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national security affairs conference

LONG RANGE US-USSR COMPETITION

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NATIONAL SECURITY IMPLICATIONS

PRC-US-USSR

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STRATEGIC EQUATION

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TECHNOLOGY TRANSFERS

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ECONOMIC INTERDEPENDENCE

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The views expressed in this *Proceedings* are those of the authors. They should not be interpreted as necessarily reflecting the views of the Department of Defense. The purpose of the *Proceedings* is to disseminate comment and opinion on issues of importance to United States national security.

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FOREWORD

The nature of the challenge facing national security planners has shifted significantly in recent years: it is clear that today's planning factors may not be adequate to the tests of tomorrow. The National Security Affairs Conferences are attempts to focus on elements of the future environment the attention of a highly selected group of scholars, business and industry executives, members of government, and informed observers.

With the National Defense University, the mission of The National War College and the Industrial College of the Armed Forces is to educate selected personnel for high level staff and command positions in military and civilian agencies. Both curricula are forward-looking and concerned with the problems of tomorrow. We at the National Defense University are proud to examine with the special conference membership the complex international environment of tomorrow, and to attempt to identify significant trends and options which must be considered in future national planning.

Our goal is the development of informed views of value for those concerned with the major decisions and problems of national security. With this third National Security Affairs Conference, and through this *Proceedings*, we have taken a step toward this goal.

The five areas selected for investigation this year were assigned to individual panels. Selected panelists prepared papers to serve as a point of departure. During the three-day period, the discussions plumbed the depth of these issues.

The papers prepared for the conference, plenary session panel reports and discussion summaries, and Secretary McAuliffe's keynote address to the conference, form this *Proceedings*.

Particular gratitude is extended to Secretary McAuliffe and his Office of International Security Affairs within the Department of Defense for the vital support necessary to make the conference possible, and the professional admiration of the National Defense University goes to all participants for making this third National Security Affairs Conference a success.

M.G. BAYNE
Vice Admiral, U.S.Navy
President

LONG-RANGE US-USSR COMPETITION

NATIONAL SECURITY IMPLICATIONS

An Overview

This overview presents a brief introduction to the material in the *Proceedings* and summarizes the major conclusions of the panels along with some derivative policy implications and considerations. No summary could do justice to the varied and intense discussion that took place during the three days of meetings, thus, a true appreciation of the discussions and conclusions of the conference can only be obtained by reading the entire text.

The *Proceedings* contains the keynote address given by the Honorable Eugene V. McAuliffe, Assistant Secretary of Defense, at the initial plenary session and a complete report on each of the five panels. Each panel's activity is presented in several parts: a summary of the two days of discussion as presented by the panel chairman at the concluding plenary session of the conference, containing the chairman's views of salient points emerging from the discussion; the Rapporteur's Report of panel discussions, including the basic details of specific topics, issues, and points of controversy; and two or more research papers commissioned for each panel and distributed to each panel member in advance of the conference. *Proceedings* Editor.

Plenary Sessions

In welcoming the participants in the Third National Security Affairs Conference, Admiral Bayne summarized the purpose for the three days of discussion: attempt to identify national security issues for the coming decade; and, indicate policy options which government planners may need to consider in facing those issues, emphasizing trends and options. It was stressed that the conference is a unique opportunity for the National Defense University and all participants to contribute to an improved understanding of national security problems. In attempting to develop an informed view, which will be of value to those American decisionmakers concerned with national security, the conference participants were carefully chosen on the basis of their experience and reputation for innovative thinking and sound judgment. Admiral Bayne noted that this year an increased participation by representatives of the business/industry sector was particularly gratifying.

In his remarks keynoting the conference, Assistant Secretary McAuliffe pointed out that the nature of the competition between the US and the USSR is a fundamental condition in determining the future of international order as well as in shaping our perception of US national security. Assistant Secretary McAuliffe pointed out that Secretary Rumsfeld, on another occasion, had said:

> *The facts of our position relative to the Soviet Union drive one to the conclusion that continued shifting in the balance of power–shifting in the direction it has gone for the past 10 to 20 years–would be unacceptable from the standpoint of peace in the world.*

Considering that among the key military balances are strategic nuclear, general purpose forces, projection of power, and investments, there exists, in varying degrees, an interrelation among these

specific balances and each can be affected or tilted by other factors–economic, social, and ideological. In summarizing the present and emerging status of these key military balances, Assistant Secretary McAuliffe stressed that although the US, as of this date, maintains its lead in numbers of warheads, in launchers, and in the overall quality of its strategic systems, the Soviets presently appear to be outspending the US in intercontinental strategic offensive forces by at least 60 percent. One also cannot fail to note the rigorous, on-going, long-term, purposeful, across-the-board effort that the USSR and its Warsaw Pact Allies have made during the last Five-Year Plan–the one that ended on December 31, 1975–to expand, to modernize, to strengthen, to improve in every respect the military capabilities and the readiness of their general purpose forces. What Moscow and its Eastern European allies will accomplish during the current Five-Year Plan–the one that commenced on January 1, 1976–remains to be seen. But one has heard no public utterances by the leadership in the USSR and other Eastern European countries that would lead one to believe that they are about to curtail their effort or reduce its momentum. As to the projection of power of balance, the US continues to maintain its marked overall advantage, principally due to our Marine Corps, naval air and amphibious forces, and strategic capabilities. Finally, investment balances. Here one refers to comparative levels of investment in military capability, in plant and the production force, and in research and development. We and our allies must maintain a defense budget that is sensitive to Soviet military developments which can imperil national security, as well as retaining the necessary flexibility to respond as uncertainties develop. In statistical terms, the defense percentage of the federal budget, defense employment, and defense costs as a percentage of net public spending, are all at their lowest levels since Pearl Harbor–thirty-five years ago.

Assistant Secretary McAuliffe further stated that unreasonable cuts in defense spending in recent years have risked eroding America's capability to respond effectively to the adverse trends just highlighted. Indicating another domestic aspect of this problem–national will and national resolve–the Assistant Secretary stated that the US has just possibly overrelaxed. Perhaps our fellow citizens no longer see, feel, and sense a clear and immediate threat to our nation, to our security, and to the American values and principles that make our country unique.

In closing, Assistant Secretary McAuliffe stressed that the most valuable asset of the US is ultimately the American people themselves and their intelligent support of national policy. With national leadership, with the joint involvement of government, business, industry, and the academic research community, the US can find and enlist the talent and it can muster the strength of will to meet any challenge from the USSR.

At the closing plenary session Brigadier General James Thompson, USA, of OASD/ISA, reviewed the purposes of the conference and restated the need to be concerned with options and alternatives to deal with problems, and opportunities. He stressed the importance of focusing on both of these things–the problems and the opportunities.

Panel Discussion

PANEL I – The US-USSR Strategic Equation: Strategic and Major Sub-Strategic Forces

The panel addressed the following broad topics: the basic military doctrines of the two superpowers; strategic forces; theater forces; and, the US-Soviet naval rivalry.

Summary of Discussions - Some of the panel argued that the Soviets tend to build more flexible forces and, though they are sometimes behind in areas of high technology, they seem to produce forces better balanced for actual conflict. The US was generally characterized as inclined to pursue more abstract goals such as deterrence, and to try to make forces fit those goals. We are terribly slow to understand that the Soviets may be correct. Two final interrelated points were made about doctrine:

- Perhaps more important than the separate doctrines of the two sides is what happens inside each country. The mutual perceptions of internal cohesiveness and capability are critical matters.

- It was asserted that the question of national "will," especially that of the US which seems lately to be waning, is at least as important as the matter of national doctrine.

Reference Strategic Forces, and the related discussion of SAL, most panel members generally emphasized Soviet efforts to build a war-winning machine for the future which was aimed at more effective counterforce capabilities and civil defense. There was general consensus that the US should step up its R&D effort, and make it clear to the Soviets that they are unlikely to upset the strategic balance in this field. The panel did not resolve the issues of whether the Soviets would attain strategic superiority by the 1980s, of how superiority might be usefully defined, or of what superiority might actually mean in terms of superpower behavior. There was general agreement that SAL, to date, has had little effect on the strategic offensive nuclear force balance because it merely ratified those programs which would have materialized without SAL. A few panelists felt that the ABM treaty was weak in that it eliminated a significant US advantage on the defensive side of the strategic equation. Though some defended SAL as a valuable channel of dialogue and information, and applauded its value in US-Soviet relations, many panelists took a negative attitude toward SAL and its future. On Theater Forces there was a general uneasiness with the conventional power in Europe; however, generally, the panel seemed to accept the proposition that a prolonged conventional war in Europe (i.e., without escalation to tactical, then strategic, nuclear levels) is unlikely. It was asserted but also disputed that new technologies might have a dramatic effect on the future force balance in Europe, e.g., precision-guided munitions.

Generally, the panel recognized the fact that the Soviet Navy presents a growing challenge to US capabilities to control the seas in a prolonged war in the Atlantic or Pacific. Few, if any, panel members believed that there was much likelihood of a prolonged, conventional war in Europe, and a "war at sea" scenario was not seriously discussed.

On the projection of Soviet naval power, two points, one about political perceptions and one about military capabilities, were made:

- The political impact of Soviet naval deployments is considerable and, though we could do nothing to prevent the Soviets from going to sea for political purposes, we should decide where and how we could offset the advantages the Soviets are gaining in this way.

- The Soviet Navy has little ability to project amphibious forces to areas distant from Eurasian shores.

The chairman drew four basic policy options: (1) Drop our stress of flexible response, the promise to respect thresholds, the conventional option, localization of conflict, and so on. Stress, rather, in doctrine and in our deployments, an ability to escalate, (2) alternatively, pursue the option of enhancing multiple options in force planning, R&D, and deployments, for all categories of force that look promising for fighting, not necessarily winning, wars at any level, (3) pursue the first option, or the second one, while attempting to downgrade the use of force in international relations—stressing arms control and stressing conflict resolution and, (4) a final option, cognizant of the defects of all of the first three, would nevertheless pursue all of them simultaneously, and meanwhile expand nonmilitary means of leverage on the Soviet Union in those aspects of power where the West is stronger (in many of the nonmilitary categories, the West is considerably more powerful). We would also help other countries to provide nonmilitary resistance to the Soviet Union. If the US improves its diplomacy in some of the fields that the other panels are discussing, this would seem to be a useful path to pursue.

PANEL II – The Third World and US-Soviet Relationships

The panel focused on the following clusters of questions:

– What are Soviet and American objectives in the Third World? How and why have these changed over the past two decades? What significance, if any, inheres in these changes?

– Wherein do Soviet and American policies in the different regions of the Third World converge and diverge? What is the significance for the superpower relationship of the rivalry in particular areas? Are these rivalries systemic or temporal?

– How successful have the US and the USSR been in their quest for influence? What are the relevant criteria for assessing the degree of influence?

– How important has economic aid been in the quest for political influence? Military aid?

– Finally, what are US options? What trends are likely in the Third World in the 1980s?

Conclusions – A clear consensus emerged that Soviet objectives are a combination of short-term and long-term, tactical and strategic; that they change in response to perceived opportunities in the Third World; and, that they have grown more ambitious with the increase in Soviet capabilities and the curtailment of American commitments. The view was expressed that in the 1950s Soviet objectives in the Third World were essentially reactive. They were formulated in response to the US policy of extending containment to the Middle East and South Asia and to the USSR's desire to undermine the Western-sponsored network of bases ringing its southern periphery.

The panel agreed that the Soviets seem to have a realistic understanding of the transitory nature of both gains and losses in the Third World. Clearly, the Soviets are in the Third World for the long haul. There was agreement that Soviet policies could, in general, be characterized as cautious and low-risk. A cautionary note was sounded by several of the participants, who warned that Moscow's recent increases in relative military power and strategic position may have served to erode some of the traditional Soviet caution and that we may see a more activist Soviet policy in the future.

The panel readily agreed that US objectives are often fuzzy and contradictory. They cut across the spectrum of military, political, economic, and humanitarian concerns and the delineations are not clearcut.

US policy toward Latin America was characterized as one of benign neglect, involving a good deal of rhetoric but little sustained or substantive action. Notwithstanding its support to Cuba, the Soviet threat in this region has been minimal to date. The panel felt that barring unforeseen opportunities, Latin America would remain low on the Soviet list of priorities.

In Southeast Asia, the panel felt that the Soviet Union would seek an expanded presence; however, in terms of US-Soviet rivalry, this area was not expected to jeopardize seriously superpower efforts to stabilize their strategic relationship.

In Africa, the USSR's aims are strategic and political: to acquire military bases; establish a close relationship with leading Black African Governments; and complicate US relations with the region. The US, on the other hand, is torn among its moral commitment to eventual black-majority rule, its strategic and economic interests in Southern Africa, and its desire to achieve a moderate solution to the South African problem. Tensions are expected to persist into the 1980s and the emergence of radical regimes may provide an expanded and sustained Soviet involvement.

In the Middle East, the USSR's general aims are to weaken the US position and to establish close ties with the Arab countries. An improvement in the Soviet position is not ruled out, but short of a major reversal of current Arab-Western relationships, Moscow will have to depend on new upheavals in the Middle East for opportunities to improve its position.

Although there was a wide range of uncertainty about the likelihood of another Middle East War in the next decade, there was general agreement that Arab and Israeli force levels would remain high—a development fraught with danger.

The panelists repeatedly noted that a Soviet presence does not necessarily bring influence. Thus, those who argued that the USSR has had limited influence, as a consequence of its aid programs, contended that the US should not be mesmerized by Soviet bases and military capabilities, which, in themselves do not bring influence. In actuality, the US may have greater influence now in the strategically vital area of the Middle East than it had before, even though its military presence is far less prominent then in the 1950s and 1960s, when it had limited influence on key developments there. The growing disillusionment with Soviet economic assistance works in the West's favor, and it is a development that should be exploited.

The case of the Persian Gulf was cited as an example where gloomy predictions had not come to pass. Persian Gulf regimes have used their vast wealth to co-opt potential internal opposition, and they have not fallen prey to Soviet influence.

Looking to the 1980s, the following specific trends were identified:

1. The adversarial character of US-Soviet rivalry will very likely intensify.

2. The continuation of instabilities in various regions will involve the superpowers. The Middle East, Southern Africa, and East Africa were cited as areas where local tensions would remain high.

3. Arms levels in volatile Third World regions will remain high and, as such, constitute a potential exacerbating factor in crisis situations.

4. The Soviet capability, and willingness to use that capability to advance strategic and political objectives, would increase.

5. The combination of rapid advances in weapons technology, the accelerating pace of obsolescence, and high attrition rates on the battlefield serve to heighten a client's dependence on a supplier power, which may be prompted to use this position to try to wield more influence over a client than was the case heretofore.

6. Internal cleavages and local animosities with spill-over possibilities will likely generate regional conflicts involving the superpowers.

7. Overall, China is not expected to be a major actor in the Third World in the next decade.

8. Economically, Third World countries will look increasingly to the US for food, technology, and investment rather than to the Soviet Union.

Turning to options for the US, the panel noted that since specific policy options must be problem-oriented, a few general statements concerning US policy options would have broader, long-term relevance:

1. The US should try to promote and assist democratic governments and societies.

2. The US Government should work more closely with the private sector to coordinate its relations with LDCs whose governments are suspicious of private enterprise and whose economies are centrally directed.

3. Where feasible, the US should encourage its allies to play a greater role in the Third World.

4. The US should be more selective in the choice of Third World countries on which it would concentrate commitments and assistance.

5. Multilateral forms of economic assistance should be explored.

6. The US Government should respond more forthrightly, in appropriate forums and ways, to unjustified attacks on the US and its policies.

7. There should be a reexploration of linking Soviet activities in the Third World with improvements in US-Soviet relationships.

PANEL III – The People's Republic of China and the US-Soviet Relationships

The Panel determined that more emphasis should be given to consideration of the immediate future—the next eighteen to twenty-four months—rather than the decade of the 1980s. Areas of inquiry were of Chinese perception of the triangular relationship, with particular attention to the importation of foreign technology, the efficacy of improving relations with the USSR, and the role of the militia in the national defense posture. Soviet perceptions about their relationship with the PRC concentrated on the border dispute. Taiwan's future was discussed in detail, and panel discussion ended with a look at US opportunities and pitfalls.

Conclusions: Two assumptions set the stage for the criticality of the immediate future: by the end of 1977 the Chinese leadership will be faced with a severe succession crisis on the death of Mao Tse-tung; and the Soviet Union may, during that succession crisis period, acquire a temporary superiority in strategic nuclear weapons vis-a-vis the US. As to Chinese perceptions of the triangular relationship, panelists agreed that it should not be misunderstood that the tripolar balance is one between equals. The PRC is an agrarian, non-industrialized nation—a virtual Third-World country, albeit a large and populous one. Most panelists agreed that, for the next two decades, the dynamics of Soviet expansionism will be the central foreign policy issue before the PRC leadership. There was general assent that the following points are key strategic interests or efforts of the PRC:

- deterrence, especially against the Soviet Union.
- development of defense strategy and capability (e.g., stockpiling of key materials).
- maintaining the superpower balance (tension but no overt hostilities).
- position as champion of the Third World (in rhetoric).
- encouraging maintenance of NATO to balance Soviet Union and tie down her western flank.
- preventing the "dismemberment" of the PRC.

The importation of foreign technology is the most important debate with regards to forecasting likely PRC foreign policy actions.

To achieve their major foreign policy goals, the PRC must encourage the US to maintain a counterbalance to Soviet efforts at expansion in general to keep the sort of pressure on the Soviet Union that will prevent the latter from directing its attentions immediately against Chinese interests. Panelists felt that the Chinese themselves do not pose any significant military threat to the Soviet Union, nor much of a threat at all to the US, but they do tip the balance toward whichever side they lean.

The Soviets do not consider that the Chinese have a major military offensive capability against any vital areas of the Soviet Union. They do recognize that the PRC's strategy of choice will be to play off the superpowers against each other. Since the PRC will look toward promoting common interests with the US against the Soviet Union, the Soviets will likely try to increase the attractiveness of detente.

Banning major internal political instability in China, no military action on a large scale by the Soviet Union is considered likely.

It can be expected that Moscow will make efforts (other than military operations) to secure its western flank in anticipation of taking some sort of action with respect to China should there be a prolonged succession crisis upon Mao's death.

Three general barriers to settlement of the border question exist: the ideological factor which, in Marxist terms, links present boundaries to "unequal treaties" of Tsarist days; the recent history of enmity and suspicion over the border; and, most importantly, the abiding Chinese fear of encirclement by the Soviet Union.

Taiwan's future elicited, by far, the greatest diversity of opinion. There was a general consensus that no party to the Taiwan dispute was likely to take military action to resolve the issue. Also dismissed was the idea that the PRC would turn to the Soviet Union for help in recovering the island. There was disagreement on the panel as to whether the PRC considered the US presence in Taiwan as important to balancing Soviet power as the US presence in Korea. The debate here centered on whether or not Taiwan basic rights were necessary to maintaining of a US naval presence in the Straits and the China Sea. Further, if that presence were eliminated, would the Soviet navy move to fill a power vacuum of the Chinese shores.

Though the Taiwan issue will remain between the US and the PRC, there seems to be no real opportunity for the Soviets to capitalize on the issue as a way of improving their relations with the PRC or interrupting a tendency toward US-Chinese cooperation. Both the PRC and the US have in common the goals of keeping the Soviets out of East Asia, keeping Korea defused, and seeing to a strong Japan, as well as a strong PRC, in order to counterbalance Soviet power.

Most panelists agreed that Japan is the key to Sino-Soviet relations. The Soviets are most worried about Japan in three specific areas: a growth of Japanese naval power; Japan's possible acquisition of nuclear weapons; and the establishment of closer ties between Peking and Tokyo. The panel felt that the US had been overly hasty in forcing decolonization (except of Soviet colonies) without workable replacements for the governments involved and in building alliance structures which did not require other partners to assume a sufficient share of global responsibilities (e.g., European navies protecting their own supply lines).

A likely approach to a revised US global policy would be the establishment of regional powers centers. An economically strong and politically viable PRC is more in the US interest than a weak or fragmented one. The present status of the Sino-Soviet relationship—tension with neither hostilities nor cooperation—best serves US interests. Toward this end, many panelists felt that the US should be willing to supply the PRC with such assistance as would be required to maintain the status quo: agriculture equipment, consumer technology, capital investment, and even small arms or defensive anti-tank weapons if the situation warrants.

No one seriously expects any fundamental cooperation between the US and the PRC, but we do have a number of long-term interests in common and these can be useful levers in executing US policy in Asia. Both countries have an interest in controlling Soviet expansion here, as elsewhere.

Both countries therefore see the need for a China strong enough to counterbalance Soviet power.

The PRC will eventually require outside assistance if she is to industrialize her agriculture and industry to any extent. It is in the US interest to provide limited assistance so as to maintain an alternative for China's cooperation with the Soviet Union.

As far as the tripolar relationship goes, US policy is most likely to be successful when concentrating on the Sino-American and Soviet-American sides of the triangle. Any attempt to influence Sino-Soviet relations directly would almost certainly give support to such Chinese factions as would like to see that very rapprochement we wish to prevent.

PANEL IV – Economic Interdependence and the US-Soviet Relationships

Panel IV discussions fell generally into three topic areas: background of East/West trade relations; issues in expanding economic relations; and, implications for US policy.

Conclusions – When the Soviet Union gets involved in economic relations, it has government institutions which consider the broad aspects of its national interests. To what extent these institutions are effective is uncertain, but the structure exists and it does attempt to consider all its national interests.

In the US, business decisions are normally made upon the basis of private business calculations with minimal government inputs. Economic interrelations do not guarantee peaceful relations, but to what extent they contribute to peace is an open matter, one which could use further research.

Further expansion of Soviet trade with the US is limited because of low US demand for Soviet products. The US does have requirements for their raw materials, but the USSR does not have the required production facilities to expand the extraction of these resources, especially in regards to oil and gas. Foreign investment in such expansion is risky because it is far from certain that Soviet production costs will allow competitive pricing. The US Government currently does not have a clear policy toward the provision of financial assistance for the expansion of trade in the form of government credit or loan guarantees. This issue will have to be addressed if expanded trade is to be encouraged. Beyond US Government policy, significant expansion of trade raises the issue of possible Soviet involvement in international economic organizations such as GATT and IMF. Currently, the USSR is not a member of these organizations and potential Soviet membership is hampered by the fact that the ruble is not a convertible currency.

Providing concrete policy suggestions concerning economic interrelatedness and national security involves defining US security interests and applying this or alternative definitions to the broad range of activities affected by US-Soviet relationships–energy and food production, Third World considerations, worldwide inflation, exploitation of the sea, technology transfer, and more.

The panel identified areas of major importance which must be recognized as future US foreign and economic policy are developed: Soviet intentions; identification and measurement of US national interests; structure of the US Government to orchestrate diverse public and private

agencies; the leverage issue. In order to consider a traded good as having high-leverage potential, (1) the buying country must not be able to obtain the good from any other source, (2) they must not be able to achieve significant adjustment of internal consumption to reduce required import levels, and (3) the selling nation must be willing to accept the economic and political costs associated with reduced export levels of the good in question. Few trade relationships would strictly fill these three criteria; thus, few relationships hold the seeds of high overt economic leverage.

It was stressed, however, that there is some potential leverage in US-Soviet economic relations, but it exists at the margin. When speaking about leverage, there are two possibilities: to what extent can we affect US-Soviet internal policies, and to what extent can we affect external Soviet policies?

With regard to influencing internal Soviet policies, any influence will only be in the long run. In that time frame, there may be some contribution to such influence from opening up contacts, implanting US methods, encouraging rationality, and the decentralization of decisionmaking.

With regard to influencing external Soviet behavior, it was argued that on specific issues Soviet leaders will balance benefits and costs of pursuing policies which are counter to US interests. Where the issues involve major Soviet interests, the threat of reduced economic relations with the US will not change Soviet behavior. But where Soviet interests are not so major, economic relations may give us some leverage over Soviet external behavior.

It was a general conclusion that it is essential that economic relations not endanger the military balance. With that under control, the general feeling was that, in the long run, it is to the advantage of the US to bring the Soviet Union into the economic community of the nations of the world.

There was some discussion that it might be particularly useful for the US to encourage energy and food production in the Soviet Union so as to increase a total global supply of these products for which we see shortages down the road. However, within the USSR, current availability of capital, managerial talents, and transportation limit the near-term realization of this goal.

In summary, embodied in most of the discussions was the idea that expanded trade in nonstrategic goods was potentially useful to both nations. For the US, trade has the potential of providing access to additional raw material stocks, while the USSR would have access to secondary products not currently produced by her own economy. This would provide both the short-range benefits of trade and the long-range potential of marginal political influence. Given that some unencouraged trade already exists, any general encouragement of this trade relationship rests in large part on fresh US Government policy initiatives.

PANEL V – International Technology Transfers

The scope of the Panel V deliberation was to define the characteristics of international technology transfer, particularly with respect to trends which increase the war-making capability of the USSR and consequently affect the Soviet/US military balance.

Agreements/Conclusions – For the purposes of this conference, technology was considered as the know-how that converts science into products. There was consensus that know-how must be controlled very closely, particularly on those pieces of critical high technologies that can make a strategic difference. A range of technology transfer control policy options, which lie between the extreme end points of trade all and trade nothing, was discussed and a set of detailed options which could provide the framework for the development of trade-off analysis, and criteria necessary for policy selection should that next step be taken, were suggested. The range of policy options can be from active US Government encouragement of US technology transfer to the Soviet Union, granting incentives, all the way to the prohibition of any type of technology transfer to the Soviet Union, with heavy penalties for violation. An example of the center of range of options might be to restrict strategic technology that could directly or indirectly improve Soviet military capability. The panel's report (see page 217) lists a full spectrum of options. There is a need to develop the same spectrum of options regarding products. The objective in controlling the transfer of technology is to gain time–again, that time is best gained through the proper control of know-how. It was the general reaction of the panel that the US exports to the USSR technology which has high potential for military uses, but no such technology flows from the Soviets. The panel could offer no evidence of a *quid pro quo* in the transfer of such know-how, and the US does not now possess a mechanism or statutory authority for fostering trade negotiations on that basis.

In the computer field, one of the principal methods of technology transfer between the US and USSR occurs via the exchange of scientific personnel. This exchange of know-how is probably not directly significant for tactical military computers. For strategic military purposes, however, this exchange of scientific personnel might be significant. For example, it allows the Soviets to evaluate their extensive mathematics on our more powerful computers. This exchange also inherently familiarizes the Soviet scientists with the capabilities and structure of our big computers and software.

While much work is invariably done using socially acceptable and seemingly nonstrategic mathematics such as the global weather problem, the numerical methods could be applied to military problems. Areas critical to the issue of export control of technology centered around two main themes: First, we do not know enough about Soviet capabilities; e.g., the intelligence community has difficulty in sorting out how US technology is related to the USSR ability to produce sophisticated weapons. We ought to be explicit about what retards the Soviet's ability to absorb foreign technology and attempt to understand their manufacturing, design and management capacity more fully, especially in the defense industry. Since the intelligence function is not directed at high enough levels in the JCS or NSC, the needs of the intelligence function such as early warning, feedback, collection and analysis of data are not recognized and given proper priority. Second, an improved export control system is required; e.g., the COCOM list now reviewed on an ad hoc basis should be strengthened and built upon the concept of technology (know-how) and not just based on products. It should be recognized that enormous resources and assets are needed to weigh and analyze the policy alternatives necessary to make effective export decisions. Since the present control system is a "blunt instrument" easily circumvented by the Soviets and it may never be totally effective bacause of political constraints, and we do not control scientific exchanges, we should seek to exchange technology with the Soviets on a *quid pro quo* basis.

In *summary*, the panel generally agreed that:

- Technology is *know-how*, not science or product.

- The US does *need* an improved *export control* system for national security reasons.

- Primary emphasis should be *control of know-how; control of products* should be reviewed; the *control* of international *scientific* exchange is extremely *difficult* due to professional infrastructure especially with regard to the academic community.

- Through export control, we are trying to gain *time* and force the Soviets to *commit resources* to catch up with us when we withhold technology.

- There has been no evidence of *quid pro quo* with the USSR in the transfer of strategic technology, and no mechanism for insuring *quid pro quo;* bilateral exchange agreements with the USSR do exist in a number of specialized domestically important technology areas.

- A system of control is necessary which concentrates on know-how, identifies key technologies, and provides a scheme for *quid pro quo.*

- The *exchange of people* is the most effective and fastest mechanism for transferring know-how.

US-USSR COMPETITION AND EVOLVING BALANCES OF POWER

Honorable Eugene V. McAuliffe
Assistant Secretary of Defense
International Security Affairs

Admiral Bayne, Distinguished Guests, Ladies and Gentlemen:

I am very pleased to have this opportunity to talk with you about national security in the environment of the 1980s. On behalf of ISA, I join Admiral Bayne in welcoming you to this undertaking. I look forward with keen interest to sharing in the results of your deliberations. Let me take a few minutes of your time to offer some observations relating to the focus of this conference

Few, if any, of you would dispute the view that we live in a difficult, an untidy, and an uncertain world. We are now in the final quarter of the Twentieth Century. The problems which America faces in the realm of national defense are both real and complex. Just last May, Secretary of Defense Rumsfeld said, "It's not a tidy world, it's not a friendly world, but we are at peace . . . We're at peace because we are strong." Surely, the nature of the competition between the United States and the Soviet Union is a fundamental condition in determining the future of international order as well as in shaping our perceptions of US national security. Secretary Rumsfeld, on another occasion, has said:

> *The facts of our position relative to the Soviet Union drive one to the conclusion that continued shifting in the balance of power – shifting in the direction it has gone for the past 10 to 20 years – would be unacceptable from the standpoint of peace in the world.*

The future of America depends upon the choices that we make today. Your deliberations should contribute to our knowledge and enlighten our understanding of the choices involved in maintaining a sound national security policy and a suitable defense posture in the decade to come.

There will be much talk at this conference about "Balance of Power." Strategists have defined balance of power in a variety of ways: an historical condition involving certain political, military and economic relationships on a global scale; a status quo either regional or global between any two or more nation states; or a policy of action. I prefer the first definition, but none of these definitions adequately portrays the multiplicity of balances that constitute an overall balance of power in 1976. For the purpose of this talk, power balances, both those existing and those anticipated, represent matrices which shape the competition between the United States and the Soviet Union. Each of the five panels of this conference will focus on a particular aspect of that competition, and each panel will attach varying degrees of importance to the military balances which are inherent elements of this overall balance of power between the United States and those who are America's adversaries.

One major premise of this conference is that future "National Security" depends largely on the favorable evolution of the "overall military balance" between the US and the USSR. Yet before

we accept this proposition, two key terms require clarification. First, "National Security" refers, of course, to an outlook that results from favorable evaluations of interrelated and ever-changing military, political and economic environments. The late Arnold Wolfers once said that "Security, in an objective sense, measures the absence of threats to acquired values, in the subjective sense, the absence of fear that such values will be attacked," Sheer military strength is in itself no absolute or certain guarantee of national security, as thinking men already knew and as the developed world has learned again during the 1973-74 "Oil Crisis." The division of labor among five panels of this conference reflects this broad, multitiered view of national security.

Second, "overall military balance" is an aggregative concept which summarizes the collective status of a structure or more specifically prescribed military balances. They key military balances, as I see them, are the following:

- Strategic nuclear
- General purpose forces
- Projection of power
- Investment

There exists, in varying degrees, an interrelation between these specific military balances; and each individual can be affected or tilted by other factors, economic, social and ideological. The relationship between the overall military balance and the often subjective perceptions of national security is clearly a dynamic one. This relationship is critically important, so let me summarize the present and emerging status of these key military balances.

As each of you appreciates, the calibration of the strategic nuclear balance involves a comparison of complex quantitative and qualitative factors relating primarily to the nuclear capabilities of the US and the Soviet Union. The numerous technical difficulties that have surrounded the SALT negotiations mirror the intricacy of this balance. Currently, most experts describe this balance as a situation of "rough equivalence" or "sufficiency." We Americans are confident of our ability to withstand a Soviet first strike with our retaliatory capacity still able to inflict unacceptable damage on the USSR subsequent to such an attack. However, Soviet advantages in throw-weight, the improving Soviet qualitative position (e.g., in MIRV's and accuracy), and the ever-expanding Soviet missile inventory constitute adverse trends in this key balance. The US maintains, as of this date, its lead in numbers of warheads, in launchers, and in the overall quality of its strategic systems; but the Soviets presently appear to be outspending the US in intercontinental strategic offensive forces by at least 60 percent. This trend gives real concern to all thinking men – an unstable balance at the strategic nuclear level would catalyze multiple disturbances in every other balance.

Now let us turn to the balance of general purpose forces. US armed forces are currently strong and flexible. They are capable of deterring acts of aggression against us and against our allies around the globe. The US Navy is adequate to the task of securing those sea areas vital to our naitonal interest and survival. We maintain, with our NATO allies, a collective defense capability for adequate response to current Warsaw Pact military developments. Again however, several adverse trends threaten the stability of this balance. The Soviets have become a blue-water naval power; they have built more than 1,300 ships for their Navy since 1962. Their effort is qualitative

as well as quantitative – including greater missile firepower, more nuclear-powered attack submarines, greater fleet range, and improved naval support capability. Additional adverse trends are evident in the Soviet Air Force, Army and in R&D. In both their ground and air power, the Soviets have improved their position quantitatively and qualitatively.

Any assessment of the military balances between NATO and the Warsaw Pact requires careful and painstaking comparison of the strengths of both men and equipment – plus consideration of qualitative characteristics, factors such as geographical advantages, deployment, training and logistics support. Then, too, there are differences in doctrine and philosophy. It would be foolhardy to begin to attempt to assess it from this platform this morning; nevertheless, to fail to comment on this high significant facet of the general purpose forces balance would be stupid and cowardly. At present, the US in concert with its NATO allies has the military capability to respond adequately to an attack by Warsaw Pact forces. However, one cannot fail to note the rigorous, on-going, long-term, purposeful, across-the board effort that the USSR and its Warsaw Pact allies have made during the last five-year plan – the one that ended on December 31, 1975 – to expand, to modernize, to strengthen, to improve in every respect the military capabilities and the readiness of their conventional and nuclear forces. What Moscow and its Eastern European allies will accomplish during the current five-year plan – the one that commenced on January 1, 1976 – remains to be seen. But one has heard no public utterances by the leadership in the USSR and other Eastern European countries that would lead one to believe that they are about to curtail their effort or reduce its momentum.

As of today, Pact forces have advantages in: numbers of troops, tanks, artillery tubes, and air defense weapons: offensive-mission options (including choices as to timing, size, and point of attack); commonality of doctrine and equipment; command and control; and greater chemical warfare capabilities.

Key NATO advantages lie in: holding capability of a defensive interior position; tactical air capabilities and support aircraft; and tactical nuclear weapons. The Mutual and Balanced Force Reduction (MBFR) talks, underway in Vienna since October 1973, offer an opportunity for stabilizing the balance of general purpose forces in Central Europe. Future negotiations, however, will require an attitude of compromise and conciliation that the Soviets have yet to demonstrate.

Next is the projection of power balance, defined by the comparative ability to operationalize tactical military power at great distances from the homeland. Our goal is to maintain sufficient military capability to be able to project power at a distance and to counter Soviet power projection efforts. The US currently maintains an overall advantage in this balance, principally due to our Marine Corps, naval amphibious forces, and strategic airlift capabilities. The Soviets seek to deter or thwart US power projection by putting smaller forces into a crisis area first, using proxy combat forces, or interposing token naval forces between our amphibious forces and their objectives. Although the Soviets have demonstrated an expanding strategic airlift capability (in the Middle East in 1973, in Czechovlovakia in 1968, and most recently in support of Cuban forces in Angola), the US continues to maintain its marked overall advantage.

Finally, we come to investment balances. Here one refers to comparative levels of investment in military capability, in plant and the production force and in research and development. We and

our allies must maintain a defense budget that is sensitive to Soviet military developments which imperil national security, as well as retaining the necessary flexibility to respond as uncertainties develop. Although we in the West possess today a "rough equivalent" with the Soviets in the area of defense investment, the momentum, the continuity, and the strength of purpose of Soviet efforts, and the on-going relative decline of US efforts across the range of materiel development programs portend an ominous future. The facts are there to see. They speak for themselves. In statistical terms, the defense percentage of the federal budget, defense employment, and defense costs as a percentage of net public spending are all at their lowest levels since Pearl Harbor – thirty-five years ago.

This admittedly superficial discussion of the key balances would be even more incomplete without some brief mention of the domestic and international conditions which will assuredly affect the future of the overall balance. On the domestic side–here at home, right here in Washington–a number of factors condition the overall balance. The status of the defense budget is certainly one area of concern. Unreasonable cuts in defense spending in recent years have risked eroding America's capability to respond effectively to the adverse trends I have just highlighted. Next, let us look at another domestic aspect of this question: national will, national resolve. The US has just possibly over-relaxed. Perhaps our fellow citizens no longer see, feel, hear and sense clear and immediate threat to our nation, to our security, and to the American values and principles that make our country. Secretary Rumsfeld, speaking last May in New York, noted two basic trends affecting US-Soviet relations:

> *The inclination on the part of the United States and other free nations with whom we're allied to look inward . . . and the steadiness, the determination, the willingness (of the Soviet Union) to commit substantial resources to the development of not only present military capabilities but the institutional capability to produce additional and considerably more sophisticated military capabilities.*

Maintenance of that national resolve and creative initiative in defense planning and programming is essential. Paul Nitze once illustrated the role of policy leadership in the following anecdote:

> *When Dean Acheson was Secretary of State and I was Director of the State Department Policy Planning Staff, he called me into his office and said he wished to get one point clear. He wanted the Policy Planning Staff to work out its analysis and recommendaitons as to what the US should do in the national security and foreign policy fields without considering the acceptability of those recommendations to Congressional or public opinion. He and President Truman would very much have to take these considerations into mind and make the compromises they thought necessary while trying to build the foundations for a future more receptive climate. He didn't want those compromises made twice, once by us and secondly by them.*

That guidance for professionals in the national security policy field seems to me to be every bit as valid and relevant today as it was 25 years ago.

Next, there are numerous, diverse international factors – some unknown and some unknowable at this date – which influence one or more of those delicate balances. Let me touch

upon a few for illustrative purposes. Adverse trends in the military balances – trends I have just outlined – most definitely have the potential to alter the international economic and psycho-political environment. The balances may be more stable today than in previous times. Nevertheless, the interplay among these different military balances will affect the future strategic equation, as will other factors, such as developments in the realms of economic, politics and technology. Everyone says the world today is looking toward, and that men and nations are seeking to adjust their lives to, a degree of international interdependence – in communications, economics, transportation, and technology – unsurpassed in the history of mankind. Yet few of us unreservedly see this increasing interdependence as the first swallow heralding the millenium.

Complex economic, political and defense problems still elude solutions proposed by national and international efforts. Hardheaded pragmatists and starry-eyed idealists find themselves equally frustrated. Panels IV and V of this conference will explore the linkages between economic interdependence and exchanges of technology, on the one hand, and national security interests, on the other. Then, too there are and there will continue to be numerous disturbances in regional and subregional contexts, like, where will the "concept of Europe" lead us? How will the scores of teenage nation-states that have emerged from the rubble of empires conduct themselves politically, military, and economically?

In the Department of Defense, we are currently planning for the 1980s and beyond. We shall, therefore, be most interested in the outcome of this conference. Gatherings such as this help to generate the ideas and shape the recommendations that will undergird a sensible, desirable, acceptable long-range strategy to maintain favorable worldwide balances of power well into the future. The panelists gathered here are alive to the burdens and responsibilities of the policymakers. They know that the options we select and the choices our adversaries make will determine the future. Hence, a long-range strategy to maintain the overall balance of power is by necessity a strategy of choice, rather than a strategy of reaction. Your discussions can help clarify the processes of choice, enhance the spectrum of policy alternatives, and assist in prioritizing them.

What is more important, each of you, and I, must articulate these ideas so clearly that the American people – our fellow citizens – can understand and discuss and debate what the nation's leaders are proposing and why they are advocating measures that will be necessary to maintain our strength and preserve the balance favorable to peace. The most valuable asset of the United States is ultimately the American people themselves and their intelligent support of national policy. With national leadership, with the joint involvement of government, business, industry, and the academic research community, the United States can find and enlist the talent and it can muster the strength of will to meet any challenge from the USSR.

I welcome you to the conference. I hope you have a pleasant and productive experience.

PANEL I

THE US-USSR STRATEGIC EQUATION: STRATEGIC AND MAJOR SUB-STRATEGIC FORCES

An examination of objectives and doctrines with respect to strategic nuclear forces and sub-strategic or theatre forces. An analysis of various US force postures with regard to benefits, costs, and risks, including such issues as the meaning of and requirement for "rough equivalence" across the force balance in Europe. A consideration of the importance of technology transfers.

Chairman: Mr. Seyom Brown, Senior Fellow, The Brookings Institution

Authors: Dr. Colin S. Gray, Professional Staff, Hudson Institute

Dr. John D. Steinbruner, Program for Science and International Affairs, Harvard University

Panelists: Mr. Robert E. Hunter, Foreign Policy Advisor, Office of Senator Edward M. Kennedy

Mr. Howard H. Kehrl, Executive Vice President, General Motors Corporation

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Dr. Edward N. Luttwak, Associate Director, Washington Center for Foreign Policy Research, The Johns Hopkins University

Mr. Kenneth Mark, Director of Strategic Planning, The Boeing Company

Mr. Andrew W. Marshall, Director of Net Assessment, Office of the Secretary of Defense

Colonel William E. Odom, USA, Associate Professor, Department of Social Sciences, USMA

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Dr. Richard F. Staar, Associate Director, Hoover Institution on War, Revolution and Peace

The Honorable George S. Vest, Director, Bureau of Politico-Military Affairs, Department of State

Dr. Thomas W. Wolfe, Rand Corporation

Brigadier General Charles D. Youree, Jr., USAF, Deputy Director for Politico-Military Affairs, J-5, Office of the Joint Chiefs of Staff

Rapporteur: Lieutenant Commander Steve F. Kime, USN, Staff, National Defense University

PANEL I

THE US-USSR STRATEGIC EQUATION: STRATEGIC AND MAJOR SUB-STRATEGIC FORCES

CHAIRMAN'S PLENARY SESSION SUMMARY

Seyom Brown

Panel I began with an attempt to appraise the different Soviet and US approaches to the use of force, and to force planning. The Panel then evaluated trends in the strategic force balance and the impact on US security of SALT, the European force balance, and the naval balance.

The dominant view was that the Soviets were basically Clausewitzian, regarding war as an extension of politics by other means, and politics an extension of war by other means. It was contended that the Soviets view conflict as fundamental to international relations, and have a profound interest in war fighting, and war-winning strategies and deployments. They pursue arms control as a device to gain advantage. Basically unilateralists in their force planning, they do not really believe in negotiations with an adversary to remedy adverse balances, but perhaps will use arms control negotiations as a way of temporarily forestalling a situation which is to their disadvantage.

By contrast, Americans were held to regard war as an exceptional occurrence in international relations, a policy of last resort. There was faith in conflict resolution, and negotiated arms control. Military planning ought to manifest a basic interest in deterrence and, if war starts, in intra-war deterrence and war termination.

A minority view on the panel argued that these distinctions between Soviet and American approaches to the use of force were overdrawn, that the Soviets also are very fearful of actual war with the US, and that if they launched major aggression, say, in NATO, it would be an act of desperation, rather than an effect to satisfy unrequited Marxist-Leninist appetites. It was held that the Soviet Union may be essentially fearful and more security-motivated than simply power-expansion-motivated, although the manifestation of their security motivation could take the form of power expansion; moreover, at least during the Cold War, the US probably had become as Clausewitzian as the Soviet Union.

With respect to force planning, many on the panel noted the tendency in the US to design military means rationally to fill certain abstractly-arrived-at objectives, and to determine whether or not we have an efficient force on that basis. The result, it was charged by some, was not only an inflexible approach to force planning, but also the deployment of forces that are less flexible than they should be. By contrast, the Soviet Union was portrayed as allowing programs themselves to determine force objectives rather than proceeding on a heavy, abstract doctrinal basis. As a consequence, it was asserted, the Soviets actually arrive at a more balanced, though less neat, force posture.

There was some challenge to the contrasting portrait of US (elegant but rigid) and Soviet (gross but flexible) force planning approaches. Soviet forces are also very heavily determined by abstract doctrine in many categories, it was argued: witness Admiral Gorshkov's commitment to ASW, even though it's not really attainable, and earlier Soviet commitments to bomber and missile defense. The view that the US was overly inflexible was also challenged. Some panelists endorsed the pluralistic way that we go about arriving at a force posture, with even Congress getting into the act. As a result, it was conjectured, perhaps, we have a more flexible array of forces than we would if we really proceeded from a more systematic basis.

When it came to assessing trends in Soviet and US strategic capabilities, the panel was also divided. One view was that the Soviets are indeed moving toward real war-fighting capabilities in the strategic area, and that present trends continuing, they could deploy a very impressive counter-force capability and would employ it in the event of war. In opposition to this view, it was argued that the Soviets do not really have better capabilities for actually fighting a strategic war then does the United States.

The panel fortunately moved on to spend most of its time discussing trends in specific elements of strategic power, the main question being how the deterrent balance could be upset to the disadvantage of the United States. We attempted to assess the prospects in five elements of the strategic balance: Civil defense, air defense, ABM, ASW, and ICBM.

1. *Civil defense.* The asymmetries between the two sides were pointed out. The Soviets do have a program which is large and could have some limited effect for population defense and protection of the Kremlin leadership. The main value of this civil defense capability, it was asserted, could be as a coercive device against the US in crises. The Soviets, say, could decide to evacuate their cities.

Doubts were raised, however, about the real effectiveness of the Soviet civil defense capability in physical terms, and about the effectiveness of the city-evacuation stratagem in a crisis. It was suggested that if that strategem were used, the US ought to play it cool: if the Soviets want to evacuate their cities, let them. Some panelists predicted that the Soviets would perhaps lose control over their population if the cities were evacuated for an extended period of time. Others insisted that the Soviets in any case would be constrained from such a provocative move for fear that the US might overreact.

While it was generally agreed that the Soviets do have some capability for civil defense, there was no substantial voice for the US' moving toward a civil defense program of its own at this time; rather, if the US wanted to lessen the possible effectiveness of Soviet civil defense, we should make it clear that the US can launch dirty attacks if we choose, and that we have, and intend to retain, whatever strategic capabilities are necessary to offset the Soviet civil defense program.

2. *Air defense.* The general consensus was that the Soviet Union has some effectiveness in air defense and that the US has only very limited capabilities in that area. The Soviet air defense capabilities, however, would be mainly effective against China. It was argued that the Soviet capabilities could be marginally effective against the US by way of denying the US a low-cost bomber option; but in reaction to this, it was suggested that the US does have a good bomber

option with only slight modifications in the US posture. One of the modifications favored by most of the panel was the cruise missile system, while some argued against this option because of the possible implications for SALT.

3. *ABMs.* While ABMs have been denied by SALT I for substantial population defense, it was pointed out that the Soviets have a more intensive R&D program for ABMs than we have. The panel basically agreed with this assessment, but some argued that the asymmetry is remediable, and that the US could step up its own R&D efforts to hedge against the possibility of a Soviet technological breakthrough, or of deployments in violation of SALT. Our own main objective should be to let the Soviets know they are unlikely to pull ahead in this sphere, even if they try.

4. *ASW.* For this component of the strategic equation, the panel agreed that the asymmetry clearly favors the US for strategic ASW, although in the tactical field the respective capabilities of two superpowers are not at all clear.

