that is in fact under attack (Rappoport, Green), but in most cases criticisms are more specific.

It is worth noting that criticisms of deterrence come both from within the paradigm (MccGwire, Jervis) and from outside (Gray, Luttwak). Obviously those attacks from outside are sharper and less subtle, and they tend to recommend rather simplistically either additions to war fighting capability or disarmament. Those from within the deterrent paradigm, on the other hand, criticize the logic of present strategy for the nuclear excess that has created arsenals larger than required to deter.

The United States right wing, epitomized by the Committee on the Present Danger, evokes images of the Soviet Union as being intent on domination. Most Soviet sources, but particularly senior Soviet military writers, portray the United States as seeking to compel the USSR. Both governments' leaders insist that the sole justification for their military forces is simply to deter the other, yet during the 1970-1986 period, each country added significantly to their nuclear arsenals in what amounts to a dual application of the Schlesinger doctrine.

There are literally thousands of sources available that address the nuclear conundrum, much of it repetitive. Those sources selected represent a wide variety of disciplines, and many demonstrate the presence of compellent thinking even though most of it is couched in terms of deterring compellence. Those sources that were particularly useful have been so noted in the text or in the corresponding notes.

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