5. *ICBMs.* The panel had its most intense arguments over the question of the *degree* to which the stationary US land-based ICBM force—the Minutemen and Titans—are, or would become, vulnerable in the future to a Soviet counterforce attack. The estimates varied widely; but there was general (not unanimous) agreement that even the theoretical probability of trends in Soviet ICBM deployments rendering the Minutemen and Titans highly vulnerable should cause us to look at the options for responding to the threat. The main options include changing nothing, phasing out the Minutemen, protecting the silos, adopting a launch-on-warning policy, deploying land-mobile ICBMs, and deploying air-launched cruise missiles.

The change-nothing option in the event of real threats to land-based ICBMs was generally rejected. The option of phasing out the Minutemen and Titans in favor of more Tridents was considered possible, but the panel on the whole was in favor of retaining the TRIAD if cost-effective means could be found for continuing a land-based ICBM program.

The option of protecting silos had two basic varients—either superhardening the silos or defending the silos with ABMs. The superhardening option was rejected as being overly expensive. An effort to defend the silos with ABMs did not seem to be cost effective at present, but perhaps could be made so through R&D; however, this response would require a renegotiation of the ABM Treaty of 1972.

The option of deploying a land-mobile ICBM had some support, particularly if this were pursued through a dispersed shelter system. Some panelist opposed this as being very expensive against a good force—given current technologies. But supporters of the mobile ICBM argued that an R&D program might find less expensive ways of deploying the missile.

The option of deploying air-launched cruise missiles had considerable support in the panel, probably more support than any of the other responses. The possible vulnerability of cruise missiles to improved Soviet defenses was mentioned, but discounted by most of the panel. The panel generally felt the cruise missile to be a good option, both for perpetuating the bomber-leg of the TRIAD and for hedging against increased ICBM vulnerability.

There was general (but not unanimous) agreement that SALT should except cruise missiles from any prohibition. The effect of SALT upon the strategic equation was discussed, the dominant view being that SALT has had little real effect on the development of strategic power by both sides. The ABM ban did not tip the balance to give one side a significant potential advantage. With respect to the basic strategic posture on each side, SALT ratified what was happening anyway—through this view was disputed by some.

There was, controversy, however, over the political effects of SALT. One group in the panel saw SALT's ratification of parity as the legitimation of essential Soviet superpower status in the strategic field, and basically pernicious to the overall relationship between the US and the Soviet Union and to US relations with its allies. Those who held this view also felt the Administration may have erred in linking SALT too closely with overall detente, making the US too willing to make concessions in the SALT bargaining process in order to keep detente alive.

However, some panel members argued that SALT did have value and continues to have value in establishing the concept that there are limits that both sides must adhere to even though these limits are difficult to arrive at. SALT was also defended as a valuable process for exchanging information and concepts with the Russians, especially the Standing Consultative Commission. But there was a rejoinder to the latter point by some members of the panel who felt that the exchange of useful information was entirely one-sided.

There was a consensus that an abrupt termination of SALT would be highly destabilizing politically. Even those who were against SALT would rather let it run down than have it abruptly terminated.

With respect to the force balance in Europe, there was general dissatisfaction with NATO capabilities for a general purpose campaign. The debate was over whether or not NATO would receive sufficient political warning to make up, at least in part, for serious conventional-war deficiencies on Day 1. The view that there could be substantial redress of NATO deficiencies once war had started was seriously challenged by the observation that big reinforcements via the Atlantic would probably be rendered impossible anyway because the ports would be knocked out early in the war.

A debate over whether the deployment of new technologies, especially PGMs, could somehow rectify the situation in NATO, was inclusive.

It was agreed that the tactical nuclear situation in Europe was bad, putting a premium on first preemptive use. The Soviets were not only willing to contemplate it in their doctrine, but their deployments suggested that they might indeed engage in a first preemptive use. Some panelists suggested that our only response should be to enhance big deterrence, stressing in our own doctrine and deployments the close link between tactical nuclear war and strategic war. Some suggested that deterrence was really not so bad to shore up, considering that the Soviets would move on Europe only in desperation, not because of a large appetite (Western Europe being very difficult to digest, even if they could swallow it). Furthermore, the Russians would be constrained somewhat by uncertainty about loyalty in some members of the Warsaw Pact.

Others observed that this being the basic military situation in Europe, commitments were of continuing importance—commitments to keep the US physically involved with troops and with tactical nuclear weapons, and to maintain US control over the pattern of escalation as much as possible.

With respect to the naval balance in nonstrategic categories, there was a general recognition that US sea control missions in the Pacific, Atlantic, and the Mediterranean were under increasing challenge by the Soviets. The Red Navy was beginning to attain a sea denial capability. How wide-ranging a sea denial capability, and how rapidly they would achieve it, was a matter of considerable debate. There was worry, however, that in a large conventional war, it would be very difficult to keep the Atlantic sea lanes open unless large portions of the 7th Fleet were diverted to the Atlantic.

Some panelists felt that some elements of the Navy were exaggerating Soviet deployments. It was pointed out that when it comes to projecting naval power, the US is still dominant. The Soviets have no big amphibious intervention capability, although they are developing capabilities for showing the flag and seeking what political influence is available in this way. In this sense, at least, the US is losing its monopoly. More and more the Soviets can interpose naval force in local situations, vis-a-vis third parties, such as in the Eastern Mediterranean.

What are the implications of this US loss of naval monopoly? Some panelists stressed the need to tie naval campaigns to strategic deterrence, making it clear that we can escalate and will escalate to all-out war, if vital threats were posed at sea. Others suggested developing nonmilitary pressures. Still others suggested more sophisticated use of naval forces and the will and capability to put the burden on the Soviets to escalate if they should choose to interpose their navy. For example, in the Eastern Mediterranean we could, even if the Soviets interposed their ships against a disembarkation of Marines, still land the Marines and put the burden on the Soviets to escalate.

A few concluding observations of my own on the discussion: The overall situation, it appears to me, is typified by what's happening to US superiority at sea. The arrival of parity, namely the loss of the US monopoly for escalation, is the basic fact of life across-the-board—on land, at sea, at the strategic level. There is no realistic military posture to fix this gross loss of US superiority. We can make some mistakes, however, and these should be avoided—such as allowing the Soviets to gain impressive-looking superiority in strategic counterforce. And perhaps we could make some mistakes in the arms control field, such as restricting cruise missiles whose deployment might increase our flexibility.

What are the basic policy options, then—the grand strategy options? One, we could drop our stress on flexible response, the promise to respect thresholds, the conventional option, localization of conflict, and so on. We could stress, rather, in doctrine and in our deployments, an ability to escalate. The problem with this approach is that we would have to be much more selective about whom we support because we would be signing a blank check in many of our alliance commitments.

Alternatively, we could pursue the option of enhancing multiple options in force planning, R&D, and deployments, for all categories of force that look promising for fighting, not necessarily

winning, wars at any level. The assumption here is that the best deterrent is one that allows one to decide ad hoc what to do and keeps the enemy uncertain about what one will do. The problem is that this is a very expensive route to go.

The third alternative is to pursue the first policy, or the second one, while attempting to downgrade the use of force in international relations—stressing arms control and stressing conflict resolution. The problem with relying primarily on this policy is that the Soviets may not want to play by the rules.

A fourth option, cognizant of the defects of all of the first three, would nevertheless pursue all of them simultaneously, and meanwhile expand nonmilitary means of leverage on the Soviet Union in those aspects of power where the West is stronger (in many of the nonmilitary categories, the West is considerably more powerful). We would also help other countries to provide nonmilitary resistance to the Soviet Union. It seems to me that, if the US improves its diplomacy in some of the fields that the other panels are discussing, this would be a useful path to pursue.

PANEL I

THE US-USSR STRATEGIC EQUATION: STRATEGIC AND MAJOR SUB-STRATEGIC FORCES

RAPPORTEUR'S REPORT OF PANEL DISCUSSION

Lieutenant Commander Steve F. Kime, USN

The panel addressed the following broad topics in order:

The Basic Military Doctrines of the Two Superpowers

Strategic Forces

Theatre Forces

The US-Soviet Naval Rivalry

I. *The Basic Military Doctrine of the Two Superpowers.*

A basic difference in the military doctrines of the US and the USSR, with different kinds of force postures resulting, was recognized by the majority of the panel. The Soviets were characterized as pragmatic practioners of Clausewitz. They see politics and war as a continuum, and they never lose sight of the need to be able to fight and win any kind of war that may occur. Some panel members with extensive background on the Soviet Union pointed out that these concepts dovetail with historic Russian social predilections to make military matters organic to Soviet thinking on both domestic and international issues.

The Soviets, always mindful and appreciative of a wide range of military contingencies, tend to build more flexible forces and, though they are sometimes behind in areas of high technology, they seem to produce forces better balanced for actual conflict. An instructive example was offered: though he recognizes the seemingly insurmountable difficulties in solving the strategic ASW problem, Soviet Admiral Gorshkov still emphasizes the effort. The US Navy, seeing the political and practical obstacles, deemphasizes it.

The US was generally characterized as inclined to pursue more abstract goals such as deterrence, and to try to make forces fit those goals. This approach leads to inflexibility in the capability of the US to respond to real-world conflict or crisis situations. Some on the panel objected to this formulation and noted that the US becomes just as pragmatic as the Soviets in conflicts or crises, and that our forces are in fact more flexible than those of the Soviets in important respects.

There was an interesting rejoinder to those who took exception to the basic doctrinal differences described above. It was pointed out that the US only relatively recently accepted a continuously high level of defense spending, and that we have been prone to "crusades" with

accompanying spurts of defense spending. We are terribly slow to understand that the Soviets view the world in terms of systems in fundamental conflict, and it is extremely difficult for Americans to face the fact that the Soviets may be correct.

Many on the panel subscribed to this observation, but there was some dissent and several panel members contributed the following observations and caveats:

- National "staying power" over the long term is a Soviet doctrinal tenet. Also, it is true that the Soviets manage resources well, both in preparation for war and with some conviction that they may ultimately be able to prevail in the world without war. However, a close look at the USSR reveals some inconsistencies between their doctrine and their view of the US as an adversary. The Soviets see the US as extremely efficient and as a formidable competitor.

- Pluralism is a great strength of the US. Though we lack the single-minded Soviet preoccupation with defense, we have some license to be the way we are. We are ahead in almost every index of national power. There are whole areas and endeavors in which the Soviets are excluded.

- We should not underemphasize the role of force in American policy. After all, we have conducted many wars and bigger ones than most modern nations. US arms sales and the impressive pace of US military-technological development are clear evidence that we value the role of military power. One panel member emphasizes that it is the US that is the practitioner of Clausewitz. Moreover, comparisons of Defense budgets, with an understanding of the security yielded for the two sides, lead some to believe that the US has been too preoccupied with weapons development.

- One view emphasized that it is difficult to support the proposition that the Soviets are working on many areas at once and will someday find the formula for dominance. In this view, the evidence is thin that the Soviets present a threat which matches US fears. In fact, the Soviets may be far more confused about what they are doing than we think they are.

- We should not underestimate the importance of *uncertainty* as a driving force for both the US and the USSR. Neither is absolutely sure of itself and it is easy to go too far in "offensive" and "defense" descriptions.

- Perhaps as important as broad doctrinal considerations are more specific questions of military doctrine. The advent of intercontinental nuclear striking power has had a different effect on the two superpowers. The USSR seems to have *added* the new capabilities to its traditional preoccupation with the need for conventional forces to dominate the Eurasian land mass. The US, given a tendency to adhere to technical "solutions" in an absolute way, seems to have accepted intercontinental nuclear power as a substitute for much of its conventional power.

It should be noted that there was an argument that there was little to gain from discussion of doctrine. Some panelists held that technical considerations have dominated forces development more than have ideological or doctrinal concepts. It was noted that we have difficulty understanding doctrine, theirs and ours. Perhaps a more powerful argument was that excessive focus on such intangibles diverts attention from the real world; i.e., the specifics of the balance of power. Of course, this discussion remained unresolved and, in any case, the controversy over doctrine evidenced its significance even if it cannot be defined.

Two final interrelated points were made about doctrine which deserve mention:

- Perhaps more important than the separate doctrines of the two sides is what happens *inside* each country. The mutual perceptions of internal cohesiveness and capability are critical matters.

- The question of national "will", especially that of the US which seems lately to be waning, is at least as important as the matter of national doctrine. (Of course, some disputed the notion that US "will" was declining.)

II. ***Strategic Forces.***

This discussion, and the related discussion of SAL, revealed two schools of thought, though there were gradations in intensity of commitment (and volume) on various issues. Most panel members generally took a hard line, emphasizing Soviet efforts to build a war-winning machine for the future which was aimed at more effective counterforce capabilities and civil defense. Several panel members questioned whether the Soviets were in fact as serious a threat as is often said, and whether the Soviets were likely actually to succeed in upsetting the deterrent balance in the future.

Following is a summary of the panel's deliberations on those specific facets of the strategic equation addressed by the panel.

Civil Defense. A major asymmetry was recognized in this area by all, but the potential effectiveness and crisis value of the considerable Soviet CD effort was not agreed. The following points were made:

- The Soviets have internal needs as well as strategic ones for maintaining capabilities for the kind of discipline and control required for CD mobilization, and they have the internal political capability to effect a CD program. This is not so in the US, and no one recommended a US attempt to match the Soviet CD effort.

- The Soviet CD effort, whether or not it would be effective in a nuclear war, does reflect a war-winning Soviet mentality (and, possibly, the genuine Soviet preoccupation with the threat from China).

- There is the possibility that the Soviets might begin to evacuate cities in a crisis in order to gain leverage in the situation. The panel split about evenly in a heated discussion of this contingency. One side emphasized that the Soviets have reasonably

effective, exercised, capabilities to do it, and that it could have a critical effect. The other side was not convinced of the Soviet capability to carry off effectively such a maneuver without domestic chaos. These panel members emphasized that such acts are not plausible in the real world, that the US would not be convinced by any one such factor, and that the US should not give the Soviets credit for having this option by overestimating their CD capabilities.

- If the US is concerned by Soviet capability to use evacuation of cities in a crisis, this concern might be alleviated by developing and advertising nuclear options, such as large, "dirty," bombs to reduce the attractiveness of the gambit for the Soviet side.

Bomber Defense. Again, an asymmetry in the Soviet favor was recognized, but the significance of this to the strategic balance was a matter of contention. The deployment of US cruise missiles would certainly decrease the significance of current Soviet bomber defense capabilities (but some on the panel opposed the cruise missile on other grounds). One panelist emphasized that, at a minimum, Soviet air defense capabilities affected US strategic policy by denying the US the option of deploying a "cheap" bomber like the Soviet BACKFIRE. There was mention of possible Soviet efforts to upgrade SAM capabilities, but insufficient technical expertise on the panel to pursue this possibility very far. Some emphasized that Soviet bomber defense was aimed more at defending against China than against the US.

Anti-Ballistic Missiles. Though ABMs are prescribed by SALT I, ABM technology is still a matter of concern. The Soviets have a more intense R&D effort than does the US, and this is an area in which we cannot afford to be caught napping. There was general consensus that the US should step up its R&D efforts, and make it clear to the Soviets that they are unlikely to upset the strategic balance in this field. In less political, and more practical terms, it was pointed out that current US ABM technology could not be easily adapted to MINUTEMAN and TITAN defense, if that became necessary.

Anti-Submarine Warfare. The US seems currently to enjoy superiority over the Soviets in ASW, and some new US efforts show promise. However, the relevance of this to the strategic equation was thought questionable by most panel members. It is important to distinguish between tactical capabilities, and capabilities for substantially neutralizing the opposing SSBN force. Neither side can do the latter now, and there is little clear prospect for doing it in the near future. The Soviets are conducting R&D in a number of esoteric areas (unspecified by the panel), but we did not agree on the intensity of the Soviet effort or any likely outcome. A general view prevailed in the panel that an effective counter to SLBM's was unlikely to be developed, at least for many years.

ICBMs. Since Drs. Gray and Steinbruner had written papers concentrating on ICBM problems, these were objects of considerable debate. The possible future vulnerability of US ICBMs in the 1980s, as described in SECDEF's posture statement, was hotly disputed. Some held that future US ICBM vulnerability was calculated by means of outworn analysis based on theoretical capabilities and assumptions which, if changed only slightly, would yield significantly different results. In fact, these panelists estimated the feasible future technological developments will probably leave nearly equal risk to both the attackers and the attacked. Moreover, by concentrating on the putative

vulnerability of one leg of the triad, we are failing to be adequately concerned with more important things such as the operation, and potential vulnerability, of command and control systems.

Others were less willing to discount existing drawn-down curves, and a majority of the panel seemed to agree that even a theoretical threat of MINUTEMAN and TITAN vulnerability for the 1980s, even though this was only one leg of the triad, should cause serious concern and should cause a review of the options for offsetting that threat. The *perceptions* of US weakness in the USSR, the US and elsewhere that would be generated by increasing MINUTEMAN and TITAN vulnerability would be significant. Some thought that perceived US weakness might affect Soviet crisis behavior and increase Soviet willingness to rely on marginal strategic superiority to dominate threats of escalations. (There were, of course, varying views on how superpower behavior in crises might be affected by perceptions of specific strategic advantages.)

We quickly reviewed the options for offsetting potential US ICBM vulnerability. Though we arrived at nothing definitive, the following options were aired:

- *Something* positive should be done. Most agreed that doing nothing–or a "wait-and-see" attitude–was dangerous.

- MINUTEMAN should not be phased out. (There was throughout our deliberations general support for the triad concept, though some questioned such religious adherence to it and others suggested that other options such as cruise missiles could form a viable triad leg).

- Protecting MINUTEMAN is very problematical. Hardening is probably too expensive and ABMs have been prohibited. (Again, the US should step up ABM R&D.)

- *Deploying* land-mobile ICBMs seems to be potentially fruitful, but options thus far discussed all have serious problems. Further R&D is needed here.

- Air-launched cruise missiles enjoyed support from many panel members and there was general consensus (but with vocal dissenters) that the US should insist on its exemption from SAL restrictions.

The Superiority Issue. Predictably, we did not resolve the issues of whether the Soviets would attain strategic superiority by the 1980s, of how superiority might be usefully defined or of what superiority might actually mean in terms of superpower behavior. However, Dr. Colin Gray's attempt to answer the question "What is strategic superiority?" should be mentioned. He divided the notion of superiority into three parts, and this division was thought useful by several present:

- Superiority which would lead to victory in nuclear war.

- Superiority in some respect which, though it would not ensure victory, might be viewed as significant enough to give one side a military edge in terms of ability to dominate escalation options in a crisis.

– Perceived "superiority" which, short of conflict or crisis, would yield significant political advantages.

Several panel members appeared to believe that the Soviets were proceeding in a pragmatic and opportunistic way to achieve whatever they could in all the levels of superiority discussed above, though they are probably not certain of what they will actually achieve. Some of the qualifications and opinions expressed in the discussion which ensued included:

– The first kind of superiority appears to have very low probability.

– Perceptions of strategic capabilities are nearly as important as the capabilities themselves in the latter two levels of superiority.

– Some held the view that the Soviets have low chances of achieving meaningful margins of superiority in any important category (They listed Civil Defense, ASW, Air Defense, ABMs and MINUTEMAN and TITAN counterforce).

– Soviet appreciation of a US tendency to *overreact* in crisis is a critical factor which would deter their use of perceived or real marginal advantages in a crisis. Many panelists seemed to agree that US actions which have stimulated such uncertainty in the Soviet mind (For example, DEFCON 3 in the 1973 war) have been extremely valuable to US deterrence.

SALT. The panel discussed SALT at various times, but the thrust of those discussions will be summarized here. There was general agreement that SALT to date has had little effect on the strategic offensive nuclear force balance because it generally ratified those programs which would have materialized without SALT. (Some believed that more of these weapons might have been built without SALT.) Many panelists felt that the ABM treaty was poor in that it eliminated a significant US advantage on the defensive side of the stragetic equation, others strongly disagreed. Though some defended SALT as a valuable channel of dialogue and information, and applauded its value in US-Soviet relations, there was a generally negative attitude toward SALT and its future potential.

One interesting contention was that there are inherent disadvantages of a *status quo* power attempting to negotiate with a revisionist one. The ability of the US to muster the patience and the fortitude necessary to arrive at a fair agreement with a Soviet Union bent on achieving political and military advantage from any contact with the West is questionable. Further, the benefits gained from contact and access to information tend to accrue to the Soviet side. (Again, some panel members dissented from these contentions.)

The *political* rewards that the Soviets have reaped from SALT were seen as considerable by several panelists. Whether or not the strategic programs which the Soviets had in train before SALT would have yielded them their current strategic power and obviated the clear-cut superiority the US once enjoyed, some panelists argued, we *gave* them status in the eyes of the international public through SALT that we need not have surrendered. Others discounted this, and emphasized the benefits of engaging the USSR in a dialogue.

Several present believed that SALT has run its course, at least temporarily, but it was not the view of the panel that it should be abruptly terminated by the US. Even those who saw it as deleterious to US-Soviet relations, and as too involved with other more potentially fruitful facets of US-Soviet relations, believed that the best approach would be to let it die a slow, natural death.

There is some danger here of understating the strong feelings of some of the panel, so it should be reiterated that there were those who defended SALT rigorously as a valuable attempt to depreciate the importance of nuclear weaponry in superpower relations, and who felt that the situation would be more unstable militarily and less managable politically today had there been no SALT.

III. ***Theatre Forces.***

The panel, because time was short, limited this discussion to the European theater.

There was a general uneasiness with the conventional power in Europe. The Soviets and the Warsaw Pact forces maintain clear superiority. However, the utility of this superior position, as in the long-standing debate over US force posture in Europe, was a point of contention. Some took the position that Soviet forces were not necessarily sufficient for a successful attack on NATO. These panel members did not feel that the USSR would, short of a desperation move, attack NATO. Those who took these positions dissented from the bleak picture painted by several other panel members:

- The Soviets, with their eye on warfighting capabilities aimed at attaining victory, are serious about preparing for war in Europe.

- NATO is not prepared. Westerners talk in terms of how to terminate, rather than win, a conflict and who could be destroyed in 48 hours.

- Pact attitudes about war survival indicate a different attitude and, even if their war survival efforts are not completely effective, they may give them a critical edge.

- NATO reliance on tactical nuclear weapons is hazardous because the Soviets may be able to dominate conventionally before NATO could even make the decision to use them.

Warning time. One panel member observed that the question of NATO obtaining sufficient warning of impending Warsaw Pact attack has long been considered in formulating NATO doctrine and force posture. Still, several panel members discounted the judgments that have been made. One point made was that the current stability was *political*, not military, stability and political stability can be a temporary thing. Moreover, Soviet capabilities to mobilize quickly are often underestimated. One expert asserted that a strike into central Europe would require less elaborate preparations than the 1968 invasion of Czechoslovakia. Another pointed out that the Soviets might well be capable of redeeming surprise through effective deception. Yet another expressed the conviction that NATO simply would not take timely action, and that waiting for a late rally would cause defeat.

There was vigorous dissent from these pessimistic views. Some panel members judged that past NATO assessments, which discounted the threat of a "bolt from the blue" attack, were sound. It is not realistic to think that the Soviets would go to war so quickly that adequate political warning would not be had. Also, no nation operates on single factors, but rather on a body of information sufficiently broad and sensitive that, if the situation were changing so radically as to make a Soviet attack likely, it would be quite detectable. In any case, the Soviets would have to calculate that nuclear weapons would be employed. This is, in the view of some, an effective deterrent.

Obviously, we could not resolve these diametrically opposed views in this forum.

The Political Dimension. The warning issue led many on the panel into several observations about the political realities of US-NATO posture:

- Americans are increasingly uneasy about a European posture which could get the US involved in a serious, escalatory situation. Some see benefits from removing tactical nuclear weapons from Europe for logical reasons of strategy, but note that the US is prevented from doing this by political realities of the NATO Alliance.

- Europeans are interested in deterring any kind of war, and naturally do not wish to conduct war, if it occurs, on their soil. Europeans are skeptical of notions that they can rely on the threat of escalation to nuclear levels based on US weaponry not on the continent.

- There was a brief, familiar debate over the potential loyalty of France in the event of war.

- NATO might be described as a melange of democracies, reluctantly cooperating. Our present relations are based on "collective insecurity." If the Europeans are made less secure than the Americans, the military alliance will not work.

- Some panel members emphasized that the Soviets sought primarily *political* returns from their posture in Europe. They have, in this view, no grand appetite to conquer Europe. If they did attack, it would be a desperation move.

Escalation probabilities and problems. Generally, the panel seemed to accept the proposition that a prolonged conventional war in Europe (i.e., without escalation to tactical, then strategic, nuclear levels) is unlikely. US reliance on tactical nuclear weapons and the possibility of Soviet preemptive attack were recognized. However, there were some interesting qualifications and observations made:

- There are some tentative indications that the Soviets might not so quickly resort to nuclear weapons.

- The Europeans suspect that Americans might be more willing to trade space for time (and presumably the Soviets suspect this).

– If it is true that Pact forces could take Europe more quickly than NATO decisions to deploy nuclear weapons could be made, is it possible that, realizing this, the Soviets might be more willing to defer preemptive, theatre-wide strike and exercise their massive conventional superiority?

– One panel member advocated clear identification of limited strategic nuclear options to enhance deterrence against Pact attack. Most did not concur.

– Another member was certain that NATO has plenty of credible deterrence against a surprise attack, but pointed out that we needed to use different mental models for the utility of our deterrent in other types of crises.

East European Reliability. There was a brief exchange of views on the potential reliability of East European forces in a Warsaw Pact attack on the West. Some argued that Soviet inability to rely on these forces would be a significant deterrent to the Soviets and in fact tended to nullify the utility of Pact conventional superiority for a suprise attack. Others appeared to believe that the East Europeans would be quite effective, especially as long as the Pact were prosecuting a successful attack on West European soil.

Military Technology and the Future. It was asserted that new technologies might have a dramatic effect on the future force balance in Europe. Specifically, precision guided munitions (PGMs) were mentioned. Two interesting views were presented in response to this:

– There is unlikely to be a technical "fix" to the problems of NATO and Soviet expansionism. And in the physical realities of the military balance, it is unlikely that some plateau will be reached where one side will gain advantage in the conventional balance through technological innovation.

– New developments might be quite critical given the peculiar balance in Europe with its mixture of conventional and tactical nuclear threats, and the attendant dangers of escalation beyond the theater to intercontinental levels. If the advantage should shift to defense over offense *at the conventional level*, and tighten deterrence at that level, we might find a new calculus for determining our European strategy.

IV. *The US-Soviet Naval Rivalry.*

Generally, the panel recognized the fact that the Soviet Navy presents a growing challenge to US capabilities to control the seas in a prolonged war in the Atlantic or Pacific. Similarly, the political mileage gained form increasing Soviet naval deployment was noted as a very important element in the current superpower rivalry. Navies are the best forces for projecting the image of national power.

However, one sentiment, shared by several panel members, was that Soviet naval developments are too often distorted and exaggerated. Simplistic assertions about numbers of ships without evaluation of their actual combat capabilities are commonplace. Several panel members appeared to hold the view that there was a genuine Soviet naval challenge that needed to be

understood and coped with, but attempts to depict the Soviet Navy as "ten feet tall" obscured the real challenges and induced suspicion by appearing at predictable points in the budget process. It was with this dual-mindedness—cognizant of a real challenge but suspicious that it is poorly presented and understood—that the panel addressed the Soviet Navy.

Resupply of Europe. Protection of US sea lines of communication was discussed mostly in terms of maintaining US access to Europe. It should be stated at the outset that few, if any, panel members believed that there was much likelihood of a prolonged, conventional war in Europe, and a "war at sea" scenario was not seriously discussed. No one suggested that the Soviets were likely to conduct naval conflict independent of conflict on the continent. One distinguished visitor to the panel pointed out that it made little sense to discuss the Soviet Navy in a vacuum. It should be addressed as part of a combined threat.

If there were a prolonged war necessitating the maintenance of sea lines of communication to Europe, there was general agreement that the Soviet Navy was a serious threat. The threat to the movement of extremely high-value war material, such as tanks and oil, was seen as particularly critical by several panel members, but some offered the view that, though the US would take losses, it could succeed in moving the majority of materials over the seas. Points presented in the course of this discussion about the disposition of Soviet naval forces and the problems of maritime support were:

- Though the Soviets had obstacles to overcome in safely exiting confined seas to pose a serious threat to Western forces and shipping in the event of a prolonged war, they would probably be able to do so.

- The Soviet naval threat to sea lines of communication at long distances from the Eurasian periphery, such as in the Indian Ocean, is not as great as often publicized.

- In any major attack on Europe, the Soviets will almost surely destroy the ports at which Western shipping would seek to land. This maritime problem may be as serious as the threat to our shipping headed for the ports, since it is unlikely that we would have to protect that shipping from the Soviet Navy short of a major European conflict.

Projection of Soviet Naval Power. In its brief discussion of this subject, two points, one about political perceptions and one about military capabilities, were made:

- The political impact of Soviet naval deployments is considerable and, though we could do nothing to prevent the Soviets from going to sea for political purposes, we should decide where and how we should offset the advantages the Soviets are gaining in this way.

- The Soviet Navy has little ability to project amphibious forces to areas distant from Eurasian shores.

Soviet Naval Policy. In an attempt to tie together the political and military facets of Soviet naval policy, the discussion led to the concept of *interposition.* Interposition, as the panel used it, appeared to mean the deterrence of an opposing force (even a superior one) by moving ones own force across to path and placing the onus of escalation upon the opposing nation. This kind of denial stragegy appears to be the kind of tactic the Soviet Navy might employ at distances from its home bases. A conceptual "model" of Soviet naval policy was discussed which attempted to show the relationship of Soviet naval political and military capabilities to the threat of escalation. The following assumptions and propositions were discussed:

- The Soviet Navy depends heavily on the threat of escalation to nuclear levels to make credible the potential activities of its forces at lower levels of tension or crisis.

- The strategic deterrent and the show-the-flag missions of the Soviet Navy (the two extremes of the escalation spectrum) are ones where capabilities are practically unlimited. But the Soviet Navy is far from being able to exercise all the options that great navies of the past could exercise (or that Gorshkov talks about). Though successful at denying some of the freedom of action that the US once enjoyed, the Soviets cannot expect to gain the ability to act with impunity themselves.

- At the middle levels of the escalation spectrum, the Soviet Navy is generally inferior to the US and the reliance on the threat of escalation to deter the US is very high. It is, in fact, so high in relation to the stakes the USSR would have in limited conflict situations that this reliance represents a fundamental flaw in Soviet naval strategy.

- The advent of intercontinental nuclear power gave new license for Soviet Naval operations on the high seas, but it is not unlimited license. By not accepting the threat of escalation as credible in lower or intermediate-level crisis or conflict situations, the US could take advantage of the fundamental flaw in Soviet naval strategy. In short, if the Soviet Navy interposed its forces when a US naval force sought to make a landing, support a government in power, etc., the Soviet bluff could be called. In the final analysis, then, it is US *will* that is required more than additional large ships. To counter the Soviet Navy, we should be building an effective sea-control navy, based on highly mobile, light and fast ships—and we should have the courage to use them.

SOVIET–AMERICAN STRATEGIC COMPETITION: INSTRUMENTS, DOCTRINES, AND PURPOSES

Dr. Colin S. Gray

Of Capabilities and Intentions

A competition in armaments may serve many purposes for the participants, prominent among which is the forwarding of the foreign policy ambitions of the state. Specific weapon programs may be explained in terms of bureaucratic expediency, while the scale of particular procurement programs may invite very general stylistic explanation/rationalization (e.g., "the Soviet Union always builds in large numbers" or "large rocket-boosters is simply 'the Soviet way' in missile technology"). Nonetheless, Soviet missiles and tank armies pose objective, latent threats to Western values, whatever the balance of true rationales may be for their deployment. It is easy to select explanations for Soviet developments which fit our doctrinal/political predispositions. A great deal of the Soviet military endeavor that has borne fruit in weapons deployed since the mid-1960s may reflect nothing more sinister than tangible side-payments by the Soviet political leadership to the Soviet military as the price exacted for acquisecence in detente. Also, one might argue that the scale and breadth of the Soviet commitment to enhanced military capabilities shows nothing more worrisome to the West than a prevading sense of insecurity and inferiority. By this latter line of reasoning, the stronger the relative military position of the Soviet Union, the more secure Soviet leaders will feel – and hence the more willing they should be to engage in what Western commentators would term 'genuine' detente activity.

The above arguments, and others to the same comforting effect, are far from absurd: however, they do strain the evidence and lack any persuasive measure of logical dominance over rival, less comforting arguments. Whatever Soviet motives may be, it is difficult to find comfort in the record of Soviet strategic programs in the 1970s. The burden of the argument in this paper is to suggest that the Soviet Union is seeking to purchase military options that should provide it with not unreasonable prospects for (a) deterring crises, (b) winning crises, and (c) winning wars (at any level). It is not suggested either that Soviet leaders will seek confrontation – in order to road-test their military capability–or, still less, that they would welcome nuclear war. Furthermore, lest there should be any misunderstanding, it is not suggested (even implicitly) that Soviet foreign policy ambitions are rigidly cast, either as to place or timing. By its military efforts the Soviet Union appears to be seeking to buy freedom of action: to what precise ends no one, probably not excluding the Soviet leadership, can presume detailed knowledge.[1] However, because Western theorists have difficulty writing plausible scenarios wherein the Soviet Union could cash its military investment to good political effect, it does not follow that military investment should be discounted. It is only sensible to presume that the Soviet Union is not devoting 11-13 percent (which is probably the lowest defensible range) of its GNP on defense for frivolous reasons. For the first time in twenty years, Soviet strategic doctrine and Soviet strategic capabilities are beginning to betray an ominous congruence. The traditional Soviet endorsement of what Western analysts have chosen to term a "war-fighting" capability now shows plausible signs of being matched by military capabilities that might just yield *victory*. It is, perhaps, worth recalling that in 1973, the late Soviet Defense Minister, Marshal Grechko, claimed that in the event of a world war, "we are firmly convinced that victory in this war would go to us.[2] Such a declaration could be dismissed

summarily as being purely hortatory, or even ideologically ritualistic, were it not for the defense capabilities that the Soviet Union is providing itself. Any Soviet attempt to road-test their strategic investment might well end in catastrophe for both principal parties, in part for the reasons cited by John Steinbruner and Thomas Garwin,[3] but there are persuasive grounds for taking Soviet strategic doctrinal utterances at face value.[4]

Whatever one may think to be the value of the strategic attitudes of an arms race adversary, it is only prudent (and not paronoid) to be sensitive to those indicators of strategic intent that he takes seriously. With respect to the Soviet Union, one is competing with a state which (a) views war (at all levels) as an instrument of policy;[5] (b) views a good defense as a good deterrent; and (c) views Western interest in detente processes as a fairly direct consequence of the rise in the relative military strength of the Soviet Union. There is no obvious doctrinal constraint upon the growth of Soviet military power. Soviet officials intend to perform as well as possible, should war occur. There is no evidence of note that would suggest a serious Soviet interest in the concepts of sufficiency, parity or stability (in common Western understanding). With the experience of 1941-45 still very fresh in their minds, Soviet officials take the prospect of war very seriously indeed—they appear to believe, even in 1976, that states can win or lose. One may not approve of, or even really understand, this point of view—but it is only prudent to take full account of it. A strategic posture that looks awesome *to us*, largely in terms of our ability to devastate the urban-industrial structure of the Soviet Union, may look considerably less forbidding to a state that designs its strategic forces largely with a counterforce focus, and which does not expect to have a large fraction of its urban population at nuclear risk in an intense crisis.

Strategic Superiority Revisited

On June 25, 1976, Secretary of State Kissinger issued the following dictum: "Increasingly, strategic forces find their function only in deterring and matching each other."[6] As a terse summary of much of Western opinion, the Secretary was very close to the mark. However, it is appropriate to wonder whether such an opinion is sensible for a superpower that has very extensive overseas interests which could require limited first-strike support from American strategic forces. Furthermore, one wonders how such an apolitical perspective will affect American performance in an arms competition with a state that does not obviously share it. On July 3, 1974, Kissinger asked the following set of questions:

> *What in the name of God is strategic superiority? What is the significance of it, politically, militarily, operationally, at these levels of numbers? What do you do with it?*[7]

These were good questions deserving good answers. They penetrate to the very heart of much of the strategic debate of recent years—though, thus far, they do not seem to have elicited any very direct and well-formulated replies. The answers offered here may not be as illuminating as Kissinger's questions, but they do, at least, confront the issues without evasion. Kissinger asked, "What in the name of God is strategic superiority?" In descending order of operational strategic significance, a three-tiered answer must be provided.

1. *Type A Superiority:* The ability to prevail in World War III—at tolerable cost to your society. The concept of *victory* may be passe among most Western strategists, but—perhaps alas—acute international crises will not be conducted solely by those strategists.

2. *Type B Superiority:* The acquisition of major strategic capabilities, unmatched by the adversary, that should yield non-marginal military and political advantages. These capabilities, however, will be understood to fall well short of a plausible war-winning capability. Prominent examples, looking over the next decade, could be the leverage acquired (or perceived to have been acquired) by a working (though far from immaculate) civil defense program, and a major hard-target counterforce capability. Neither should enable the Soviet Union to be confident of victory at low cost, but—in combination—they should enable the Soviet leadership to take and keep the initiative.

3. *Type C Superiority:* The acquisition of a strategic force posture which *looks* more substantial/capable than does that of the adversary. Even if military advantage could not be taken of such a posture, most interested observers of the strategic balance who were not professional defense analysts should perceive a marked tilt in that balance.[8] The public relations for a strategic superiority of this third variety could probably be left safely by the Soviet leadership to such willing instruments as *Aviation Week* and American presidential and senatorial 'hopefuls'.

The above tripartite answer to Kissinger's first question should be non-controversial. In theory, at least, there is little doubt as to what would constitute strategic superiority. Next, Kissinger posed the question: "What is the significance of it [strategic superiority], politically, militarily, and operationally, at these levels of numbers?"

Again, he deserves an answer. The mutual perception, by adversary crisis managers, of any Type of strategic superiority, should place the perceived inferior party at a severe psychological disadvantage. The expectation by the disadvantaged side that it would be assessed by the adversary as lacking a balancing measure of strategic weight, could encourage rational but possibly reckless behavior in an endeavor to mobilize credibility in a hurry.

Should the 'high threat' estimate of the danger to *Minuteman* presented by Secretary Rumsfeld develop,[9] then—by 1982-1983—it is not implausible that Soviet leaders might believe that they had achieved Type B superiority, and were well on the road to Type A. Deprived forcibly of all save 50 or so of the land-based missile force, and *possibly* having lost 40 percent plus of the SSBN force in part and some proportion of the manned bomber fleet on its runways, the United States might find (a) that it could not effect anything even close to the assured destruction of Soviet urban-industrial values, and (b) that it was not strongly motivated to try. It is true that mass urban evacuation in the Soviet Union *should* occasion maximum alarm in the United States[10]—but what could the United States do in that circumstances?—seek to emulate?—launch a portion of the ICBM force?—put some bombers on airborne alert and disperse the rest?—send SSBNs to sea? While there are crisis measures that the United States undoubtedly could and would effect, it is difficult to deny the argument that mass urban evacuation in the Soviet Union would create a major (and possibly fatal—for the United States) strategic asymmetry. The Soviet civil defense program may not be as impressive in fact (or in prospect) as some commentators would have us believe, but its potential as a crisis and/or war winner does seem to be appreciated in the Soviet Union and resisted in the United States.

It is one thing to argue that a serious civil defense program in the United States is impractical, for reasons of political culture or urban geography, it is quite another to argue that civil defense *really* would make very little difference. One should be honest with oneself, even if the answers are unpalatable. The Soviet estimate that they could hold their casualties down to 10 million or so may be a considerable underestimate, but—in the light of Soviet experience—such a (prompt) casualty list is by no means unprecedented. Probably upward of 10 million Soviet citizens were sacrificed to the end of consolidating Soviet political power and modernizing the structure of Soviet society (on a 'crash' basis) in the 1920s and 1930s, while the Soviet Union took close to 20 million casualties (from all causes) in the Great Patriotic War. Plausibly, one might suggest that even a very ruthless and desperate Soviet leadership would conclude 'never again', but—no less plausibly—one might suggest that such a leadership would deem the price well worth paying (as it had been in the past). After all, the Soviet political objective in such a conflict would be the defeat of the United States (or, at least, its reduction to a fourth- or fifth-rate power), following which happy event, the Soviet Union would no doubt expect to resolve the outstanding problems in Sino-Soviet and Soviet-West European relations in a satisfactory way.

The above is not a prediction, but is intended as a warning of what might occur if the United States permits very substantial strategic asymmetries to develop in an arms competition with a strategically alien culture which does not eschew the old fashioned notion of victory.

Kissinger's third question, "What do you do with it [strategic superiority]?" is not difficult to answer. Depending upon the Type of superiority attained, three categories of advantage can be specified.

1. To deter crises. In other words, perceptions of strategic superiority, and foreign expectations of the will and confidence that should flow therefrom, should induce preemptive political accommodation. The strategic historian has the problem of negative evidence. We can never know which crises did *not* occur in the 1950s and 1960s because of Soviet understanding of American Type A and, eventually, Type B strategic superiority.

2. To wage and win crises. Even Type C strategic superiority—of (some) appearances only—should yield some crisis-waging weight. It should be possible to so manipulate the perceptions of the adversary, and certainly of very interested third-parties, that others expect you to anticipate a favorable outcome. Hence, you are expected to press your claims with vigor, and to be prepared to take the crisis to a higher level for an improved outcome. Should one enjoy the benefits of Type B (major strategic asymmetries in your favor—of prospective military significance) superiority, then one has 'escalation dominance'. There should be major military use options to choose from for the effecting of a 'knights' move' in the crisis—if, say, a local passage of arms develops unsatisfactorily. Anticipating escalation dominance, a state with a superior strategic arsenal (Type B—perhaps approaching Type A) should be far more willing to engage in crises—or to threaten to force a road-test of political will (and military competence, if need be).

3. To wage and win wars. Western strategic theorists, for excellent reasons, have devoted far more attention to the deterrence, than they have to the conduct, of thermonuclear war. Even when the theoretical veil masking actual nuclear use is lifted, discussion tends to focus upon 'intra-war deterrence' and 'war termination'. One may applaud the reasoning and values behind this bias, but

it behooves us to recognize that the attitude-set of the arms race competitor shows every plausible sign of being rather different. Specifically, one seeks to deter (though there are some linguistic problems here) war, and then—if deterrence fails—one moves smartly and, with good luck and judgment, preemptively (going first in the last resort) into the phase of war waging for the end of gaining victory.[11] Speculation on intra-war deterrence, and how wars might end, are prominent by their absence from the visible Soviet debate.

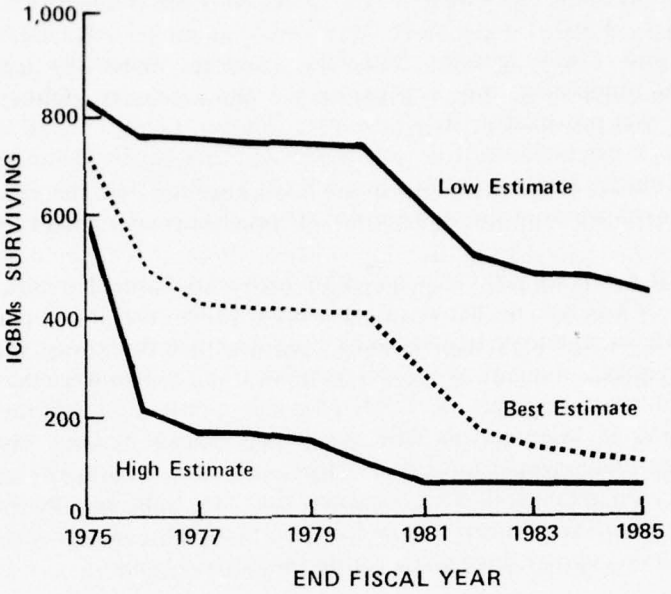
Under discussion here is not the merit of one or another strategic theory, rather is it the likely use that a politico-strategic culture very different from our own might choose to make of a strategic posture that it deemed to be usefully superior. Because *we* would be strongly disinclined to try to cash a probable Type B (or even Type A) superiority through a military road-test, it does not follow that Soviet leaders will reason similarly. It is prudent, and not paranoid, for American officials and legislators to so plan their strategic posture that the Soviet willingness to translate their rather muscular strategic theory into practice is never put seriously to the test.

The burden of this section has been to argue that strategic superiority, in all three Types specified, is—in theory—attainable and usable. The key factor is whether or not one party alone to the arms competition would be able to reduce very, very substantially the proportion of its population that would be at immediate nuclear risk. Given the current American enthusiasm for (relatively) low-yield warheads that should minimize collateral damage—and for limited stragetic options, the Soviet Union has every incentive to devote considerable resources (possibly $1 billion per annum and 72,000 full-time personnel) to civil defense and the protection of key industrial machinery (rather than buildings). A crucial asymmetry that one must reasonably presume is that the Soviet Union is willing to place a far higher figure upon the identification of "tolerable" casualties than is the United States. No civil defense program could keep casualties to less than 10 million against a determined (if ragged) assault, *but the asymmetry in willingness to suffer pain* should mean that a civil defense program is far more cost effective for the Soviet Union that it would be for the United States. There are, of course, ways in which the Soviet civil defense program could be offset. Indeed, should American officials begin to suspect that Soviet leaders felt convinced that their civil defense program yielded them a prospective war-winning edge, it would be sensible to specify, very publicly, that American counter-population options were being designed explicitly to offset the reduced vulnerability that should flow from urban evacuation. (This sounds easy, but in practice would be very expensive and difficult to accomplish.)

The Land-Based Missile Question

The question of the decade, for both superpowers in the 1980s with respect to the structure of their strategic forces, should be what to do about land-based ICBMs. Despite some valiant attempts to prove the contrary,[12] it is implausible that either Super Power will be able to rest confidence in its silo-housed ICBMs for *second-strike* missions, by the end of the decade of the 1980s. According to the "best" official American estimates, this condition of acute (theoretical, of course) vulnerability will afflict the United States as early as 1982. Figure 1 was presented by Secretary of Defense Rumsfeld early in 1976.

FIGURE 1: US ICBM VULNERABILITY[13]



The "best" and "high" draw-down lines of Figure 1 *may* be grossly conservative, but skeptics should take note of the following points: (a) those who compiled and assessed the data for Figure 1 had no obvious interest in exaggerating the threat to *Minuteman* (the USAF and the CIA certainly have none); (b) these lines were not drawn as a consequence of 'back of the envelope' arithmetic—nor taking simple readings from a 'vulnerability assessment calculator'; (c) the detailed and even careful arithmetic of the skeptics rests upon a knowledge (and reasonable guess) base vastly inferior to those who drew Figure 1."Monday morning quarterbacking" on the National Intelligence Estimates (NIEs) may be a legitimate exercise for extra-official analysts, certainly it is an intriguing game to play, but it must not be allowed to obscure the fact that the only authoritative source of data on Soviet and American strategic weapon systems is the official intelligence community. Since university-based groups do not maintain missile-test monitoring equipment, nor reconnaissance satellites, it behooves us to treat their projections with some reserve—particularly when they are flatly contradictory of official estimates. Both official and extra-official estimates may be wrong (there can be no absolute authority on, for example, the degree of super-hardening of Soviet ICBM silos), but for much of the data that is critical to the silo-vulnerability question, one group (officials) knows that facts and semi-facts that are available, and the other group (extra-official) does not. To repeat, there are no independent, extra-official, sources of reliable data on the performance of weapons.

Prudently, one must presume that the Soviet Union will acquire a sufficient force of MIRV launchers, with reduced CEPs, to pose an all-but annihilating threat to *American ICBMs* in the early to mid 1980s. Presuming, probably unreasonably, that the common aggregate ceilings of Vladivostok are translated into a SALT II treaty, and that the Soviet Union elects to maximize its

hard-target counterforce potential by MIRVing only land-based systems, a force of 1,000 SS-17-19s (200:800) and 303 SS-18 Mod 2s would be able to deliver 8,024 warheads of close to, or in excess of, 1 mt (SS-17-900kt; SS-19-1-2mt; SS-18 Mod 2–2 plus mt.)[14] with CEPs of close to 0.1 nm (608 feet) by the mid 1980s, ignoring reliability problems. Since the United States offers a hard-target structure numbering only a little over a thousand aim points, and since the CEP estimate cited above was provided by Representative Robert Leggett,[15] who is not exactly a friend to "paranoid" strategic calculations, it is easy to see why the Soviet Union should have an ample number of reentry vehicles to place the two on each silo required to offset reliability problems, yet meet the exacting launch-window requirement for the preclusion of serious fratricide problems.

The United States cannot acquire a matching high-confidence, hard-target killing capability until (and if) the MX-ICBM is deployed in numbers. If one is serious about hard-target counterforce, the only candidate system in the existing American inventory, *Minuteman III*, simply does not carry the requisite number of reentry vehicles to place two warheads on each Soviet silo. Facing a Soviet hard-target structure of 1,500 plus aim points, 550 *Minuteman III's* carry only 1,650 warheads. Even if Minuteman's CEP was zero, instead of 0.15 that it probably is at present,[16] the United States would not have a high-confidence total, hard-target killing capability (because of reliability uncertainties). To summarize thus far: both superpowers face the problem of the total vulnerability of silo-housed missile forces in the 1980s; and the United States should be in this condition (at least) two or three years before the Soviet Union.

Intriguing questions flow from these conclusions. A selection includes the following:

1. What use, if any, might the Soviet Union make of a unilateral, major hard-target counterforce capability?

2. Should the United States seek to 'match' the Soviet capability, 'stuffing' its *Minuteman III* silos with a follow-on ICBM designed to be a hard-target killer?

3. Should the United States respond to the predictable Soviet hard-target killing capability by moving to a dyad of SSBNs and manned bombers/cruise missile carriers?

4. Should the United States learn to live with vulnerable silos—seeing ICBMs thus housed as of value for (a) limited (first-strike) strategic options; (b) their attack-timing complication merit—thereby providing cover for bomber and SSBN facilities?

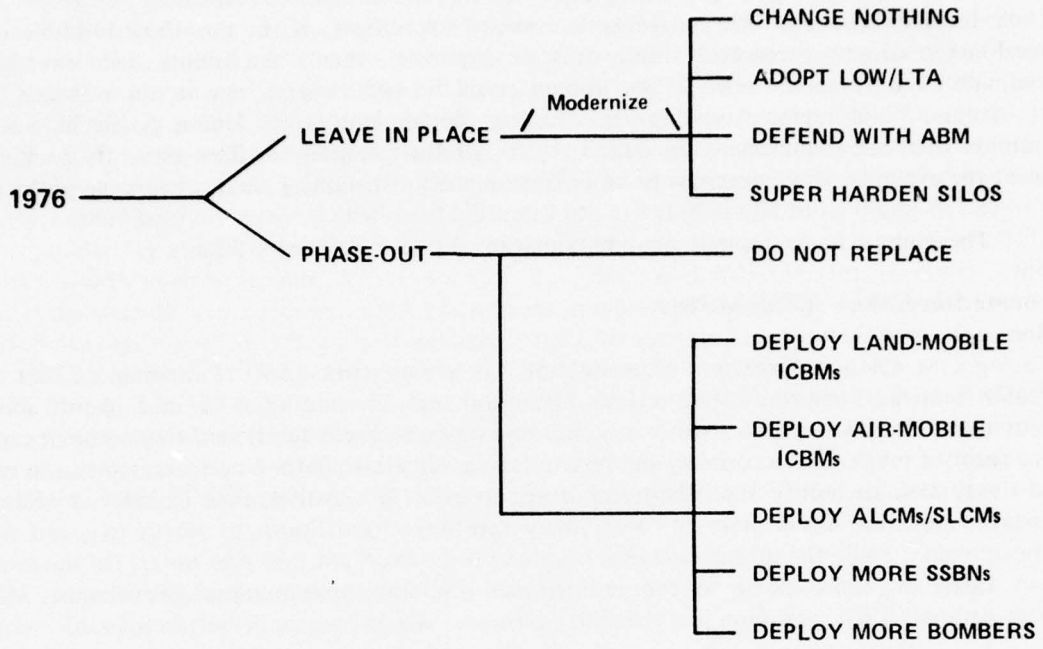
5. Should the United States defend ICBM silos?

6. Should the United States deploy land/air mobile ICBMs?

7. Should the United States consider the firing tactics of launch on warning (LOW) or launch through attack (LTA)?

This author has addressed these questions at length elsewhere and will not seek to reproduce here the detail of that analysis.[17] Figure 2 presents the structure of the decision problem in bare outline.

FIGURE 2: THE FUTURE OF LAND-BASED MISSILE FORCES



The case for retaining a strategic triad is a substantial one—notwithstanding former Secretary Schlesinger's disparagement of "the canonical logic of the Triad."[18] Specifically, a triad offers three distinctive warfighting problems to the adversary, it functions synergistically for enhanced survivability, and each of the three legs has quite characteristic strengths and weaknesses for the accomplishment of particular strategic missions. The SSBN force, out of port (and presumably not 'trailed' in a dedicated fashion), is the most survivable of the strategic launching modes, but some CEP degradation results from small inaccuracies in the ships' inertial navigation system (which can be offset by stellar guidance), while reliable communication, at depth, is an as-yet unresolved problem. ELF *Seafarer,* if ever constructed (environmentalists willing), should greatly alleviate the problem of communicating with SSBNs at depth, but ELF communication, by definition, has a very low traffic flow. Also, communication problems aside, SSBNs are not always where they should be for the launching of prompt missile strikes.

The manned bomber force, in principle, has problems of pre-launch survivability and of penetration. Furthermore, a manned bomber, however wondrously equipped with ECM and defense-suppressing ASMs, is (relatively) slow to target. Really high confidence in the prospective performance of a penetrating manned bomber force through the 1980s, is possble only if land-based missiles (however deployed) maximize attack-warning time, and a cloud of LRCMs confuses and overloads air defense systems.

Land-based missiles, in silos or in pre-surveyed sites (possibly shelters), have the characteristics of very high accuracy, very secure communications, and symmetry of gross appearance with the

land-based missiles of the other side. Force structure choice should be driven by doctrine. If the United States wishes (a) to avoid offering the Soviet Union a major, very lucrative, vulnerable military target system; (b) to pursue a major silo-killing capability; (c) to retain a near-instantaneous strategic capability to respond (or initiate) at the homeland-to-homeland level; and (d) avoid very prominent visible strategic disparities—then it is difficult to see how the option of purchasing a land-mobile ICBM system could be eschewed. If one is not very interested in "matching," and indeed offsetting and denying, Soviet hard-target killing potential, and if one decides that the requirement for near real-time strategic response is little more than dogma,[19] of no substantial strategic importance or political interest, then one should consider very seriously the option of phasing-out silo-ICBMs and not replacing them with a follow-on land-based system. What follows is a terse and summary commentary upon the options cited in Figure 2.

Leave Silo-Housed ICBMs in Place

1. *Change Nothing:* this amounts to saying that even a vulnerable ICBM force is cost-effective: bombers would receive maximum tactical warning, while one should have some sizeable first-strike options. Also, one could be expressing the belief that the vulnerability of silos is probably a myth. Lest a contrary impression have given above, let it be understood that it would be no easy task to reduce the *Minuteman* force to 50 or 60 missiles, even in 1983 or 1984. Soviet reentry vehicles would have to 'walk', very carefully, from South to North to avoid fratricide phenomena, while the attack timing would have to be excellent *(the first time!)* for the second RV on target to arrive prior to the critical and disabling environmental disturbance. Moreover, operational CEP degradation and reliability estimates would have to be within tolerable margins.

2. *Adopt LOW/LTA:* LOW has some value as an option that one does not authoritatively eschew (the vague possibility of LOW should promote a healthy uncertainty in the mind of a potential first-striker), but it has very serious drawbacks. Prominent among its limitations are the following; (a) false warning might be received, processed and acted upon; (b) the absence of time for attack assessment means that the response would have to be pre-programmed and indiscriminate; (c) it is vulnerable to the degradation of warning facilities—e.g., does one launch the entire ICBM force if one early warning satellite ceases to function (for reasons unknown)—or two? If one loses one's warning facilities, one cannot LOW. LTA calls for steady nerves and virtually invites an adversary to try to pin your forces down, pending the arrival of the total hard-target killing force.

3. *Defend with ABM (or other site defense hardware):* this range of options, if more than token in scale, would require the renegotiation of the ABM treaty of 1972. Also, the scale and sophistication of the Soviet threat has grown to such a degree since 1969, that linear descendants of *Spartan* and *Sprint* would probably be overmatched. Radical (both 'exotic' and very 'mundane'[20]) anti-missile systems, however, might be of interest.

4. *Super-Harden ICBM silos:* the Soviet Union is doing this, but the arithmetic is not promising for its cost-effectiveness (e.g., an increase in nominal silo blast resistance from 2,000 to 3,000 psi can be offset by an improvement in missile CEP of 60 feet).

Phase-Out Silo-Housed ICBMs

1. *Do Not Replace:* one loses the distinctive advantages of land-based missiles and, unless the process is conducted under the umbrella of an arms control agreement, one risks political perceptions of a major disadvantageous asymmetry (i.e., our ICBMs were coerced out of their silos).

2. *Deploy Land-Mobile ICBMs:* the major options include the following: dispersed shelters; garage mobility; buried trench mobility; off-road random crawling; road and rail mobility; canal/deep pond mobility; lake bottom mobility. The problems of 'public interface' effectively rule out any deployment mode away from military reservations. The interesting remainder promise survivability via deception and the proliferation of aim points for the defeat of a saturation attack. This notion of creating an 'RV sink' is attractive, provided one is confident that it would prove cost-effective at the very high threat levels achievably by the Soviet Union in the 1980s and beyond. The shell-game of a dispersed shelter system is probably the least flawed of the land-mobile options, though it does pose (what appear to be) insurmountable problems in terms of arms control verification. At the present time, it is not at all certain that the Soviet Union could not offset any multiple-launch point system that involves (hard or semi-hard) shelter and roadway construction, by means of the fractionation of missile payload.[21]

3. *Deploy Air-Mobile ICBMs:* such a system could have serious pre-launch vulnerabilities, would be extremely expensive to procure and to maintain on an alert basis (particularly on airborn alert), and would have CEP degradation problems that could be expensive to solve with very high confidence.

4. *Deploy ALCMs/SLCMs:* aside from their well-appreciated incompatibility with any viable arms control verification procedures, LRCMs have much to recommend them. They could serve as a *substitute* for silo-housed ICBMs in that, nuclear-armed, they could *kill* any hard-targets (conventionally-armed, they could not—TERCOM promises to be an excellent guidance system, but the CEP it should provide will probably not be as good as many seem to assume), *but* they will be vulnerable at all stages of their missions and they are (relatively) slow to target. As a supporting element for a penetrating B-1 force, LRCMs promise to be highly cost-effective. As a substitute for a penetrating bomber force, major questions arise. In their ALCM mode, they are vulnerable on runways, their carrier aircraft would have a slower escape speed than the B-1 and would be less resistant to nuclear effects, while the carrier aircraft—prior to LRCM release—would be large preferential targets. Also, it is not the case that LRCMs, flying at, say, 300 feet, subsonically, would be invulnerable to air defense attention (dogmatic claims to the contrary notwithstanding). A fleet of specialized ALCM-carriers would be very expensive to procure.

5. *Deploy More SSBNs/Manned Bombers:* to augment a dyad, in order to offset the military and political perceptual costs of the abandonment of land-based missiles, does not look very attractive. Transition to a strategic dyad should dramatically raise the cost-effectiveness of Soviet air defense and ASW research. The distinctive limitations of submarines and bombers would remain; while the vulnerability of the ground facilities of the dyad would necessarily be enhanced.

As of 1976, the Department of Defense wishes to proceed to engineering development of the MX ICBM, but the Congress is not convinced that the Department knows what it wants, nor why. The following points summarize this section:

1. The next generation of American ICBMs shold not be placed in silos, though it should be recognized that deployment of a mobile silo-killer will probably drive Soviet ICBMs out of *their* silos.

2. On perceptual grounds, at least, an American dyad should not confront a Soviet triad.

3. On the substitute options for silo-housed ICBMs, a dispersed shelter system should prove the most attractive, but . . .

4. Critical to the decision on how to deploy MX must be very careful analyses of the probable cost exchange ratios of shelters to low-yield Soviet warheads.

What Value SALT?

The now-classical texts on arms control theory[22] proclaimed that arms control should (a) reduce the risk of the outbreak of war; (b) reduce the likely damage should war occur; and (c) reduce the burden of peacetime defense preparation. These were, and remain, impeccable objectives. Unfortunately, rarely has it been very clear which details of possible agreements would promote these objectives; while the history of the past sixteen years (taking 1960 as a critical year for the formulation of arms control theory) suggests that arms control processes conducted with an alien politico-strategic culture can be fraught with the dangers that flow from self-delusion. Succinctly, a persuasive case can be made to the effect that arms control as a process could not sustain the military and political traffic and that some would have it bear.

In passing largely adverse judgment upon the arms control history of the 1960s and 1970s in general, and SALT in particular, one need not assault the theoretical citadels of arms control itself. Indeed, could one favor arms race and instability, as opposed to arms control and stability?

Superpower arms control processes have come to be recognized, for good and ill, as a continuous litmus-test for the state of superpower political relations. Far from SALT being a joint, substantially technical enterprise, removed from the ebbs and flow of wider diplomatic considerations, it has proved to be both vunerable to the deterioration in detente frameworks, and a contributor to that deterioration. In the words of *Strategic Survey, 1975:* "Far from arms control promoting detente, detente would be needed to produce the trust required for arms control: yet the very process of arms control—with its concentration on military imbalances, weapons and the scenarios of conflict—tended to undermine what trust there was."[23] Moreover, to cite an argument that has been underappreciated in the United States, the elevation of SALT to its status as the diplomatic centerpiece of detente politics, is to risk public overappreciation of the strength of the Soviet Union. It is really only in military strength that the Soviet Union can be considered a serious competitor with the United States. Hence, the attention focussed upon, and the importance attached to, SALT, risks the encouragement of public misperceptions of the overall competitive strength of the Soviet Union. In broad competitive political perspective, it is not in the interest of

the United States to accord first-class, superpower status to the Soviet Union—nor, logically, to emphasize in the rank ordering of its functional dealings with the Soviet Union, that one category (military power) wherein a very serious challenge is presented.

An obvious difficulty attendant upon an exercise in SALT-assessment is to specify criteria. At opposite extremes one may discover analysts disgusted either that SALT has not, thus far, terminated the arms competition, or that the Soviet Union has not been negotiated out of weapon developments that clearly it was in its interest to pursue. In making the strongest case that he was able for the value of SALT, in an adverse domestic (and international) political climate, Kissinger has argued as follows:

> *In an era of expanding technological possibilities, it is impossible to make rational choices of force planning without some element of predictability in the strategic environment. Moreover, a continuing race diverts resources from other needed areas such as forces for regional defense, where imbalances can have serious geopolitical consequences.*[24]

These are not insubstantial arguments. As a consequence of SALT I, American defense planners knew that they would not have to plan to penetrate Soviet ABM defenses (save around Moscow—and provided the treaty endured), and that Soviet offensive forces could number no more than 1,618 ICBMs (they thought) and 740 SLBMs through 1977. SALT II, with its tentative common aggregate ceilings of 2,400 (strategic offensive forces) and 1,320 (MIRV launchers), sould similarly build a useful certainty into the next decade.

However, since SALT I was, in substance, little more than a registration of Soviet progress—a recognition of facts (somewhat generously interpreted with respect to the SSBN count)—set in a context where the Soviet Union was on the threshold of a major qualitative upgrading of its forces, the strategic worth of the Interim Agreement is open to serious question. The United States paid in the (possibly counterfeit—given domestic political objections) coin of a much superior ABM technology, for what? The appearance of the constraint of the Soviet silo-killing threat? In fact SALT I yielded no alleviation of the threat to *Minuteman* silos worthy of note.

One can, and probably should, note that SALT I was innocuous in that while it was devoid of obvious strategic merit, in itself, it did not disadvantage the United States. If *Safeguard* (and a *Site-Defense* follow-on) had not been arrested by the ABM treaty of SALT I, it would almost certainly have been stopped by the United States Congress. Also, while the Soviet SS-16 through 19 ICBM series, with its much increased (and MIRVed) payload over the SS-9s, 11s, and 13s, was not constrained by SALT (save in a way that the Soviet Union might have found attractive anyway—the necessity to phaseout less capable systems), neither can its deployment be laid at the door of SALT. One can argue that SALT *failed* to preclude the modernization of the Soviet ICBM force in the directions of greatly increased payload and (independently targetable) payload fractionation, but that argument is fatally vulnerable to the judgment that the modernization program was not negotiable.

While, in general, Henry Kissinger's assertion of the value of "predictability in the strategic environment" sounds reasonable, in practice it is not obvious that SALT I and (possibly) SALT II

offered predictability that was worth purchasing. ICBM launcher numbers were frozen by the Interim Agreement, but that kind of five-year certainty was of little, if any, worth—given the very extensive freedom to modernize that was agreed. Also, it is perhaps useful to know that Soviet strategic offensive forces can number no more than 2,400 under the terms of SALT II, with 1,320 MIRV launchers, but since those numbers are way beyond the necessary numerical zone for the posing of a (near—) total hard-target counterforce threat—where is the comfort in that certainty?[25] In the absence of a SALT II, the Soviet Union could elect simply to add the SS-16 through 19 ICBM series to the existing deployment—in keeping with its traditional practice of not retiring obsolescent systems. However, such a tactic would have political perceptual, rather than strategic, significance (not that one should minimize the importance of the former; nor deny that a quantitative American arms race response might have been triggered thereby).

In terms of the three classic goals of arms control, SALT, thus far, has been either an unambiguous failure, or does not lend itself to sufficiently precise discussion. In order:

1. Has SALT reduced the risk of the outbreak of war? This is difficult to answer unless one has a resonably concise theory of the causes of war. In the sense that the somewhat apolitical American arms control establishment tends to believe that technical instabilities can promote conflict, SALT has been an irrelevance. SALT has arrested stabilizing silo-defense options, and has legitimized the deployment of destabilizing (limited) first-strike capabilities. In fact, the Soviet view that technical instability need not promote political instability probably has a great deal of merit.

2. Has SALT reduced the likely damage that would be suffered were war to occur? Not at all, must be the cautious answer. SALT has not involved, at least on the Soviet side, the discussion of strategy—let alone the negotiation of rules for homeland to homeland engagement. The LSO theme in American strategy evolved contemporaneously with SALT, but it was a planning process almost totally removed from SALT considerations. If the Soviet Union has revised its SIOP as a consequence of SALT-related developments, that fact remains a very well-guarded secret.

3. Has SALT reduced the burdens of peacetime defense preparation? Yes, if one choses to believe that either superpower was willing and able to proceed to full-scale ABM deployment. No, if one believes (in company with this author) that neither side wanted (Soviet Union), or would be permitted (the United States), to proceed with deployment. It is not certain that SALT, thus far, has had more than a very marginal impact upon Soviet offensive forces programs (any 'arms control dividend' from quantities not deployed has been instead in the quality and quantity of successor systems); while SALT-bargaining considerations increased the attraction of early MIRVing and lent diplomatic-rationale weight to the B-1, *Trident* and LRCM developments in the United States.

To be fair to the SALT process, the discussion immediately above probably speaks as much to the shallowness of arms control theory as it does to the deficiencies of SALT and its negotiations. The litany of the goals of arms control has become so familiar that few people have stood back and observed that those goals have no operational value. Perhaps those who debate the merits of SALT—both as a process and as a series of outcomes—are guilty of not making explicit first what it is reasonable to expect. After all, one could set one's sights so low that almost any SALT-related activity is deemed to be valuable, or so high that no degree of negotiable progress would warrant

ascription as success. It might be felt that SALT is in need of no specific justification, provided it does not occasion harm to Western security interests. Where one feels the burden of proof to lie, on those who would justify the continuation of SALT, or upon those who would effect its swift demise, is very much a matter of individual political preference. Views on the worth of the SALT enterprise are driven by one's assessment of the nature of Soviet foreign policy goals, the enduring character of Soviet strategic doctrine, and the relative competence of Soviet and American negotiators. This last point refers not merely to the style and capacity of individuals, but to the characteristic negotiating habits of two very different political-social-bureaucratic systems.[26] Before turning to a line of assessment of SALT according to some very different criteria, it is useful to present thumb-nail sketches of the typical approaches to arms control negotiations of the two-superpowers.

Relevant Soviet Attitudes:

1. Arms control is a form of political struggle, wherein victory or defeat may be registered.

2. Arms control is primarily a political, rather than a technical, exercise. Arms control is *not* a process concerned with the joint solution or alleviation of technical strategic problems (e.g., surprise attack anxieties), rather does it record the facts of changing political relationships in the coin of (preferably sparse and *general*) technical strategic detail.

3. Arms control involves a protracted test of will, skill and resources. Rigidity, patience, linguistic manipulation, ambiguous 'technical' breaches of past agreements—all play a part in what is seen essentially as a conflict process.

4. Arms control can contribute to the psychological disarmament of the adversary.

5. Arms control is genuinely sought. Items 1-4 do *not* indicate disinterest—they are simply 'the Soviet war'—the manner in which Soviet officials believe the best result (for the Soviet Union) for the cost can be secured.

Relevant American Attitudes

1. Arms control is about the promotion of stability defined largely in technical strategic terms.

2. Arms control, particularly with respect to strategic armaments, is so important and is so obviously a common superpower interest, that it should, and can, be promoted apart from considerations of day to day politics.

3. Arms control is about the *fixing* of particular strategic problems (in important respects the United States gives the appearance of being a nation of engineers).

4. Arms control processes should produce prompt and visible results—preferably in the terms of 3 above. Quadrennial domestic defense-debating excess means that the timetable for negotiations has to be influenced strongly by domestic political considerations.

5. Americans tend to be impatient—a cultural characteristic of a credit-card society which North Vietnamese, as well as Soviet, negotiators understood very well indeed.

6. Arms control, though primarily technical in focus, should promote improved political relations.

7. Arms control processes should allow for the strategic education of retarded foreigners (who do not understand their own best interests).[27]

The above contrasting selections, with the danger of some exaggeration admitted, do point to the probable fact that arms control negotiations between the superpowers are as unlikely a process for the promotion of better political relations as they are for the improved management of the arms competition. The sharply divergent strategic doctrines and political styles of the two countries could hardly fail to ambush the SALT process: even should major extra-SALT political developments not poison the negotiating climate fatally.

An obvious constraint in the discussion of the value of SALT in 1976, is that one is talking about an existing structure in diplomacy. The very fact of SALT is, in and of itself, important. If it did not exist, a prudent man might hesitate long before seeking to create it, but any very substantially negative assessment of the past and prospective value of SALT, could lead one to the conclusion that SALT should be terminated. Whatever the narrow strategic basis of the assessment that SALT was of little, or even negative worth to take steps for termination would be viewed, world-wide, as a major political decision intended to provide a very broad-gauged signal to the effect that Soviet-American relations had deteriorated dramatically. In fact, it might not be too strong to say that the termination of SALT would be judged to be the end of the detente cycle that began in earnest in 1969. Of course, one can conceive of circumstances wherein that is precisely the signal that one would wish to transmit.

Although analysts and commentators will disagree about the appropriate answers, it is useful to approach the issue of the value of SALT by means of the provision of a set of relevant questions upon which most can agree.

1. Has SALT promoted political detente?

Comments: Yes and no, but largely no. Very strong motives for the appearance of better relations made possible SALT I in 1972. But, SALT I was a 'false dawn' in that it sidestepped the more difficult and substantial strategic questions, and its dependence upon a unique political climate was not widely appreciated. As a general rule, detente promotes arms control, and not vice versa. The consideration of arms (im)balances is not likely to promote trust, good-will, and a willingness to take chances. It follows that the negotiation of a severely flawed agreement package (SALT I) is not likely to lead to the negotiation of more substantial and equitable agreements. Stylistic divergences must intrude strongly into the follow-on negotiations, (a) as each party monitors the manner in which the other complies with the agreed-upon terms, and (b) as those subject upon which the negotiators of the initial round had agreed simply to disagree, cannot be evaded any longer.

2. Has SALT promoted a benign convergence of strategic theories and attitudes (in the direction of what Western analysts understand by stability)?

Comments: The evidence of Soviet strategic programs developed and deployed since November 1969, and particularly since 1972, lends no support to the benign convergence thesis. The Soviet Union, no doubt for good reasons of its own, is deploying a family of ICBMs (and developing a successor ICBM series) that should compel the evacuation of American ICBM silos. There has been no noticeable evolution of Soviet strategic doctrine in directions identified as stabilizing by Western arms controllers.

3. Has SALT had any traceable impact upon the action-reaction mechanisms that characterize competitive activity?[28]

Comments: Very definitely not. The Soviet Union seems to be locked into a weapons development and procurement rhythm that is largely independent of American arms race moves. It is the United States that is the 'reacting' party in the 1970s. Aside from the need to demonstrate comparable technical prowess, had the Soviet Union shared the assured destruction preference of many Western theorists, the ABM Treaty *should have* removed the necessity of its moving to MIRVed systems. SALT I and, prospectively, II place a premium upon the qualitative upgrading of strategic forces (and, of course, increase the attraction of systems that are not covered by agreement). In terms of the control of the arms race, SALT has been an irrelevance.

Not infrequently, one encounters the assertion that 'SALT is essential for detente, there is no alternative to detente, therefore SALT must continue.' Leaving aside the question of the proper character and objectives of detente, as understood in Moscow and Washington, the assertion is vulnerable to the argument that there are many alternatives to detente, as practiced and expressed rhetorically since 1969. We are the victims of simplistic era-mongerers. Eras of Cold War and of detente, as identifiable periods, are largely fiction (perhaps convenient and plausible fiction, but fiction nontheless). Superpower interest in avoiding crises and wars that they would not expect to be able to prosecute to satisfactory conclusions will continue, with or without SALT and what is referred to as detente. The SALT skeptic should not be intimidated by the (apparent) dilemma of the non-existent alternative.

The most that should be expected of the SALT process is that it brings forth agreements that are not disadvantageous. The SALT process cannot 'control the arms race' or reduce potential crisis instabilities very markedly, because SALT pertains to an arms competition, one of the participants in which has a (blurred and possibly unrealistic) concept of victory. The Soviet Union wants to achieve as superior a relative strategic position as it is permitted by American defense activity. The political roots of this ambition are quite beyond the competence of arms-control and detente-process attention. The degree to which the driving force of the Soviet-American arms competition should be laid at the door of ideology, as opposed to geopolitics, is as uncertain as it is uninteresting. The scope for arms control interdiction of that competition is extremely limited. All that one can ask is that American negotiators function competently, and that the defense community recognize the character of the long-term strategic challenge that it must meet.

FOOTNOTES

[1] See Herbert Goldhamer, *The Soviet Union in a Period of Strategic Parity*, R-889-PR (Santa Monica: RAND, November 1971).

[2] Marshal Grechko, Report at the Fifth All-Army Conference of Party Organization Secretaries, *Karsnaia zvezda*, 28 March 1973.

[3] John D. Steinbruner and Thomas M. Garwin, "Strategic Vulnerability: The Balance Between Prudence and Paranoia," *International Security*, Vol. 1, No. 1 (July 1976).

[4] On Soviet doctrine, the following are particularly useful: V.D. Sokolovskii, *Soviet Military Strategy* 3rd ed., edited by Harriet F. Scott (New York: Crane, Russak, 1975); Roger Barnett, "Trans-SALT: Soviet Strategic Doctrine," *Orbis*, Vol. XIX, No. 2 (Summer 1975), pp. 533-61; Benjamin S. Lambeth, "The Sources of Soviet Military Doctrine," in Frank B. Horton III *et al*, eds., *Comparative Defense Policy* (Baltimore: John Hopkins University Press, 1974), pp. 200-16.

[5] See "Foremost Soviet Military Journal Emphasizes Continuing Crucial Role of War and Military Might," *Soviet World Outlook*, Vol. 1, No. 2 (13 February 1976), p. 7.

[6] Henry Kissinger, Address to the International Institute for Strategic Studies (London), *The New York Times*, 26 June 1976, p. 7.

[7] Henry Kissinger "News Conference at Moscow, July 3," *The Department of State Bulletin*, Vol. LXXI, No. 1831 (29 July 1974), p. 215.

[8] See Edward N. Luttwak, *The Missing Dimension of U.S. Defense Policy: Force, Perception and Power*, ARPA-T10-72-2 (Arlington, Va.: Defense Advanced Research Projects Agency, February 1976). Also of interest is Charles Wolf, Jr., *Perceptions of the Military Balance: Models and Anecdotes*, P-5402 (Santa Monica: RAND, March 1975).

[9] See Figure 1 below.

[10] It might be understood as the functional equivalent of pre-1914 mobilization.

[11] See John Erickson, "Soviet Military Policy: Priorities and Perspectives," *The Round Table*, No. 256 (October 1974), p. 370; and Benjamin S. Lambeth, *The Evolving Soviet Strategic Threat*, P-5493 (Santa Monica: RAND, August 1975), pp. 7-11.

[12] For example, Steinbruner and Farwin, "Strategic Vulnerability: The Balance Between Prudence and Paranoia."

[13] U.S. Congress, House Committee on Appropriations, Subcommittee on the Department of Defense, *Department of Defense Appropriations for 1977, Hearings*, Part I, 94th Congress, 2nd session (Washington, D.C.: U.S. Government Printing Office, 1976), p. 560.

[14] See James Schlesinger's testimony in U.S. Congress, Senate Committee on Foreign Relations, Subcommittee on Arms Control, International Law and Organization, *U.S.-U.S.S.R. Strategic Policies, Hearing*, 93rd Congress, 2nd session (Washington, D.C.: U.S. Government Printing Office, released 4 April 1974), pp. 6-7.

[15] In U.S. Congress, House Committee on International Relations, Subcommittee on International Security and Scientific Affairs, *The Vladivostok Accord: Implications to U.S. Security, Arms Control, and World Peace, Hearings*, 94th Congress, 1st session (Washington, D.C.: U.S. Government Printing Office, 1975), pp. 12-13.

[16] See Jan M. Lodal, "Assuring Strategic Stability: An Alternative View," *Foreign Affairs*, Vol. 54, No. 3 (April 1976), p. 465.

[17] In *The Future of Land-Based Missile Forces, 1976-1990, Adelphi Paper* (London: IISS., forthcoming).

[18] In *U.S.-U.S.S.R. Strategic Policies*, p. 25.

[19] See Fred Ikle, "Can Nuclear Deterrence Last Out the Century?" *Foreign Affairs*, Vol. 51, No. 2 (January 1973), p. 283.

[20] E.g., high energy lasers and 'gatling guns'.

[21] In 1974, Schlesinger speculated that a Soviet ICBM force with the payloads of the SS-18 and SS019 could dispense 33,000 warheads. *U.S.-U.S.S.R. Strategic Policies*, p. 6.

[22] See, for example, Thomas C. Schelling and Morton Halperin, *Strategy and Arms Control* (New York: The Twentieth Century Fund, 1961).

[23] (London: IISS., 1976), p. 5.

[24] Address to the International Institute for Strategic Studies, *The New York Times*, June 26, 1976, p. 7.

[25] That certainty is somewhat eroded if *Backfire*, the SS-X-20 and LRCMs are excluded from precise numerical regulation.

[26] See William R. Van Cleave, "Political and Negotiating Asymmetries: Insult in SALT I," in Robert L. Pfaltzgraff, Jr., ed., *Contrasting Approaches to Arms Control* (Lexington, Mass.: Lexington Books, 1974), Chapter 2.

[27] On the subject of "raising the Russian learning curve," see John Newhouse, *Cold Dawn: The Story of SALT* (New York: Holt, Rinehart and Winston, 1973), pp. 3-4.

[28] See Colin S. Gray, *The Soviet-American Arms Race* (Lexington, Mass.: Lexington Books, 1976), particularly Chapter 4.

STRATEGIC VULNERABILITY: THE BALANCE BETWEEN PRUDENCE AND PARANOIA*

John D. Steinbruner and Thomas M. Garwin

I. The Import of Vulnerability Calculations

Among its many consequences, the basic agreement on Strategic Arms Limitations announced at the Vladivostok summit in November, 1974 seems destined to energize a long simmering debate over the vulnerability of the land-based missile component of the United States strategic forces. The decidedly permissive limit on multiple-warhead missiles, tentatively set at 1,320, means that each side will be able to allocate a relatively large number of separately directed warheads to each of the opponents' land-based installations. Since controls are imposed on current missile installations and since the Soviets have built larger silos for missiles with greater payload, they will be able to build a force with six or more warheads targeted on each silo in the American force—if they match American warhead technology and if they strain the limits of the agreement. Trends in accuracy and yield-to-weight efficiency are such that a force of this size according to standard, widely accepted calculations would appear to give the Soviets a decisive first-strike advantage against one component of the United States' strategic forces—the one which contains most of our capacity for flexible nuclear retaliation. It has been authoritatively asserted and seems to be widely believed that such an apparent advantage would translate into diffuse but significant political advantages across the many international issues in which the two countries are involved.

There have been many attempts to deal with this issue of ICBM vulnerability by summary arguments designed to remove the problem *a priori*. Many have pointed out, for example, that strategic missile submarines remain invulnerable to a swiftly executed preemptive attack, and they have argued that devastating retaliation from the United States submarines (or submarines and bombers in combination) would be so certain as to render a first strike completely irrational and therefore as unlikely as any deterrent policy can make it. Others have noted that various detection systems allow the United States to observe Soviet missile launchings and to plot their trajectories, and they have argued that this capability allows the United States to fire its land-based missiles after an attack on them has been launched but before the damage has been accomplished. Again, the proposition is that any potential attacker would have to consider that we might launch a retaliatory attack on the basis of the unambiguous warning accompanying a massive first strike and that this realization would deter any government whose actions are at all determined by reason.

Of course, to these arguments there are summary rejoinders which have been offered by those who remain concerned with ICBM vulnerability. Submarines, some argue, may be far more vulnerable to sabotage than to direct attack; this possibility is difficult to evaluate and therefore

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difficult to eliminate. Similarly, the launch-on-warning tactic can be said to endanger crisis stability, and the systems which provide rapid warning are themselves vulnerable to attack. Some feel, moreover, that once he had calculated that war was unavoidable, a strategic opponent might disregard the possibility of launch-on-warning and, given adequate offensive capacity, might find it rational to preempt against a powerful but vulnerable force. For these reasons, it is argued that the vulnerable force would be destabilizing in a serious crisis since decisions as to whether war is avoidable would be affected by perceptions of vulnerability. Finally, many believe that the political effects of putative vulnerability are not proportionately diminished by low probability of an actual attack.

The issue of strategic force vulnerability has resisted resolution by means of summary arguments of this sort, in part because the arguments remain inconclusive, but far more because the roots of the issue go much deeper. Military preparedness, for example, has long been an important and at times explosive theme in American politics—an issue on which elections can be lost and careers can be ruined. Despite widespread disillusionment with the performance of the military over the past decade, the projection of American power abroad still has strong political resonance—particularly given the current importance and instability of the Middle East. As a result, decisionmakers tend to be extremely cautious about allowing any apparent disadvantage to arise, and their caution, one suspects, is not so much intellectually as politically derived. In addition, pressure is being generated by the very large organizations which have been created to develop, to manufacture, and to operate the missiles in question. The ultimate disposition of the large investments inevitably involves both jobs and profits in the aerospace industry as well as the status of major military commands. Vested interests and developing conflicts among these underlying forces powerfully affect the issues of arms control and defense management, and summary arguments are not penetrating enough to provide adequate guidance for the decisions which must be made.

But the problem is not simply one of political pressures and organizational momentum overwhelming clear thinking. The issue has deep intellectual roots as well, involving genuine difficulties in the fundamental conceptual structure of American defense policy. Fears about vulnerability of the land-based missile force are inherent in long established assumptions and habits of mind, derived from the theory of rational deterrence, which affect analysis of virtually all the major questions of defense policy; and it is at this level of fundamental assumption that the core problem regarding vulnerability is to be found. The conclusions reached about strategic vulnerability as well as other major force posture issues are substantially determined by the framework of assumptions applied, and the resulting analysis has unavoidably been the basis for attempts to exercise intelligent policy direction over the complex and recalcitrant process of weapons development and deployment.

Believing that well-established assumptions which determine major policy judgements cannot be shaken by a few bold strokes of the pen, we pursue in the discussion which follows some intricate details of the vulnerability problem. We do so in pursuit of broad purposes, however, which can be summarized by a few propositions: notably, that the beginning of wisdom on this issue is to be found in realization of the inevitability of ignorance and in acceptance of its consequences; that on the basis of technical information available—at whatever level of privileged access—calculations of vulnerability are indeterminate; that categorical assertions about

vulnerability, which are frequently found in current political discourse, rest upon tacit assumptions more than technical fact; and, that the usual assumptions are not the only ones which ought to be made. More succinctly stated, vulnerability of the land-based missile forces, to paraphrase Panofsky,[1] is far more a state of mind than a physical condition; but, nevertheless, it is an extremely important state of mind, worthy of the most exacting analysis.

II. The Conservative Basis of Strategic Analysis

The destructive energy of thermonuclear weapons is so great that scientific investigation of their characteristics must be severely constrained. Even before international agreements imposed controls, nuclear weapons could be tested only under conditions of strict security and physical isolation, and this has always limited quite directly the number of phenomena which could be investigated. Though weapons tests have provided a great deal of knowledge about the design of individual weapons and their basic physical effects, there are many critical features of the vulnerability problem which have never been and, one hopes, never will be subjected to either controlled experimentation or operational experience. Most notably no one has measured or experienced the effects of a large number of closely timed nuclear explosions on a United States missile base. Indeed, there has never been and, one hopes, never will be any concentrated series of explosions even remotely approaching the requirements of full counterforce attacks.

Constraints apply as well to the testing of missile delivery systems. Intercontinental range missiles are so expensive, politically provocative, and inherently dangerous that there is much about their operation which we cannot learn by experiment or experience. The United States has never fired an intercontinental range missile at a target in the Soviet Union, has never exploded a nuclear warhead at the end of an intercontinental missile flight, has never fired a strategic missile on 15 minutes warning from an operational silo randomly chosen, and has never fired more than a very few missiles simultaneously or in close coordination. As far as can be known from the public record, the Soviet test program has been similarly restricted.

As a result of these altogether desirable restrictions, calculations about overall force performance under actual combat conditions must be projected from data on single components under highly unrepresentative test conditions. What must be projected, moreover, is the technical performance of an overall missile force *the first time it is used*—not the performance which might result after many iterations. It seems obvious and compelling that technical estimates generated by such means must be treated as extremely uncertain and must be bounded by appropriately wide confidence intervals.

In line with the familiar logic of deterrence,[2] however, and with normal human tendencies to hedge against the worst, defense planners in the United States have focused almost entirely on the unfavorable extreme of the imagined distribution of Soviet strategic force performance. Believing the Soviet Union to be at least potentially malevolent, strategic planners have labored to estimate the worst damage that the Soviet forces might do on first strike; and it has become a major principle of force planning that the size and operational characteristics of the United States' strategic nuclear forces ought to enable us to absorb a virtually flawless Soviet attack and still to exert massive destruction in retaliation. Although the intelligence services do make estimates of Soviet technical capabilities, it seems quite clear that conceptions of the worst attack we might

encounter are very powerfully influenced by the best technical performance of United States missiles and warheads under test conditions, and even by the best performance *projected* for future American systems under such conditions.

The apparent vulnerability of the United States strategic forces is a consequence of this principle of conservative force planning and the test procedures which provide the only empirical data available. If the best technical performance is projected for an entire Soviet force, modernized to the limits allowed by the Vladivostok guidelines, then the United States Minuteman and Titan II missiles (if not launched before destruction) could be reduced to a very few or theoretically eliminated by a massive Soviet attack which still held in reserve ample residual capacity to destroy the major American cities. Such a conclusion seems to follow from calculations of the type long familiar in the literature on strategic problems.

III. Conventional Calculations of ICBM Vulnerability

In the standard calculations used in public discussions, the strategic force balance is determined by a few parameters pertaining to components of the opposing forces—the number, accuracy and yield of attacking warheads, and the number and hardness of the targets being attacked. Using simple equations or readily available calculating aids, one derives from such data the probability of a given silo being destroyed by the attacking force, and this probability is then taken as the best estimate of the percentage of the overall force that would be destroyed. Such calculations allow assessments of the strategic balance to be done by hand on the back of the proverbial envelope and they do capture much of what is solidly known about the effects of nuclear weapons.[3]

The strategic balance as it is understood by the conventional calculations can be conveniently summarized by using the parameter, $\frac{NY^{2/3}}{(CEP)^2}$, where N is the number of warheads independently aimed, Y is the yield of the warheads expressed in megatons and CEP (circular error probable) is the conventional measure of accuracy expressed in nautical miles.[4] This expression contains that part of the standard formula for probability of damage which concerns the properties of offensive missiles and thus is a convenient way of summarizing results obtained from standard calculating aids such as the Bomb Damage Effect Computer published by the Rand Corporation. It also has been a major justification for the concern for missile throw-weight as a strategic measure.[5]

Table 1 presents data on United States and Soviet forces essentially as they stood at the time the Vladivostok guidelines were first announced in late 1974. It includes published estimates of the yields and accuracies of the various missile systems. Since the table doubtless reflects some inaccuracies in the public record, it should not be burdened with fine discriminations. Nonetheless, it does suggest that both the military establishments had ample offensive capacity to carry out the assured destruction threat,[6] and that if either side had an advantage, it was the United States because of greater accuracy and more rapid deployment of MIRV systems. Table 1, which again reflects guesses inspired by the public record, suggests that neither side, as of the Vladivostok announcement, had sufficient offensive capability to destroy as much as 90 percent of the opponent's land-based force on a first strike.[7] A value of 52,350 on the summary parameter would be required to achieve 90 percent destruction of the United States missile forces whereas the value for the total Soviet missile forces was only 7,000. Uncertainty about hardness makes the calculation

TABLE 1: United States and Soviet Force Comparisons

Missile System	Number in Inventory	Warheads per Missile	CEP (n.mi.)	Yield (Mt)	$\frac{NY^{2/3}}{(CEP)^2}$ (to nearest 50)
US					
Minuteman III	550	3	.2	.17	12650
Minuteman II	450	1	.3	1	5000
Titan II	54	1	.5	5	650
Poseidon	496	10	.3	.04	6450
Polaris	160	1	.7	.6	250
Total US Missile Forces	1710				25,000
USSR					
SS-9	288	1	.7	25	5050
SS-11	1010	1	1	1	1000
SS-13	60	1	.7	1	100
SS-8	109	1	1.5	5	150
SS-7	100	1	2	5	50
SS-N-6	528	1	1.5	1	250
SS-N-8	180	1	.8	1	300
Total 2nd and 3rd Generation Soviet Missile Forces	2275				6900

Source: Congressman Robert L. Leggett, "Two Legs Do Not a Centipede Make", Armed Forces Journal International, February 1975, p. 30.

TABLE 2: Estimated United States and Soviet Land-Based Force Vulnerabilities Under Conventional Calculations

Missile System	# in inventory	System Hardness (PSI)	$\frac{NY^{2/3}}{(CEP)^2}$ required for P_k=.9	P_k=.97	P_k=.99
			(to nearest 50)		
US					
Minuteman III	550	1000	28,150	42,850	56,250
Minuteman II	450	1000	23,050	35,050	46,050
Titan II	54	300	1,150	1,750	2,300
Total Force	1054		52,350	79,650	104,600

Source: IISS Strategic Survey, 1974, p.50.

USSR (Lower estimate)					
	140	(soft)	200	200	200
	1000	100	9,300	14,200	18,600
	427	300	9,150	13,900	18,300
	1567		18,650	28,300	37,150
USSR (Higher estimate)					
	140	(soft)	200	200	200
	1000	300	21,400	32,600	42,900
	427	1000	21,850	33,250	43,700
	1567		43,450	66,050	86,800

Sources: Davis and Schilling, op. cit. p. 234f.
SIPRI, Stockholm report #5, Offensive Missiles, p. 21.

TABLE 3: Some Aggregate Characteristics of Soviet Missile Forces Modernized under the Vladivostok Agreement

Missile Type	CEP in Nautical Miles	Y in Megatons	$\frac{Y^{2/3}}{(CEP)^2}$ per RV	# of RVs	$\frac{NY^{2/3}}{(CEP)^2}$ per Missile	# of Launchers	$\frac{NY^{2/3}}{(CEP)^2}$ Total
SS-18	.29 .2	3 1	25 25	8	200	300	60,000
SS-17/19	.2 .15 .19	1 .2 .3	25 15 12.5	3 5 6	75	1000	75,000
SS-N-8 & SS-13/16	.2	1	25	1	25	700	17,500
							152,500

more difficult for the Soviet Union; but, if we accept the higher estimate—as an attacker would have to do—43,450 would be required for even the very lax 90 percent criterion while the United States forces offered only 25,000.

But what about projected vulnerability? What if the Soviet Union proceeds to use its payload advantage to deploy large numbers of independently targetable warheads, each of which operates with the accuracy and yield efficiency which our own forces expect to be able to achieve under test conditions? Using official estimates of the force loadings and relative payload of the fourth generation of Soviet missiles now being deployed,[8] Table 3 projects aggregate characteristics of the Soviet force resulting from these extreme assumptions. Though the accuracy/yield combinations of Table 4 are better than the Soviets are likely to achieve for operational systems, they are technically conceivable and clearly within the scope of the principle of conservative planning. (Alternative possible configurations with equal effect against targets of constant hardness are provided for the SS-17, SS-18 and SS-19 missiles.)

If the Soviets were to produce the force projected in Table 3, the conclusions from the conventional analysis would be reversed. Even assuming the entire United States missile force can withstand up to 1,000 pounds per square inch (psi) overpressure (but no more), it apparently could be destroyed with greater than 99 percent probability by an attack which totaled 105,000 on the parameter described.[9] The same result can be generated by using the more conventional measure of kill probability. The Bomb Damage Effect Computer suggests that 99 percent damage could be created by a force of one megaton (MT) yield, 1,200 feet CEP, and five warheads per target against a land-based force hardened to 1,000 psi. Under the conditions of Table 3, the Soviets could deliver such an attack and still hold in reserve a force with greater destructive power than their current strategic forces possess. This, in our inherently anxious world, would tend to be read as decisive vulnerability. In fact, Paul Nitze, a member of the United States delegation which negotiated the SALT I agreement, has invoked the standard calculations to project the vulnerability of the United States land-based forces and other officials have expressed fears in qualitative terms that a Soviet force of the sort projected by Table 3 could credibly threaten a decisive first strike.[10] The entire issue of vulnerability largely concerns such perceptions of threat and the political consequences drawn from them.

Well before the dangers of potential vulnerability can be affirmed and policy conclusions drawn from them, however, both the calculations themselves and the assumptions on which they are based must be called into question. When the simple calculations reach stabilizing conclusions—that a full counterforce first strike is neither physically possible nor politically rational—we properly ignore elements of the problem which have been left out because including them would only serve to strengthen the results. The excluded factors cannot be ignored, however, when the standard calculations begin to make a first-strike counterforce attack or, more important, the threat of it, appear more conceivable.

IV. The Impact of Operational Factors: A Modest Simulation

The conventions with respect to force balance calculations have not been casually established, and it is impressively difficult to step beyond them into the great thicket of excluded effects without losing one's bearings. One can readily note missile reliability as an excluded problem, and

most analytic discussions do take this into account. It is not easy, however, to establish what actual reliability might be in a massive first strike. Beyond that, the multitude of complex effects and imperfect knowledge create extreme uncertainty and even threaten to preclude clear conceptualization. There is immediate danger that the attempt to produce more penetrating calculations will be overwhelmed by arbitrariness, incoherence or both. The central problem, then, is to find a limited extension of the established calculations which does not abandon the advantages of simplicity, and in fact one which compromises simplicity only to a very modest extent.

In seeking to illustrate some of the complexities of the force vulnerability problem while still preserving at least conceptual simplicity we have focused on three interrelated phenomena not represented in Table 3:

1. Reliability. This includes both the reliability of the missile up to the point where the rocket engines are shut off and the ballistic trajectory is substantially determined (boost phase), and the reliability of the warhead after the boost phase.[11] Since there are many more sources of failure in the boost phase of a missile flight, that component of reliability is more significant. It is quite possible, however, to detect failure in the boost phase and to replace the failed missile (although it has not been authoritatively stated that either the United States or the Soviet Union has actually acquired this capability.) It is much more difficult to detect warhead failures after the boost phase, and hence, if failures of this kind are present at all, they could be a more severe problem to the attacker.

2. Interference. Since the land-based missiles of the United States are concentrated on a few bases, the Soviet Union could not conduct an approximately simultaneous attack with several warheads per silo without having some of the attacking warheads either deflected or effectively destroyed by previous explosions in the attack sequence—explosions resulting from earlier attacks on the same silo and on nearby silos.

3. Timing. Although measures can be taken to overcome at least partially the effects of reliability and interference, all of these measures cost the attacker in terms of time. An attack sequence in which missiles are still being launched, say, 40 minutes after the first ones have exploded, could be subject to disruption by military action or by threats even if the victim chose not to retaliate massively and did not act on the basis of radar warning alone.

Clearly, this is not an exhaustive list of all important but previously excluded effects. Most notably, it does not include any direct calculation of the human element in missile command and control systems, a factor which would undoubtedly be of primary importance to anyone actually attempting to conduct a decisive first strike. The point, to reiterate, is merely to illustrate what lies beyond the accepted conventions.

We have constructed a model, described in Appendix B, which includes illustrative calculations of reliability, interference and timing and allows these dimensions of the problem to interact with the conventional factors of accuracy, yield, hardness, and the warhead-to-target ratio. In brief, the model programs an attack on the actual missile deployment at Malmstrom Air Force

Base in Montana whose silo density falls in the mid-range for American missile bases in general. In addition to silo locations, the model accepts values for 20 variables describing the attack and for one variable—hardness—describing the targets. It traces the fate of each attacking warhead, and calculates both the timing of the overall attack and the cumulative damage over time done to the 200 silos at Malmstrom. While it would be possible to adjust the geometric coordinates in the model to represent the other American bases, the results for Malmstrom alone are reported with the belief that they are roughly representative of the entire land-based Minuteman force.[12]

The model with its modest extension into the unknown also gives impetus to a second important challenge to convention, that is, a questioning of the predominant focus on unfavorable attack assumptions as mandated by the principle of conservative force planning. In considering some of the difficulties the attacker must confront, the model provides concrete reasons for examining the consequences of a technically mediocre attack and for taking these consequences seriously in making policy decisions.

In order to conduct this analysis, we define what we will call a standard attack scenario in which the attacking force—the red force—has available a total of 6,100 warheads, each of which has a yield of one megaton with elliptically distributed range and cross-track errors comparable to a CEP of 1,200 feet (in effect, the assumptions of Table 3 including SLBMs). Of these, 700 single warhead missiles are to be held as a strategic reserve, leaving 5,400 warheads carried on multiple-warhead launchers available to conduct the counterforce attack. The boost phase and post-boost phase reliability of the red force are assumed to be .75 and .90 respectively, values which might be exceeded on test ranges but would be quite respectable under combat conditions. It is assumed that the warheads of the red force are destroyed if they fly through the cloud stem of a nuclear explosion within five minutes of detonation,[13] and thus it is assumed that the attack plan requires a delay of six minutes between the arrival of separate warheads at the same target.[14] We also assume that the red force experiences a timing error in his attack execution exponentially distributed with a mean of one minute.[15] The defending force—the blue side—is assumed to consist of 1,000 silo installations located at five bases of 200 silos each, with all bases being identical to Malmstrom Air Force Base. Each silo on the blue side is hardened to withstand up to 1,000 psi overpressure.

The results of these standard assumptions are summarized in Figure 1 in which damage to the blue force is plotted for various levels of attack. The variation in results indicated by the width of the band is produced by the stochastic effects of reliability, accuracy, and timing. With this as the defined state of the world, one can then investigate the various ways in which the attacker might view his problem.

One basic approach for the attacker is to set a criterion of damage to be achieved—say at least 90 percent destruction of the blue force[16]—and to allocate his attack in such a way as to give the best chance of meeting that criterion. As can be seen from Figure 1, the red force can approach but cannot achieve that criterion under the standard assumptions simply by throwing all his available 5,400 warheads against the blue missiles. It would require an improbably favorable break of chance to destroy 90 percent of the opposing silos with an attack level averaging 5.4 warheads per silo. Thus the attacker would presumably look for means of improving his results.

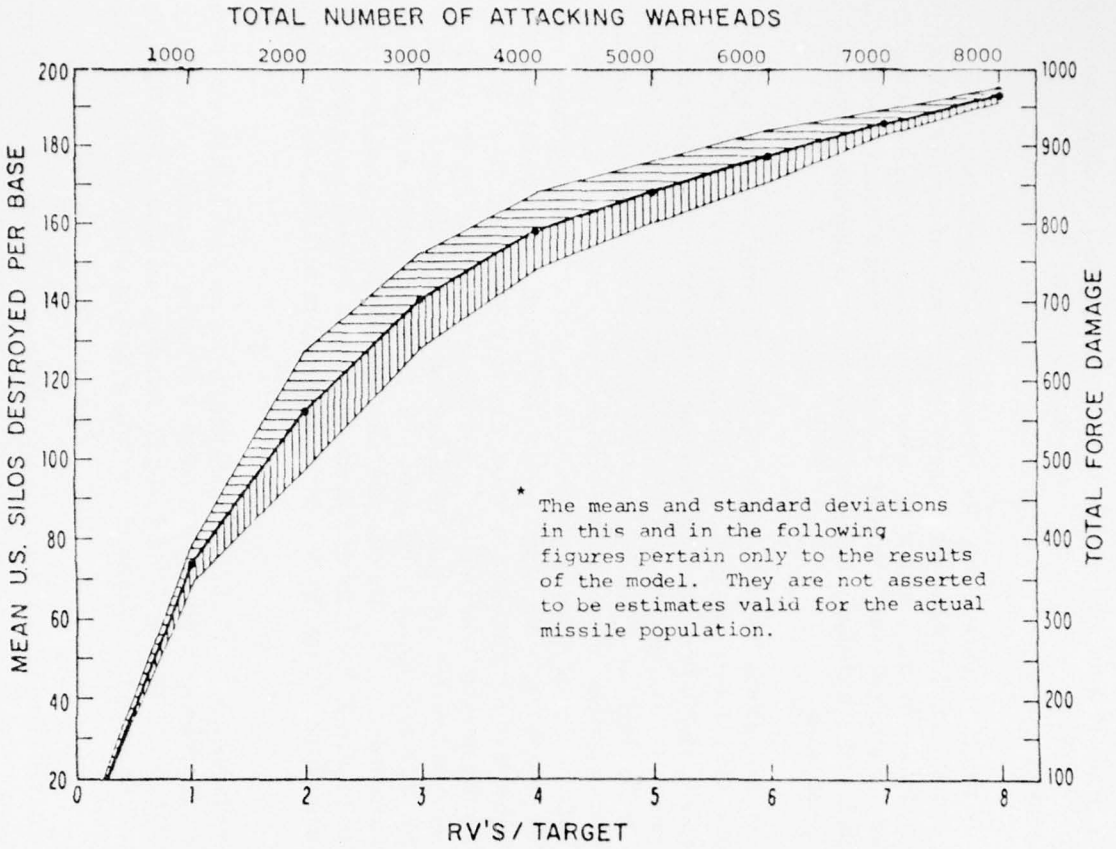


FIG. 1 U.S. SILOS DESTROYED UNDER BASIC ATTACK AND STANDARD ASSUMPTIONS: MEAN VALUES AND 95% CONFIDENCE LIMITS.*

There are three ways that red can attempt to improve his performance with the same force. He can develop procedures for detecting launch failures in the boost phase and he can reprogram other missiles to replace those which failed. At the cost of additional missiles this would diminish the effects of imperfect reliability. Alternatively, at the cost of time red could design his attack so as to begin with the southernmost silos of each base and proceed northward with some planned delay, thus minimizing interference between warheads attacking separate silos. To avoid extreme increases in the total time required for the attack, this northward progression would be executed simultaneously against as many different sections of the target complex as possible, given the path of the warheads through the atmosphere.[17] In order to avoid prolonging the attack for more than two hours, we assume only a 30-second delay between the initiation of attack at one silo and initiation at the next one northward within the same section. As a third alternative, at the cost of both time and warheads, the attacker could both rollback and reprogram his attack.

Table 4 gives representative results for each of these attack options. It assumes an initially planned attack of our warheads per silo which covers the rapidly rising portion of the damage curve in Figure 1 and still leaves 1,400 warheads available for reprogramming or for adding to the strategic reserve. The table indicates that under the standard attack assumptions it is more advantageous for the attacker to allocate four warheads per target in the initial wave and then reprogram for observed failures than it is to throw all available warheads against the blue side at the outset. At an attack level of four warheads per target with reprogramming, the attacker just achieves a 90 percent criterion leaving his strategic reserve intact; he would have to commit his entire force including the strategic reserve to achieve the same result with the basic attack pattern. The rollback option is less attractive. It does produce a modest increase in damage but still leaves the attacker well short of his goal. This option also requires an attack sequence lasting over an hour, leaving it vulnerable to disruption in the later stages. The combination of rollback and reprogramming does produce the greatest effect, but the cost in time would appear to nullify the marginal advantage. It seems then that the intelligent attacker committed to achieving a decisive level of damage would conduct a reprogrammed attack.

But what if he does not achieve the performance ascribed to him under the standard assumptions? Table 5 displays the results of a reprogrammed attack which has experienced a variety of technical problems. In row 2 the reliability has been degraded to .5 for the boost phase and .8 for the post-boost phase. The reprogramming procedure does compensate for this and leaves the damage essentially unchanged, but under these circumstances it exacts a terrible cost. The attack sequence runs nearly an hour and 45 minutes and it requires more warheads than would be contained in the entire Soviet force under the assumptions of Table 3. The red side in other words disarms himself in conducting this attack and leaves blue with a residual force of over 100 launchers and 300 warheads on land alone. To provoke an enemy to this extent and then to leave him with absolute superiority would presumably lead either to the surrender or the destruction of the attacker or perhaps both.

The third row of Table 5 reflects the results of a 50 percent increase in range and cross-track errors of the incoming warheads (a net CEP of about 1/3 of a nautical mile). The result of this technical "failure" is that damage is reduced to the point that a quarter of the blue force survives; and red, although he retains his strategic reserve, has left blue with substantial counterforce superiority. The red war-fighting forces have been reduced to such a low level that they might be destroyed by the residual blue force if blue were able to undertake post-attack reconnaissance.

TABLE 4: Illustrative Force Balances Under Standard Attack Assumptions

Assumptions	Attacking Warheads				Attack Duration After First Explosion (minutes)	Silos Destroyed		Residual Land-based forces # of missile launchers	
	1 # Planned	2 # Launched	3 # Armed	4 # Exploded	5	6 Full Attack	7 1st 40 Min.	8 US	9 USSR
1. Basic Attack	4000	4000	2670	1953	26	790	790	210	337-467
2. Reprogrammed Attack	4000	5312	3604	2575	59	887	884	113	21-29
3. Rollback Attack	4000	4000	2670	2377	51	868	779	132	337-467
4. Rollback and Reprogrammed Attack	4000	5312	3604	2856	81	922	802	78	21-29

Tables 4, 5, and A1 through A4 present results from model runs under various assumptions about the nature of the attack. The numbers are derived by totalling the results of the first five iterations of the model. This is equivalent to multiplying mean (n=5) results for Malmstrom by five to represent the 1000 silo Minuteman force.

Column 3 represents the number of weapons that would have exploded in the absence of interference. Regarding the residual force estimates of column 9, we assume that the Soviets would rely primarily on their land-based MIRV force for conducting the attack. The calculations assume the first of the possible configurations for the SS-17/19 force and thus an average force loading of 4.15 RVs per launcher for the Soviet MIRV forces of Table 3. A range for the Soviet residual force (excluding the strategic reserve of SLBMs and SS-13/16s) is derived by assuming (lower number) that an average mix of SS-18s and SS-17/19s is launched and by assuming (higher number) that the SS-18s are all used in the initial attack. The number of residual Soviet warheads (excluding the reserve) is constant across this range and can be obtained by subtracting the number launched (column 2) from 5400.

These assumptions are more favorable to the Soviets than are current projections of their force by US officials. The Pentagon, for example, estimates that the Soviet Union is in the process of deploying the SS-19 in a configuration with 6 warheads of 300 KT yield and .1/4-1/3 nautical mile CEP (see *New York Times*, January 15, 1975). Due largely to lesser accuracy than assumed in Table 3, this SS-19 would have an $NY^{2/3}/(CEP)^2$ value of 24-43 rather than 75.

TABLE 5: Illustrative Force Balances Under Reprogrammed Attack

Assumptions	Attacking Warheads				Attack Duration After First Explosion (minutes)	Silos Destroyed		Residual Land-based forces # of missile launchers	
	# Planned	# Launched	# Armed	# Exploded		Full Attack	1st 40 Min.	US	USSR
1. Standard Attack Assumptions	4000	5312	3604	2575	59	887	884	113	21-29
2. Degraded Reliability	4000	8098	3188	2394	94	876	820	124	0*
3. Degraded Accuracy	4000	5312	3604	2575	59	705	693	295	21-29
4. Mistiming in the Attack Plan	4000	5312	3604	1874	59	775	758	225	21-29
5. Execution Mistiming	4000	5312	3604	2407	150	871	800	129	21-29
6. Greater than Anticipated Hardness	4000	5312	3604	2575	59	839	827	161	21-29
7. Combined Degradation: Reliability, Accuracy, Plan Mistiming, Hardness	4000	8098	3188	1902	94	518	471	482	0*

*Denotes that under the assumptions of Table 3 the attacking force would be totally exhausted--including the strategic reserve--before the attack could be completed.

Rows 4, 5, and 6 of Table 5 show the isolated effects of more esoteric technical failures: respectively, a mistiming of the attack plan such that the delay between attacking warheads does not exceed the lethal time of the cloud stem of previous explosions, a mistiming of the attack execution such that the mean of the error distribution is five minutes, and a greater-than-expected resistance of blue silos to destruction (up to 1,500 psi). These degradations of red's performance have more modest effects on damage to blue, but they do either extend the attack sequence to render it quite vulnerable to interdiction (as with execution mistiming) or reduce damage significantly below the criterion. All of these problems leave blue with a substantial counterforce superiority in the end, excluding the strategic reserve of both sides.

Finally Row 7 of Table 5 shows the combined effects of degradation in accuracy, reliability, attack plan timing, together with increased hardness of the blue silos. The effects are obviously disastrous to red, leaving him completely disarmed and his severely provoked opponent, blue, with half his land-based force plus his strategic reserve still able to function.

In order to reach a final evaluation of the reprogrammed attack option, red would have to assign subjective probabilities to these possible outcomes and, of course, it is very difficult to guess what probability values a tempted attacker might choose. No matter what probabilities are ascribed, however, it is apparent that, under this analysis, a reprogrammed attack designed to achieve 90 percent destruction of the opposing force is more likely to disarm the attacker than the victim, and that the most probable outcome appears to be a substantial post-attack force superiority for the victim.

On the basis of this exercise, red might reasonably wish to reexamine the attack options again, perhaps with a view to adjusting his objective. Tables A1, A2, and A3 (presented in Appendix A, below) array the pertinent data showing respectively typical results for a basic attack, a rollback attack, and a rollback and reprogrammed attack, all allocating four warheads per target in the initial wave. As Table A1 indicates, the attacker, by withholding some forces, can be reasonably confident that the residual force balance will be approximately equal; and, of course, were the war to stop after the initial attack, all the explosions would have occurred on blue's territory. Does this latter asymmetry then constitute relative vulnerability of the blue force? There are at least two solid reasons to deny that it does. First, the rationality of this attack from red's point of view depends upon the ability of blue's political system to distinguish between it and a fully damaging attack. The latter perception would call forth full retaliation; the former, it is supposed, might not. Since a very large number of warheads are involved, and since the latest estimates of the United States Government suggest that considerably more than 16 million deaths would result from an attack of the sort hypothesized, the ability of the victim to discriminate must be considered to be in question. Second, he could retaliate with a relatively small portion of his residual force against a relatively small part of the attacker's urban/industrial system in order to equalize the damage.[18] The significance of this possibility is that it allows the victim to remove the asymmetry in the scenario while still maintaining a residual force balance and still withholding retaliation from the major portion of the attacker's urban/industrial targets (thus maintaining the post-attack deterrence situation). The entire scenario is very bizarre indeed, but as a hypothetical possibility, it represents parity of misfortune rather than relative strategic vulnerability.

As reflected in Table A2, red can improve his performance against blue and still have a substantial residual force if he conducts a rollback attack. The improvement is only marginal, however, and it doubles the time required to execute the attack sequence. This option does not differ significantly enough from the basic attack to affect any calculating decision-maker's conclusion. Similarly, the rollback and reprogrammed attack of Table A3 offers slight improvement over the simple reprogrammed attack and does not change the basic result.

The attacker's options then reduce to two, and both of them are very unattractive. He can attack with full force and in the process either disarm himself or leave his residual forces inferior to those of his opponent. Alternatively, he can attack more cautiously, thereby preserving an equal residual force but achieving only a balance of misery, destruction, and residual deterrent capability.

But suppose red proposes to build the force of Table 3 with no intention of conducting an actual attack but, rather, trusting that appearances will be forever deceiving, for the purpose of realizing political returns? Before embarking on such a course, red should consider the victim's perspective, and Table A4 provides some interesting figures in that regard. The table projects a low intensity attack—a single warhead against each silo—which is executed very swiftly at low cost to the attacking force. A target force arrayed in the fashion of the American forces would lose on the order of 25 percent of its capacity to such an attack. Although this is a very uninteresting result to a cold-blooded aggressor intent on executing the decisive first strike, it might be very interesting indeed to a nervous potential victim who had convinced himself that his opponent was about to attempt a devastating first-strike. In other words, the potential victim facing a superior force might be tempted to preempt in order to deny red his advantage and to guarantee a post-attack parity of strategic forces.[19] The flaunting of apparent superiority for political benefit, to the extent that it is believed, could have highly unfortunate effects on crisis stability. At any rate limited preemption appears to be a counter-threat at least as credible as the threat of a full first strike itself.[20]

Because the background level of uncertainty is so high, the results just presented cannot be taken as adequate quantitative estimates of an actual strategic exchange. What they do indicate, however, is that even highly aggressive development of the Soviet forces under the Vladivostok regime—so that they actually possessed the number of warheads some American observers seem to fear—still would not render the Minuteman force vulnerable under reasonable assumptions, even setting aside the summary arguments. Those who project fearsome Soviet superiority based on multiple warheads are tacitly promoting a very restricted set of assumptions.

V. The Prospect of New Technologies

If the problem of strategic defense were constrained to that of making a projection of the actual Soviet threat, then one could reasonably halt the analysis at the point just reached. The Soviet Union does not have the forces projected in Table 3, and in all probability for a decade or more, the Soviets will not be able to play even the unrewarding role assigned to red in the analysis.

The dynamics of force planning do not require an actualized threat, however, since the process is stimulated to a substantial extent by our own advanced weapons research. At the frontiers of the American weapons program, technologies are now being projected which promise drastic increases in the most sensitive variable, accuracy. Should those increases be realized, should

they be extended to an operational force of the size projected in Table 3, then the complexities of reliability, interference, and mistiming might be overridden and the problem of relative vulnerability might be reestablished. Backed by the experience of three decades of rapid development of weapons technology, the established principle of conservative force planners to project with genuine conviction the possibility of the Soviet's deploying a decade hence extremely accurate missile guidance systems which are now little more than a designer's aspiration.

A particularly important varient of this argument posits a Soviet threat consisting of highly accurate warheads with yields far lower than the one megaton assumed in the previous analysis. The increased accuracy allows an allocation of fewer warheads to each target silo and with each having a yield of only a fraction of a megaton the aggregate explosive power of the attack would be dramatically reduced. This would reduce residual radiation and the consequent damage to the victim's society. It is a widely held judgment that the decision to undertake a full counterforce attack becomes easier and the threat to do so more credible the more collateral damage from such an attack is reduced. Thus a plausible first-strike threat from a Soviet force of low yield, highly accurate warheads would be interpreted in the United States as a particularly pernicious form of vulnerability (and presumably vice versa).[21]

Figure 2 provides some sense of the magnitudes involved in this argument. The curves show expected damage to blue at various levels of attack under the standard assumptions previously defined except that yield is reduced to 50 kilotons and the range and track errors are reduced, in the extreme case, by a factor of 10. If such accuracy is achieved with no serious degradation – that is, if accuracy were held to a comparable CEP of 120 feet, and no biased sources of error were present, then blue's land-based force could be virtually destroyed on first strike while red retained over 1,400 warheads in addition to his strategic reserve. An attack of this character planned at three warheads per target with reprogramming (following the highest curve in Figure 2) would still produce over 2,500 explosions with a total yield of over 125 megatons.[22] This is not a small attack but since it would be targeted predominantly in rural areas it might, in advance and in the abstract, be judged a limited enough provocation to be credible as a threat.

Again, though, one must consider the problem from the attacker's point of view, and the basic insight is that there is no practical test program a potential attacker can undertake which will provide much confidence that his forces will perform in the real event according to the required specifications. As seen from the lower curves of Figure 2, even slight slips in technical performance would reduce very substantially the damage done to the victim. An unexpected error of only one-tenth of a nautical mile (600 feet), even if unbiased, would allow more than 30 percent of the victim's force to escape fatal damage, and any serious evaluation of this force design and attack option must include the possibility of such failures. The attacker, red, can hedge against such degradation in planned accuracy by increasing the level of his attack but in doing so he depletes his own force. Moreover, if the unplanned accuracy error does approach or exceed one-tenth of a nautical mile, red would again risk disarming himself while leaving blue with decisive post-attack superiority. In other words, if the possibility of even modest accuracy degradation is allowed, as suggested by the subjective expected value curves of Figure 2,[23] the high accuracy/low yield threat does not substantially differ in its effects on the blue missile force from those previously examined and thus the earlier conclusions would stand unaltered.

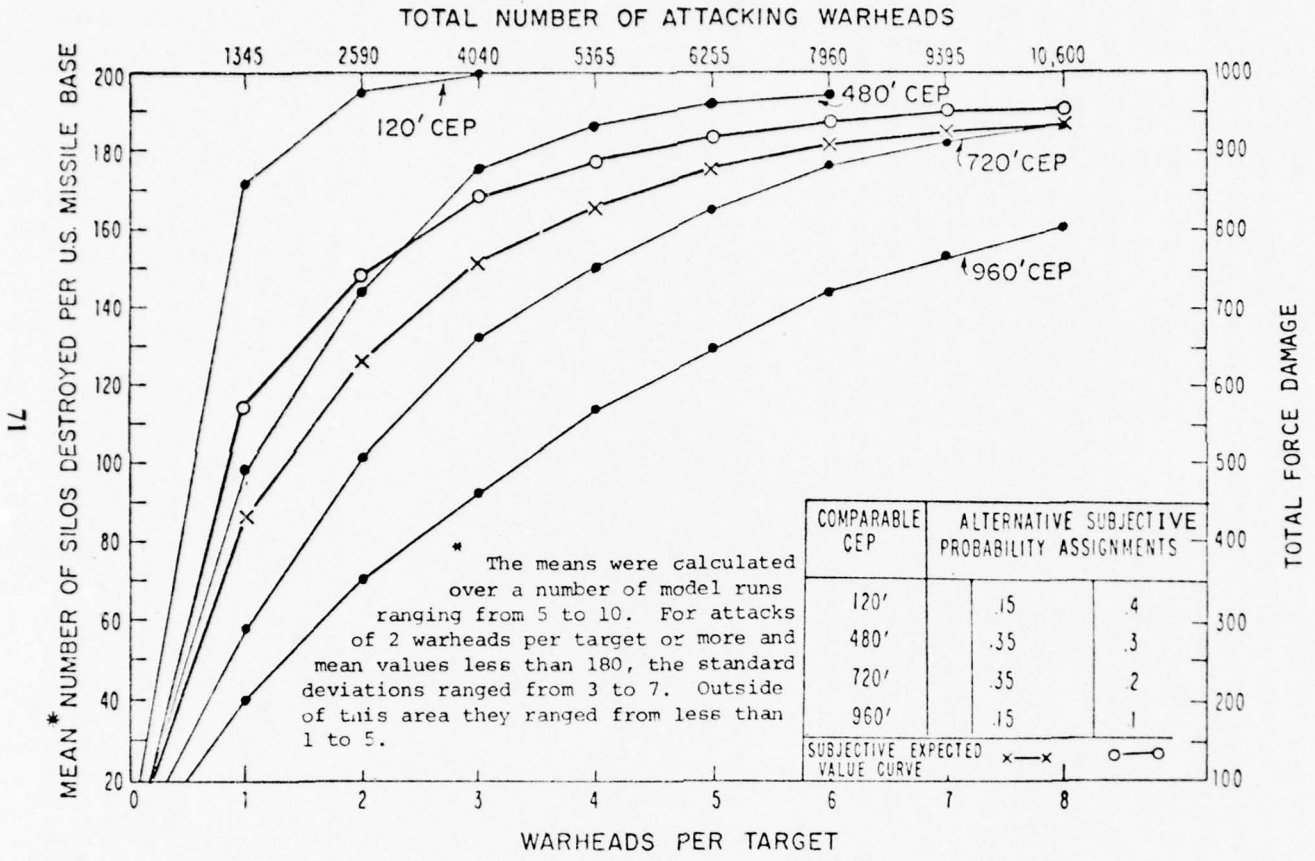


FIG. 2 U.S. SILOS DESTROYED BY HIGH-ACCURACY, LOW YIELD ATTACK; y = 50 KT

The technologies which would allow ballistic missiles to achieve accuracies of 120 feet CEP or better at intercontinental range are, of course, complex, diverse, highly classified, and at present only partially developed. This renders it impractical to evaluate in technical detail whether it is plausible to claim that advanced missile guidance systems will be so reliable and that they will be understood in such minute and exhaustive detail that the possibility of modest, previously unrecognized accuracy degradations under combat conditions can be excluded on the basis of test results. There are, however, very general reasons to doubt that such confidence is possible. It is apparent from the public record, for example, that high accuracies can be pursued by using stellar sightings and/or satellite communications to correct warhead trajectories in the post-boost phase and by using spin stabilized reentry vehicles (RVs), with ablative heat shields and low drag coefficients which traverse the atmosphere at high velocities. At 120 feet CEP or better, most of the RVs from such systems with suitable attack timing would avoid the cloud stems of previous explosions during the five minutes or so within which abrupt deceleration resulting from the warhead hitting the debris in the cloud would be fatal to the warhead. Warheads arriving 10 minutes after the initial explosions in a missile field, however, would unavoidably encounter high altitude clouds with dust particles of sufficient density to cause significant errors in accuracy.[24] Also, although high velocity reentry vehicles would traverse the atmosphere in a relatively short time, ambient winds of unusual intensity and unpredictable direction caused again by previous explosions would be likely to add another component of error. Particularly given the international treaty prohibiting atmospheric tests, it appears very unlikely that such effects could be measured with sufficient precision that absolutely reliable and exact compensation could be built into the guidance system.

If, as seems likely, sophisticated analytic calculations designed into the missile guidance and re-entry vehicle systems cannot really guarantee the accuracies required under the combat conditions of a massive first strike, then it is possible to approach the problem by means of active sensing systems which set up a direct data link or feedback loop between the target and the incoming warhead and allow the warhead to home in on the target. It is presumably systems of this sort which strategic analysts have in mind when they project accuracies on the order of tens of feet CEP or better and associated yields far lower than 50 kilotons. There is an intrinsic problem with such systems, however, in that their communications and sensing devices are vulnerable to interference, and disruptions in the feedback loop would degrade accuracy very seriously. Such disruptions can occur through jamming or other direct measures undertaken by the defender, and they can be produced by previous explosions in the attack sequence.

Moreover, quite apart from the technical approach adopted, it is reasonable to expect that the attempt to achieve extreme kill probabilities with low yield weapons will force system designers to deal with more recalcitrant and esoteric sources of error than have been encountered to date. The measure of missile accuracy, CEP, assumes that the miss distances of missiles (difference between aiming points and actual impact points) fall into a normal distribution and this can be true only if the sources of error are random. It is unlikely, however, that actual experience neatly follows a normal distribution, for a number of factors such as slightly substandard components or systematic errors introduced into the trajectory calculations could and undoubtedly do generate biased sources of error. Errors of this sort which would seem relatively small when compared with the destructive radius of a megaton yield weapon (lethal radius [LR] = 1,540 feet against 1,000 psi targets) or with a random error component on the order of .2 nautical miles might be significant for a 50 kiloton

yield (LR= 570 feet against 1,000 psi targets) and a random error component of only .02 nautical miles. Since the United States is now undertaking very expensive improvements in the instrumentation of its missile test ranges in order to sort out the various sources of error for missile systems aspiring to accuracies only on the order of .2 nautical miles, it is a fair presumption that such sources of error are being encountered and that they have not yet been adequately measured.[25] As with any other area of human affairs, driving missile technology against the limits of perfection is likely to be increasingly expensive and frustrating.

In general, it is not objectively valid for either the potential attacker or the potential victim to base major strategic decisions – the determination of force posture, the planning for actual attacks, or the political calculus of threats – solely on the claims of weapons system designers or even on limited test range results. If one takes into account just the most obvious complications that the attacker faces, the massive first strike at hardened land-based installations begins to look at least as dangerous to the attacker as to the victim. Though assumptions can be found at the favorable extremes of technical performance which would make a first strike apparently successful, modest changes in such assumptions reverse the conclusions. A categorical projection of impending vulnerability of the land-based missile force to a high-accuracy, low-yield force of the sort described cannot be made on the basis of objectively compelling analysis.

VI. The High-Accuracy Medium-Yield Threat

If, ignoring all the sage insight that has been offered up to this point, an incorrigibly malevolent enemy were to design his forces for optimal performance in the hypothetical world defined by the particular strategic model we have been using, he would probably use intermediate-range yields and moderately improved accuracies. Yields on the order of 200 kilotons would mitigate (as compared to those of one megaton or greater) the interference effects of previous explosions and yet would not require that extreme accuracies be achieved and maintained. Weapons designers sensitive to the variables we have been considering might want to pursue greater ruggedness and greater operational reliability in their offensive warheads, and they might sacrifice a small decrease in optimal accuracy and a substantial increase in collateral damage in order to do so. For the sake of completeness, then, let us consider whether such a threat, which does at least vaguely resemble the current United States advanced warhead program, would reverse the impressions created by the previous analysis.

Figure 3 displays mean model results for a reprogrammed attack under the standard assumptions with the exception that yield is reduced to 200 kilotons and accuracy increased to be comparable to a CEP of 720 feet. Figure 3 indicates that if the attacker, red, were willing to expend his entire offensive force (excluding his strategic reserve), he would be able to approximate complete destruction of the United States land-based force. Moreover, the cost to the attacking force may be less than indicated, since Figure 3 does not credit red with improved reliability for his design compromises.

Table 6 provides the basis for a detailed analysis of the medium yield threat. The attacking force in Table 6 allocates five warheads per target, and is credited with high reliability—.9 in the boost phase and .95 in the post-boost phase as compared to .75 and .9 respectively under the standard assumptions used previously. The accuracy attributed to the force—at slightly over

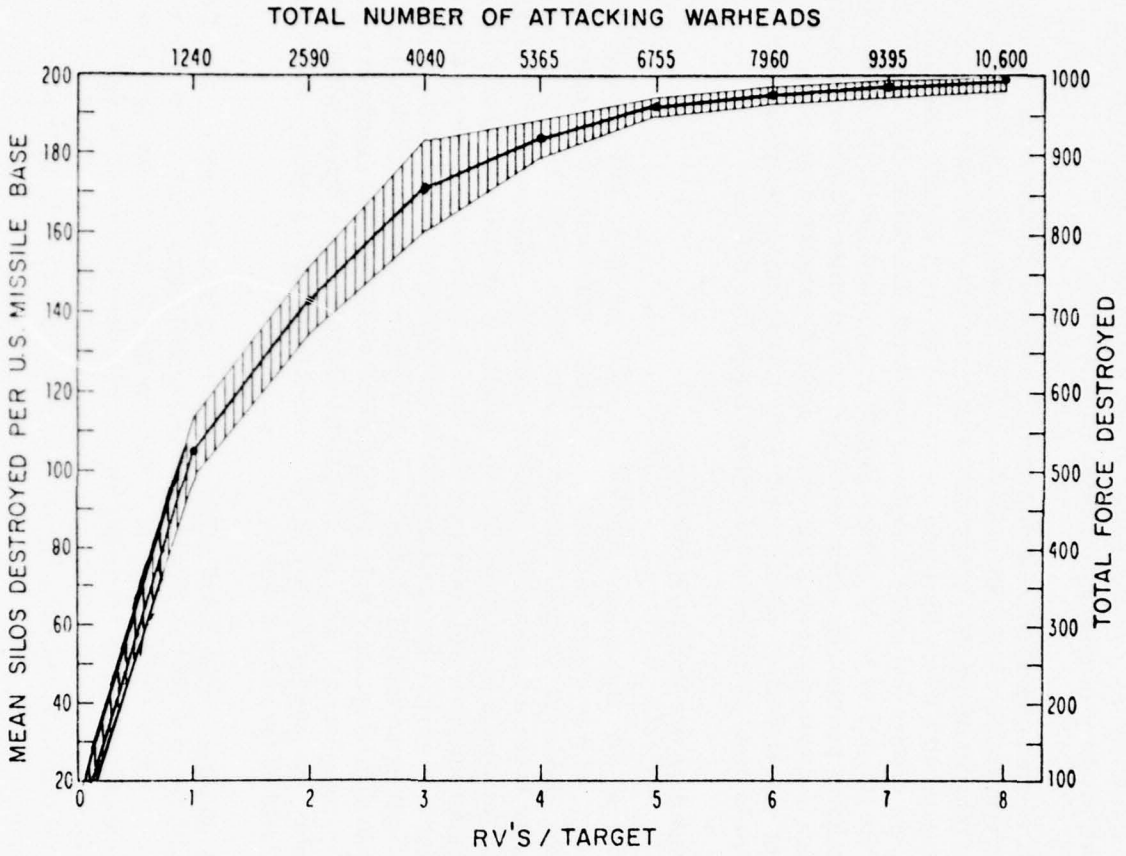


FIG. 3 U.S. SILOS DESTROYED BY A MODERATE YIELD, ADVANCED ACCURACY, REPROGRAMMED ATTACK: MEAN MODEL RESULTS AND 95% CONFIDENCE LIMITS.

TABLE 6: United States Silos Destroyed:
Reprogrammed Attack at 5 Warheads/Target;
Y = 200 KT; Reliability = .9, .95
Actual number of warheads launched =
1109 for Malmstrom - equivalent to 5545 for the 1000 missile force

Comparable CEP	Mean per base (to nearest unit)	# of Trials	Stand. Dev. (to nearest unit)	Alternative Subjective Probability Assignments 1	2	3
720 ft	192	21	3	.8	.5	.33
1200 ft	159	21	6	.15	.3	.33
1800 ft	112	21	5	.05	.2	.33
Subjective Expected Value for Entire Force				915	830	770
Residual Force Expected				85	170	230

one-tenth of a nautical mile—is outstanding in relation to current capabilities although it is of course not as good as the best projected accuracies. If that accuracy should hold without any degradation, then the Minuteman force would be reduced to less than 50 missiles, at the cost of 5,545 attacking warheads.

Under these conditions, red would have depleted his offensive force and would have reduced his strategic reserve to 555 single warhead missiles. Nonetheless, this situation approaches more closely the classic conception of vulnerability, and it is clear that any blue response would have to rely on the submarine force. The dual problem described earlier still applies; blue's ability to discriminate the character of the attack would still be in question and, at least in theory, blue would still have the capacity to conduct an equalizing retaliation while still withholding attack from some portion of the red urban/industrial system. Assuming that only half of the Poseidon/Trident force was ready to respond, blue would have a six-to-one warhead advantage in residual forces, although the residual blue force would have a smaller yield per warhead. Blue would have received an attack of over 825 megatons targeted primarily in rural areas and would face the question of whether to equalize the damage created by this attack. Whether or not he would in fact do so, blue could equalize damage by means of a partial urban/industrial response using only a portion of his 3,600-3,700 warhead reserve. Nonetheless, those giving full thrust to conservative force planning principles might consider the outcome of this scenario to represent unacceptable vulnerability of the land-based force even though the attacker has had to expend all but his strategic reserve to achieve it.

The question then is whether that outcome can be legitimately projected as the only acknowledged result of an attack by such a highly reliable, highly accurate, medium-yield force. Again, if the uncertainties inherent in force operations are admitted, the answer to that question is negative. Table 6 projects some levels of possible accuracy degradations which would critically affect the result. That table suggests that if accuracy degradations, which are high as a percentage of the nominal design figure but very small in absolute values, are admitted to the analysis with any serious probability, then the attack could result in the same sort of disaster for red which was described previously. If only a small probability of substantial accuracy degradation is allowed (case 1), the medium-yield threat still leaves an expectation that there would be a surviving blue force on land approximating 100 missiles. As that possibility is increased (case 3), blue gains a decisive expected superiority over red in terms of residual offensive forces, excluding the strategic reserve.

On balance a threat consisting of highly reliable, highly accurate, medium-yield MIRVs, although it burdens the conclusions of the previous analysis, still does not appear sufficient to reverse them. Under these conditions the full first strike still can reasonably be said to be as dangerous to the attacker as to the victim. As long as United States decisionmakers appreciate these realities, any enemy attempting to use such a force to bolster some political demand would have to do so not on the basis of relative vulnerability of the United States force—according to theory the more powerful basis for threat—but rather on the basis of parity of potential misfortune, something that is already available at current force levels.

VII. Implications for Strategic Policy

We come then to the critical matter—our collective state of mind.

It is apparent that dangerous and destabilizing vulnerability of the land-based missile forces of both of the superpowers can be projected, even given full implementation of the Vladivostok guidelines. Strategic missiles probably will achieve—on test ranges—accuracies measured by CEP values of less than one-tenth of a nautical mile. If this figure is inserted into established conventional calculations, vulnerability will be the apparent result; and to the extent that is believed in either the United States or the Soviet Union some destabilizing effect will occur as a self-fulfilling proposition.[26] But it is equally apparent that belief in the relative vulnerability of land-based missiles can be constructed only on the basis of a narrow and rigid criterion of analysis, one which requires that any technically conceivable threat to the missiles be covered—no matter how fantastic the conceived threat might be when viewed from the practical world in which an offensive force must operate. We have seen in the analysis above that under some plausible assumptions even rather modest shifts in the pertinent assumptions are sufficient to change the apparent advantage from the attacker to the defender if a full first strike on land-based missiles is attempted. Thus, the fundamental problem: Where is the line between prudence and paranoia to be drawn?

Under strict rules of evidence and inference, this question cannot be answered with both precision and confidence. The full consequences of nuclear war cannot be calculated with much assurance, and, as far as objective validity is concerned, even the most exacting analysis is destined to be overwhelmed by uncertainty. The central parameters of ballistic missile performance must *necessarily* be established under restricted conditions which are very remote from the conditions under which a war would actually be conducted: the effect of human performance on missile reliability has not been tested under pertinent conditions,[27] nor have the various possible effects of dust, atmospheric turbulence and large-scale electromagnetic disturbances from previous explosions on warheads in the reentry phase. The coordination required to have even a serious chance at a successful first strike has not been attempted in actual practice, and it is extremely unlikely that these forces have even been exercised at the levels of alert that would actually be required. Public information is less clear about the effects of unfavorable or even simply unusual weather, trajectories that have not been flown before, reentry stresses on warhead fuzing systems, and a host of other factors which could substantially affect the outcome; but it is very doubtful that all aspects of the problem have been adequately considered. They never are in other areas of human endeavor.

Massive uncertainty, however, is not a stable condition of a decisionmaker's mind. As a practical matter, the simple, unrealistic but well-established calculations of the strategic balance have provided a clear structure for the many decisions on strategic force posture which modern governments have had to make. Similarly, perceptions of threat throughout the world and political judgments which derive from such perceptions have been and undoubtedly will continue to be influenced at least in professional circles by the results of highly imperfect analytic calculations. Men cannot and do not shrink from the implications of strategic analysis even if scientific inference cannot carry them to firm conclusions.

In duly humble spirit, then, we advance the following judgments which are inspired by the analysis conducted but admittedly not strictly compelled by it.

First, the strategic forces of the Soviet Union, even if very aggressively modernized, will not be sufficient to threaten with true credibility the decisive destruction of the United States Minuteman force. As far as the traditional parameters of accuracy, yield, reliability, warhead numbers, and silo hardness are concerned, the risk to the attacker and to the victim appear to be equally great across the operationally achievable ranges of values, and this should work to deny access to any new dimension of political threat. The greater total payload of the Soviet missile force can be translated into a serious strategic advantage only if overly restricted calculations maintain their established hegemony. This conventional analysis may be psychologically, organizationally, and/or politically so entrenched that a revision cannot be effected; but, if so, we should be clear that the real problem of relative strategic vulnerability lies more in that fact than in weapons technology.

Second, the entire focus on missile silo vulnerability which the conventional calculations have brought about is increasingly anomalous in technical terms. The most vulnerable element of modern strategic forces are not the hardened, fixed-site missiles but rather the command channels and the communication and information processing systems which service the command structure. There are serious problems to be encountered in this latter area, but most of these have little to do with the traditional parameters which have been used to define the strategic balance. Attacks on political and military authorities do not require large numbers of weapons and for the most part not even particularly accurate or otherwise advanced weapons. Moreover, the value to either the attacker or the victim of large, single-missile payloads is diminished by the fact that targeting flexibility is reduced as the ratio of warheads to launchers increases. In general, although the true strategic balance is very substantially affected by the capabilities and vulnerabilities of systems designed to enable intelligent, authoritative command and effective operational control, conventional strategic analysis – even as adjusted in the calculations advanced above – is virtually blind to this dimension of the problem.

The implication, therefore, is that it would be more pathological than prudent to undertake major changes in the deployed strategic forces of the United States in order to solve the problem of vulnerability as defined by conventional analysis. A replacement of the Minuteman force, which presumably would involve mobile missile systems deployed either on land or in submarines, would cost many tens of billions of dollars in directly associated marginal costs. Such a program would run the risk of purchasing gains in the very elusive matter of political perception at a cost to safety and real military capability due to the burdens imposed on command and control arrangements. This is not the way in which national security ought to be pursued.

Footnotes

[1] W.K.H. Panofsky, "Roots of the Strategic Arms Race: Ambiguity and Ignorance," *Bulletin of the Atomic Scientists*, June 1971, p. 18.

[2] See J. Steinbruner, "Beyond Rational Deterrence: The Struggle for New Conceptions," *World Politics*, January 1976, pp. 223-245, for a discussion of the relationship between deterrence doctrine and force planning.

[3] The standard calculations are presented in some detail by Lynn Davis and Warner Schilling, "All You Ever Wanted To Know about MIRV and ICBM Calculations But Were Not Cleared to Ask," *Journal of Conflict Resolution* 17, No. 2, (June 1973), 207-242. Vulnerability estimates done by the Defense Department for its own planning purposes use somewhat more complex calculations of silo hardness which are derived from data on pulse duration and dynamic overpressures and which take into account idiosyncratic characteristics of individual targets. Since critical elements of this analysis remain classified, however, and underlying assumptions therefore cannot be explicitly examined, we prefer not to use it. Moreover, an examination of the unclassified portions of the Defense Intelligence Agency's *Physical Vulnerability Handbook - Nuclear Weapons* (U) (AP550-1-2-60-INT) and its *Mathematical Background and Programming Aids for the Physical Vulnerability System* . . . (DI-550-27-74) indicates that the conventional calculations summarized by Davis and Schilling are more conservative than the DIA method of calculation – that is, the conventional calculations produce *smaller* estimates of the number of surviving silos.

The DIA method of calculation differs in two respects from the conventional calculations. First, where the conventional calculations assume that a detonation within the weapon kill radius (WR) destroys the target with certainty and that the target always survives an impact further from the target (this is a distribution of probability of kill [P_k] with a step from P_k=1 to P_k=0 at X=WR), the new method uses a cumulative log-normal damage function, meaning that the target has some probability of being destroyed even if it does not. A parameter, Sigma, describes the steepness of the slope of the probability distribution at WR. (Sigma is 0 for step distribution.) Since the particular distribution used is a fit to the damage experienced by soft structures at Hiroshima and Nagasaki, it is of dubious applicability to hard silos.

For situations where the Sigma-0 P_k would be high, the Sigma-20 P_k is somewhat lower. For a 700 foot CEP (Circular Error Probable – the radius within which the re-entry-vehicle will impact one-half of the time), a one megaton warhead, and a 1,000 psi target (WR of 1540 feet), the Sigma-0 damage function yields a kill probability of 96 percent. For the same parameters the Sigma-20 distribution gives a P_k of only 93 percent. The conventional calculations thus leave *fewer surviving Minutemen* than they would if they incorporated the Sigma-20 damage function.

The second correction embodied in the DIA method is that targets are sensitive not only to maximum overpressure but also to factors such as the duration of the overpressure pulse, which are larger for larger weapons. Thus the DIA method uses two parameters to describe target hardness, neither of which is by itself directly comparable to maximum sustainable overpressure. However, if the conventional calculations about the vulnerability of "300 psi" Minuteman silos to one megaton explosions are correct, then the weapons radii of one megaton and smaller weapons calculated in the conventional manner are substantially larger than those produced by the DIA method. At least for yields of one megaton and below, the effect of using the conventional analysis instead of the DIA method is to understate the hardness of American silos.

The possibility of loading a given missile with more smaller warheads, the large amount of collateral damage and fallout produced by multi-megaton weapons, and the difficulty of executing attacks so that RVs are not destroyed by the effects of previous multi-megaton explosions are three reasons why force-planners prefer sub-megaton warheads. For whatever reason, neither the United

States nor the Soviet Union is expected to deploy new warheads with weapon yields greater than a megaton. At least for the threats that one is concerned about, then, the conventional calculations result in *fewer surviving silos* than they would if they included the DIA's estimates of the yield-dependence of silo hardness.

[4] The parameter, recently used by Kosta Tsipis in his widely noted (and widely debated) pamphlet, *Offensive Missiles* (Stockholm paper No. 5, Stockholm: Stockholm International Peace Research Institute, 1975), has raised a great deal of controversy. It is true that some values of the parameter would be very misleading – e.g. a force with 50 warheads and a parameter value of 1,000 per warhead clearly would not be more threatening then a force of 1,500 warheads with a value of 30 per warhead. If warhead per target ratios are above unity, however, if reliability is ignored, and if the parameter is not extended to extreme values, then it provides a convenient summary of offensive capability for a large number of possible accuracy and yield combinations.

[5] See, for example, the appendix to "A Summary Study of Strategic Offensive and Defensive Forces of the US and USSR," Prepared for the Director of Defense Research and Engineering, September 8, 1964; declassified on December 31, 1972.

[6] A level of 400 equivalent megatons ($EMT=NY^{2/3}$) is sufficient to destroy better than half the industrial floor space of either society and 1,000 EMT is well into the area of very sharply diminishing marginal effects of an attack on either side. See Alain Enthoven and K. Wayne Smith, *How Much is Enough: Shaping the Defense Program 1961-1969,* Harper's 1972, p. 207.

[7] Note that it is entirely possible that actual Soviet silo hardness exceeds even the higher estimates of Table 2.

[8] See, for example, *Report on United States Military Posture for 1975 by Admiral Thomas H. Moorer, USN, Chairman of the Joint Chiefs of Staff,* p. 15, for an estimate of the number of warheads expected for each of the land-based missiles the Soviets now have under deployment. Updated assessments are provided by Secretary of Defense James R. Schlesinger, *Annual Defense Department Report FY 1976 and FY 197T,* Washington, February 5, 1975, pp. 11-12 to 16.

[9] This number is derived using the standard formulas for kill probability given in Davis and Schilling, *op. cit.,* pp. 211-13. For simplicity and because the numbers are only useful as indication of rough magnitudes rather than exact values, the United States force is projected as 1000 land-based missiles representing the Minuteman force. The 54 Titan II missiles which the United States still maintains are completely discounted.

[10] Paul H. Nitze, "Assuring Strategic Stability in an Era of Detente," *Foreign Affairs* 54, No. 2, January 1976.

[11] In assessing the United States strategic forces an additional factor, labeled readiness, is included to reflect that portion of the missile force undergoing maintenance or modification and thus unavailable for response. Since we are assuming a premeditated first strike by the attacking force, however, we also assume that the attacker would successfully bring his entire force up to readiness at the planned time of attack. Under this assumption residual technical problems would be reflected in the two components of reliability.

[12] The density (number of missiles in a given land area) of the separate missile squadrons at Malmstrom vary as much as the missile densities of the other Minuteman bases. We have compared damage to least-dense and most-dense areas of Malmstrom for typical model runs and find the differences to be too small to affect the analysis advanced below.

Regarding the technical aspects of estimates of kill probability discussed in footnote 3 above, the model uses the conservative approximations of the damage function and of target hardness embodied in the conventional calculations. However, there is a further technicality which biases the results of *both* the conventional method of calculation and the DIA's new method in the direction of higher apparent vulnerability, but which we have corrected in the model. This is the fact that ICBM impact errors are known not to be circularly distributed and that the standard range errors (along the RVs intended path) are about three times the standard cross-track errors (across the RVs path). (See D.G. Hoag, "Ballistic Missiles Guidance," in B.T. Feld, *et. al.*, eds., *Impact of New Technologies in the Arms Race*, Cambridge, MA: MIT Press, 1971, p. 43ff.)

While the ellipticity of the impact probability distribution does not make much difference when the CEP is larger than the weapon radius, the circular approximation is not valid for higher accuracies. (Note that a CEP can be calculated for any impact distribution by integrating the distribution with respect to radius and finding the 50 percent point on this cumulative distribution.) Assuming a step damage function, a warhead for which the circular approximation gives a P_k of .93 only has a P_k of .87 if its standard range error is three times its standard cross-track error. While the interaction of the ellipticity of the impact distribution and the Sigma-20 damage function is difficult to calculate, the direction of the effect would be the same as with the step damage function.

[13] This assumption is derived from calculations of the abrupt deceleration which would be experienced by re-entry vehicles colliding with the debris sucked up from the ground and carried in the intense winds which accompany a nuclear explosion. For more detailed calculations, see Appendix C below. See also Lt. Col. Joseph J. McGlinchley, USAF, and Dr. Jakob W. Seelig, "Why ICBMs Can Survive," *Air Force Magazine*, September 1974, pp. 82-85.

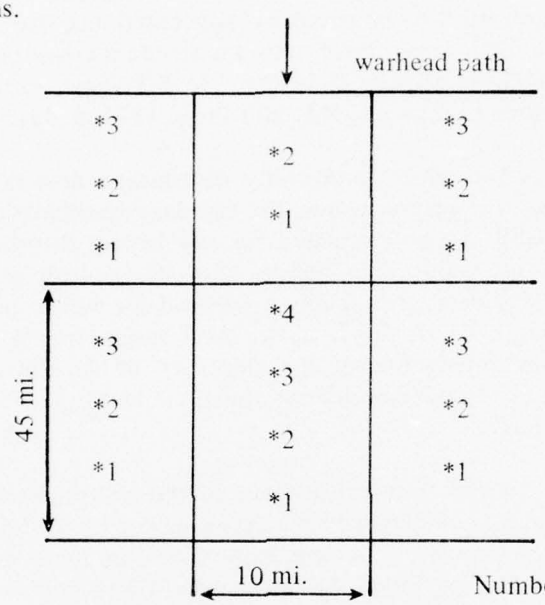
[14] There would be a brief time interval following the initial radiation pulse from a nuclear explosion and ending no more than 10 seconds later during which interference would be low because the cloud stem with its debris had not yet propagated sufficiently. An attacker might conceive of attempting to time an attack on a silo with such precision that, say, four or five warheads all detonated within this interval of low interference. Consideration of this possibility is being undertaken by Ron Siegel of the Massachusetts Institute of Technology. The consequences of slight mistiming for such an attack would be so devastating, however, that we assume an attacker would not attempt it. If he did attempt it at the scale required, one must expect misfortune for the attacker well in excess of what is projected in our standard scenarios.

[15] Though a fully automated strike would presumably achieve much more tightly confined timing, we assume that human factors are in fact present. The human part of the missile firing sequence, although operating according to specification, would nonetheless introduce some variation in timing.

[16] This presumably is a minimal criterion of damage for the attacker. If it were to be exactly achieved, blue would still have 100 land-based launchers available for retaliation. A force of that size, for example, actually delivered against urban industrial targets in the Soviet Union would probably kill over 35 million citizens and destroy well over half of their industrial capacity.

[17] In the model this is done by dividing the target complex into rectangular sections whose longer sides are aligned with the warhead path. The sections need to be longer than the horizontal distance the warheads will travel through the atmosphere. For immediate purposes we assume warheads with low drag coefficients entering the atmosphere at 22 degrees. This translates into section lengths of 45 miles. Section widths of 10 miles are large enough to minimize interference between adjacent sections.

Thus:



* denotes missile silo

Numbers denote attack sequence.

[18] See "Analyses of Effects of Limited Nuclear Warfare," United States Senate Committee on Foreign Relations, September 1975, page 18 and *passim*. The 16.3 million estimate for a groundburst attack of two one-megaton RVs per silo includes only early fallout deaths and not deaths due to disease or disruption of services. Note that blue could equalize the damage without "escalating" to direct urban/industrial strikes by exploding ground-burst weapons upwind of a few major cities.

[19] The logic here requires an extension of the results based on the geographic coordinates for an American base to the Soviet base system. Obviously, this is of questionable validity, but the effect of the error would not be very significant for a low-intensity attack (i.e. one warhead per target.)

The roles of red and blue could be reversed from their usual assignment, of course; and we could consider the American force as a potential red force. Under this assumption, Table A4 would be directly applicable.

[20] The efficacy of the counterthreat rests on the fact that the coordination of the full first strike would require elaborate planning and a reasonably extensive period during which the attacking force was being brought up to full readiness. The limited preemption by contrast is far less demanding and could be prepared far more rapidly. Hence any breach in secrecy during the climb to full readiness would expose the would-be attacker to limited preemption. Since the entire argument deals with threats rather than actual attacks, it is sufficient to establish that the successful execution of limited preemption is reasonably judged to be at least as probable as the successful execution of the full first strike itself.

[21] Of course, such an attack by either side would be even more to be feared if it were possible to minimize early fallout by using warheads fuzed to explode at an altitude such that their fireballs would not touch the ground. The technical implementation of such a strategy is difficult, however. A 50-kiloton weapon has to be exploded above about 500 feet to prevent the fireball from touching ground. (See the DIA's *Physical Vulnerability Handbook* cited in footnote 3 above, Figure I-4).) It is essentially impossible to destroy a 1,000 psi silo if the detonation occurs above 750 feet (700 feet for a 1,500 psi silo) and the effective weapon radius decreases rapidly in the range between 600 and 750 feet. Thus, a very accurate fuzing mechanism is needed if the weapon is to perform properly. (Note that if its fuze causes it to explode at the wrong altitude, this will produce a substantial added accuracy error.) A fuze which works on barometric pressure or on the drag encountered by the warhead will not do, since the necessary accuracy is less than one percent of the scale height of the atmosphere, and thus the density of the atmosphere differs by less than one percent over these distances. (Similarly discouraging results are obtained for all weapon yields.) Radar fuzing could not be used with any confidence because it would be susceptible to jamming and interference from other explosions. See R.L. Garwin, "Technology for the Enhancement of Military Capability," *International Security*, Forthcoming.

[22] When blast and thermal effects are being considered, damage is assumed to be proportional to $NY^{2/3}$ because distances associated with particular intensities of these weapon effects are related to the cube-root of the yield which is then squared because damage is proportional to the *area* so exposed. (For yields over one megaton, $NY^{1/2}$ is often used instead, to adjust for the fact that most area targets are too small for such large yields to be efficient.) When long-term radiation effects are the primary concern, however, the total explosive yield is a more appropriate measure than such "equivalent megatonnage" formulae.

[23] The assignment of subjective probability, in this situation, is constrained, of course, only by intuitive plausibility – not a very confining or precise criterion. The procedure is nonetheless useful as a means of structuring the personal judgments which must inevitably be made. The higher of the two aggregate curves in Figure 2 suggests that even if there is a 70 percent chance that the attacking missiles will achieve accuracies comparable to 480 feet CEP or better (with a 40 percent chance of 120 feet comparable CEP), nonetheless the residual chance of lesser technical performance would deny expectations of success to a reasonably calculating attacker. Even under this distinctly optimistic probability assignment, the attacker must expect to exhaust his offensive war-fighting force without achieving total destruction of his opponent's force.

[24] Rough calculations suggest that more than ten kilograms of heat shield might be worn away by such dust. If this wear occurs asymmetrically, then the spin axis may no longer coincide with

the aerodynamic axis. Three mechanisms can then produce dramatic inaccuracies. First, both the effective frontal area and the drag coefficient of the RV will be increased, causing it to hit the ground short of its target. Second, the RV may fly at a different trim attitude, causing unpredictable aerodynamic lift. Third, if the center of mass moves with respect to the center of pressure, the RV may no longer be aerodynamically stable, with unpredictable effects.

As a rough guide to the possible magnitude of the first of these effects, we can calculate the effect of an unexpected decrease in the ballistic coefficient from 1,000 lbs./ft.^{2} to 900 lbs./ft.^{2} caused either by a change in the drag coefficient or an increase in the effective area because of oscillation. Such a deviation would cause an ICBM on a minimum energy trajectory to hit the ground 1,000 feet short of its target. Maneuvering warheads with inertial sensing all the way to the point of explosion is a design approach which might mitigate these problems but at the cost of greater complexity and probably lesser reliability.

[25] Two Navstar satellites were specifically authorized (beyond a program of four such satellites independently justified) in order to gather trajectory information for tests of the Trident C-4 missile. See "New Missiles Spur Range Instrumentation Advances", *Aviation Week and Space Technology*, November 3, 1975 and "DOD Weighs Navstar Schedule Advance", *Aviation Week and Space Technology*, December 2, 1974. For an official statement of the difficulty of achieving high confidence estimates of missile accuracy, see the testimony of the Deputy Director of Defense Research and Engineering in charge of Strategic and Space Systems, Senate Armed Services Committee, FY1976 Research and Development Authorization Hearings, (part 4), pp. 2136-37.

[26] That is not to assert that war would break out with the first serious crisis, but only that firm belief on one side is all that is required for some destabilizing effect to occur.

[27] In the United States operational missiles tests are conducted by removing selected missiles and their operational crews to test ranges. It may be true that this process does not affect the missile, but it certainly affects the crew, and their performance under test conditions is not likely to be the same as it would be in severe crisis or actual combat. What the Soviets do is more of a mystery, but it is rather unlikely that they have been able to simulate the actual combat conditions of a first strike.

APPENDIX A: Model Results for Various Attacks

TABLE A1: Illustrative Force Balances Under Basic Attack

Assumptions	Attacking Warheads				Attack Duration After First Explosion (minutes)	Silos Destroyed		Residual Land-based forces # of missile launchers	
	# Planned	# Launched	# Armed	# Exploded		Full Attack	1st 40 Min.	US	USSR
1. Standard Attack Assumptions	4000	4000	2670	1953	26	790	790	210	337-467
2. Degraded Reliability	4000	4000	1543	1260	26	622	622	378	337-467
3. Degraded Accuracy	4000	4000	2670	1950	26	591	591	409	337-467
4. Mistiming in the Attack Plan	4000	4000	2670	1355	26	677	677	323	337-467
5. Execution Mistiming	4000	4000	2670	1704	51	759	758	241	337-467
6. Greater than Anticipated Hardness	4000	4000	2670	1953	26	721	721	279	337-467
7. Combined Degradation: Reliability, Accuracy, Plan Mistiming, Hardness	4000	4000	1543	963	26	306	306	694	337-467

TABLE A2: Illustrative Force Balances Under Rollback Attack

Assumptions	Attacking Warheads				Attack Duration After First Explosion (minutes)	Silos Destroyed		Residual Land-based forces # of missile launchers	
	# Planned	# Launched	# Armed	# Exploded		Full Attack	1st 40 Min.	US	USSR
1. Standard Attack Assumptions	4000	4000	2670	2377	51	868	779	132	337-467
2. Degraded Reliability	4000	4000	1543	1544	51	647	544	353	337-467
3. Degraded Accuracy	4000	4000	2670	2380	51	683	595	317	337-467
4. Mistiming in the Attack Plan	4000	4000	2670	2330	51	856	767	144	337-467
5. Execution Mistiming	4000	4000	2670	2157	75	846	739	154	337-467
6. Greater than Anticipated Hardness	4000	4000	2670	2377	51	811	724	189	337-467
7. Combined Degradation: Reliability, Accuracy, Plan Mistiming, Hardness	4000	4000	1543	1422	51	401	332	599	337-467

TABLE A3: Force Balances Under Rollback and Reprogrammed Attack

Assumptions	Attacking Warheads				Attack Duration After First Explosion (minutes)	Silos Destroyed		Residual Land-based forces # of missile launchers	
	# Planned	# Launched	# Armed	# Exploded		Full Attack	1st 40 Min.	US	USSR
1. Standard Attack Assumptions	4000	5312	3604	2856	81	922	802	78	21-29
2. Degraded Reliability	4000	8098	3188	2470	117	875	588	125	0*
3. Degraded Accuracy	4000	5312	3604	2853	81	759	604	241	21-29
4. Mistiming in the Attack Plan	4000	5312	3604	2705	81	903	792	97	21-29
5. Execution Mistiming	4000	5312	3604	2805	173	923	750	77	21-29
6. Greater than Anticipated Hardness	4000	5312	3604	2856	81	885	750	115	21-29
7. Combined Degradation: Reliability, Accuracy, Plan Mistiming, Hardness	4000	8098	3188	2298	117	598	339	402	0*

* Denotes that under the assumptions of Table 3 the attacking force would be totally exhausted--including the strategic reserve--before the attack could be completed.

TABLE A4: Force Balances Under Low Intensity Attack - Basic Attack Pattern

Assumptions	Attacking Warheads				Attack Duration After First Explosion (minutes)	Silos Destroyed		Residual Land-based forces # of missile launchers	
	# Planned	# Launched	# Armed	# Exploded		Full Attack	1st 40 Min.	US	USSR
1. Standard Attack Assumptions	1000	1000	655	540	5	340	340	660	1060-1175
2. Degraded Reliability	1000	1000	410	350	5	230	230	770	1060-1175
3. Degraded Accuracy	1000	1000	655	540	5	250	250	750	1060-1175
4. Mistiming in the Attack Plan	1000	1000	655	540	5	340	340	660	1060-1175
5. Execution Mistiming	1000	1000	655	575	25	350	350	650	1060-1175
6. Greater than Anticipated Hardness	1000	1000	655	540	5	305	305	695	1060-1175
7. Combined Degradation: Reliability, Accuracy, Plan Mistiming, Hardness	1000	1000	410	350	5	140	140	860	1060-1175

APPENDIX B: *A Description of the Computer Model**

One can think of the computer program whose results are reported above as consisting of two simulations performed in sequence. First, based on parameters describing both the attack plan itself and statistical assumptions about timing errors, reliability, and accuracy, the program creates a sequence of the times and coordinates of the explosions that would occur in the absence of interference among warheads. Using the sequence resulting from this first simulation, a separate routine then determines the damage that such an attack would produce.

This second simulation takes each reentry vehicle in order of time of impact, calculates its path through the atmosphere, and determines whether it passes close enough to the center of an active cloud to be destroyed. If this check shows that warhead survives to impact, then the coordinates and time of its detonation are entered into an array of active cloud stem. Finally, using a lethal radius derived from weapon yield and target hardness, the program determines whether the explosion is close enough to its target to destroy it. If the silo is destroyed, the time of destruction is recorded so that when the simulation is finished the program can produce a description of the distribution of silo destruction over time.

With this basic structure in mind, it is possible to discuss subsidiary aspects of the model, including the values of the parameters that were used in generating the results reported in the text.

Parallel Straight-Line Trajectories

Throughout the calculations the reentry trajectories are assumed to be straight lines extending from the impact point upward at a constant angle Theta and northward at a constant angle Psi West of North.

The standard attack assumptions include a reentry direction (Psi) of 22°, corresponding to a flight path originating just east of Novosibirsk. The model results are not sensitive to changes in this parameter.

Under the standard assumptions, the reentry angle (Theta) is set at 22°, corresponding to the minimum energy trajectory for a surface range of 10,000 kilometers. Since a steeper reentry would decrease the probability of flying through an active cloud stem (although it would increase the lethality of any stem that was encountered), a reentry angle of 30° was used to check the sensitivity of the results to increases in reentry angle. The effect of the lofted trajectory was not great enough to substantially alter the conclusions reported in the text.

Moreover, increasing the reentry angle is not costless. The most immediate problem is that the lofted trajectory requires more thrust, perhaps necessitating a decrease in payload. Second, a 30°

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*We are grateful to Harvard's Center for Research in Computing Technology for access to their PDP-10. Copies of the computer program (in FORTRAN) are available from the authors.

trajectory would take 40 minutes extra warning, and thus increasing the probability that the attack will be disrupted or that the victim's missiles will be launched before being destroyed. Finally, increasing the reentry angle causes the reentry vehicle to enter the atmosphere at higher speed and to retain a greater portion of this speed to lower altitudes, causing higher maximum heating rates, increased susceptibility to destruction by debris, and greater vulnerability to accuracy degradation caused by uneven heat-shield wear by dust particles and water droplets. The usual approximation based on exponential atmospheric density, straightline trajectories, constant weight-to-drag ratio and zero lift indicates that 30° and 35° reentry angles would result in velocities at 20,000 feet respectively 30 percent and 50 percent greater that the 22° standard trajectory. Since both the amount of deceleration and the amount of heat-shield erosion resulting from the RV hitting a dust particle of a given size increase as the *square* of velocity these higher speeds could be quite dangerous to the warhead, especially if the distribution of dust particle sizes is non-uniform.

Warhead Lethal Radius

The lethal radius (in statute miles) for a weapon of yield W (in megatons) and target hardness H (in pounds per square inch) is calculated using the formula:

$$LR = 2.82 \frac{W^{1/3}}{H^{1/3}} \left[\frac{1.67}{H^{1/2}} + \left(1 + \frac{2.79}{H} \right)^{1/2} \right]^{2/3} \qquad (1)$$

This formula, which gives somewhat larger lethal radii (and thus *fewer surviving silos)* than certain other methods of calculation (including Robert E. Crawford, *et. al., Air Force Manual for Design and Analysis of Hardened Structures,* AFWL TR-74-102, October 1974), is derived from T. Greenwood, *The Utility of Safeguard for the Defense of Minuteman* (MIT Center for International Affairs Staff paper C/72-16, 1972). See also L.E. Davis and W.R. Schilling, "All You Ever Wanted to Know About MIRV and ICBM Calculations But Were Not Cleared to Ask," *Journal of Conflict Resolution* 17, No. 2, 1973, pp. 211-13.

The Active Cloud Array

As noted above, an array is maintained containing the coordinates and birth-times of cloud stems resulting from the nuclear explosions. Of course, clouds do not spring forth fully formed at the instant of the detonation. The model assumes that their growth is described by the following relation between cloud height (CALT, in statute miles) and time after detonation (t, in minutes):

$$CALT = 3 + 1.84\,t \qquad (2)$$

with the additional limitation that the lethal cloud cylinder is not permitted to extend above 14 miles. This expression for cloud rise is derived from the graph presented in Glasstone, *Effects of Nuclear Weapons,* p. 34.

A parameter, RSTEM, is used to control the lethal radius of the cloud stems. Unlike cloud altitude, lethal cloud radius is assumed to be constant over time. For convenience is using the program, cloud radius is normalized for yield (W, in megatons) as follows:

$$\text{Assumed Lethal Cloud Radius} = \text{RSTEM} (.5 + .85 [2 + \text{Log}_{10} W]) \quad (3)$$

With RSTEM set at 1.0, this equation represents a fit to the information on cloud stem radii presented in Glasstone, pp. 35-37. See Appendix C for calculations that the clouds described by these parameters are in fact lethal to warheads.

For any particular time, equations (2) and (3) combined with the information in the active cloud array describe the lethal cylinders that represent cloud stems. Although these equations do not include the fact that the height of stabilized clouds is dependent on yield, this is not a problem because cloud stems are only considered to be lethal for a time determined by equation (4):

$$\text{Lethal time (in minutes)} = \text{TSTEM} \times 5W^{1/3} \quad (4)$$

With TSTEM set at 1.0 (as it was in the simulations reported above), this formula results in maximum cloud heights of 64,000, 44,000, and 34,000 feet for bursts of 1 megaton, 200 kilotons and 50 kilotons at the end of 5.0, 2.9, and 1.8 minutes. These maximum heights are probably underestimates (see Glasstone, pp. 36-37). Moreover the lethal times are also most likely underestimates (see Appendix C below). Again, the parameter values used in the model result in *fewer surviving silos* than would unbiased estimates.

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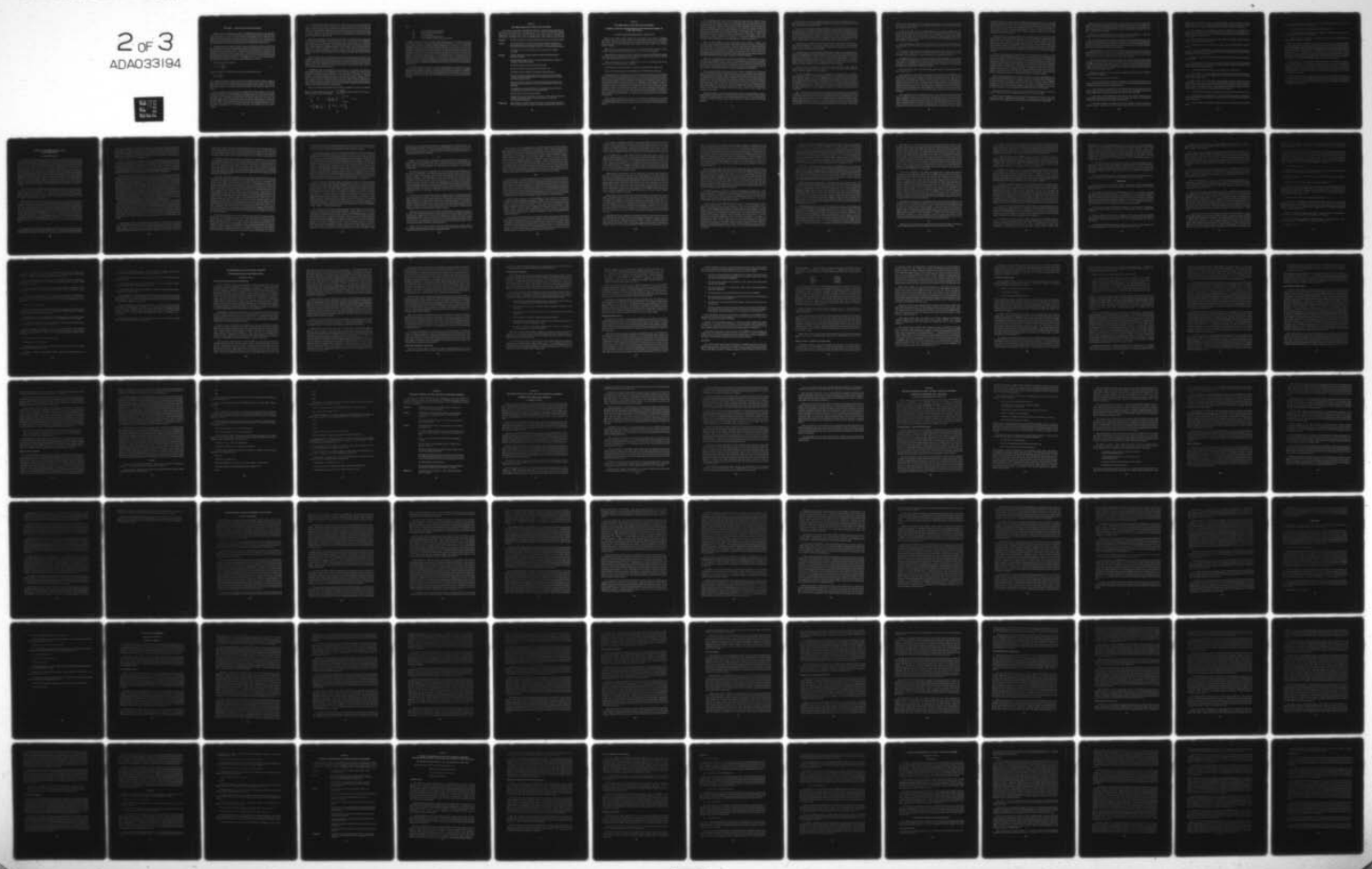

APPENDIX C: *Technical Notes on Cloud Stem Lethality*

Reentry vehicles with high ballistic coefficients ($\beta \geq 1000$ lbs/ft^2) which enter the atmosphere at an angle of 22° and a velocity of 23,000 feet per second (15,000 miles per hour) still have a velocity of 10,000 fps or more at 25,000 feet altitude and 5,000 fps or more at 5,000 feet. Since larger particles are more likely to be found lower in the cloud, and since most of the encounters between reentry vehicles and clouds during runs of the model take place above 10,000 feet, it is reasonable to think of warheads flying through cloud stems at 6,000 fps (1,800 meters/sec.).

One might assume that whether a cloud is lethal to an RV depends on whether the RV runs into a particle which causes a deceleration large enough to disable the warhead or to destroy the structural integrity of the RV. If an RV will be destroyed by a deceleration of 75g (where g is the acceleration of gravity) resulting from a collision with a particle (RVs are presumably more vulnerable to shocks imposed by such impacts than to the more uniform deceleration that occurs during normal reentry), then, assuming that the interaction between the RV and the dust particle occurs within five centimeters (two inches – or, at 1,800 m/sec, in 2.8×10^{-5} sec) the particle mass that will destroy the warhead can be derived using conservation of momentum:

Since the deceleration of the RV is

$$a_{rv} = \frac{\Delta v_{rv}}{\Delta t} = \frac{M_P \Delta v_P}{M_{rv} \Delta t} \qquad (1)$$

where the variables are interpreted in the usual way, the lethal particle mass is:

$$M_P = \frac{a_{rv} M_{rv} \Delta t}{\Delta v_P}$$

For a 1,000 pound RV and a collision which results in one-half of the particle's relative momentum being transferred to the RV, the lethal particle mass is 10 grams. At a velocity of 12,000 fps (equivalent to an altitude of 30,000 feet) the required particle weighs 2.6 grams. Of course, the high localized pressure on the heat shield may prove lethal to the warhead at smaller particle masses.

It is now necessary to assess the density of debris of this size that is likely to occur in the cloud stems generated by nuclear explosions. It is thought that a mass of earth equal to perhaps one third of the mass of air in a fireball from an air burst is lifted into the cloud in a surface or near-surface burst. The fireball is heated both by the thermal yield and by the energy that eventually appears as air blast, which together make up 94 percent of the explosive yield. Since the fireball is at about 1,800° at maximum size, the mass of air in the fireball (assuming a specific heat of .27 cal.g^{-1} °K^{-1} as an average for the specific heat of air in this temperature range) is 2×10^{12} grams/MT, corresponding to 6.7×10^{11} grams of dirt in the cloud resulting from a one megaton explosion.

For comparison, this volume of dirt would fill less than seven percent of the crater volume left by a one megaton surface burst (see Glasstone, pp. 289-93). Spread out over the 2.3 mile stem radius, it would form a layer only 1/4 inch thick. It is important to realize that in order to generate 1,000 psi on the ground the fireball must either touch ground or come very close. In fact, if it were not for the strong shock wave reflecting from the ground and flattening the bottom of the fireball, it would be impossible to generate such overpressures over substantial areas unless the burst height was low enough to cause some cratering.

Within a one-mile radius of a one-megaton weapon exploded at a height which gives the largest kill radius (the optimal height of burst), the peak winds due to the blast wave exceed 2,000 mph. Once mobilized by the shock wave, dirt particles would be carried aloft by the afterwinds generated by the upward movement of the hot fireball. These winds have velocities of 500 mph or more, enough to hold aloft a 4,000 pound boulder. (See H.L. Brode, "Review of Nuclear Weapons Effects," in E. Segre, *Annual Review of Nuclear Science* 18, Palo Alto: Annual Reviews, Inc., 1968.) In sum, weapons exploded at altitudes low enough to give reasonable silo kill probabilities should be expected to raise enough dirt so that the resulting cloud stems will be lethal to reentry vehicles.

Since the violent action of the afterwinds may act to break up dirt particles into dust, it seems reasonable to assume that only five percent of the mass is effectively in particles which are big enough to destroy RVs (this five percent adjustment is intended to include as well the fact that some particles will be substantially larger than necessary, thus reducing the number of effective particles). Even if the average mass of these lethal particles were 10 grams, there would be 3.3×10^9 lethal particles in the cloud stem.

A 60,000 foot high, 2.3 mile radius cloud stemming from a one megaton burst thus has a lethal particle density of 4.2×10^{-3} particles/m^3. For an RV with a collision cross-section of .3m^2 (a circle of one foot radius), this corresponds to a mean path length of 790 meters, or a horizontal distance of 730 meters, assuming a 22° reentry angle (this lethal horizontal distance would be shorter for steeper angles). An RV would traverse a path three times this long at a distance of 2.2 miles from the center of the cloud stem. An RV which passed through the stem two miles from the center would be expected to hit more than five lethal particles, and one which passed through the center would be expected to experience more than 11 fatal collisions. Similar calculations show the clouds from lower yield explosions to be equally lethal.

Using an exponential approximation for the earth's atmosphere, the time for a spherical particle to fall at terminal velocity (where $v = \left(\frac{2gM_P}{P_{air} C_D A}\right)^{1/2}$ and C_D for a sphere is 1/2) from one altitude to another is given by the integral:

$$t = \int_{h_1}^{h_2} \frac{dh}{v} = -H \left(\frac{Apo}{4 M_p g}\right)^{1/2} \int_{h_1/H}^{h_2/H} e^{-s/2}\, ds$$

$$= H \left(\frac{Apo}{M_p g}\right)^{1/2} \left(e^{-h_2/2H} - e^{-h_1/2H}\right)$$

where:

H	is the scale-height of the atmosphere,
A	is the frontal area of the particle,
M_p	is the particle mass,
g	is the acceleration of gravity, and,
po	is the atmospheric density at the earth's surface.

According to this formula, 10 gram particles with specific gravity 2.5 take 5.5 minutes to fall to the ground from 55,000 feet, 3.6 minutes to fall to ground from 30,000 feet, 2.6 minutes from 20,000 feet, but only 2.1 minutes to fall from 60,000 to 30,000 feet. A 2.6 gram particle (lethal above 30,000 feet) would take 25 percent longer to fall these distances. Of course, these figures are for an atmosphere undisturbed by vertical winds (at least on average) and are thus only appropriate after the cloud has stabilized and after there are no longer any upward winds within the stem. Even at 50,000 feet such particles have a terminal velocity of about 80 m/sec (about 175 mph). Since the updrafts in the cloud stem typically have 1.5 or 2 times the velocity of the cloud as a whole, such upward velocities can be expected until four or five minutes after a one megaton burst (see Glasstone, p. 34 and pp. 90-91, and Brode, *op. cit.*). Thus the 5 minutes used for the lethal time of the cloud stem for a one megaton explosion is almost certainly an understimate; at least 6 minutes is more reasonable for altitudes above 40,000 feet, and 8 minutes or more for the lower portions of the cloud stem.

For yields less than one megaton, the extent of the underestimate is greater. For example, cloud stems from 200 kiloton bursts are assumed to be lethal only for 2.9 minutes, even though it would take lethal particles more than 2 minutes merely to fall from 45,000 feet to 20,000 feet through an undisturbed atmosphere, and several minutes for the cloud to stabilize. *The calculations reported in this paper thus understate the difficulties caused even by this single interference mechanism.*

PANEL II

THE THIRD WORLD AND US-SOVIET RELATIONSHIPS

An evaluation of the impact of Third World instabilities on US-Soviet global relationships. An identification of the likely roles of the superpowers in local conflicts to include their probable objectives and means of actions, particularly the use of force. An analysis of the superpowers' employment of military force, such as through local conflict, proxies, terrorism, and shows-of-force. The validity of the concept of expanded limited conflict under the nuclear umbrella.

Chairman: Dr. Alvin Z. Rubinstein, Professor of Political Science, University of Pennsylvania

Authors: Dr. James E. Dornan, Jr., Associate Professor and Chairman, Department of Politics, Department of Political Science, Catholic University of America, and Senior Research Consultant, Strategic Studies Center, Stanford Research Institute

Dr. Michael C. Nwanze, Associate Professor of Political Science, Howard University

Panelists: Mr. Peter Abbruzzese, Professional Staff Consultant, House International Relations Committee

Mr. Henry M. Boettinger, Director of Corporate Planning Research, American Telephone and Telegraph Company

Dr. Richard Hough, Faculty, The National War College

Dr. Paul A. Jureidini, Vice President, Abbott Associates, Inc.

Dr. William A. Kintner, President, Foreign Policy Research Institute

Mr. James H. Noyes, Deputy Assistant Secretary of Defense for Near Eastern, African and South Asian Affairs, Office of the Assistant Secretary of Defense, International Security Affairs

Professor Uri Ra'anan, Professor of International Politics and Chairman of the International Security Studies Committee of the Fletcher School of Law and Diplomacy

Commander Gary G. Sick, USN, Office of the Assistant Secretary of Defense, International Security Affairs, Near East and South Asia

Mr. Max Singer, Consultant, Hudson Institute

Brigadier General James M. Thompson, USA, Director, Policy Plans and National Security Council Affairs, Office of the Assistant Secretary of Defense, International Security Affairs

Rapporteur: Major Matthew C. Harrison, USA, Soviet Branch, Foreign Intelligence Directorate, Office of the Assistant Chief of Staff for Intelligence, Department of the Army

PANEL II

THE THIRD WORLD AND US-SOVIET RELATIONSHIPS

CHAIRMAN'S PLENARY SESSION SUMMARY AND RAPPORTEUR'S REPORT OF PANEL DISCUSSION

Dr. Alvin Z. Rubinstein and Major Mathew C. Harrison, USA

Panel II was charged with examining the Third World in the context of US-Soviet relationships. It sought to speculate on probable trends in superpower relations in key Third World Areas in the 1980s and to identify options that would assist the United States in achieving its principal objectives. Though enlightening asides abounded, the panel focused on the following clusters of questions:

What are Soviet and American objectives in the Third World? How and why have these changed over the past two decades? What significance, if any, inheres in these changes?

Wherein do Soviet and American policies in the different regions of the Third World converge and diverge? What is the significance for the superpower relationship of the rivalry in particular areas? Is the superpower rivalry systemic or temporal?

How successful have the US and the USSR been in their quest for influence? What are the relevant criteria for assessing the degree of influence?

How important has economic aid been in the quest for political influence? Military aid?

Finally, what trends are likely in the Third World in the 1980s? What are US options?

Our discussion took a brief retrospective look at the US-Soviet relationship in the Third World since the mid-1950s. It was generally agreed that in that period the United States enjoyed a dominant position; the Third World countries were much less assertive than today; and the Soviet Union, whose capabilities were far less significant, had been able to establish a presence, but one that posed little threat to American interests in the Third World. It was suggested, though not unanimously accepted by the panel, that the October 1973 Middle East War marked a watershed in the US-Soviet rivalry in the Third World: The October War was the first time (with the possible exception of Cuba in 1962) that US and the USSR were moving toward direct confrontation in a Third World context; it was the first time that the Soviet Union showed a significant capability to project conventional military power in a Third World area in direct challenge to the US; and it showed that local actors could initiate events whose escalation could propel a crisis from a regional to a global level.

Having quickly established the background of the US-Soviet interaction from the mid- 1950s on, the panel directed its attention to a consideration of general Soviet and United States objectives in the Third World. There were many different points of view expressed, and categorization is difficult.

The first and most basic question had to do with the nature of Soviet objectives. A clear consensus emerged that Soviet objectives are a combination of short-term and long-term, tactical and strategic; that they change in response to perceived opportunities in the Third World; and that they have grown more ambitious with the increase in Soviet capabilities and the curtailment of American commitments. The view was expressed that in the 1950s Soviet objectives in the Third World were essentially reactive. They were formulated in response to the US policy of extending containment to the Middle East and South Asia and to the USSR's desire to undermine the Western-sponsored network of bases ringing its southern periphery. Our attempts to discern other general Soviet objectives yielded the conclusion that they were multi-purposed and at times ambivalent, but that in general they were geared to a weakening of Western (particularly, American) interests and alliances and to the entrenchment of a secure Soviet presence.

There was little disagreement about characterizing Soviet methods of attaining their objectives. The panel agreed that the policies implemented by Moscow in pursuit of its objectives varied according to the time and the region or country for which they were intended. Moscow has been fairly adept in associating itself with the desire of former colonial countries to assert their independence and to pursue policies that often set some of them at odds with the United States. Soviet policies in this regard could be described as an attempt to create a "vibration in unison" with Third World policies, that is, they seek to create a real or perceived coincidence of Soviet and Third World interests that would facilitate the pursuit of the Soviet objectives.

When it came to identifying the hierarchy of Soviet objectives in the Third World, a consensus did emerge that the objectives rank as follows: (1) strategic/military; (2) political; (3) economic; and (4) ideological. However, there were also some basic areas of contention. Several panelists held that Moscow's efforts are directed toward world hegemony. The prevalent belief, however, was that Soviet aims were more focused, concrete, and limited in character. Time and again, the view was expressed that in the 1980s the Soviets would seek privileged port and naval facilities.

The panel agreed that the Soviets seem to have a realistic understanding of the transitory nature of both gains and losses in the Third World. Moscow becomes neither excited nor depressed to the point that further efforts to attain its objectives are abandoned. Clearly, the Soviets are in the Third World for the long haul. There was agreement that Soviet policies could, in general, be characterized as cautious and low-risk. Here, though, a cautionary note was sounded by several of the participants, who warned that Moscow's recent increases in relative military power and strategic position may have served to erode some of the traditional Soviet caution and that we may see a more activist Soviet policy in the future. There was no feeling that economic objectives loomed large in Soviet thinking, nor that they were apt to in the 1980s. The Soviets are motivated more by a desire to deny economic advantages to the West than they are by the intent to acquire these advantages for themselves.

The parallel attempt to identify and rank US objectives proved suprisingly difficult. The panel readily agreed that US objectives are in many ways fuzzy and often contradictory. They cut across the specturm of military, political, economic, and humanitarian concerns, and the delineations are not clear-cut. There has, however, been a basic consistency in American aims over the past generation.

The panel then turned to an examination of US and Soviet interaction in specific areas of the Third World, with an eye toward identifying convergences and divergences, especially as they may relate to the US-Soviet rivalry in the 1980s.

The first area examined was Latin America. US policy toward this region was characterized as one of benign neglect, involving a good deal of rhetoric but little sustained or substantive action. Although this policy was adequate in the past, Latin America now requires continued attention and a new seriousness of purpose. It is a troublesome region but one whose essential complementarity to US interests should grow. For example, as access to African resources becomes more uncertain, Central and South America will become more important as resource-bases: Venezuelan iron ore and Mexico's possible emergence as a major oil exporter in the 1980s are two illustrative cases.

Notwithstanding its support to Cuba, the Soviet threat in this region has been minimal to date. Soviet encouragement to anti-American groups in Jamaica, Puerto Rico, and elsewhere has nuisance value, but little else. The panel felt that, barring unforeseen opportunities, Latin America would remain low on the Soviet list of priorities.

In Southeast Asia, the panel felt that the Soviet Union would seek an expanded presence. There was some disagreement among panel members about the specifics of Soviet policy and about whether the USSR would be able to acquire a base at Camranh Bay. However, Soviet policy generally reflects both the outward thrust of an imperial power and the desire to isolate the People's Republic of China. Moscow also seeks to encourage the continued erosion of the American position in the area. However, in terms of US-Soviet rivalry, Southeast Asia was not expected to jeopardize seriously superpower efforts to stabilize their strategic relationship.

South Asia was not regarded as a priority area for the United States or the USSR. The superpowers seem unlikely to come into conflict here. Indeed, they may well share a genuine interest in helping to maintain the region's stability.

In Africa, the USSR's aims are strategic and political: to acquire military bases, establish a close relationship with leading Black African governments, and complicate US relations with the region. Moscow's support for the position of Black Africa on the issue of ending the white minority rule in Rhodesia and South Africa has enhanced the Soviet position, as has the Soviet role in the Angolan civil war. The United States, on the other hand, is torn among its moral commitment to eventual black majority rule, its strategic and economic interests in Southern Africa, and its desire to achieve a moderate solution to the South African problem. Tensions are expected to persist in the 1980s. The emergence of radical regimes may prompt an expanded and sustained Soviet involvement.

Some on the panel felt that as Moscow's involvement grew, its prospects for institutionalizing its influence would diminish. Several participants suggested that Moscow had gotten involved in a no-win game in Africa, inasmuch as the essence of Soviet efforts involves translating presence into influence—and increased presence often leads to decreased influence. Nonetheless, Soviet efforts in Somalia suggest that Moscow is seeking to establish a strong base in East Africa. Some members wondered whether Moscow would commit the same mistakes in the Horn in the 1980s that they did in Egypt in the 1970s. With Somalia opting for membership in the Arab League, Saudi Arabia

may play a role in persuading Somalia to keep the Soviet presence to a minimum, a development the US would, of course, like to see. Like Southern Africa, the Horn of Africa was seen as an area apt to attract keen Soviet interest.

Looking to the 1980s, there was a guarded optimism among a number of panelists about the Middle East. This optimism was based, in part, on their assessment that the US position is on the upswing throughout the region, primarily because the United States can provide (and the USSR cannot) what key Arab states want—sophisticated equipment, technical know-how, and an honest broker in the Arab-Israeli conflict. It was also based on the belief that the Middle East situation is not a "tinderbox" or "powder keg."

The US and USSR were held by some to share a desire to avoid another Arab-Israeli War. The near confrontation of 1973 may lead each superpower to take steps to see that a repeat crisis does not occur.

In other ways though, their aims seem to diverge. The US has major economic interests, a vital stake in insuring a continued flow of oil from the Persian Gulf - Arabian peninsula area, a firm commitment to the independence of Israel, and a desire to see a stable Iran and Turkey.

The USSR's general aims are to weaken the US position and to establish close ties with the Arab countries. Some suggested that since the end of the October War, Moscow has found itself the "odd capital out." An improvement in the Soviet position is not ruled out but, short of a major reversal of current Arab-Western relationships, Moscow will have to depend on new upheavals in the Middle East for opportunities to improve its position.

The Soviet economic stake in the region remains small, certainly in comparison with the US, and it is apt to stay so.

Some members of the panel were far less sanguine about US prospects in the Middle East and about the region's move toward stability. They pointed out that no part of the world is less given to permanent relationships or inevitable trends than is the Middle East. They suggest that the Soviets do not want a permanent settlement to the Arab-Israeli conflict and that although Israel currently enjoys a favorable balance of military power, the long-term trends are running strongly in favor of the Arab states. In such an environment, Moscow could acquire renewed flexibility in the Middle East and would have more room for maneuver. Although there was a wide range of uncertainty about the likelihood of another Middle East war in the next decade, there was general agreement that Arab and Israeli force levels would remain at high levels, a development fraught with danger.

It was suggested that there is and has been for many years a debate within the Soviet leadership over the approach to adopt in the Third World. One group apparently has advocated a more cautious approach, with a low level of commitment. The other group seems to have argued that the battle for hegemony is being fought now, that the Soviet Union should ignore the interests of national communist parties in its pursuit of influence in the Third World, and that a "forward policy" should be pursued. It was further suggested that there is a third group in Moscow which is inclined to view the heavy investment in the Third World as a waste of Soviet resources, though

this group is clearly the weakest of the three. Although the panel attempted, not very successfully it must be reported, to assess the extent to which the US and USSR acquired influence in the Third World, more attention was devoted to two rather divergent viewpoints on the means used by the Soviet Union to achieve its aims in the Third World. Paralleling the assumed Kremlin debate, the one view held that aid has had only marginal influence on putative client states; the other saw Soviet policies, especially as they rely on the military component, as likely to be useful in the acquisition of influence in the 1980s.

Cited as evidence for the former point was the fact that Soviet policy in the 1950s and 1960s took advantage of regional polarization in specific areas of the Third World to establish a presence. Through Soviet aid, recipients were provided with options which, in turn, enabled the Soviets to achieve their initial objective of keeping key nations like India and Egypt out of the Western-sponsored system of military alliances. By the mid-60s, however, Soviet ambitions had grown with their capabilities, especially in terms of the quest for naval facilities. Today, Soviet objectives are to maintain their presence throughout the Third World and to prevent these regions from developing close political/economic relations with the West, and, as some argued, to achieve hegemony.

However, it was argued that the Soviets have not been particularly successful in exercising influence. The panelists repeatedly agreed that a presence does not necessarily bring influence. As an example, in India the Soviets are reaping a harvest of diminishing returns; and Third World nations increasingly prefer to look to the West in their efforts to promote development and modernization. Thus, those who argued that the USSR has had limited influence as a consequence of its aid programs contended that the US should not be mesmerized by Soviet bases and military capabilities, which in themselves do not bring influence. In actuality, the United States may have greater influence now in the strategically vital area of the Middle East than it had before, even though its military presence is far less prominent than in the 1950s and 1960s, when it had limited influence on key developments there. The growing disillusionment with Soviet economic assistance works in the West's favor, and it is a development that should be exploited by the West.

The second, sharply divergent, set of opinions found the trends in the Third World not at all favorable to the United States. This group made several points. It argued that Soviet military bases are sought not merely for the purpose of acquiring influence, but also to increase Soviet capabilities to project military power; and that, contrary to the view that a superpower's ability to manage developments in the Third World will atrophy, the suppliers of sophisticated weapons will increasingly be able to exercise influence within the supplier/recipient relationship, if only because recipients' dependence on the arms supplier grows with the sophistication of the weapons.

Treating the subject of the means used by the superpowers to obtain influence, there were again two rather different lines of emphasis within the panel: economic and military.

Some stressed the importance in the 1980s of economic instruments. Food, for one, could conceivably provide considerable political leverage; the availability of investment capital was another resource that operated in favor of United States interests throughout the Third World.

Other panelists felt that the characterization of the Soviet Union as generally a prudent and cautious power was based on judgments of Soviet actions that were made in the period when the USSR was clearly an inferior military power. By the 1980s, these participants expected Moscow to project military power in the Third World more frequently, either directly or through the use of proxies, and through its aid programs.

Several areas of the Third World were discussed as examples of these general views. The discussions raised many policy-relevant questions, but produced few answers.

The case of the Persian Gulf was cited as an example where gloomy predictions had not come to pass. Persian Gulf regimes have used their vast wealth to co-opt potential internal opposition, and they have not fallen prey to Soviet influence. The importance of Iran was particularly stressed. Iran's race to build up a diversified economy before its oil runs out was noted, along with possible factors that could undermine that government's programs.

United States interests in the Gulf focus on oil, and by the end of the century, new sources of supply and alternate forms of energy may exist, leading to a significant decline in US concern over Persian Gulf oil. But this is looking beyond the 1980s. Soviet interest in the region, on the other hand, may prove a longer term character because of the region's proximity.

Africa was discussed often in the context of superpower attempts to acquire influence. Angola was cited as a situation that had re-crystallized African interest in developing closer relations with the USSR. Some panelists argued that the notion of a guiding elite legitimized by Marxist-Leninist ideology is one that African leaders find attractive. Several panelists saw a good deal of evidence of a rather profound shift toward the USSR in African sympathies, and they expected this shift to adversely affect United States interests.

Looking to the 1980s, the panel speculated on probable trends that might affect US-Soviet interaction in the Third World.

The following specific trends were identified:

1. The adversarial character of US-Soviet rivalry would very likely intensify, in part because both superpowers believe that their response to each other in key Third World regions will have consequences in other regions and on their global rivalry.

2. The continuation of instabilities in various regions will involve the superpowers. The internal stability of the local regimes is likely to remain precarious. The Middle East, Southern Africa, and East Africa were cited as areas where local tensions would remain high.

3. Arms levels in volatile Third World regions will, for various reasons, remain high, and as such constitute a potential exacerbating factor in crisis situations—more likely to cause superpower confrontation as threshold weapons capabilities become involved.

4. The Soviet capability, and willingness to use that capability to advance strategic and political objectives, would increase. A few panelists would not rule out worst-case scenarios,

suggesting that the USSR was seeking a war-winning capability and that it might be tempted, possibly through the use of amply provisioned surrogates, to take full advantage of any opportunity to press Soviet imperial ambitions in such areas as the Persian Gulf or East Africa.

5. The combination of rapid advances in weapons technology, the accelerating pace of obsolescence, and high attrition rates on the battlefield serve to heighten a client's dependence on a supplier power, which may be prompted to use this position to try to wield more influence over a client than was the case heretofore.

6. Internal cleavages and local animosities with spill-over possibilities will likely generate regional conflicts involving the superpowers.

7. Overall, China was not expected to be a major actor in the Third World in the next decade.

8. Economically, Third World countries will look increasingly to the United States for food, technology, and investment rather than to the Soviet Union. This could serve as an important basis for improved US leverage in priority areas.

A number of trends, affecting North-South relationships, rather than East-West relationships, were also noted.

1. The situation of commodity producers would improve and enhance their international bargaining position. Some cautioned that the fortunately endowed LDCs had probably already reached their optimum bargaining position.

2. Technological transfers, in military and non-military areas, would increase.

3. The emergence of regional "middle level" powers might make it harder for superpowers to project their naval presence in Third World areas in which such "middle level" states possessed sophisticated anti-ship weaponry.

Turning to options for the United States, the panel decided, after some discussion, that since specific policy options, must, of necessity, be problem-oriented, and since our focus was on the 1980s, and since Third World diversity involved innumerable unanticipated changes, it might be better to make a few general statements concerning US policy options that would have broader, long-term relevance. A number of recommended options were suggested.

1. The United States should try to promote and assist democratic goverments and societies.

2. The US Government should work more closely with the private sector to coordinate its relations with LDCs whose governments are suspicious of private enterprise and whose economies are centrally directed.

3. Where feasible, the US should encourage its allies to play a greater role in the Third World.

4. The US should be more selective in the choice of Third World countries on which it would concentrate commitments and assistance.

5. Multi-lateral forms of economic assistance should be explored.

6. The US government should respond more forthrightly, in appropriate forums and ways, to unjustified attacks on the US and its policies.

7. There should be a re-exploration of linking Soviet activities in the Third World with improvements in US-Soviet relationships.

There were, of course, understandable areas of disagreement. In particular, several participants felt that the panel had concentrated unduly on the economic aspects of United States policy options. These panelists suggested that the United States has, in fact, essentially only two options: (1) to engage the Soviet Union throughout the Third World; or, (2) not to engage the Soviet Union. According to this line of argumentation, not to engage the Soviets has the same affect as losing an engagement. Not only are the US interests in the specific area of contention sacrificed, but the other nations of the Third World are spectators, making judgments that affect US interests in many other regions. The point made by these participants is that if the United States does not engage the Soviet Union in the Third World, Washington abdicates its position as a superpower.

Another approach to the determination of policy options that was suggested was referred to as an "averaging strategy." This approach is predicated upon a belief that policymakers in Washington cannot know and understand the political situation in each of the Third World countries. As a consequence, it is impossible for US policymakers to base their decisions on sufficient knowledge or understanding of the relevant political forces. Therefore, the US requires the development of a set of rules which will, in general, produce more often than not, results favorable to the United States.

Another perspective on the development of policy options was suggested by the observation that US decisionmakers will find it difficult to implement policies because of the constraints placed on the government by the limits of US power and resources and by domestic politics. Therefore, it is important to realize and acknowledge that there are limits on what the US can accomplish in the Third World in the years ahead.

DETENTE AND SUPERPOWER RELATIONS IN THE THIRD WORLD

Dr. James E. Dornan, Jr.

Future historians might well be perplexed by the fact that the major 1975 crisis in Soviet-American relations erupted over the formerly obscure southwest African country of Angola. Under no definition of the American national interest, can Angola in and of itself be considered a vital US concern, nor in fact had US decision-makers previously exhibited particular interest in developments there. The unhappy denouement in Vietnam had supposedly put an end—at least for a time—to the postwar American tendency to conceptualize world politics as a zero-sum game, a way of thinking which in any case has been vigorously attacked by the Secretary of State during his previous incarnation as an academic critic of US policy. Angola is thousands of miles from the Russian heartland, and there were no indications that the Soviet Union any more than the US had formerly deemed southwest Africa an area of urgent import. Above all, the Soviet-American imbroglio over Angola occurred less than two years after Mr. Kissinger—then speaking through President Nixon—asserted that his diplomacy had achieved "a major break in the pattern of suspicion, hostility, and confrontation that has dominated US-Soviet relations for a generation," and that as a result "a global structure of peace (had) emerged."[1] His judgment was widely echoed by others.

To be sure, events in the Middle East and Portugal had produced serious strains in the relationship between the superpowers well before mid-1975, such that even Mr. Kissinger's publicly-expressed expectations for detente had become considerably more subdued in tone.[2] Clearly, had the African crisis never arisen, a combination of international events and political pressures within the United States would nevertheless have compelled a reexamination of at least the modalities of the detente policy in 1976.

But the Angolan affair was particularly important because it raised in an acute form a series of questions concerning the superpower relationship which had been neglected since the late 1960 s, and which deserved continuing reexamination. The affair compelled Western commentators to reflect once again on Soviet intentions in global international politics as well as in the Third World, and to give particular consideration to the impact of growing Soviet military capabilities on the formulation of those objectives. Angola has moreover stimulated analysts, both to probe again the nature of US interests in the Third World and to examine various possibilities for the future course of America-Soviet relations there. Finally, recent events in southwest Africa have inspired new evaluations of the role of force in the US-USSR relationship, and of the realism of the belief that we have entered a new era of international stability characterized by fewer direct confrontations between the superpowers. This paper contains some preliminary reflections on these and related issues.

I

It is instructive to examine in the post-Angolan period the bases for the belief, so prevalent in the United States in the early 1970s, that the Soviet-American relationship had entered a new phase of stability and cooperation. In part, of course, such views were but the latest manifestation of the

escapist urge in the American foreign policy tradition, an urge which can be traced to the nation's earliest days and which has graphically revealed itself in the pattern of alternating periods of interventionism and isolationism characteristic of Twentieth Century American foreign policy. In part also, these beliefs were a product of the demonstrable moderation in the tone and the style of Soviet policy in the Brezhnev era. In the Nixon-Ford years, these hopes have been given particular form and focus by the statecraft of Henry Kissinger.

It is clear in retrospect—as it should have been earlier—that Mr. Kissinger's views concerning the prospects for the emergence of a more settled relationship between the superpowers, and thus of a more stable world order, considerably antedated 1969. A careful analysis of his academic writings[3] reveals, in fact, that the possibility of a "new structure of peace" based on the acceptance of a modified political status-quo by the superpowers, and strongly buttressed by a developing "strategic stalemate," had come largely to dominate Mr. Kissinger's thinking about international politics by the mid-Sixties, transcending the more pessimistic strains in his approach.

It had long been his conviction that the creation of a stable international order was the preeminent task of the statesman; that task, in his view, was rendered extraordinarily difficult in revolutionary periods of history by the presence in the international system of powers determined to expand their own influence at the expense of others. Early in his academic career, Mr. Kissinger apparently believed that the USSR was one of those powers;[4] by 1965, however, he was arguing that changes both within the Soviet Union and in the international system itself had combined to dampen the expansionist fervor of the USSR and to enhance substantially the possibilities for an improved Soviet-American relationship.[5] The Soviet political system, he asserted, had become thoroughly bureaucratized, and its leadership far more concerned with maintaining itself in power than with abiding by the canons of Marxist-Leninist ideology. Moreover, the unfolding schisms in the communist world and growing demands from the Soviet citizenry for more attention to their social needs had begun to impose serious constraints upon the Politburo's freedom of action in the foreign policy area. Above all, however, the Soviet leaders, in Kissinger's view, shared one critical common interest with their counterparts in the West, that of avoiding nuclear war.

It is worth recalling that Mr. Kissinger earned his academic reputation largely as a result of his reflections on the relationship between force and foreign policy, set forth in several early articles and in *Nuclear Weapons and Foreign Policy*.[6] In many respects, his position differed little from that of most Western analysts of the period. So awesome is the destructive potential of nuclear weapons, he argued, that nations are unlikely in the extreme to employ them unless their own survival is directly at stake. Moreover, when both superpowers possess nuclear weapons with the necessary characteristics and in sufficient numbers to deter an attack on their homelands, there will exist a state of "mutual assured destruction" and a "nuclear stalemate"—a strategic standoff, with neither side able to enforce its will on the other. This, in his view, is the most stable strategic state possible.

Mr. Kissinger's analysis of the impact of nuclear weapons in world politics, of course, was more or less standard fare for its time. The conclusions concerning the future of the international system which he drew from it, however, went considerably beyond those of many of his peers. Under conditions of nuclear stalemate, he argued, the superpowers are denied the possibility of achieving the ultimate objective of war: the physical conquest of their opponent. In this most

fundamental of respects, the nature of international politics itself has been transformed. Moreover, because of the awesome destruction which would attend their use, strategic nuclear weapons can only avert disaster; they can never serve the traditional purpose of military power, the achievement of a state's political objectives.[7] Once an invulnerable second strike capability is in hand, therefore, the numbers and even the quality of a nation's strategic forces are no longer of great significance.[8]

The primary effect of nuclear weapons on world politics, in Mr. Kissinger's view, is therefore, to establish the foundations for a stable superpower relationship and thus for a more harmonious international system. With their physical security guaranteed and the most significant weapons in their arsenals unusable except for purposes of deterrence, the pursuit of "marginal increments of power" and "marginal advantages" by one superpower against another will become increasingly unattractive. Military force, thus, suffers from declining utility in all its forms; the superpowers have no rational alternative, whatever their ideological or political perferences, but to circumscribe severely their political and military ambitions, the result being essentially the maintenance of the present international status quo.[9]

US attitudes toward the Third World and toward competition with the Soviet Union in those areas during the Nixon-Ford Administration were profoundly influenced by Mr. Kissinger's perception of declining revolutionary fervor in the Soviet Union and of an increasingly stable nuclear stalemate. These two developments, he believed, not only diminished any motivation on the part of the USSR to augment substantially its influence in the Third World, but also made Russian expansionism, should it occur, far less dangerous from the West's point of view. The Soviet appetite for territorial and political aggrandizement was said to be considerably dampened not only due to changes in Soviet domestic priorities, but also because in an era of nuclear standoff these underdeveloped countries constitute, in power terms, the quintessentially "marginal" areas of the world. Historically, territorial conquest or the expansion of control and political influence in the peripheral areas of world politics have significantly affected the power relationships between major nations because of the economic, political and geostrategic benefits which accrued to the expanding nation. But because these elements of power are of only "marginal" significance under conditions of nuclear stalemate, in Mr. Kissinger's view, expansion in the Third World would not add substantially to Soviet power vis-a-vis the United States; overt expansionism, therefore, is not worth the risk and expense involved, particularly since provocative Soviet activities might result in a major confrontation with the US. Under such circumstances, the obsession with superpower *competition* for influence in the Third World might logically yield to US-USSR *cooperation*, for the primary interest of both powers in these areas is now to prevent the escalation of a local crisis into a nuclear showdown.

To trace the development of these views, with their assorted nuances, through Kissinger's writings of the '50s and '60s, would carry us well beyond the purpose of this essay; in any case, this task has been accomplished elsewhere. Let it suffice to note here that, intermixed with Mr. Kissinger's apparent confidence in the inevitability of favorable changes in the functioning of the international system due to these factors, there was always a measure of hope and exhortation; his writings are moreover, replete with contradictions, caveats, and Spenglerian doubts concerning the capacity of the West to manage its policies such as to produce the desired results. The importance of the latter theme for Kissinger's analysis, in fact, cannot be overemphasized. He constantly stressed the need for effective diplomacy in the creation of his new order: whatever the potential

for global stability inherent in developments within the Soviet Union and in the nuclear stalemate, a new structure of peace would not emerge without a series of bold and creative acts on the part of statesmen perceptive enough to discern and guide the trends at work in the system.

The views outlined above, in any case, constituted the framework for American diplomacy as it developed under Mr. Kissinger's direction after 1969. Soviet achievement of parity in numbers of strategic delivery vehicles, he thought, might provide an incentive for them to negotiate seriously on strategic arms control. After an initial flirtation with the ideas that the Soviets should "earn" an arms control agreement with the US through good behavior for the Middle East, Southeast Asia, and elsewhere, Mr. Kissinger abandoned this well-publicized theory of "linkage" when the Soviets proved uncooperative, and in fact "turned it on its head" by promoting exactly the reverse doctrine, i.e., that agreements curbing the arms race itself could help create an ambience in the superpower relationship which would spill over into other areas and thus add to the "momentum of detente."[10] And Kissinger as Secretary of State became even more insistent than before that strategic weapons had neither military nor political utility beyond deterrence; and in seeking agreements on strategic arms, he was not disposed to quarrel with the USSR over the precise size of the latter's nuclear arsenal or over other "marginally significant" details. Hence, his celebrated 1974 outburst, "What in God's name is strategic superiority? What is the significance of it, politically, militarily, operationally, at these levels of numbers? What do you do with it?"[11]

In the 1973 State of the World message, Mr. Kissinger provided one of his most complete statements on the nature of the emergent Soviet-American association. The United States had entered into a continuing relationship with the USSR, he stated, marked by ongoing negotiations on a broad range of issues. This relationship was to be periodically formalized in treaties, accords, and protocols of a variety of kinds.[12] More specifically, arrangements for expanded economic interchange between the two societies are intended, to the greatest extent possible, to bind the Soviet economy to our own, in the process creating "an interdependence between our economies which provides a continuing incentive to maintain an constructive relationship."[13] Other negotiations and agreements are intended to constitute visible symbols of the achievement by the USSR of great-power status, and to give the Soviets a stake in the maintenance of the existing international system. Soviet interests are to be taken into account in settling all major issues of contemporary diplomacy; the 1917 State of the World report even recognized as legitimate the "natural expansion of Soviet influence" in areas such as the Middle East, so long as the USSR does not seek "exclusive or predominant positions."[14]

It is in this general context that the "Basic Principles of Relations Between the United States of America and the Union of Soviet Socialist Republics," signed at Moscow in 1972, and the "Agreement on the Prevention of Nuclear War," initialed at the Washington summit a year later, assume particular significance. Both documents affirm not only that bilateral relations among the two superpowers are to be conducted on the basis of mutual restraint, but also that conflicts and potential crisis situations elsewhere in the world are henceforth to be dealt with through joint action by the US and the USSR. The 1973 Agreement, which was signed at what in restrospect appears to have been the highwater mark of detente, explicitly provides for immediate consultations between the superpowers if conflicts among third parties appear likely to erupt into a major world crisis.[15] Mr. Kissinger was rather cautious in his public commentary on the significance of both agreements; but in assigning equal status to the US and the USSR as global

peacemakers and in allocating both superpowers sweeping authority to repress local crises, the agreements appeared to both condone and create a US-USSR global condominium. Not only were their own relations no longer to be characterized either by strategic competition or by efforts "to obtain unilateral advantage at the expense of the other,"[16] but the two states henceforth were to cooperate in keeping the peace worldwide.

II

Whether or not Mr. Kissinger's observations on current Soviet objectives in world politics can be deemed accurate, his analysis of the impact of nuclear weapons upon contemporary world politics cannot be accepted uncritically. Even more dubious are his asseverations concerning the declining utility of conventional military force. Once again, the essential points can only be lightly touched on here.

It is worth noting at the outset that there are few if any indications that the Soviets accept the position of Mr. Kissinger and other Western analysts that strategic nuclear weapons have no political or military utility beyond deterrence. Both the doctrinal pronouncements and weapons deployment policies of the USSR suggest that the Soviet leadership seeks a superior strategic war-fighting capability which would allow the Soviet Union not only to survive but actually to prevail in the event that deterrence fails and nuclear war occurs. Neither do Soviet thinkers apparently consider the outbreak of nuclear war as improbable as do their Western counterparts,[17] a factor which alone might serve to explain the post-1969 Soviet drive towards a substantial margin over the United States in numbers of strategic delivery vehicles. Finally, USSR military doctrine, deployment patterns, and the like also suggest that the Soviets continue to perceive an essential connection between the possession of strategic power and the achievement of political objectives.[18]

To be sure, it is conceivable that the Soviets are simply incorrect in concluding that strategic forces can be utilized successfully in the pursuit of political objectives. Serious research on the political implications of various strategic states, however, has barely begun. Neither have Western analysts inquired at any length into the circumstances in which Soviet strategic power has been or might be employed in a political way to advance the foreign policy objectives of the USSR, or carefully examined conditions in which the mere presence of massive Soviet military power has affected or might affect the behavior of other states.[19] Even the behavior of Finland remains inadequately analyzed from this perspective in Western literature.

Indeed, most Western assertions concerning the political disutility of strategic power appear to be based solely on US behavior during the 1950s and 1960s. It is beyond argument that the US has always been inhibited, both by its historical tradition and its domestic political structure, in utilizing military power, threats to employ force, and the like to achieve its peacetime foreign policy objectives.[20] As several critics have pointed out, US decision-makers have largely failed in recent years to consider adequately the impact of force-structure and deployment policies on allied and enemy perceptions of US military and political power.[21]

There is no *a priori* reason to assume, however, that other nations will be similarly inhibited by the destructiveness of nuclear weapons, or that they necessarily will prove as ineffective as the United States in harnessing strategic power to political objectives.

Moreover, there is even less justification for assuming that the military and political utility of force is declining on the conventional level. Once again, as studies of Soviet procurement and deployment patterns have clearly shown, the Russians continue to take a far more traditional view of such matters. As R. J. Vincent has pointed out, the extensive disbursement of military aid in Third World areas by Moscow over the past two decades has allowed the USSR not only to introduce herself into the politics of areas formerly outside her sphere, but also to establish a military presence abroad which might have considerable value in future conflicts at various levels.[22] The Soviets' capability to move forces quickly to control recalcitrant satellites has more than once been demonstrated. Their ability to act similarly to settle any post-Tito succession crisis, or to deploy naval forces to protect at least some client states abroad from internal or external threats, would today be challenged by few observers. It remains to be seen as well how the political impact of Soviet conventional power will be affected by the growth of Soviet strategic power. In any case, it bears repeating that these are questions to be answered by careful analysis of the actual behavior of states under current conditions rather than by *a priori* assertions of dogma.

III

It remains, then, to raise certain questions, in the context of the foregoing, about Soviet behavior in the areas of the globe generally referred to as the Third World. Is there evidence to suggest that the USSR believes that the detente relationship with the West makes unnecessary and unwise the pursuit of "marginal advantages" in the Third World? Do the Soviets in fact accept the position that the expansion of their power and influence in the Middle East, Africa, and Asia is a prize of little value under contemporary international conditions? Has the USSR in its Third World behavior exhibited signs that it too believes the utility of force is declining? Has the expansion of Soviet military power generally and the growing Soviet military presence in remote regions had any observable impact on the political behavior of Third World nations? Finally, what are the principal constraints that affect the ability of the USSR to expand its influence in Third World areas?

Extensive Soviet involvement in the Third World, of course, originated in the immediate post-Stalin era. Under Khrushchev's leadership the USSR for the first time since 1917 began to conceive of itself as a global power with worldwide interests, and to give consideration to ways and means of increasing its power and influence in areas distant from the homeland.[24] Soviet operations abroad soon began to exhibit a range and versatility unknown in the Stalin era: visits abroad, "summit" conferences and the establishment of broadened diplomatic ties generally, cultural and other "people-to-people" contacts on a large scale, and above all an extensive program of military and economic assistance to favored "anti-imperialist" nations were the hallmarks of the new Soviet diplomacy.[25]

In part, this shift in the Soviet outlook was a function merely of the change in leadership style represented by the accession to power of the ebullient, self-confident Khrushchev. In part, also, it was a result of the apparent lack of success of a revolutionary strategy predicated on direct support of insurgency movements openly allied with Moscow, and of a search for new methods of taking advantage of the opportunities presented by the anti-colonial revolution. In considerable measure, however, it was based, especially in the period following the Korean War, on an awareness of Soviet strategic and tactical military weakness, and the need for the Kremlin to find ways to compete with the West in the former colonial areas without risking a direct confrontation.

There was thus a schizophrenic character to Soviet Third World operations during the Fifties and Sixties. While trumpeting the inevitability of the global triumph of communism and clearly seeking to expand Soviet influence and the Soviet presence abroad, with one or two notable exceptions, the USSR behaved quite cautiously in its Third World activities. Down to the late 1960s, in fact, the primary objective of the Khrushchev leadership group appears to have been similar to Stalin's: safeguarding the defensive perimeter in areas contiguous to the Soviet homeland.

In the Mediterranean, a prime target, the Soviets sought both political influence and ultimately military facilities in order to negate the US nuclear strike capability embodied in the Sixth Fleet; the political goal was to reduce the American presence and, if possible, to eliminate US military bases.[26] Almost 50 percent of the nearly $6 billion spent by the Soviets on military assistance during the period 1955-1967 went to Middle East nations, with more than half of that, in turn, allotted to Egypt.[27] Despite this substantial investment, the Soviet-Egyptian relationship had its clear ups and downs; the USSR did not obtain regular use of naval facilities in Egypt until after the 1967 war—a privilege the Soviet navy may have in part "earned" by shadowing US Sixth Fleet units in the Mediterrean during that conflict.

Similar patterns occurred elsewhere. In Asia, initial efforts to purchase status and influence and reduce the American presence by means, e.g., of aid programs to such nations as India and Indonesia, were superseded by a felt need to compete with and ultimately to contain China, and later to prepare to deal with the possible deployment of a US nuclear strike capability in the Indian Ocean.[28] Even the Soviet involvement with Cuba prior to 1962 has in part been interpreted as a tactical gambit to distract US attention away from the areas of most immediate concern to the USSR. Southeast Asia is a more clear exception to the pattern of concentration on the rimlands, and here the dynamics of great-power rivalry and later of the Sino-Soviet competition created a situation spurring Soviet involvement. Finally, then as now, the USSR exhibited willingness to move on "targets of opportunity" in the Third World arising out of regime changes in specific nations, US political mistakes, and the like.

During 1969-1972, however, the pattern of Soviet operations in the Third World seemed to change. The USSR appeared to launch a conscious effort to safeguard prior assets in areas close to the homeland and to prepare the infrastructure necessary for an expanded military presence in more distant areas. While the more informal diplomatic techniques utilized earlier were by no means abandoned, the Soviets now exhibited a keen interest in such formal symbols of permanent presence as long term "treaties of friendship and cooperation," modeled in part after those previously concluded with nations of the bloc and with Afghanistan. Such treaties were concluded with Egypt and India in 1971[29] and with Iraq in 1972; they have since been offered to Somalia and, as yet without success, to Syria, the Sudan, and apparently the People's Democratic Republic of Yemen.

The Soviets had by now considerably expanded their capacity to conduct military operations in the Third World as well; for the first time, the Soviet Navy possessed the capacity to serve as an active instrument of Soviet policy away from the periphery of the USSR, a capability exhibited in 1969 in an operation to compel the Government of Ghana to release several impounded Soviet fishing trawlers, and again in 1970 to protect Guinea against anti-Touré refugees operating from Portuguese Guinea.[30] In *Exercise Dvina* in March of 1970 and in the worldwide maritime exercise

Okean 1970, the Soviets also exhibited impressive airlift and amphibious capabilities; Soviet ship days in the Indian Ocean reached a level of 3,579 in 1970 and then more than doubled, to 8,000 by 1972.[31] Finally, the Soviets moved into the overseas base acquisition business in a major way. In 1971 there were initial reports of Soviet construction of a radio station and ammunition storage facility on the island of Socotra, part of the People's Democratic Republic of Yemen, and of the use of the port of Aden on a regular basis by the Soviet Navy and of Khormaskar Arifield in the PDRY by reconnaissance aircraft.[32] A year later the USSR signed a new technical aid agreement with Somalia, long a favored recipient of Soviet economic and military assistance;[33] Soviet use of the port of Berbera soon sharply increased, and construction was begun there on a series of naval communications facilities.[34] The USSR also concluded a new military agreement with Syria in 1972, which granted the Soviets the right to construct and use naval facilities at the ports of Latakia and Tartus.[35]

To be sure, these activities—and others like them which have not been noted here—did not represent a total break with the past, either in ends or means. The USSR continued to give first priority to the security of her defensive perimeter, and to measures which would permit swift action against US overseas military assets in the event of war.[36] Beyond that, the more direct challenge with which the USSR was now confronted from the Chinese Peoples' Republic would have made necessary certain shifts in Soviet overseas operations, whatever the status of her relations with the West. Finally, the manifest decline in the willingness of the United States to intervene directly in Third World conflicts, symbolized by the Nixon Doctrine and given intellectual justification by Mr. Kissinger's convictions concerning the marginal value of the Third World to superpower security, doubtless appeared to Soviet planners to afford opportunities for an expansion of influence which could not be overlooked.

Nevertheless, when these activities are considered in the aggregate, it is plausible to conclude that the years 1969-1972 constituted a transition period in Soviet Third World policy, during which the foundations were being erected, and techniques tested, for a much more active phase to follow. Certainly since 1972 Soviet operations in the Middle East, Persian Gulf, Indian Ocean, Southeast Asia, and Africa have substantially proliferated, exhibiting an impressive range, scope, and flexibility in the use of the various elements of power.

First, the expansion of the USSR's network of overseas bases continues unabated. In 1973 the first reports reached the West of the development of a Soviet cruise-missile-handling facility at Berbera.[37] The Soviets also began dredging operations in that year at the Iraqi harbor of Umm Qasr. In 1974 the USSR-Somali relationship was further formalized with the signing of a 20-year friendship treaty; later that year the Soviets began construction of a military airfield and oil storage facility at the Somali city of Mogadishu, on the Indian Ocean. Also in 1974 the Soviet-built facility at Hodeida was expanded to permit servicing of submarines and missile destroyers. In 1975 an agreement was signed with Afghanistan for the construction or expansion of six military and civilian airfields, another agreement with Iraq of the same general scope, and a third for the construction of a base to serve military aircraft at Uanle Uen in Somalia, near Mogadishu. Throughout the period there were reports, many admittedly unconfirmed, of Soviet attempts to obtain new or additional basing rights and/or the use of military facilities in Yugoslavia, Mauritius, the People's Democratic Republic of Yemen, Guinea, India, Libya, the Maldive Islands, Vietnam, and Somalia.

Moreover, increasingly the USSR began to utilize the facilities to which she had obtained access. Beginning in 1973 TU-95 Bear reconnaissance aircraft began to patrol the West African coast from fields near Conakry; Soviet naval forces, including amphibious vessels and naval infantry, now appear to be regularly assigned to Guinea. In the Middle East, Russian ships regularly use the Syrian port of Latakia, and AN-12 Cub-C electronically-equipped reconnaissance planes are apparently operating from Berbera.[38] Other Soviet surveillance aircraft fly from Iraq on missions over the Straits of Hormuz, the Persian Gulf and elsewhere. The size of the Soviet Indian Ocean fleet has occasionally reached 30 ships, and in 1974 a Russian helicopter carrier, the *Leningrad,* was sent to that area for the first time. In an impressive display of their newfound ability to operate simultaneously in seas around the globe, the Soviets were able to deploy and support more than 220 surface ships and submarines for the worldwide *Okean 1975* maritime maneuvers.

The transfer of sophisticated military equipment to Third World nations and revolutionary movements, both directly from the USSR and indirectly through Warsaw Pact nations or client states, has also reached unprecedented levels since 1972. Impoverished indeed is the guerrilla group without an ample supply of SAM-7s; Mig-23s and possibly Mig-25s have operated from Syria, the former flown by Syrian pilots, and no less than a squadron of TU-22 Blinder medium bombers has been supplied to Iraq. Personnel carriers, tanks, other military vehicles of all types, electronic equipment, artillery (tube and rocket), anti-tank weapons, and small arms of a variety of kinds have appeared throughout the Middle East during the past three years.

Of interest also is the increasing reliance on the Warsaw Pact nations and other nations of the communist world, such as Cuba, North Korea, and Vietnam, to provide training and supervision in the use of modern equipment as well as operational and tactical military guidance to Third World clients and revolutionary movements. The year 1974 witnessed a steady stream of Warsaw Treaty Organization military officials passing through the Middle East; involved were Polish, Bulgarian, and Hungarian general officers on visits to, *inter alia, Libya, Syria,* Algeria, Iraq and the People's Democratic Republic of Yemen. The presence of Cubans was additionally reported in Syria, Algeria and Somalia in 1975, the mission of the latter contingent possibly being that of assisting with the training of Eritrean Liberation Front guerrillas. Similarily, Cubans and North Vietnamese were involved with the preparation of Polisario Front members in Algeria for operations within the Spanish Sahara, and widespread reports indicated that North Korean advisers and pilots were instructing the Syrian air force.

The USSR itself, moreover, has since 1972 been involved in a direct and often highly visible way in several Third World politico-military crises. In March of 1973 a Soviet squadron visited the Persian Gulf at the height of the Iraqi-Kuwait crisis over the border post of Al-Samitah, located near the port of Umm Qasr. The timing of the visit and the accompanying diplomatic moves indicate that the visit was designed to support the Iraqi position with a show of force. This action marked the first time that the Soviet Navy had been employed to support a USSR-associated state which was bent on upsetting the status quo, and thus was a milestone in the development of Soviet naval diplomacy. Beginning in April of that year and continuing until July, the USSR airlifted a substantial contingent of Moroccan troops to Syria, simultaneously reassuring her regional clients during a period of growing tension and attempting to maintain an Arab united front against the Israelis.

Other Soviet actions during the period prior to the outbreak of the October War, whatever their precise motives, at the very least did little to dampen rapidly-rising tensions in the area. As the detailed analyses of this period in Middle East history have shown, the Soviets were supplying the Egyptians and the Syrians with modern battle equipment, including tanks and artillery, down to the day of the outbreak of war. The USSR was active diplomatically as well. Moscow's note to Boumedienne of Algeria urging his active support for the Arab cause was followed by the dispatch of Algerian troops to Syria; the visit of Hadithi of Iraq to Moscow on October 9th was also followed by the dispatch of substantial Iraqi forces to the battle zone. Moscow was vociferous in its support of the Arab oil embargo against the West, and plainly unhappy when it was ended. Neither is there any indication that Moscow made any attempt to consult or to coordinate activity with the United States to prevent the outbreak of a war which it knew to be imminent, as it was plainly obligated to do under the summit agreements of 1972 and 1973;[40] indeed, as noted above, Moscow was engaged in a major buildup of Arab war potential as well as in ferrying Moroccan troops to Syria at the very time the 1973 agreement was being signed.

To be sure, it is possible to argue—indeed, the point has been set forth at great length by several experts in Soviet-Egyptian relations[41]—that the USSR has been as much victim as master in her complex relations with her Egyptian client, and that those relations in fact constitute an excellent illustration of the "tyranny of the weak" phenomenon in contemporary world politics. Whatever the merits of these claims—and there is clearly a point to them—the Soviets have extracted considerable gains from the Egyptian relationship. The USSR acquired important naval facilities for Mediterranean operations at a time when she had no such opportunities elsewhere. Moreover, she developed a substantial Middle East presence over a period nearly two decades in duration, which has clearly facilitated the expansion of her network of client relationships, with attendant military privileges, in the contemporary period. Perhaps most significant for our purposes, during a dangerous international crisis, the USSR saw fit to stand by her Middle East associates, obstreperous though they had proved to be in many respects, and encouraged them to undertake a course of action—the embargo—which directly threatened the very economic structure of the industrialized states. The Soviet Union thereby provided important insights into her current and perhaps longer-term foreign policy priorities.

Of perhaps equal significance for this relatively brief *tour d'horizon* of Soviet behavior in the Third World was the 1975 operation in Angola. As is the case with other Soviet actions abroad, it is possible to identify a number of motives in the course of action pursued by the USSR, including the desire to counteract Chinese political influence among the revolutionary movements of southern Africa.[42] Considered in its essential details, however, the meaning of the operation was simple enough. It involved the deployment in Soviet aircraft, with intermediate stops in such other USSR aid-recipient nations as Guyana and Barbados, of 15,000 troops of a Soviet ally to assist a revolutionary movement in a nation thousands of miles from the Soviet heartland. It thus represents the most significant outreach of Soviet power into the Third World yet to have occurred, a point which has not been missed by Third World leaders, particularly in Africa.

IV

What then do these reflections on recent Soviet international policy suggest concerning the future of superpower relations in the Third World? A number of points appear relevant.

1) Whatever can be said about the expansion of Soviet Third World interests and activities in recent years, it is clear that the Third World ranks below several more significant security interests in the Soviet order of priorities. These include especially the retention of control over Eastern Europe, the maintenance of a favorable WTO-NATO military relationship and the avoidance of a nuclear confrontation with the United States. The pursuit of these objectives may, depending on circumstances, create constraints on Soviet activities in the Third World.

2) Within the Third World the USSR has particular priorities, which shift over time from region to region, and indeed within regions, in response to changing circumstances. Iran and Iraq, generally speaking, will be of greater importance to Moscow than Mozambique; The Persian Gulf is of greater interest to the Kremlin at present than the Middle East more generally considered. While the Soviets will doubtless prove willing to expand their influence in Latin America should opportunities present themselves, this continent is clearly of tertiary concern.

3) Whatever the moderation in tone and style which has characterized Soviet foreign policy in the Brezhnev era, substantial pressures impelling the USSR towards an expansionist foreign policy and the maximization of Soviet power and interests on a global scale clearly exist. These pressures include the continuing—if incalculable—influence of ideology on Soviet values, calculations, and perceptions; the requirements imposed by the military and political competition with the United States and the intra-bloc rivalry with the Chinese People's Republic; and the dynamism which is the product of the Soviets' own growing military capabilities.

4) Despite the fact that relations with the US, the PRC, and Europe have higher priority in Soviet foreign policy, there is no evidence to suggest that the Soviet Union accepts Mr. Kissinger's view that in the era of nuclear stalemate regions of the Third World constitute merely "marginal" advantages, the pursuit of which is under contemporary conditions both unnecessary and dangerous. On the contrary, the Soviets clearly assign to at least portions of the Third World great value indeed, and not only because of the competitive relationship with the United States. The superpower detente, therefore, far from having persuaded the USSR that it should cease its quest for influence in the Third World, may have had precisely the opposite effect: The United States' approach to detente, in combination with the self-confidence generated by growing Soviet strategic and conventional military capabilities, may have helped convinced the Soviet leadership that the USSR can now move more boldly in pursuance of Third World interests with relatively little risk.

5) There is no evidence that the Soviets accept the doctrine of the declining utility of force, either strategic or conventional. Indeed, they continue to act as if they believe that military power can be translated into political influence on a global basis. It is far from clear that this judgment is incorrect. In the Third World, in any case, the Soviets are in the process of creating a logistics infrastructure that makes possible an enormous variety of military activities, both by themselves and by selected proxies, in support of multifarious political objectives.

6) Nonetheless, the Soviets continue to confront difficulties in so "managing" their client states as to achieve maximum advantage from their Third World operations, as the cases of Egypt, and earlier of Indonesia and Ghana, clearly show. There is no indication that the acceptance of Soviet aid by a Third World nation destroys that nation's freedom of action, or that a client relationship, once entered into, must become a permanent one. As yet, there is no evidence that

Third World nations are sufficiently dazzled by Soviet strategic power to bend their policies consistently to suit the USSR. The Soviets confront the same problems in dealing with Third World nations as does the United States: varying cultural and religious traditions, a lack of social cohesion, proclivities toward kaleidoscopic political change, sensitive nationalism, and deep-seated resentments toward the advanced industrial nations throughout the Third World all make it difficult for the superpowers to influence consistently the policies of Asian, African, and Latin American States. Like the United States, therefore, the USSR will "win some and lose some." The relevant point—again illustrated by the Egyptian case—is that the Soviets have proven to be enormously persistent.

7) It is worth noting, as several scholars have recently pointed out, that adequate tools are lacking with which to measure Soviet influence in Third World nations. Traditional "indicators" such as levels of economic and military assistance, the presence of Soviet advisory personnel, and the like may provide little insight into the actual power relations involved. Above all, the possible role of Soviet military power in enhancing the influence of the USSR is just beginning to be examined.

8) There is little indication that the United States is prepared to engage the Soviet Union in a protracted struggle for power and prestige in the Third World in the decade to come.

FOOTNOTES

[1] *U.S. Foreign Policy for the 1970's: Shaping a Durable Peace*, A Report to the Congress by Richard Nixon, President of the United States, May 3, 1973, hereafter referred to as *1973 Annual Report*, pp. 37, 10.

[2] In the wake of the Angolan crisis, Mr. Kissinger went so far as to reassert, as a primary objective of US foreign policy, the need to "contain Soviet power" in an era in which "the USSR has begun to define its interests and objectives in global terms." "The Permanent Challenge of Peace: U.S. Policy Toward the Soviet Union," Speech by Secretary of State Henry A. Kissinger before the Commonwealth Club and the World Affairs Council of Northern California, February 3, 1976, Bureau of Public Affairs, Department of State, p. 3. To be sure, the address in the main is a defense of Kissinger's search for a permanent accommodation with the USSR.

[3] For an extensive analysis of Mr. Kissinger's writings see, James E. Dornan, Jr. and Diane S. Dornan, "The Works of Henry A. Kissinger," *The Political Science Reviewer*, V (Fall, 1975), pp. 47-128.

[4] In *Nuclear Weapons & Foreign Policy*, published in 1957, Kissinger rejected the possibility that the Soviets had ceased being revolutionary Bolsheviks and declared that the only recourse to the US was the "possession of superior force" (New York: Harper & Brothers, 1957), pp. 353 and 358-60.

[5] See his book *The Troubled Partnership: A Reappraisal of the Atlantic Alliance*, (Garden City, New York: Doubleday & Co., Inc. Anchor Books Edition, 1966), pp. 197-201.

[6] In addition to *Nuclear Weapons*, see "American Policy and Preventive War," *Yale Review*, XLIV (March, 1955) pp. 321-39, and "Military Policy and Defense of the 'Grey Areas,'" *Foreign Affairs*, 33 (April, 1955), pp. 416-28.

[7] In his address before the *Pacem in Terris* Conference in Washington, DC on October 8, 1973 (Department of State, Bureau of Public Affairs Publication, p. 7), for instance, Secretary Kissinger declared: "Above all, whatever the measure of power, its political utility has changed. Throughout history, increases in military power—however slight—could be turned into political advantage. With the overwhelming arsenals of the nuclear age, however, the pursuit of marginal advantage is both pointless and potentially suicidal. Once sufficiency is reached, additonal increments of power do not translate into usable political strength; and attempts to achieve tactical gains can lead to cataclysm."

[8] As early as 1957, he wrote that "with nuclear weapons even an inferior retaliatory capacity may deter," and declared that it was "no longer possible to speak of military superiority in the abstract." "What is the strategic significance," he asked, "of adding to the destructiveness of the nuclear arsenal when the enormity of present weapons systems already tends to paralyze the will?" *Nuclear Weapons*, pp. 56, 132-33.

[9] The *1973 Annual Report* (p. 27) took note of the natural competitive relationship between the superpowers but added that both "had to recognize. . .that in this continuing competition there would be no permanent victor, and, equally, important, that to focus one's own policy on attempts to gain advantages at the other's expense, could only aggravate tensions and precipitate counteractions." See also *ibid.*, p. 36.

[10] The concept of a dynamic and continuous "momentum" in building a stable world order can be gleaned from Dr. Kissinger's academic writings and later came to be one of his most oft-repeated phrases in reference to detente. In the *1973 Annual Report* it was noted that the US-USSR relationship had continued to be one of confrontation, despite occasional signs of progress, throughout the pre-Nixon years: "Accords were reached on particular questions, but there was no broad momentum in our relationship" (p. 2). Nixon and Kissinger strove for a different policy: "We would work with Moscow across a broad front, believing that progress in one area would induce progress in others. Through the gathering momentum of individual accords, we would seek to create vested interests on both sides in restraint and the strengthening of peace. But this process would require a reduction in tactical maneuvering at each other's expense. . ." (*ibid.*, p. 7).

[11] Press conference of July 3, 1974, Department of State, Bureau of Public Affairs, p. 11. Herein lies the explanation for the US acceptance at SALT I of Soviet superiority in numbers of ICBMS and SLBMs, for Mr. Kissinger's lack of attention to the details of the agreement and lack of interest in evidence that the Soviets have violated the spirit and probably the letter of the Accords in several important particulars, and for his apparent willingness to exclude the Soviet Backfire bomber while including long-range American cruise missiles within the delivery-vehicle limit in SALT II. For analyses of the provisions of the SALT I and Vladivostok Accords and of the arguments used by Mr. Kissinger in support of them, refer to Paul H. Nitze, "Assuring Strategic

Stability in an Era of Detente," *Foreign Affairs*, 54, No. 2 (January, 1976), pp. 207-32, and the author's *Detente and the Impending Strategic Crisis* (Washington, DC: A.C.U. Education and Research Foundation, 1974).

[12] Later, in response to those who criticized the progress of detente, Kissinger maintained that the policy had in fact been "successful," the evidence for this assertion being that "we have during the past seven years moved from a time of constant crisis to a time when we have signed more major agreements than ever before in our history. Today's debate centers on those agreements rather than on the imminent danger of war. That fact alone, it seems to me shows how far we have really come." "'We Are Determined to Resist Expansionism': Interview with Henry A. Kissinger, Secretary of State," *U.S. News and World Report*, March 15, 1976, p. 24.

[13] *1973 Annual Report*, p. 35.

[14] *U.S. Foreign Policy for the 1970's: Building for Peace*, A report to the Congress by Richard Nixon, President of the United States, February 25, 1971, p. 158.

[15] The text of these two agreements may be found in the *New York Times*, issues of May 30, 1972 and June 23, 1973.

[16] See the text of the 1972 agreement, *New York Times*, May 30, 1972.

[17] For discussions of contemporary Soviet strategic doctrine, see Malcolm Makintosh, "Soviet Strategic Policy," *World Today*, XXVI (July, 1970); John Erickson, *Soviet Military Power* (London: Royal United Services Institute, 1971), especially Chap. 3; and James E. Dornan, Jr., "The Strategic Rocket forces," in S.W.B. Menaul (ed.), *The Soviet War Machine* (London: Salamander Books, forthcoming 1976).

[18] See the discussion in Dornan, "The Strategic Rocket Forces," *loc. cit.*

[19] See, however, Arnold Horelick and Myron Rush, *Strategic Power and Soviet Foreign Policy* (Chicago: University of Chicago Press, 1965). For a recent effort, which at best offers highly-qualified support for the Kissinger position, see R.J. Vincent, *Military Power and Political Influence: The Soviet Union and Western Europe*, Adelphi Paper No. 119 (London: International Institute of Strategic Studies, 1975).

[20] For a useful discussion of this point, see Robert E. Osgood, *Limited War: The Challenge to American Strategy* (Chicago: University of Chicago Press, 1957), Chap. 1.

[21] See, e.g., Edward N. Luttwak, *The Missing Dimension of US Defense Policy: Force, Perceptions, and Power* (Washington: Essex Corporation, 1976), pp. 1-20.

[22] Vincent, *op. cit.*, p. 9.

[23] For a useful discussion of the possible political utility of naval forces under current conditions, see Edward N. Luttwak, *The Political Uses of Seapower,* Studies in International Affairs, No. 23 (Baltimore: The Johns Hopkins University Press, 1974).

[24] For a useful analysis of these changes, see Ulysses, "The International Aims and Policies of the Soviet Union: The New Concepts and Strategy of Khrushchev," *Review of Politics,* XXIV (April, 1962), pp. 183-211.

[25] See, e.g., the discussion of Soviet military assistance programs in Stephen P. Gibert, "Soviet-American Military Aid Competition in the Third World," *Orbis,* XIII (Winter, 1970), pp. 1117-37.

[26] For a perceptive analysis of Soviet view on the strategic significance of the Mediterranean during this period, see Michael' McGuire, "The Evolution of Soviet Naval Policy, 1960-74," in McGuire et. al. (eds.), *Soviet Naval Policy: Objectives and Constraints* (New York: Praeger, 1975), pp. 507-14.

[27] Gibert, *op. cit.*, pp. 1120-22.

[28] For an interpretation of initial Soviet Indian Ocean activity which stresses these factors, see Geoffrey Jukes, *The Indian Ocean in Soviet Naval Policy,* Adelphi Paper No. 87 (London: International Institute of Strategic Studies, 1972).

[29] The Indian Treaty may actually have been negotiated in 1969; see Robert C. Horn, "Indian-Soviet Relations in 1969: A Watershed Year?," *Orbis,* XIX (Winter, 1976), pp. 1539-63.

[30] For brief discussions of these operations, see Robert G. Weinland, "Soviet Naval Operations: 10 Years of Change," in McGuire, *op. cit.*, pp. 380-86.

[31] On the ship-days, see Weinland, *op. cit.*, p. 379. For an unworried estimate of Soviet capabilities for extended military operations away from the periphery areas, see J. L. Moulton, "Seaborne and Airborne Power in Europe," *U.S. Naval Institute Proceedings,* 100 (May, 1974), pp. 122-43.

[32] See the report in the *New York Times*, May 5, 1971.

[33] See Gibert, *op. cit.*, pp. 1128-29.

[34] J. Bowyer Bell, *The Horn of Africa: Strategic magnet in the Seventies* (New York: National Strategy Information Center, 1973), p. 42.

[35] Clearly, the USSR was broadening its options in the light of worsening relations with Sadat's Egypt.

[36] Even the search for naval facilities to support Indian Ocean operations had begun much earlier, with work on the harbor at Hodeida in the Yemen commencing in 1965.

[37] The material in this and succeeding paragraphs is drawn from a variety of published sources, largely press reports.

[38] For a recent report on the Soviet facilities at Berbera, see "International Defense Digest," *International Defense Review*, IX (February, 1976), p. 23.

[39] See Anne M. Kelley, "The Soviet Naval Presence During the Iraq-Kuwait Border Dispute," in McGuire, *op. cit.*, pp. 287-306.

[40] The suggestion of one analyst that the Soviet withdrawal of the dependents of its advisory personnel was meant as a "signal" to Washington that the outbreak of war was near seems strained in the extreme. See Alvin Z. Rubinstein, "The Soviet-Egyptian Influence Relationship Since the June 1967 War," in McGuire, *op. cit.*, p. 179.

[41] For assorted versions of this view, see Rubinstein, *op. cit.*; Robert O. Freedman, "The Soviet Union and Sadat's Egypt," in McGuire, *op. cit.*, pp. 211-36; and G. Sheffer, "Independence in Dependence of Regional Powers: The Uncomfortable Alliances in the Middle East Before and After the October 1973 War," *Orbis*, XIX (Winter, 1976), pp. 1519-38. For a different view, see Uri Ra'anan, "Soviet Decision-Making in the Middle East, 1969-73," in McGuire, *op. cit.*, pp. 182-210.

[42] See the analysis in Colin Legum, "The Soviet Union, China, and the West in Southern Africa," *Foreign Affairs*, LIV (July, 1976), pp. 745-62.

THE THIRD WORLD AND US-SOVIET RELATIONSHIPS

SUPER POWER RIVALRY IN SOUTHERN AFRICA

Dr. Michael C. Nwanze

Nature of US-Soviet Competition in The Third World

In June 1974, President Nixon, describing US-Soviet relations declared that "we have moved in the last two years from confrontation to coexistence to cooperation."[1] It has become common practice to describe the current US-Soviet relationship as one of 'detente'–a term that has recently come into disrepute–'conciliation', or 'accommodation.' Whatever the descriptive phrase, it is generally agreed that there is a positive difference between the bipolar cold war confrontation of the 1950s and the present posture of reduced tensions, dialogue, negotiation, and cooperation between the superpowers. This change has been brought about and evidenced by a number of factors such as the transformation of the international order from bipolarity to polycentrism. Equally important have been the emergence of China as a world power, Sino-American 'rapprochement', the Sino-Soviet rift, and the emergence of West Germany and Japan as industrial powers. At the same time, advances in nuclear technology have led the superpowers to recognize the inherent dangers of nuclear confrontation. In the absence of serious and destabilizing technological changes in the present US-Soviet strategic nuclear balance, both parties will continue to recognize the diminishing utility of nuclear warfare as a policy instrument.

Recognizing the limitations of nuclear warfare as a policy instrument does not, however, spell the end of conflicts, or the surrender of strategic national interests. It merely limits the available options for pursuing international objectives. The Soviet Union has not altogether abandoned its ideological battle nor can it be expected to give up its status as a world power. The US equally stands ready to defend its vital interests and its position as a world power. Thus, cooperation and conflict continue to characterize US-Soviet relations.

Indeed, it may be argued that the 'inadmissibility' of nuclear confrontation as a policy instrument, has tended to emphasize other forms of US-Soviet rivalry. In the third world this rivalry manifests itself in the struggle for power, prestige and political influence as each superpower seeks to acquire marginal political advantage at the expense of the other. Policy instruments in this rivalry include collective security arrangements, economic and military aid, including military training agreements, establishment of foreign bases, and overseas deployments. The superpowers continue to support and/or exploit local conflicts, as well as engage in conventional wars by proxy. Recent wars in the Middle East, Vietnam, and Angola bear evidence of this rivalry.

The recent crisis in Angola found the US and the USSR in a military confict by proxy that threatened the long search for a lessening of tensions between the superpowers. What is startling is that this confrontation took place in Africa–a continent which has hitherto been of little significance in US security and strategic planning. Testifying before the Senate Subcommittee on African Affairs, Secretary of State Henry Kissinger, expressed much concern about "the Soviet Union's massive and unprecedented intervention in the internal affairs of Africa–with nearly $200 million of arms and its military technicians and advisers, with 11,000 Cuban combat troops, and

with substantial sea, airlift, and naval cover in adjacent waters . . . "[2] He argued that 'when one great power attempts to obtain special position of influence based on military intervention, the other power is sooner or later bound to act to offset this advantage in some other place or manner. This will inevitably lead to a chain of action and reaction typical of other historic eras in which great powers maneuvered for advantage, only to find themselves sooner or later embroiled in a major crisis, and often in open conflict."[3] Kissinger's testimony carried with it the implication that the US must counter Soviet moves for political advantage, particularly when such moves entail military action. He argued that "a stable relationship with the Soviet Union, based on mutual restraint will be achieved only if Soviet lack of restraint carries the risk of counteraction."[4] 'Unprecedented' as the Soviet action in Angola may be, it is becoming increasingly obvious that given Soviet and Chinese commitments to African liberation movements; white minority resistance to peaceful change, and Africa's determination to eradicate colonialism, racism, and minority rule in Africa, opportunities for Angolan-type 'situations' in Southern Africa abound. The continent will assume increasing importance in the decades ahead as a testing ground for US-Soviet relations. Of particular importance in this regard are the two zones of political conflict in Africa–Southern Africa and the Horn regions.

European colonialism in Africa shielded the continent from *direct* US-Soviet rivalry. So long as the colonial powers saw Africa as their sphere of influence, they afforded the US and the Soviet Union few opportunities for direct intervention in African affairs. The demise of colonialism was followed in many instances by the conclusion of bilateral or regional defence agreements between the new states and the former colonial powers. These agreements or understandings, while they lasted, also served to limit US-Soviet direct involvement in African security affairs.[5] The abrogation and limitation of these agreements, due largely to domestic political imperatives in Africa and a reassessment of European strategic defence needs, costs and capabilities, in many instances, created a 'power vacuum' conducive to US, Soviet, and Chinese interventions. In fact, the only major US-Soviet involvement in Africa during this period (up to 1963) was in the Congo, occasioned by the abrupt demise of Belgian colonialism.

In terms of *vital interests*, Africa as a whole holds modest but rising strategic and economic interests for the superpowers. It provides "an arena of prestige, presence and influence" as well as "a zone of air and naval transit between other regions."[6] In terms of global stability, however, even such modest interests if not adequately managed, lead to destabilizing confrontations.

US-Soviet involvement in Africa today shows two distinct trends. First, political changes in Africa as well as technological innovations have reduced both the 'availability and utility' of US-Soviet strategic, intelligence, and communications facilities in the continent. In the case of the US, the loss of the Strategic Air Command bases in Morocco and Libya as well as the closure of its Kagnew communications facilities in Ethiopia have had little appreciable effect on US defense needs. The same may be said of Soviet losses in Egypt and the Sudan. Second, superpower interests in the Indian Ocean and its African littoral have shown remarkable signs of growth. The increasing tempo of US-Soviet competition in the Indian Ocean cannot altogether be divorced from the political situations in Southern Africa and the Horn. The US has upgraded its facilities in Diego Garcia and maintains substantial off-shore facilities in the Indian Ocean. The Soviet Union, lacking extensive afloat systems in this area, has stepped up its search for African air and naval facilities, particularly in Somalia and Mozambique. Secret overtures were made to the Maldives government for base facilities in early 1975.[7]

Since the appearance of the Soviet navy in the Indian Ocean following Britain's retrenchment from "East of Suez," in 1968, western analysts have debated their motives and likely consequences for the US. Some see Soviet motives as strategic defence or deterrence as a result of real or imagined deployment of US Polaris submarines in the area. Others cite the possible interdiction of Persian Gulf oil; the protection of client states; and the necessity to acquire diplomatic leverage in the event of some future negotiations on naval arms in the Indian Ocean.[8] It is plausible that the Russians saw the strategic importance of the Indian Ocean in terms of their own security. Oles Smolansky emphasized this point in his contention that the Soviet Union was determined to "establish the semblance of a credible defence posture against the threat which the presence of US nuclear submarines in the area is thought to constitute to both the USSR proper and, on a more general level, the Kremlin's efforts to achieve nuclear parity with the United States".[9] The importance of the Indian Ocean to the Soviet Union is further demonstrated by its geographical 'proximity' to the Middle East and the access it provides to Russian positions in the Mediterranean and Pacific Oceans as well as the Red Sea. In this regard, a case can be made for Soviet presence in the Indian Ocean in terms of Soviet security and as a counterforce to the US presence.

The interdiction of Gulf oil supplies to the West has been proferred as a possible motive for Soviet presence. The importance of Gulf oil to Western Europe, Japan, and the US cannot be over exaggerated. Japan, for instance, obtains 90 percent of its total oil consumption from the Middle East. This dependence is expected to last for quite sometime. While US consumption is not as high, there is need for a continued oil supply from the Middle East. It is, however, difficult to visualize a scenario in which Russia would seek to interdict oil supplies to the US and Western Europe. Such an act will almost certainly mean confrontation with NATO with possibly dire consequences for both sides. Naval blockade of Middle East oil must therefore be discounted as a motivating force for Soviet presence in the Indian Ocean.

What is more important is that Russian presence in the Indian Ocean has created political and diplomatic opportunities for influencing littoral states as it competes for influence in the Third World with the US and China. Much of the Third World is located along the Indian Ocean littoral. Political, social, and economic conditions in most of these states provide opportunities conducive for major power involvement. Seen from this perspective, it is more plausible that the Soviet thrust in the Indian Ocean has less to do with her own security and more to do with US-Soviet rivalry in the littoral states. Access to these states creates opportunities for reducing or excluding Western and Chinese influence.

It is against this background of proximity, access, and political influence that US-Soviet rivalry in Southern Africa must be considered. As already mentioned, Africa will assume increasing importance in the decades ahead as a testing ground for US-Soviet relations. The target areas consist of the two conflict zones along the Indian Ocean littoral—Southern Africa and the Horn. This paper seeks to examine the Southern African experience. What is the nature of the conflicts in this region? What are the postures of the US and USSR in these conflicts? How will the conflicts affect US-Soviet relations and their relations with Africa?

Background to Conflict in Southern Africa

More than any other region in the African continent, Southern African has the greatest potential for superpower involvement. Apart from Angola and Mozambique which have recently

experienced considerable turmoil (and in the case of Angola, big power rivalry), the key countries are Zimbabwe (Rhodesia), Namibia (South-West Africa) and South Africa.

Southern Rhodesia (Zimbabwe)

Southern Rhodesia was part of the now defunct Central African Federation which consisted of Nyasaland (now Malawi), Northern Rhodesia (now Zambia), and Southern Rhodesia known to Africans as Zimbabwe. The country spans an area of 150,820 square miles with a population consisting of 250,000 whites and four million Africans. In 1923 Rhodesia received internal self-government under the British Crown. Matters relating to African rights, railways and international relations were vested in the Crown. In 1961 a new constitution was promulgated while retaining British sovereignty and authority over the territory. Full independence for Rhodesia, as with many British colonies, was subject to negotiation with the British government.

As a result of such negotiations, the British Government, in keeping with its declared policy of granting independence to her colonies "on the basis of democratic government and the principle of universal adult suffrage," laid down five and later six principles which would govern the granting of independence to Rhodesia. These were stated by Prime Minister Harold Wilson as follows:

1. The principle and intention of unimpeded progress to majority rule, already enshrined in the 1961 constitution, would have to be maintained and guaranteed.

2. There would also have to be guarantees against retrogressive amendment of the constitution.

3. There would have to be immediate improvement in the political status of the African population.

4. There would have to be progress towards ending racial discrimination.

5. The British Government would need to be satisfied that any basis for independence was acceptable to the people of Rhodesia as a whole.

6. It would be necessary to ensure that, regardless of race, there was no oppression of majority by minority or of minority by majority.[10]

While Mr. Ian Smith, Prime Minister of Rhodesia, maintained that these principles were contained in the 1961 Constitution, the British Prime Minister argued on 10 October 1965, that Rhodesia had not fulfilled the conditions on which the British Government would feel justified in granting independence. A deadlock ensued.

In a nationwide broadcast on 11 November 1965, Mr. Ian Smith unilaterally proclaimed the independence of Rhodesia under a white minority regime. A new constitution purported to repudiate British sovereignty and to declare the 1961 Constitution invalid. The British Government immediately declared the Smith regime illegal. In a statement to Parliament on 12 November, the British Attorney-General, Sir Elwyn Jones, explained that:

Southern Rhodesia is part of Her Majesty's dominions, and the Government and Parliament of the United Kingdom have responsibility and jurisdiction in respect to it . . . Nothing done yesterday, or that may be done in future by an illegal regime, can alter the fact that in law Rhodesia remains part of Her Majesty's dominions and under the authority of this parliament . . . This Parliament alone can grant Rhodesia independence . . . Until such an Act is passed by this Parliament, any Rhodesian legislation repugnant to any Act of this Parliament extending to Southern Rhodesia is void under the Colonial Laws Validity Act 1865.[11]

While resisting African pressures to bring down the Smith regime by force the British Government embarked on a series of diplomatic measures which have so far failed to bring an end to the illegal regime. At the request of the United Kingdom, the United Nations Security Council resolved that the situation in Rhodesia constituted a 'threat to the peace,' and passed voluntary as well as selective mandatory economic sanctions against Rhodesia. Neither these sanctions nor the non-formal recognition of Rhodesia has produced the desired results. Meanwhile, African Nationalist leaders have unsuccessfully tried to negotiate a settlement by peaceful means.

At the initiative of neighboring African leaders, rival nationalist movements in Rhodesia—the African National Council (ANC) led by Bishop Abel Muzorewa, the Zimbabwe African Peoples Union (ZAPU) led by Joshua Nkomo, the Zimbabwe African National Union (ZANU) led by Ndabaningi Sithole, and the Front for the Liberation of Zimbabwe (FROLIZI) led by James Chikerema—merged into a larger African National Council (ANC) under the leadership of Bishop Abel Muzorewa. Unfortunately, this merger was short-lived. The enlarged ANC has split into two factions, one led by Bishop Abel Muzorewa and the other by Joshua Nkomo. Prospects for peaceful settlement are very dim and the nationalists have resorted to armed struggle.

Namibia (South-West Africa)

South-West Africa, formerly a German colony (1884-1915), was mandated to South Africa following the defeat of Germany in the First World War. With the demise of the League, the United Nations under Chapters 12 and 13 of its charter, provided for the transfer of all the remaining League mandates to the United Nations Trusteeship system. Britain, France, Belgium, Australia, and New Zealand concluded agreements with the United Nations for transferring their mandated territories to the control of the United Nations Trusteeship Council. Almost all these territories are now independent.

South Africa refused to relinquish its mandate over South-West Africa. On 27 October 1966, the United Nations General Assembly in Resolution 2145 revoked the South African mandate and on 19 May 1967 created the United Nations Council for South-West Africa charged with supervising the withdrawal of South Africa, the interim administration of the territory, and the eventual transfer of power to the people of South-West Africa. The territory was renamed Namibia. The Security Council in Resolutions 245, 264, and 276, concurred with the revocation of South Africa's mandate. At the request of the Security Council, the International Court of Justice issued an advisory opinion on 21 June 1971 affirming the illegality of South Africa's continued presence in Namibia. Despite numerous resolutions in the United Nations and the Organization of African Unity, South Africa continues to occupy the country illegally and to deny the people of Namibia their right to self-determination. South Africa has imported its apartheid policy into the territory.

Namibian nationalists continued to resist the illegal South African presence and by 1958 had formed several political parties seeking independence by peaceful means. Originally, these parties had strong ethnic bases, and according to Kerina, the parties were formed as follows:

1. The Ovambo people found the Ovamboland Peoples' Congress, which later became known as the Ovamboland Peoples' Organization and finally changed into the South West Africa Peoples' Organization (SWAPO).

2. The Herero people together with the Mbanderu people found the South West Africa National Union (SWANU).

3. The Nama people found the South West Africa United National Independent Organization (SWANIO).

4. The Damara people found the South West Africa Democratic Union (SWADU).

5. The South African Coloureds living in South West Africa formed the notorious South West Coloureds Organization (SWACO).

6. The Rehoboth people formed the Rehoboth Burgers' Association, often referred to as the Bastersraad.

7. The Herero people also worked through the powerful chief's Council of the Honourable Hosea Kutako, which has played a vital role in the political awakening of the peoples of South West Africa before the appearance of political organization in the Territory.[12]

Today only SWANU, which has a tenuous existence, and SWAPO are active. SWAPO under the leadership of Sam Nujoma has been recognized by the United Nations and the OAU as the sole and legitimate representative of the people of Namibia.

Speaking at the International Conference on Namibia and Human Rights held at Dakar, Senegal, from 5 to 8 January 1976, The President of the United Nations Council for Namibia, Mr. D. W. Kamona, emphasized that the central issues in Namibia remain "the termination of South Africa's illegal occupation and the achievement of political independence for Namibia."[13]

South African intransigence on these issues have forced SWAPO into armed struggle. The struggle which has assumed international dimensions will continue to escalate unless SWAPO demands are met. China and North Korea have been providing military assistance to SWAPO. In December 1975 North Vietnam pledged to support the liberation struggle.[14]

South Africa

The issues in South Africa remain the eradication of apartheid and racism as well as the institution of majority rule. Racism had been a dominant feature of administration in South Africa. When the Nationalist Party came into power in 1948, it made apartheid an official state doctrine. Former Prime Minister Hendrik F. Ferwoerd described it in 1963 as follows: "We want to keep

South Africa White . . . " 'Keeping it White' can only mean one thing, namely White domination not 'leadership,' not 'guidance' but 'control' supremacy."[15] Apartheid thus implies "separate development" and white domination. It divides South Africans into four racial categories as follows:

African	17,748,000
White	4,160,000
Coloureds	2,306,000
Asian	709,000

Through the apartheid system 4 million whites 'lord it' over more than 20 million non-whites. Africans comprising over 70 percent of the population are allotted only 13 percent of the land on which the government has established 9 'homelands' or 'Bantustans.' Scattered in 81 separate and non-contiguous patches of land, these 'homelands' are supposed to develop into 'self-governing' territories beginning with the Transkei—The Zulu 'homeland' scheduled for 'independence' in 1976. In reality, the 'homelands' are designed to further weaken African resistance and to perpetuate white domination. As the General Assembly declared in 1971 'the real purpose of the Bantustans is to divide the Africans, setting one tribe against the other with a view of weakening the African front in its struggle for its inalienable and just rights and "to consolidate and perpetuate domination by a white minority and the dispossession and exploitation of the African and other non-white people of South Africa."[16]

Despite increasing denunciation of South African policies by all governments and international organizations, the government has consistently refused to eradicate apartheid or introduce majority rule.

The year 1960 marked a turning point in the chequered history of African resistance in South Africa. The African National Congress (ANC) and its splinter party the Pan Africanist Congress (PAC) had organized nonviolent protests against the pass laws in several South African towns. At Sharpville, the police opened fire on the unarmed peaceful demonstrators killing 69 and wounding 180 persons. At Lange five were killed and 49 wounded. Peaceful protesters were also killed at Nyanga and Vanderbyl. The South African Government arrested leaders of both parties and on April 8 banned the ANC and PAC as 'unlawful organizations.' The ban compelled these parties to go underground or organize outside South Africa. Occasionally they engage in sabotage and low level insurgent activities.

Rather than deal with African demands, the South African regime has intensified its apartheid practices and reinforced its Bantustan policy. Chances for peaceful resolution of these conflicts are slim.

Impact of Portuguese withdrawal on Southern Africa

The demise of Portuguese colonialism has added a new dimension to the strategic balance of forces in Southern Africa. Mozambique and Angola, which had hitherto served as buffer states for the white minority regimes in Rhodesia, Namibia and South Africa, are now ruled by African governments dedicated to change in Southern Africa. On 3 March 1976, President Samora Machel,

at considerable economic cost to Mozambique, closed all land and air traffic to and from Rhodesia, put the country on a war footing and confiscated all Rhodesian property and assets in Mozambique. Prior to Portuguese withdrawal, about 80 percent of Rhodesia's imports and exports went through Mozambique. By early 1976 the volume of traffic had been reduced to less than 30 percent. The ports of Beira and Maputo were closed to Rhodesia—which had to depend entirely on South Africa's congested ports. The only rail links now open to Rhodesia are through Botswana and South Africa. The Botswana line carries only 15 percent of Rhodesia's traffic and is already operating at full capacity. It is not unlikely that Botswana may cut this link with Rhodesia at some future date even at considerable loss to itself. Such action will put additional pressure on the only Rhodesian-South African line and increase South Africa's political leverage in the Rhodesian crises.

Perhaps more important than the economic consequences of the border closure are the political and military consequences. Rhodesia's 700 mile border with Mozambique is now open for guerilla activity. Added to the traditional north-eastern war zone, the total area susceptible to guerilla invasion has more than doubled since January 1976. Rhodesia's border with Botswana provides another entry point for guerilla fighters. Since Botswana has no army and depends on a small police force for internal security, it will be increasingly difficult to effectively patrol the entire border. Indeed, given Prime Minister Sir Seretse Khama's sympathy for the African Cause, it is easy to speculate that Rhodesia would have to face insurgency from three sides—a threat which would adversely task its already strained security forces.

South Africa faces the same logistical problems in Namibia. The liberation of Angola under Neto's MPLA has opened up the 1,100 mile Angola-Namibian border to guerilla activity. South African involvement in the Angolan war against the MPLA, coupled with her policy of 'hot pursuit' into Angolan territory, has exacerbated relations between the two countries. SWAPO freedom fighters use Angola as a base and refuge. All indications are that Angola will continue to provide them with a base for operations.

South African territory itself is not immune to the adverse consequences of Portuguese withdrawal. Her actions in Angola destroyed her already dubious credibility in the so-called 'detente' with Black Africa. Her entire border with neighbouring states is open to guerrilla infiltration.

One important factor in Southern Africa remains the presence of Cuban forces in Angola. Western uncertainty about their presence is a crucial factor in the balance of forces in Southern Africa. In an interview with David Martin of the *Observer,* President Samora Machel confirmed that Cubans would not participate in the struggle in Rhodesia . . .[17] Ostensibly this decision was taken by the standing committee of four presidents (Dr. Kaunda of Zambia, Mr. Nyerere of Tanzania, Mr. Machel of Mozambique, and Sir Seretse Khama of Botswana) at their Lusaka summit in March 1976. While Cubans may be participating in the training of Rhodesian freedom fighters along with ex-FRELIMO officers and some Chinese experts, there is no immediate plan for Cubans to participate in combat. However in the event that Rhodesia utilizes white mercenaries from South Africa or Europe, or in the event of South African intervention on the side of Rhodesia, the pressure to use Cuban combat troops will be difficult to resist.

This general survey has sought to examine the nature and sources of conflict in Southern Africa. In Rhodesia, Namibia, and South Africa, nationalists demand the eradication of racism and apartheid and the institution of majority rule. Having unsuccessfully tried to achieve their goals through peaceful means, the nationalists have been forced to resort to armed struggle. While economic and diplomatic pressures are being tried, it is becoming increasingly obvious that protracted armed struggle is inevitable.

US Posture in Southern Africa

Former Assistant Secretary of State for African Affairs, Mr. David Newsom, at a speech before the Mid-American Committee in Chicago on 28 June 1972, spelled out the guiding principles of US policy in Southern Africa as follows:

1. Support for the principle of self-determination;

2. condemnation of apartheid;

3. and peaceful change in Southern Africa.[18]

Quite recently there has been considerable controversy regarding the so-called 'tilt' in US policy toward Southern Africa. What is important, however, is not so much the presence or absence of a tilt as: (1) the *feasibility* of achieving change in Southern Africa without violence and (2) the apparent gap between US declared policies and actual policy initiatives. In contrast with the US, Soviet and Chinese policies emphasize not only moral and political support for the principle of self-determination and anti-racism, but also material commitment (economic and military) to the achievement of these goals.

In 1969 the Nixon Administration undertook a major systematic study of its options in Southern Africa. The result of this study was a five-option secret White House document–National Security Study Memorandum – NISSM-39. The document was submitted by Mr. Henry Kissinger to the National Security Council on 19 December 1969. Option Two was selected in February 1970. Option One, rejected by Mr. Kissinger, recommended the preservation and expansion of US "economic, scientific and strategic interests" in Southern Africa on the premise that the "political costs of closer relations with the white states will not be excessive" since "the whites are in control and insurgent violence will not seriously threaten that control."[19] This recommendation, had it been accepted, would have meant the relaxation of the arms embargo against South Africa, routine naval visits and use of South African airfields, relaxation of sanctions against Rhodesia, relaxation of the arms embargo against Portugal, limitation of economic aid to black Africa, and public discouragement of black insurgency.[20]

In fact, Option Two, which was chosen as the basis of the 1970 Decision *Memorandum* was not very different from the extreme Option One. Its basic assumptions were stated as follows: (1) "The Whites are here to stay and the only way that constructive change can come about is through them. There is no hope for the blacks to gain the political rights they seek through violence, which will only lead to chaos and increased opportunities for the Communists"; (2) "there are reasons to question the depth and permanence of black resolve"; (3) there has been a decline in the level of

insurgency; and (4) "neighboring black states vital to successful guerilla activity . . . will choose to preserve their own security" rather than face retaliatory action by white minority regimes.[21] All four assumptions later proved to be wrong.

United States posture according to Option Two was stated as follows:

> *We would maintain public opposition to racial repression but relax political isolation and economic restrictions on the white states . . . Without openly taking a position undermining the United Kingdom and the U.N. on Rhodesia we would be more flexible in our attitude toward the Smith regime . . . We would take diplomatic steps to convince the black states of the area that their current liberation and majority rule aspirations in the South are not attainable by violence and that their only hope for a peaceful and prosperous future lies in closer relations with white-dominated states. We would emphasize our belief that closer relations will help to bring change in the white states . . .*[22]

This posture would be operationalized partly by liberalizing the arms embargo on South Africa and Portugal to include dual purpose military equipment; playing down South Africa's illegal occupation of South-West Africa while seeking accommodation between South Africa and the United Nations; gradual relaxation of sanctions against Rhodesia while considering eventual recognition of the illegal regime; and publicly opposing the use of insurgency in resolving racial situations. These actions were calculated to preserve America's "economic, scientific, and strategic interests in the white areas" while "expanding opportunities for profitable trade and investment."[23]

To the extent that Option Two was implemented, it cast US posture in Africa in a mold directly antithetical to African aspirations and expectations. A few examples will illustrate this. While fighting was going on between Portugal and her African colonies, the US concluded a formal agreement with Portugal for the continued use of the Azores base. This agreement included $436 million in economic aid, the bulk of which consisted of Export-Import loans to purchase US goods including some Boeing 707 jet airliners. Premier Caetano saw the agreement as "a political act in which the solidarity of interests between the two countries is recognized."[24] The strategic value of the Azores base has been in question since the 1960s. Its utility as a refueling station has been greatly diminished in the light of technological advances in modern long-range aircrafts. As a NATO ally, Portugal contined to receive US military hardware, training, and technology, making it possible for one of the poorest countries in Europe to fight a protracted war in Africa. The arms embargo on South Africa was circumvented by the sale of light aircraft easily converted to military use. The Byrd Amendment permits the importation of chrome from Rhodesia despite United Nations sanctions. Though Mr. Kissinger has acknowledged that Rhodesian chrome is "not essential to our national security, brings no real economic advantage and is detrimental to the conduct of foreign relations," the Byrd Amendment has yet to be repealed.[25] The US failed to recognize Guinea Bissau until Portugal did so. It has yet to recognize Angola.

Another disturbing element in US policy in Southern Africa relates to American and NATO defence postures in that area. According to Tad Szulc, America and NATO "have been engaged in top secret contingency planning to extend their air and naval operational responsibilities to the vast

strategic vacuum stretching from the South Atlantic to the Indian Ocean . . ."[26] The plan conducted by the Supreme Allied Command Atlantic, (SACLANT) in Norfolk, Virginia, at the request of NATO's Defence Planning Committee, would in effect mean the extension of NATO responsibilities beyond the Tropic of Cancer. The basis for this contingency plan is said to be the growing Soviet naval threat in the Indian Ocean and the need to protect vital oil tanker routes through the Persian Gulf and around the Cape of Good Hope. An extension of NATO's operations beyond its present statutory boundary will invariably result in a naval arms race in the Indian Ocean. Morover, such a policy will bring South Africa within the ambit of NATO security.

An equally disturbing element relates to South Africa's long standing overtures for military alliance with the West, particularly the United States. Admiral Hugo Biermann, Chief of Staff of the South African Defence Forces, has recently alluded to the geographic, economic and military strategic importance of South Africa in the defence of the Free World.[27] Similar references stress the "Commercial and military importance of the Cape Sea Route, the importance of the RSA (Republic of South Africa) as an operational base in the event of a general war and the value of South African harbours and its developed infrastructure as a supporting and supply base for operations in the Southern Atlantic and Indian Ocean."[28] Not only are South Africa's vast mineral resources available to the Free World but also its "developed ports, maritime communications, repair and refueling facilities"[29] are supposed to ensure the free flow of these resources to the west. Perhaps the catch–all argument revolves around its being the bastion of democracy in Africa preventing that continent from falling into communist hands. Aware of the impending conflict in Southern Africa, Mr. Biermann warned that "every effort to defend the RSA both physically and ideologically, from revolutionary chaos and communist penetration, is an effort in direct support of the defence of the Free World."[30]

The South African Government has attempted to link its internal security, including the perpetuation of apartheid and minority rule, to the defence of the West. This attempt is designed to draw the West, especially the US, into defending the status quo in Southern Africa. Quite recently South Africa has intensified its overtures to the US. Tad Szulc reported that in 1974 Mr. Connie P. Mulder, South African Interior and Information Minister, spent four days conferring with Vice President Ford, Congressional leaders, and Vice Admiral Ray Peet. A similar meeting occurred between Admiral Biermann and the Acting Secretary of the Navy, J. W. Middendorf. These meetings were supposed to have explored the possibilities of US-South African defence arrangements. It cannot be overemphasized that any such arrangement would not only damage American credibility in Africa but would also force many African states to seek a counter arrangement with the Soviet Union or China. Such arrangements would increase the risk of East-West confrontation in Southern Africa.

To be effective, US policy in Southern Africa must address itself to the stark realities of that region. It must recognize that racism, colonialism, and minority rule are anathema to the whole of Black Africa. It must equally recognize Black Africa's resolve to eradicate these problems by any means, including the use of force. For Africa there is no compromise. Adamant to peaceful change, South Africa has prepared itself for confrontation. Its defence budget has risen from 44 million Rands in 1960-61 to over 948 million Rands in 1976. Its armed forces has doubled from 48,000 in 1971-72 to 119,450 in 1974-75 excluding about 75,000 commandos. America's insistence on peaceful change must be weighed against these factors. An editorial in Nairobi's *Daily NATION* stated the issue quite succinctly:

Does America want Africa to understand that she can champion democracy at home, make friends with independent African countries, and at the same time maintain firm ties with the enemies of democracy and justice in Africa, and hope to maintain credibility in our midst.[31]

Mr. Kissinger may have provided an answer when he declared before the Senate Subcommittee on African Affairs in January 1976 that " . . . it is our inability to support our African friends that will cost us influence in Africa."[32] During his recent African tour, Mr. Kissinger pledged US support for African goals. If these pledges are translated into active policies by Congress and the President, the US may restore its credibility in Africa. If not, US-Soviet rivalry in Southern Africa may decisively tilt in favour of the Soviet Union and the Chinese.

Soviet Posture in Southern Africa

As with the US, European Colonialism and European-African defence arrangements limited the nature and scope of Soviet involvement in African affairs. These factors, coupled with the absence of 'class consciousness' in Africa in the traditional Marxist-Leninist doctrine, limited Soviet activities before 1956 to the establishment of diplomatic relations with Egypt and Ethiopia and the condemnation of colonialism and imperialism in the continent. The Soviet Union had little sympathy for early Nationalist leaders like Nnamdi Azikiwe of Nigeria, Kwame Nkrumah of Ghana, and Gamal Abdul Nasser of Egypt who were dismissed as 'bourgeois nationalists.' In 1950, Professor Ivan Potekhin in his *Stalinist Theory of Colonial Revolution and the National Liberation Movement in Tropical and Southern Africa* argued that "the solution of the colonial problem . . . is impossible without a proletarian revolution."[33] By 1956 he conceded that "a national bourgeoisie . . .'has made its appearance and is claiming its place in the sun." Nkrumah, Azikiwe, Jomo Kenyata, and others were seen as 'leaders of ability and energy'. Thus tactical change in Moscow's Communist doctrine has continued to guide its policies in Africa. The emphasis placed on ideology or more pragmatic national interests has varied with the predilections of Soviet leaders, the nature of East-West relations, the Sino-Soviet rift and Moscow's perception of African priorities. While not altogether abandoning the long-range goal of carving Africa in its own image, more emphasis is placed on short-term political, economic, and strategic interests. Helen Cohn underscores this shift in her contention that "though the extension of communism to Africa might well remain a long-term goal, the expansion of Soviet, not Communist, influence is Kremlin's dominant concern."[34] Building 'Scientific Socialism' in Africa is essential to Moscow's idea of the inevitability of history. It bolsters Moscow's belief in the eventual triumph of communism over capitalism. "Slow and hazardous as the process may be, the Soviet leadership still counts on Third World regions like Black Africa to validate the Soviet experiment."[35]

More emphasis is, however, placed on short-range goals such as African support for Soviet positions in international issues, (particularly in the United Nations), reducing Western and Chinese influence in the continent, obtaining access to strategic facilities. Somalia's strategic position on the Horn of Africa, guarding the Red Sea and Persian Gulf approaches, explains Moscow's increasing interest there. In like manner, Soviet military assistance to Nigeria during the Biafran crisis was calculated to gain Nigerian friendship, and establish a foothold on the West Coast (particularly after its setback in Ghana). As Malone observed, "Nigerian commentaries distinguished between the 'true

friendship' of the Russians and the mere 'neutrality' of Americans and the British. Nigeria would not forget those who proved to be true friends in our days of adversity."[36]

The basic instruments for pursuing these goals remain economic aid, transfer of military technology and training, cultural and educational exchange programs, as well as moral and practical support for African resistance to racism, colonialism, and white minority rule. The success of these instruments have varied considerably from country to country. Despite many setbacks, the Soviet Union has increased its presence in Africa in the last decade.

Political conflicts in Southern Africa in particular provide opportunities *par excellence* for Soviet intervention in the bid to limit Western and Chinese influence in Africa. Despite Africa's wish to be its own policeman, conditions in Southern Africa continue to emphasize Africa's economic, military, and diplomatic dependence on foreign powers for the attainment of its goals. The intervention of the Soviet Union and Cuba in the Angolan crises illustrates this point. Though initially condemned by many African states, the intervention of South Africa on the side of UNITA and NFLA, also supported by the US, transferred condemnation into praise and victory for the Soviet Union and Cuba. Moscow's success in Angola may be ascribed to three factors. (1) Ideologically, the Soviet Union has maintained consistent support for the liberation of Africa and the condemnation of racism, colonialism, and self-determination. (2) Moscow has consistently committed material aid to the liberation movement. As Khruschev put it in 1963,

> *It is not only in its statements and declarations that the Soviet Union supports the just wars of the peoples, this support has frequently been expressed in material aid. Many peoples in their liberation struggle have used our weapons, and they have achieved victories and liberation from colonial oppression.*[37]

(3) Nationalist leaders in Southern Africa as well as the OAU, now believe that given the resistance of white minority regimes to peaceful change, war has become an inevitable policy instrument to effect change. The Soviet Union presently supports liberation movements in Zimbabwe, Namibia, and South Africa. Though partially motivated by the Sino-Soviet rivalry, practical support of liberation movements by the USSR will prove to be a decisive factor in the US-Soviet rivalry for influence in Southern Africa given the apparent failure of normal diplomatic pressures.

Impact on US-Soviet Relations

The 1972 Nixon-Brezhnev agreement signed in Moscow enjoined the two leaders to prevent "the development of situations capable of causing a dangerous exacerbation of their relations." It further provided that 'efforts to obtain unilateral advantage at the expense of the other, directly or indirectly are inconsistent' with their objectives of improving US-Soviet relations and reducing international tensions. Does the recent Soviet success in Angola represent a 'dangerous exacerbation' of US-Soviet relations? How will events in the rest of Southern Africa effect this relationship between the superpowers? The answer to these questions is not simple. On the one hand, it has been argued that Angola, Rhodesia, and Namibia are not of overriding strategic importance to the US. The implication is that US losses here will not adversely affect US strategic interests or damage US-Soviet relations. On the other hand, Soviet successes abroad, especially in Southern Africa, are interpreted in some quarters as the failure of 'detente' or a signalling of America's

decline to a second-rate power vis-a-vis the Soviet Union. These arguments illustrate the dilemma of America's dual policy. It pursues and welcomes a lessening of tensions between the two superpowers and at the same time it seeks to contain "Soviet Expansionism."

US global strategy since the Nixon Administration is predicated on a lessening of tensions between the US and USSR, closer association with China, and general reduction in world tensions. Decisionmakers under the Nixon and Ford Administrations have consequently invested considerable time, energy, and resources to seeking 'detente' with the Soviet Union. This search has been largely successful until the Angolan crises. While Secretary of State Kissinger has repeatedly warned that the US will "resist . . . the expansion of Soviet political influence by military power or the use of surrogate forces,"[38] he has equally insisted on continued good relations with the Soviets as the primary basis of international peace and stability. Neither SALT talks nor grain sales to the Soviet Union were to be affected by events in Angola. As Kissinger put it: "SALT and what I described as detente is in our common interest. It is not a favor we grant to the Soviet Union. It is an inherent necessity of the present period."[39] America's 'retreat' from its role as world policeman, the current mood against American overt or covert involvement in foreign wars, coupled with Congressional curtailment of US military assistance in Angola, have necessarily reduced the number of possible US strategies to contain 'Soviet aggression.' Thus, while Kissinger sees Soviet action in Angola as the principal element in the deterioration of US-Soviet relations, the Administration has yet to devise credible means of redressing this situation or preventing future Angolas.

The ideal situation is to rid Africa of superpower rivalry. Current events in Southern Africa have made such rivalry inevitable. The African determination to eradicate racism, apartheid, and white minority regimes from the continent viewed against the apparent failure of world diplomatic and economic pressures to bring about such change, makes military confrontation inevitable. In the event of such a confrontation, and given the increasing militarization in white-ruled territories, Africa would be bound to accept military assistance from any source. So far, only the Soviet Union and China have pledged (and given) such military assistance. US-Soviet, as well as US-African relations in the next decade or two will largely be determined by the American response diplomatically and militarily to events in Southern Africa. America's interests demand some coordination between global defence strategy and regional defence needs. American choices in Africa will largely determine its ability to maintain influence in that region. A recent Pentagon map shows some form of Soviet military presence in Sudan, Somalia, Uganda, Mozambique, Egypt, Lybia, Algeria, Mali, Guinea, and Nigeria. Some analysts interpret recent moves for military assistance to Kenya and Zaire as efforts to counterbalance growing Soviet presence and military capacity in Africa and the Indian Ocean. That the US recognizes this need is seen, in part, by the recent visits by Mr. Kissinger, Ambassador Scranton, and particularly Defence Secretary Donald Rumsfeld to Africa. The efficacy of these efforts depends, in the final analysis, on American choices in Southern Africa.

Footnotes

[1] Quoted by Senator William E. Brock III, "Detente and Containment–The Dangers of Semantics," *Journal of Social and Political Affairs*, January 1976, p. 10.

[2] Secretary Kissinger, "Implications of Angola for Future US Foreign Policy," Bureau of Public Affairs, Washington, D.C., 29 January 1976.

[3] Ibid.

[4] Ibid.

[5] This argument is developed by Chester Crocker, "Africa: The Indian Ocean and the Maritime Powers," *Orbis*, Fall 1976.

[6] Ibid. See also his "Motivations for External Military Assistance to African States: A Policy Perspective."

[7] Ibid.

[8] James M. McConnell 'The Soviet Navy in the Indian Ocean' in Michael McGuire (ed) *Soviet Naval Developments. Capability and Context* (New York: Praeger Publishers, 1973), p. 389. See also W.A.C. Adie. *Oil, Politics, and Seapower. The Indian Ocean Vortex* (New York: Crane, Russak and Co., Inc., 1975).

[9] Oles M. Smolansky 'Soviet Entry into the Indian Ocean: An Analysis' in McGuire (ed) op. cit. p. 407. See also Patrick Wall, *The Indian Ocean and the Threat to the West* (London: Stacey International, 1975).

[10] *Africa Research Bulletin*, Vol. 2, No. 10, 1965, p. 385b.

[11] *Africa Research Bulletin*, Vol. 2, No. 10, 1965, p. 406b.

[12] U.N. Document 65-44476. Statement made by Mr. Mburumbu Kerina at the 1565th Meeting of the Fourth Committee (23 November 1965) Quoted in Richard Gibson, *African Liberation Movements* (New York: OUP, 1972), p. 119.

[13] "Objective: Justice," Vol. 8, No. 1, Spring 1976.

[14] *Africa Research Bulletin*, Vol. 12, January 1976, p. 3871 ab.

[15] *A Crime Against Humanity* (Questions and Answers on Apartheid in South Africa), published by the United Nations, p. 4.

[16] Ibid, p. 8.

[17] *The Observer*, 28 March 1976.

[18] Frederick S. Arkhurst, ed., *US Policy Toward Africa* (Praeger, 1975), pp. 89-90.

[19] Tad Szulc, "Why Are We in Johannesburg?" *Esquire*, October 1974.

[20] Ibid.

[21] Ibid.

[22] Ibid.

[23] Ibid.

[24] John Marcum, "The Politics of Indifference: Portugal in Africa. A Case Study in American Foreign Policy," *Issue* 2, No. 3, Fall 1972, p. 12.

[25] Quoted in a letter by Gretchen C. Eick, *Washington Star News*, 21 October 1974.

[26] Szulc, "Why Are We in Johannesburg?"

[27] Admiral H.H. Biermann, "The Strategic Importance of Southern Africa in the Defence of the Free World," *Journal of Social and Political Affairs*, Vol. 1, No. 1, January 1976, p. 43.

[28] Ibid.

[29] Ibid.

[30] Ibid.

[31] Quoted in *Christian Science Monitor*, 28 March 1975.

[32] Secretary Kissinger, "Implications of Angola for Future US Foreign Policy."

[33] David Morrison, *The USSR and Africa*, (New York: OUP, 1964). See also Vernon McKay, "Changing External Pressures on Africa," Walter Goldschmidt, ed., *The United States and Africa* (New York: Books for Libraries Press, 1963).

[34] Helen Defosses Cohn, *Soviet Policy Toward Black Africa* (New York: Praeger, 1972), p. 257. See also David Morrison, *The USSR and Africa*, p. 31.

[35] Robert Legvold, "Soviet and Chinese Influence in Black Africa" Alvin Z. Rubinstein, ed., *Soviet and Chinese Influence in the Third World* (Praeger, 1975), p. 157.

[36] Radio Lagos, 27 January 1970, cited by Charles B. McClane, *Soviet-African Relations* (London: The Central Asian Research Centre, 1974), p. 105.

[37] David Morrison, *The USSR and Africa*, p. 41.

[38] See Secretary Kissinger, "Implications of Angola for Future US Foreign Policy."

[39] Henry Kissinger quoted in *The Washington Star*, 28 December 1975.

PANEL III

THE PEOPLE'S REPUBLIC OF CHINA AND THE US-SOVIET RELATIONSHIPS

An analysis of the likely PRC foreign policy initiatives in terms of their potential for influencing US-Soviet relations, including prospects for USSR-PRC ideological convergence or divergence. An evaluation of US opportunities and pitfalls in future US-USSR-PRC relationships which affect security matters.

Chairman: Dr. William W. Whitson, Foreign Affairs Division, Congressional Research Service, Library of Congress

Authors: Dr. Richard C. Thornton, Professor of History and International Affairs, Institute for Sino-Soviet Studies, George Washington University

Professor Joseph Schiebel, Director, Russian Area Studies Program, Georgetown University

Panelists: Mr. Richard B. Foster, Director, Strategic Studies Center, Stanford Research Institute

Colonel Horace Hunter, USA, Far East and South Asia Division, Chief, Directorate of Plans and Policy, J-5, Office of the Joint Chiefs of Staff

Mr. Lewis J. Lamm, Director, East-West Trade, Clark Equipment Company

Mr. James Lilley, National Intelligence Officer for PRC, Central Intelligence Agency

Mr. Robert J. Martens, Director of Regional Affairs, Bureau of East Asian Affairs, Department of State

Mr. Willard H. Mitchell, Deputy Director of Force Analysis Division, Policy Plans and National Security Council Affairs Directorate, Office of the Assistant Secretary of Defense, International Security Affairs

Mr. Michael Pillsbury, Rand Corporation

Ms. Joyce Lasky Shub, Research Consultant, Future Foreign Policy Sub-Committee, House International Relations Committee

Rapporteur: Lieutenant Commander Michael T. Corgan, USN, Staff, National Defense University

PANEL III

THE PEOPLE'S REPUBLIC OF CHINA AND THE US-SOVIET RELATIONSHIPS

CHAIRMAN'S PLENARY SESSION SUMMARY

Dr. William W. Whitson

I will try to report the themes and discussions of Panel III and keep my personal views out of this, as much as possible. Given that single caveat and the awareness that time constraints really force a regrettable over-simplification, as I listened to panel discussions, I was reminded of an apocryphal story told of the Vietnam War years. The story alleges that Mr. McNamara went to the President one day in 1968 and said, "Mr. President, we feel you're running a highly costly, inefficient, no-win policy in Vietnam, but we think we can change that to a highly costly effective no-win policy in Vietnam." And the President alledgedly said, "Good grief, man, how about a victory?" And McNamara said, "I'm sorry; that's not systems analysis, we deal in adjectives, not nouns."

It was clear in our panel that we were discussing, and I think that perhaps all of us in this conference were searching for, the new noun to replace that of containment, although the same word finally may be dressed up in new clothing. And in those terms, rather late in our discussion, there began to emerge two schools of thought regarding the interpretation of where the US has been and how successful we have been.

I will try to express this as accurately as I can. One school in effect argued that from a posture of nearly a monopoly of power and influence after World War II, through the next 25 years, the United States lost influence all over the world, lost leverage, and finally reached a point of varying degrees of weakness with respect to principal adversaries, and with respect to ability to handle crisis and pre-crisis situations. This loss of power possibly began with the 1962 Cuban Missile Crisis, or perhaps earlier, depending upon where one starts to track the Soviet surge toward strategic parity.

Another school on the panel felt that that was an overly pessimistic and perhaps even incorrect interpretation of the past 25 years; that indeed a decline in the American monopoly of power was inevitable if we were in fact to be successful in transferring both economic and political power to not only allies in many cases, but adversaries in others. Thus, the relative distribution of power around the world from 1945 had to go against us. But the results of that process were not bad. Instead the process had resulted in the building of positions of strength around the Eurasian land mass and in other parts of the world.

Given those two different views of the world, they obviously have quite an impact on where these two different groups or philosophies think we should go next, and particularly how they would define the new noun.

In our discussions, it became clear that alternative tri-polar relationships among the US, the USSR and the PRC may provide insights into and measures of the noun and of the changing distribution of power around the world. The power relationships among those three principal powers might be a significant, if partial, explanation of what might be happening. We focused first

on Chinese perceptions of the tri-polar relationship, then Soviet perceptions of that relationship, and finally American perceptions and options.

The Chinese perceptions of this relationship, put very briefly, focus on the notion that the relationship must be preserved. That is, that a tri-polar relationship, regardless of the amount of power held by one state or another, is worth preserving and enhancing in obviously many dynamic ways. One can trace the origins of this viewpoint very deep in the history of Chinese political philosophy. Many of us are familiar with the "Romances of the Three Kingdoms." Indeed, that story is a good deal more than merely romantic fiction; it has a great deal to say about how the Chinese perceive a triangular political power relationship.

Now, given that notion of its philosophical and contemporaneous importance, the Chinese see the tri-polar relationship as a means for buying time so that they may achieve Great Power status. By that is meant not necessarily strategic military power. Instead they seek the ability to influence situations, or at least great power acceptance of Chinese presence in any discussion of major global issues. Given that viewpoint toward the tri-polar relationship, how do the Chinese perceive the Soviet role? The Chinese see the Soviets, as our panel members portrayed it, as expansionist, aggressive and especially, anti-Chinese. And therefore, the possibility of major changes, at least in the short-run, of Sino-Soviet relationships—certainly, major favorable changes for the Chinese—the PRC sees as rather unlikely. That leg of the triangle promises little leverage for China in the short-run.

The Chinese must instead rely on the Sino-American axis to try to influence the tri-polar relationship because the Sino-Soviet axis has become relatively rigid and relatively unsusceptible to change. That means then, that their perception of the US role is quite important. They see US power as being primarily useful as a buffer or as a means for tying down Soviet power, for diverting it from its transfer against China.

Thus, the Chinese are trying to use American power wherever they can to preserve or buy some time for particular domestic, as well as foreign political and economic development. In these terms our members felt that the Chinese view is one that favors an era of stability; they would much prefer a relatively stable set of relationships rather than a set of relationships that are highly unstable and very uncertain.

Now, can this system work? Major Chinese concerns have to do with Soviet influence: the Soviet capacity for influencing the Chinese posture in Asia, particularly North Vietnam and India, as well as along the Sino-Soviet border, and the degree to which the Soviets might be successful in encircling China. They are also concerned about Soviet influence in Europe, because that obviously has impact on the extent to which the tri-polar relationship might divert Soviet power from direct confrontation with the Chinese.

Finally, they're most concerned about the Soviet-American relationship. That is, what are the ground rules of Soviet-American relations that are emerging? The Chinese are particularly concerned that detente may become more than simply detente, may become a partnership.

Thus the words "collusion," "collaboration" or "conspiracy" cropped up, particularly before 1971, but still are seen in the dialogue in the Chinese press.

Finally, the Chinese are very concerned about their own domestic political dismemberment or a degree of weakness which could emerge from the succession process. Either might be exacerbated by Soviet pressures; by Soviet positions of strength built around China; and by Soviet success in precluding Americans from giving support to the Chinese.

The Soviet viewpoint, in contrast with the Chinese viewpoint, is that the tri-polar relationship not only is worthless, but probably is damaging to Soviet interests and therefore must not succeed. From their viewpoint the Chinese, particularly, are anarchistic and are destructive of "a healthy" relationship with the US. By definition, a healthy relationship is one which returns the Soviet Union to stage center in the world communist movement and a relationship directly with the United States as a co-equal in managing the affairs of the world. To the extent that the Chinese succeed in establishing a place in a tri-polar relationship, they would deny that goal to the Soviets.

But in Soviet eyes there is a much more threatening role that the Chinese play than simply that of a geo-political anarchist. The Chinese represent a true non-Marxist alternative to the Soviet political and economic development model; as such, they are a standing, living, breathing affront to the Soviet domestic ideological and political system. That is, if the Soviets cannot prove either abroad or to their own people that a tremendous military budget and a repressive system are necessary (because the Chinese have pointed out that in relative terms it isn't), then the Chinese represent much more of a threat than merely a military or economic threat. They are a socio-political threat to each Soviet regime on domestic home territory.

They do see that there are certain "healthy forces" in Peking who might be inclined in the short-run ultimately to collaborate in some way with the Soviets. However, in broad geo-political terms, they agree with their Chinese adversaries that the Sino-Soviet Axis promises little change favorable to Soviet interests. Instead, they fear the degree to which the Chinese may be successful in getting closer to the Americans. Soviet leaders are particularly concerned about a Sino-American-Japanese Alliance becoming formalized. This would be an expression in the global political system of a major threat to the Soviets. (Curiously, it would probably be, in effect, a revival of bi-polarity. That is, from the Soviet viewpoint it would then bring the Soviets squarely back into a clean confrontation with a major grouping of power.)

Given this set of Soviet and Chinese concerns; and the fact that if the Soviets cannot exert much more pressure on the United States to create a movement toward superpower partnership, that is, an image of detente that effectively dilutes any effective Sino-American coalition, then the Soviet option is to move directly against the Chinese, to either divert or completely destroy the Sino-Soviet axis. By so doing, the Soviets would have achieved a return to bi-polarity and a much harder confrontation between two major global power centers. Indeed, some on the panel felt that a Soviet move against the Chinese may be imminent. That is they argue that the debating and planning are almost over because the Soviets have perceived that there's not much more political mileage to be gained from further negotiations with the Americans. Having lost hope for influencing the Soviet-American Axis, these panel members felt that the Soviets *must* move directly on the Sino-Soviet Axis.

As to American perceptions and options, the Americans, the panel felt, have a remarkable parallelism of interests with the Chinese, first at a philosophical level. Perceived as a global system of conflict resolution, the tri-polar system must be sustained to a bi-polar world.

It was on the subject of American perceptions where panel members encountered greatest controversy, not only in the matter of philosophy but in the matter of technique and programs.

There were those who felt that it was necessary, desirable and feasible, to capture the power of China, both military and political, in some way bringing into the American camp and possibly combine that with the economic power of Japan. These strategists argued that such a coalition of power linked with the American position in Europe might effectively restore American influence and a capacity to contain Soviet expansionism.

Others on the panel felt that this would be a formula for confrontation. If the Soviets are indeed as sensitive to their own internal situation as many panel members believe it to be, then the strategy of the United States should not be one of concentration and formalization, of power around the world, perhaps even through a Sino-Japanese-American alliance. Rather they advocated a strategy of deliberate ambiguity. That is, they would seek to preserve in the tri-polar system neither confrontation nor rapprochement but a system of competition, the middle ground on all axes of tripolarity. In effect, if the objective is to preserve the Sino-Soviet relationship in a competitive mode, the United States should maintain her distance from the Soviet Union and remain competitive, and do the same thing with the Chinese. The latter course may be especially difficult since a Sino-Japanese Axis could develop and could have a fatal attraction for American planners.

Given those differences, then, of opinion, you can imagine the many different arguments over specific techniques of policy. For example, should we give military assistance to China to preclude a Soviet attack? Some would argue "no" because you would incite a Soviet attack. Others argued "yes" because the Chinese must be reinforced to preserve their own strength and their defensibility against Soviet aggression.

Instead of giving you a host of false conclusions, I have really merely given you the structure of our arguments; allow me to close with that and let panel members in the audience later raise particular points.

PANEL III

THE PEOPLE'S REPUBLIC OF CHINA AND THE US-SOVIET RELATIONSHIP

RAPPORTEUR'S REPORT OF PANEL DISCUSSION

Lieutenant Commander Michael T. Corgan, USN

At the outset of discussions, it was generally agreed by the panel that more emphasis should be given to consideration of the immediate future—the next eighteen to twenty-four months—rather than just the decade of the '80s as the theme of the Conference indicated. Although questions of the triangular US-USSR-PRC relaltionship in the 1980s and beyond were dealt with, two likelihoods indicated the usefulness of a more short-range focus. First, it was generally assumed that, by the end of 1977, the Chinese leadership will probably be faced with a severe succession crisis on the death of Chairman Mao. Second, panelists most familiar with the subject felt that the Soviet Union may, during this same period, acquire a temporary superiority vis-a-vis the United States in strategic nuclear weapons. With the conjunction of these two conditions, the Soviets may well perceive that such a "window" of time will be their last and best chance for decisive actions with respect to the People's Republic for the remainder of the century. Such possibilities seemed to dictate a need for a more extensive concentration on short-term matters. What follows is an attempt to reconstruct the course of the panel's discussions. The first area of inquiry was that of Chinese perceptions of the triangular relationship.

The Tripolar Balance: Alternative PRC Perceptions

Panelists agreed that the title of this section of discussion should not be misunderstood to imply that the tripolar balance is one among equals. As later discussion brought out emphatically, the People's Republic is an agrarian, non-industrialized nation—a virtual third-world country, albeit a large and populous one. In fact, the PRC trades on this image somewhat in its characteristic rhetoric about the two superpowers, and in suggesting itself as a model for growth that other less-developed countries can follow. Discussion began on the subject of the US-USSR "collusion" which Peking so often alleges to exist between Moscow and Washington. Such charges, all agreed, are not actually believed by the PRC leadership but do serve to indicate the specific actual concern; viz., that the United States maintain political distance from the USSR and be more resistive of Soviet moves toward aggrandizement. As one panelist put it, the Soviet Union is the world's only active (i.e., growing) empire. The Chinese perception of Soviet expansionism is heightened by a fear of being surrounded by the Soviet Union or its clients. This perception amounts to a paranoia, especially when fellow Asians are involved. Hanoi, for example, is more beholden to Moscow than Peking. Kim Il-Sung is equally adept at playing off his larger neighbors against each other.

The Chinese leadership is convinced that the United States has a shared interest in supporting the PRC as a counterpoise to Soviet expansion in Asia. What upsets Peking are the apparent lapses, such as the Helsinki agreements, which seem to indicate a failure to appreciate the gravity of the Soviet threat. This does not imply that China seeks any close cooperation with the United States for, in the long run, she hopes to buy time for her own political and economic growth by playing off the two superpowers against each other. Given that Chinese expectation from the tripolar balance, issues such as the US "failure" in Angola will be raised by Peking in order to goad the West into maintaining a polarized stance vis-a-vis the Soviet Union. China watches carefully all indicators of resistance to or inhibitions of Soviet power. NATO is a key weathervane to the Chinese. But in

all areas where the US and USSR contest for influence, the Chinese may be expected to make overtures to countries from Iran to Japan in order to forestall Soviet expansion of influence, especially when such expansion clearly threatens encirclement of China itself. Most panelists agreed that, for the next two decades, the dynamics of Soviet expansionism will be the central foreign policy issue before the PRC leadership.

One panelist listed, with general assent, the following points as being the key strategic interests or efforts of the PRC:

- deterrence, especially against the Soviet Union;
- development of an effective defense strategy and capability (e.g., stockpiling of key materials);
- maintaining the superpower balance of tension without overt hostilities;
- position as champion of the Third World;
- maintenance of NATO to balance the Soviet Union and tie down her western flank;
- preventing the "dismemberment" of China.

This last point is an historically grounded fear of the Chinese leadership, evoked by memories of China's impotence against the West, and explains why the issue of Taiwan retains so much symbolic importance. Taiwan represents the sort of division that had so vitiated Chinese strength in the past. The leadership of Peking has abandoned what plans it may have had for the imminent forcible acquisition of Taiwan but still insists on the inflexibility of its claims to the island in public discourse.

Three practical issues are frequently used by the Chinese leadership in its debates about national priorities and policies as symbolic keys to PRC policy planning:

- the importation of foreign technology;
- the efficacy of improving relations with the Soviet Union; and
- the role of the militia in the national defense posture.

The importation of foreign technology is the most important of these debates with regard to forecasting likely foreign policy actions. There was, in fact, a lively debate among panelists about the likelihood of the Chinese importing foreign technology, the most obvious source of which would be the United States. On the one hand, the Chinese would like to achieve a greater degree of autarky, for their experience with the Soviet aid in the 1950s and early '60s has made them wary of reliance on outside help. On the other hand, the Chinese do not have sufficient internal capital formation capability to build their own industrial base. If agriculture, which is 80 percent of the Chinese economy, is to become capital-intensive, and their great interest in building fertilizer plants does indicate this direction, then at some relatively near date, outside capital must be acquired. Certain political realities however will necessitate a very circuitous approach to the matter of obtaining aid from abroad.

Who in the Politburo will want to be tagged as the one who initiated the importation of outside US technology on a large scale? Many panelists felt that indications of Chinese intentions in foreign policy matters can be read least deceptively in the actions taken with respect to the importation of foreign technology. The idea was advanced that the acquisition of foreign agricultural technology would ease the way for the Chinese next to seek to import some weapons-related technology. This whole debate on the importation of technology is characterized within the leadership by two pejorative experessions: "worship foreign things" versus "trailing behind at a snail's pace."

The Chinese recognize their position as a relatively unindustrialized, agrarian country. To achieve their major foreign policy goals, they must encourage the United States to maintain a counter-balance to Soviet efforts at expansion, in general, to keep the sort of pressure on the Soviet Union that will prevent the latter from directing its attentions immediately against Chinese interests. Panelists felt that the Chinese themselves do not pose any significant military threat to the Soviet Union nor much of a threat to the United States; but they can tip the superpower balance toward whichever side they favor.

The clearest and most rueful of the Soviet perceptions about their relationship wiht the PRC is that they made a major miscalculation and ignored "the lessons of history" by assuming that Sino-Soviet relations wuld be come amicable with the establishment of the People's Republic. The Soviets consider the PRC and its activities a most significant threat to their plans for ascendancy in East Asia, but the nature of the threat posed by the Chinese evoked some debate among panelists. The consensus of the panel, with a few exceptions, was that the most important threat posed by the PRC to Soviet interests is political and social rather than strategic.

Both the PRC and Soviet Union have masses of troops (over one million men) deployed along their mutual border. Shootings and other provocative incidents continue to occur. Of greatest importance is the fact that a significant percentage of China's most developed industrial capacity lies within one hundred miles of the Manchurian border. Barring major internal political instability in China, no military action on a large scale by the Soviet Union is considered likely.

The PRC does constitute a threat to Soviet aims, however, by merely standing as it does, beyond the pale of Moscow's orthodoxy (China was declared an "enemy," not merely a heretic, at the 25th CPSU Congress). A non-Moscow oriented China blocks the Soviet Union from:

- reestablishing a unified worldwide communist movement (a vision still nurtured in Moscow);
- exerting unchallenged influence as a revoluntionary leader for Third World nations;
- gaining greater influence in East and Southeast Asian nations;
- establishing better relations with Japan.

The Soviets do not consider that the Chinese have a major military offensive capability against any vital areas of the Soviet Union. They do recognize that the PRC's strategy of choice will be to play

off the superpowers against each other. Since the PRC will look toward promoting common interests with the United States against the Soviet Union, the Soviets will likely try to increase the attractiveness of detente and similar policies.

The Soviets admit to not understanding the Chinese (sometimes classifying China, along with Yugoslavia and Romania, as countries unsusceptible of Marxist analysis). Moscow claims to see "constructive forces" (never specified) within China whose tendency is to establish better relations between the countries, but the reality of the situation is that Mao must go before any improvement can occur. An ideal scenario from Moscow's point of view would be a prolonged (seven-eight years) succession crisis on Mao's death. Panelists familiar with Soviet thinking on the subject held that Soviets feel such a crisis would allow full scope for the development of any centrifugal forces that might appear in the Chinese polity.

Given persistent or major domestic instability in China, the Soviets might try to encourage some "dismemberment" of border areas such as Sinkiang. The failure of the heavy-handed way in which the Soviets have dealt with PRC heresy in the past, viz. Open appeals to irredentists in China's new nuclear capability, now forces Moscow to wait for some upheaval in China in order to take any initiative. The next likely period of such upheaval will be a succession crisis. Since this is expected imminently, the Soviets feel that time is running out for action. It can be expected that Moscow will make efforts to secure its western flank in anticipation of taking some sort of action with respect to China. Such action would probably not be in the form of a military operation against the PRC or one of its territories since that would more likely serve to unify a troubled China as did the border clashes in 1969.

Moscow's most likely efforts will be toward prolonging a succession crisis and simultaneously obstructing United States support for stabilizing forces in any fashion. Some panelists, however, warned against discounting a Soviet military move under the circumstances too readily. We should not try to impose a "bourgeois" outlook on the Soviets, it was argued. If Soviets leaders become sufficiently frustrated and see an opportunity passing, they may be quite prepared to think the unthinkable.

PRC-USSR Relations

In the many areas of contention between the Soviet Union and the People's Republic of China, one of the most symbolic is the border dispute and the panel gave some attention to this area of concern. The view was expressed that the level of military activity on the border since 1969 has actually been relatively low, notwithstanding the size of troop deployments there, and that neither the Soviets nor the Chinese has enough at stake in any of the border questions to want to undertake significant provocations. Although they may consider some low-level harrassment, the PRC would not want to trigger a nuclear response. The Soviets cannot afford to take overt action since at least three undesirable consequences would result for Soviet policymakers: such action would undo the Soviet's attempt to build up their image as a moderate in world affairs; it would further encourage other Asian nations to consider arming themselves with nuclear weapons; and, finally, it would irreparably breach relations.

There have been attempts at settlement of the border questions but the main sticking point, so far, has been the Soviet Union's refusal to acknowledge the unequal nature of existing treaties. Aside from specific details, three general barriers to settlement exist. There is the ideological factor which, in Marxist terms, links present boundaries to treaties imposed by reactionary governments in Russia on the Chinese; there is the recent history of enmity and suspicion over the border; and finally, and, most importantly, there is the abiding Chinese fear of encirclement by the Soviet Union.

Turning to other countries along the Chinese border, the question of whose influence is greatest on Kim Il-sung was next addressed. One panelist advised that the Soviets appear to have given Kim enough offensive weaponry to support 90 days of offensive action without resupply. The Chinese, for their part, have upgraded the quality of their military assistance to North Korea also. But Kim's quick-strike capability, if used, could lead to the sort of instability in East Asia from which only the Soviet Union stands to benefit.

The next subject, Taiwan's future, was discussed at considerable length and elicited, by far, the greatest diversity of opinion. Any capsule of the discussion must necessarily omit many of the details brought forth; therefore, only major points are presented here. There was a general consensus that, for a variety of reasons, no party to the Taiwan dispute was likely to take military action to resolve the issue. Also dismissed was the idea tht the PRC would turn to the Soviet Union for help in recovering the island.

China's approach to the Taiwan question is influenced by two somethat opposing considerations. Symbolically, the existence of a hostile government on Taiwan represents the kind of dismemberment that the PRC leader fears so greatly. On the other hand, in the strategic balance, the guarantors of Taiwan's independence are also the only effective counterpoise to Soviet expansionism in East Asia.

There was disagreement on the panel as to whether the PRC considered the US presence in Taiwan as important to balancing Soviet power as the US presence in Korea. The debate here centered on whether or not Taiwan's basic rights were necessary to maintaining a US naval presence in the Straits and the China Sea. Further, if that presence were eliminated, would the Soviet Navy move to fill a power vacuum on the Chinese shores.

Some felt that the Chinese may take the step of establishing a credible naval presence along their own coast. One forecast on the Taiwan situation was that since both the US and the PRC see the necessity of some sort of cooperation in Asia for the next decade or so, China would have to forego absorption of Taiwan for the next several years and the United States would have to seek some cosmetic accommodation on the issue.

Though the Taiwan issue will remain between the US and the PRC, there seems to be no real opportunity for the Soviets to capitalize on the issue as a way of improving their relations with the PRC or interrupting a tendency toward US-Chinese cooperation. Both these nations have in common the goals of keeping the Soviets out of East Asia, keeping Korea defused, and sustaining a strong Japan, as well as China itself, in order to counterbalance Soviet power.

Most panelists agreed that Japan is the key to Sino-Soviet relations. The Soviets are most worried about Japan in three specific areas: a growth of Japanese naval power; Japan's possible acquisition of nuclear weapons; and the establishment of closer ties between Peking and Tokyo. Indeed, an emerging understanding between Japan, the PRC, and the United States could pose either an insuperable obstacle or a major provocation to Soviet expansionist tendencies.

Two days of the discussions concluded with the exchange of viewpoints on the relative success of US and Soviet policies as a preamble to consideration of what options were available to manage the tripolar relationship between the US-USSR-PRC. Two alternative perceptions emerged on the present status of the global power balance. One was that the US had general lost power and influence in the areas on the Eurasian continental land mass margins that separate the Soviet Union and the United States. The Soviets have had a better grasp of the idea of the political utility of force and are even now building a navy to back up their ideas.

An alternative perception holds, generally, that the Soviets too have had significant reverses in their global policies and that the decline of US power vis-a-vis Soviet power was to be expected, and not necessarily unwelcome, since the United States would not undertake to carry out the sort of rigid alliance structures and mobilized socieities necessary to maintain superiority in all areas of possible conflict. More panelists than not, however, felt that the United States had been over-hasty in forcing de-colonization (except of Soviet colonies) without workable replacements for the governments involved and in building alliance structures which did not require other partners to assume a sufficient share of global responsibilities (e.g., European navies protecting their own supply lines).

A likely approach to a revised US global policy, one of whose main interests in checking Soviet expansionism, would be the establishment of regional power centers. In this regard, an economically strong and politically viable People's Republic of China is more in the US interest than a weak or fragmented one. Unexceptional a position though it may be, the present status of the Sino-Soviet relationship, tension with neither hostilities nor cooperation, best serves US interests. Toward this end, many panelists felt that we should be willing to supply the PRC with such assistance as would be required to maintain the Sino-Soviet status quo: agricultural equipment, consumer technology, capital investment, and even small arms or defensive anti-tank weapons if the situation warrants. According to one panelist, we should not even rule out the possible use of the People's Liberation Army as a surrogate for US land power in Asia.

Any assistance to the PRC from the United States would have to be a reflection of domestic political realities in both countries. No Chinese leader, for example, will want to be identified as the one who initiated the acceptance of American aid. In any event, we should keep our intentions and the limits of our policies as ambiguous to the Soviets as we can. As one panelist frequently put it, a worried Soviet is less a threat to do mischief than a secure Soviet.

No one seriously expects any formal alliance between the United States and the People's Republic; but both states have a number of long-term interests in common. These interests can be useful levers in executing US policy in Asia. Both countries have an interest in controlling Soviet expansion here, as elsewhere. Both countries therefore see the need for a China strong enough to counterbalance Soviet power. China will eventually require outside assistance if she is to

industrialize her agriculture and industry to any extent. It is in the US interest to provide limited assistance so as to maintain an alternative for China's cooperation with the Soviet Union.

As far as the tripolar relationship goes, US policy is most likely to be successful when concentrating on the Sino-American and Soviet-American sides of the triangle. Any attempt to influence Sino-Soviet relations directly would probably support Chinese factions most favorable to Sino-Soviet rapprochement.

THE SOVIET UNION AND THE SINO-AMERICAN RELATIONSHIP

Professor Joseph Schiebel

Relations between the Soviet Union and the People's Republic of China may be moving toward a critical state. At the XXV Congress of the CPSU, Brezhnev proclaimed that it was no longer enough to say that Maoist ideology and policy were incompatible with Marxist-Leninist teaching, but that "they are plainly hostile to it." This substantially revises the position the Soviet Union had taken on the Maoist "heresy" until then in the sense that Communist China is no longer to be treated as a temporarily errant fraternal socialist country, to be dealt with what restraints are prescribed for adversaries in that category, but justifies treatment as an out-and-out enemy nation. This redefinition provides the doctrinal and, more importantly, propaganda base for drastic and theoretically unlimited action against China. Whether such action is in fact anticipated or contemplated is, of course, another matter, but there are indications that the possibility of a serious confrontation must now be considered.

After the most recent party Congress, Brezhnev assumed the title of "Marshal of the Soviet Union." Before and after the Congress, Brezhnev's effort to reactivate the State Defense Council has been noted. And Dmitry Ustinov, having been elevated to full membership in the Politburo at the Congress, was later appointed to replace the late Marshal Grechko as Defense Minister.

There has been little public evaluation of the significance of the first two events, and Ustinov's appointment has generally been thought to bespeak a resurgence of the civilian elements in the Soviet leadership and a weakening of the military group. The view prevails that Soviet politics and policies remain unclear and unsettled.

Policy debates will continue even when a firm course has been entered upon, especially when its pursuit is conditioned on unpredictable responses from other countries, but an argument can be made that the Soviet leadership has arrived at a clear perception of the current international situation and has decided on a firm set of contingency actions to exercise the initiative in events anticipated in the near future. The basis for this hypothesis is an argument made in a book on the opening phases of wars widely distributed and discussed in the Soviet Union.[1] The authors, led by General of the Army S. P. Ivanov, claim to have deduced from an analysis of warfare since the 19th century in general and World War II in particular the general principle that wars are decided in the opening phase, in the sense that initial operations create the objective battlefield as well as larger political, strategic and morale conditions which make the eventual outcome of the war a foregone conclusion. In an historical review of how this dictum was applied to the opening phase of the German-Soviet War in 1941, the purpose of which was no doubt an oblique argument for a corresponding strategic posture for the immediate future rather than an elucidation of history, the authors conclude that the preparations Stalin made in anticipation of war were correct—with the one exception that they came too late to prevent the severity of the personnel and equipment losses incurred in an operation that conceded Hitler his tactical victories as a way of denying him his strategic objective: the elimination of the Soviet Union from the war.

What were these preparations? An enormous armed force was assembled along the border with the assumed enemy (but without clearly evident defensive or offensive deployment). Stalin took on

top military rank, and unity of command was established by centering all decisionmaking functions in the State Defense Committee (GOKO). Coupled with the practice of placing influential political leaders under military control by making them generals,[2] Stalin obtained the central control and chain of command needed to operate the Soviet Union in a period of extreme crisis.

The similarities between these apects of Soviet conduct in the first halves of 1941 and 1976 are obvious. Assuming that the admonition contained in the Ivanov compendium to shift essential preparations to the pre-war phase is being taken to heart, we may be seeing since the Twenty-Fifth Congress an effort by the Soviet leadership to create the unity and chain of command required for the Soviet Union to function effectively in an anticipated period of serious international crisis. But what international crises could reasonably be anticipated as possible? One immediate prospect is the impending death of Mao Tse-tung and the possibility—or desirability (from the Soviet point of view)—of internal turmoil arising from that event in China. As I will argue, the question of who, if anyone, dominates China strategically involves power factors and issues of such magnitude that the Soviet Union can not hope to play a significant role by the mere manipulation of a friendly political faction in the Peking succession struggle. The other possible crisis for the USSR involves a possible hardening of Western positions after the US elections perceived, not without justification, by the Soviet Union.

The two issues are, of course, connected and the Soviet Union may be staring at a renewed Cold War situation on its Western frontier at precisely the time when a major preoccupation in Asia is anticipated. The underlying assumption of the analysis which follows will be that the Soviet Union can live with the *status quo* of her strategic position vis-a-vis Europe for some time even if it means having to defer some current expectations of expanding her political influence there, but that, having lost the initiative in East Asia as a result of losing strategic access to Asia in the wake of the activation of US-PRC strategic cooperation, the Soviet Union must move to regain her ability to project her power to that battleground of global competition. Soviet policies toward Europe, the United States, and related areas are, then, in the first instance, functions of Soviet strategy toward China.

It is assumed that those principally responsible for the international strategies and policies of their respective countries have an accurate understanding of the main issues involved, and from this assumption it follows that the core meaning of their public statements and their actions reflect these issues and reaction to them. Decisions are not made on the basis of the lengthy and detailed scholarly analyses made of them usually long after the fact, although these obviously provide the eventual intensive reconstruction and interpretation that will meet the criteria of the professional historian. If all this is true, then the analysis and aims evident in current policy statements and actions of various national leaderships are proper sources for testing the hypothesis.

The general Chinese Communist view that the Soviet Union has aggressive or meddlesome designs on the People's Republic, and that Soviet pressure on China could be measurably reduced if the Soviet Union were vigorously confronted in Europe is too well known to be argued or documented here. There is, however, one instance where the perception of the problem in strategic terms, as well as the preferred direction of policy, have been made very explicit in what may be called an "international media event" staged by the Peking leadership. The visit of former President

Nixon to the People's Republic between 21 and 28 February 1976 was the kind of exercise in international communications that was designed to assure that no one missed the messages communicated or misunderstood their meaning.

The trip may have had all the varied purposes that have been ascribed to it, but it had one clear and unmistakable result, namely a Chinese redefinition or reassertion of the goals of the Shanghai Communique—the most important of which may not be those mentioned specifically in the document itself. No mention is made in the communique of any strategic cooperation between the two countries, although surely the principal result of the initial Nixon visit to Peking in 1972 had to be such a cooperation, both with respect to Communist China's contribution to the extrication of US forces from the Indochina War and the firming up of China's posture toward the Soviet Union by the United States.

The *New York Times* cautiously suggested that "Nixon's visit may (also) indicate certain irritation and disappointment with President Ford and Washington's failure to live up to the goals of the Shanghai Communique more fully."[3] Indeed, it had been Nixon's "toast" of 22 February that, judging from the attention given to it, appears to have contained the essence of what he had come to China to discuss, and that toast was mainly given over to a review of the Shanghai Communique, four years later. Since popular wisdom would insist that it is the so-called Taiwan issue to which progress in US-PRC relations is pegged, one would have expected attention to be focused on that problem in this context, but Nixon apparently felt that the circumstances required his comment on the Helsinki agreements instead, and controversy arose over precisely what Nixon meant. A survey of the Chinese Communist Press would in fact suggest that there is far less concern over the Taiwan issue than there is about the Helsinki agreements and other "failures" of the American Government to uphold its end of the "bargain" with the PRC.[4]

What precisely is it that the US has not lived up to in the Chinese view? First, the preoccupation with the criticism of the American participation in Helsinki and other measures designed to stabilize East-West relations in Western Europe bespeaks, because of its intensity, a severe disappointment for a government that was led to believe, or led itself to believe, that the Sino-American rapprochement created a strategic partnership for the containment of Soviet power. Second, the persistent denunciations of US failure to counter the Soviet takeover in Angola are presented as quite explicit irritation with American failure to resist the expansion of Soviet power. Thirdly, a nation which almost heroically refused to cooperate significantly with the Soviet Union in the Indochina War could be forgiven a profound disappointment at the American collapse of its post-settlement political presence in Vietnam after it had helped make the American military withdrawal a possibility. Although that last theme does not generally appear openly, it certainly compels inclusion in a roster of major points of dissatisfaction the PRC would want to bring to the attention of the American administration. Shorn of verbiage, these expressions indicate that the Chinese Communists are, and have reason to be, displeased that their rearrangement of political relations with the United States did not produce the intensification of US-Soviet conflict which strategic and political necessity compelled them to seek. (I don't argue that such intensification of conflict should have resulted, only that Peking is unhappy that it did not occur.)

To complete the point, how was the Nixon visit the appropriate vehicle for conveying the message? To begin with, the former President is obviously the principal symbol of the original

terms of the relationship to which the Chinese Communists evidently want to return. In addition, it would be as difficult to miss his connection with the issue as it would be to prove any connection between him and his successor in this matter.[5] What is important here is to stress the degree of Chinese initiative, not the degree of any prior administration involvement. Peking went to considerable lengths in this, and the earlier visit of the Eisenhowers, to demonstrate its sole responsibility for establishing this "institution" for conveying its messages—presumably for the principal reason of indicating the urgency of the situation by assuring attention as well as credibility.

The significance of the "communication" is also underscored by its timing and connection with other events. The first open attack in the Chinese Communist press on Teng Hsiao-ping occurred on the eve of Nixon's departure for Peking. His successor Hua Kuo-feng's first public appearance took place during the Nixon visit. Teng presumably is the principal opponent of the policy of strategic cooperation with the United States, at least under its current terms. The Soviet Communist Party Congress opened on 24 February and provided a ready audience of listeners no doubt immensely interested in the news from Peking. Taken together, Peking's dissatisfaction with the United States can be subsumed under one term: Soviet-American detente. On 2 March 1976, President Ford announced the replacement of the term detente in favor of "peace through strength."[6]

Returning to the original proposition, then, the foregoing indicates that the current leadership both in Moscow and in Peking works under the assumption that a serious deterioration in the relationship between their two nations may lead to a confrontation that will be qualitatively different from the conflicts of the past, a confrontation requiring internal stability and, above all, a secure international position. The basic motivations, however, are not symmetrical. Peking's advantage would lie in avoiding any confrontation; hence its interest in lining up US support and in wanting to identify with what it perceives to be American designs for creating an international environment that would put the Soviet Union on the defensive. Moscow, on the other hand, could stand to lose from a perpetuation of the *status quo* under which Chinese Communist independence is solidified and the industrial nations consolidate their relations among themselves and with other non-Communist countries. Moscow, then, would appear to be acting less on the basis of a favorable prognosis than from a sense of urgency and under pressure to take some risks.

The underlying perspective for Moscow, in broad outlines, would appear to be this: The US-PRC rapprochement and the termination of US military involvement in Vietnam eliminated direct strategic access to Asia for the Soviet Union and hardened the Sino-Soviet front. By intensifying the movement toward detente with the United States and the "normalization" of political relations in Central Europe, the Soviet Union sought to reduce the US strategic pressure and the instability in Europe to gain freedom from multi-confrontational involvements so that it could concentrate its efforts on regaining the initiative in East Asia. The liquidation of the American political presence in Indochina, meanwhile, had the effect of allowing the Soviet Union to open a second front against the PRC there. This would have restored the advantage to the Soviet Union, except that in Asia, the United States showed little inclination to follow up its exit from Vietnam with relinquishing its other Asian bases and commitments. In Europe, positive moves are being made to create a degree of political coordination and military refurbishment of the Atlantic alliance that could diminish confidence in Moscow that all will be quiet on the Soviet Union's

Western front while she is involved in a major crisis in Asia. If allowed to continue, these developments will lead to a situation where both the USSR and the PRC face simultaneous political and military problems on at least two fronts, with the United States and her allies gradually less vulnerable to similar problems and increasingly in a position to manipulate the balance and control events.

The nexus between the Asian strategic confrontation on the one hand, and political and military developments in Western Europe on the other, is thus crucial for both Communist powers. An instructive example is the Guy Mery episode and the way both Moscow and Peking handled it. In early June, General Guy Mery, Chief of Staff of the French Armed Forces, published an article in *Defence Nationale* outlining the notion that French national security was best served through a joint defense of a Europe to be considered a single security zone, with the Warsaw Pact forces its putative enemy. In playing up the fact that the article was published on the eve of General Mery's official visit to the PRC, Radio Moscow surmised that it was the Chinese who put him up to denouncing detente. "Mery's visit," it was charged, "is evidence of a distinctive tendency in the foreign policy of the Maoists . . . to throw together an anti-Soviet alliance of the enemies of international detente . . . alleging that the gigantic battlefield will be the European continent as . . . the threat of invasion by the Soviet Union hangs over Western Europe."[7] This outburst followed several previous denunciations of the General's statements as amounting to placing the French armed forces in the battleline against the Socialist countries. The Chinese Communists, on the other hand, severely scored the Soviet tirades against the new French defense posture evident in the Mery statement and correctly identified it as the proposition that the defense of France should cover the entire area where her security is threatened and should be subsumed under a joint defense setup for Europe.[8]

The fact that the new doctrine, as well as its explicit Chinese connection, were enunciated by a French official is both more troublesome and ominous to the Soviet leadership than similar expressions from United States or other European officials would have been, for it was France that had been for some time the driving wedge in Soviet moves toward bilateral arrangements with various West European nations as a way of undermining and reversing the unifying trends in the Atlantic community. This presumably prevented the Soviets from openly taking on the real author of the new French defense and strategic posture. General Mery's statement was, after all, only a reflection of the new French doctrine systematically and authoritatively enunciated by President Giscard D'Estaing himself in a 1 June 1976 address to the Institute for Advanced Studies in National Defense in Paris in the presence of the Premier, Cabinet Ministers, the Chief of Staff of the Armed Forces, the Chiefs of Staff, the Ministerial Delegate for Armaments and General Officers.[9] It was, of course, the Chief of Staff's visit to Peking that underscored the strategic role China is assigned in French thinking.

In his speech, the French President announced a five-year program for reorganizing and building up the French military forces, based on an "appreciably increased" defense budget, suggested that internal security and world and regional stability were national defense goals beyond the mere maintenance of a conventional war-making capacity, declared himself opposed to sole (or pure) reliance on strategic deterrence, maintaining that " diversity in defense means reinforces the credibility of deterrence," and concluded that since there can be only one zone of defense, there "must be only one military system in this zone."

The Soviet leadership can derive little comfort from explaining this latest French strategic reappraisal as yet another capricious move to go its own way, for in its essential points, it substantially matches official thought on the matter of Europe's political and military relationship to the Soviet Union elsewhere in Europe and especially in the United States. There may be some validity to the view that, despite official rhetoric, the United States has, in the past, had no real interest in European political unity beyond a certain point and preferred the role of primary responsibility for organizing and guaranteeing the common defense—and that the European states were in fact content with that state of affairs. In recent years, however, the United States, if anything, pushed hard in the other direction (references recur frequently in former President Nixon's official reports on US foreign policy from 1970 to 1973 to ways of presenting European governments with various pressures to compel them to seek greater coordination and assume a greater share of responsibility for joint defense). Certainly Secretary of State Kissinger's London speech of 25 June strongly conveys this interest in a politically and militarily coordinated and revitalized Europe as a way of dealing more effectively with the Soviet Union.[10] On the issue of unity, the Secretary insisted that "European unity is crucial for Europe, for the West, and for the rest of the world. We strongly support and encourage it." On the question of shared responsibility, he maintained that "it is not healthy for the United States to be the only center of initiative and leadership in the democratic world . . . American policy can only gain by having a strong partner of parallel moral purpose." With respect to relations with the Soviet Union, Kissinger maintained that "we should not allow the Soviet Union to apply detente selectively within the alliance. Competition among us in our diplomatic or economic policies toward the East risks dissipating Western advantages and opening up Soviet opportunities. We must resist division and maintain the closest coordination."

There is, of course, no explicit tie mentioned to the PRC but the global context in which Kissinger placed his expectations for Europe makes the connection evident. The trend, at any rate, in Western Europe must make it apparent to the Soviet leadership that it cannot necessarily count on a continuation of what as recently as at the Twenty-Fifth Party Congress was hailed as a favorable shift in the "correlation of forces" worldwide and in Europe, and that some hard choices must be made.

It appears to me that the Soviet Union can move in three broad areas to try to retain the momentum of recent successes and to neutralize Western strategic, political and economic power as it girds up for crisis in East Asia: The extension of popular fronts in Western Europe, the maneuvering of the United States into an ambiguous position in Southern Africa, and the expansion of strategic weapons capacity.

In Western Europe, the Soviet Union needs a relationship that will, on the one hand, stabilize and secure its side of the dividing line and, on the other, destabilize the political and military forces on the other side. The former purpose is served by Helsinki and other "settlements" intended to impose on the West an obligation to respect the "realities" of Soviet hegemony in Eastern Europe. The latter is served by the various ongoing popular front efforts intended to inhibit an effective and consistent West European policy toward the Soviet Union and a substantial role of the United States in formulating it. It is also served by the maintenance of a military balance, believed by some analysts to portend the acquisition of a conventional war-winning capacity in Europe by the Soviet Union, intended to place the West under the kind of pressure that makes the security of Western Europe, rather than that of the Soviet Union, its principal preoccupation.[11]

Regarding the conventional war-winning capacity that is thought to be impending, it is not clear whether the Soviet Union has it, or will retain it long, but the existence of the current military force buildup has had two effects. Under recent and current international conditions, this force is not going to be set in motion for a direct attack on Western Europe, but it no doubt limits Western freedom of action and it has produced a kind of containment of a large portion of US military power, removing it from the global context by confining it to exclusively European security concerns. In some ways, Europe may be said to have assumed a hostage role to the projections of Soviet power into the space from the Persian Gulf to West Africa. In this sense it has been useful to the Soviet Union. On the other hand, the systematic, perhaps even exaggerated exposés of the increase in Warsaw Pact force levels have no doubt had an impact on the mobilization of sentiment and policy for a stronger West European defense posture and establishment against the Soviet Union.

At this point, there is an open question about whether the West will further attempt to reverse the relationship by accepting the fact of Soviet intrusion into what was understood to be its "natural sphere" of strategic hegemony, as the phrase goes, in Angola as a way of laying a basis for certain kinds of "intrusions" into the Soviet security margin in Eastern Europe.

At any rate, given both Soviet doubts about Western intentions to continue securing the USSR's Western front and the need to put the United States on the defensive to minimize the potential strategic role it can play in the intensifying struggle for strategic control of China, the reasons for Moscow's strong interest in the movement toward popular fronts in Europe become clear. Equally evident is Peking's opposition, demonstrated *ad nauseam*, to this movement and to forces in the West favoring accommodating to it.

In this context, the continuous Sino-Soviet propaganda war in which the Chinese accuse the Soviet Union of imperialist designs on Western Europe and counsel the West (and East) Europeans to resist them, while the Soviets accuse Peking of sabotaging the spread of the forces of socialism and peace does, despite the hyperbole, reflect a real issue and a real clash of strategic interests. This particular set of recriminations has really gone quite far. The Chinese have long been attributing to the Soviet leadership the worst motivations of both imperialism and fascism in their drive for world hegemony; recently the Soviet Union tried to trump that with the publication of Fedor Burlatsky's book on Mao Tse-tung which contains the charge that in the cultural revolution, between 1965 and 1969, about 25 million people were annihilated. Prominent reviews of the book, aimed at Western consumption seek to spread the notion that Mao works on the basis of a perceived strategic necessity of a worldwide bloodbath, and that those who want to arm the West against the Soviet Union are only playing Mao's grizzly game of paving the road to Chinese world power with the mutual destruction of the Soviet Union and the United States.[12] There is no accounting for taste in propaganda; the point here is simply that what the public thinks about them in the West has become important to the two Communist antagonists.

Objections will arise to terming the reorientation of the political tactics of the Western European Communist parties manifestations of a popular front, and of tying it to Soviet strategic interests. After all, Eurocommunism is a new term and may just possibly mean that the European CPs, once in power, may come to define their political visions in European terms and try to minimize Soviet control over them. Alternately, some comfort is sought in the old notion that, regardless of

their present intentions, political and economic realities will transform them into Titoists once they have been in power for a while.

To begin with, the Soviet Union has given no indications that it views the Communist political resurgence in Western Europe as an instant vehicle for seizing power there. On the contrary, what official statements, political realism and strategic necessity compel is the acquisition, through these parties, of sufficient influence on the political decisionmaking processes in Western Europe to produce foreign policies generally supportive of, rather than opposed to, Soviet international interests.

Further, the Soviet Union is not exactly a novice at games to obscure its direct interest in benefitting from support to natural and indigenous processes, and the language employed and sentiments expressed in the emergence of Eurocommunism are not substantially different, for instance, from those attending the birth of polycentrism out of the dissolution of the Comintern back in 1943, with the head of the Italian Communist Party, then as now, the principal spokesman and with the tacit, but real, approval of the Soviet leadership. It is best not to dwell on other "analogies" such as the relationship of the big push to popular fronts in Europe and Asia in the mid-1930s to the Soviet Union's preparation for war, or the crucial role intended for France as a device to divide and weaken Europe.

The process of defining the new role of the West European Communist parties and their relationship to Moscow has its roots in the debate of 1974 over the so-called Zarodov doctrine and culminated in the East Berlin "summit" of 28-30 June 1976. From the beginning, the basic issue was whether each party should make and respond to political opportunities to seize power and rule alone, or whether they should limit themselves to gaining a participatory role in bourgeois governments through which they might exercise what influence political reality permitted. The question was not whether the Soviet Union should have a direct and unconcealed leading role in these efforts; the Soviet line from the beginning was that these were indigenous developments and thus not to be resisted by the West merely because they objectively benefitted the Soviet Union. Now the conclusion is drawn that the Soviet Union backed down to the demands of West and East European parties at the Berlin meeting. Backed down to what demands? There was something of a semantic compromise. Neither "proletarian internationalism" nor "independent national trends" were given official blessing, but "international cooperation of equal and independent parties" was agreed upon. Of course, prominent party chiefs demanded national independence and freedom, but freedom to do what? As Berlinguer put it, "to see solutions of a new type in the transformation of society in the socialist direction." (For socialist read communist, since the fact that socialist governments already exist in much of Europe would make that enterprise redundant.) Georges Marchais wants a "socialism in French colors" to create a democratic socialism of workers.[13] No heresy there; the Soviet Union has been claiming for decades that it was a democratic workers' socialism. TASS quoted Berlinguer more appropriately to have said that the "Communist Party's main line is . . . the establishment of a wide alliance of democratic forces and participation of the Communist party in the government."[14] That fits the popular front line of old. Democratic forces in this context are progressive forces, and progressive forces by definition exclude those who work against the interests of the Soviet Union.

The phraseology serves the purpose of inspiring the left, of trivializing the impact of CP's, and of obscuring the involvement and interests of the Soviet Union. There are no doubt many in the Western Communist parties who want the proclaimed freedom from Moscow to set up their own national brands of socialism, and the potential for a longer term corrosive effect on Soviet control over these parties must not be minimized. These parties, however, are not the loose agglomerations associated with the term party in the West, but fairly rigidly managed organizations. Both the parties and Moscow do retain the means to discipline deviants or to change tactics and slogans.

Eurocommunism has other possibilities, but the intent here is not to exhaust them, merely to indicate one area in which the Soviet Union can maneuver to gain the security of her Western frontier in order to deal decisively with the China problem. The Soviets may be attempting to capitalize on opportunities to put Western Europe on the defense; I am inclined to think that, in view of the unmistakable shifts in opinion as well as strategy on both sides of the Atlantic, they are trying to reverse an unwelcome trend. In fact, at least two important recent conferences in the Soviet Union have reflected concerns that a search in the United States for new strategic concepts and the open debate on detente may bring a tougher American foreign-military policy, one conference going so far as to advocate that any new military doctrinal and strategic concepts be limited by agreements.[15]

A second potential area in which the Soviet Union has a short-term capacity for limiting American strategic freedom of action has arisen out of the conditions created by the establishment of a Soviet presence in Angola. The Soviet Union there appears to have obtained a capacity to judiciously manage conflict situations in other areas of Southern Africa which may confront the United States with extremely ambiguous and difficult problems. Non-involvement on behalf of established governments facing intensifying "liberation" struggles risks serious strategic losses, geographic as well as mineral. Involvement on their side, on the other hand, would place the US on a very slippery slope toward alienating a substantial number of African and other Third World countries and becoming isolated from a considerable number of allies. In the end, significant involvement, even if desirable or unavoidable, may be impossible on domestic grounds, especially since the unwillingness to support a policy of backing "white" governments against black liberators, regardless of the political complexion of the latter, will not be confined to America's black community. A solution involving a partial liquidation of white rule in exchange for African support may be worked out in time, especially since the Soviet Union itself has to calibrate its pressures carefully to avoid having to make its own debilitating direct commitment, but the Soviets, at any rate, appear to have occupied some very useful strategic high ground in anticipation of coming confrontations.

A third approach for the Soviet Union for limiting the political effectiveness of American strategic power is the acquisition of additional nuclear deterrent capacity. I mean by that a capacity not only to prevent direct strikes on the Soviet Union by the simple deterrent of mutual assured destruction but to effectively restrain the United States from major non-nuclear initiatives by the complex deterrent of an initial-exchange national survivability coupled to surviving second and third strike weapons. If T.K. Jones is correct and the nuclear balance moves in current directions, "by 1977, after a Soviet-initiated counterforce strike against the United States to which the United States responded with a counterforce strike, the Soviet Union would have remaining forces sufficient to destroy Chinese and European NATO nuclear capability, attack US population

and conventional military targets, and still have remaining force throw-weight in excess of that of the United States. And after 1977 the Soviet advantage after the assumed attack mounts rapidly."[16] What any American strategic cooperation would be worth to the Chinese Communists or, for that matter, to anyone else under such circumstances need not be spelled out. It is clear that there has been enormous stress laid in the Soviet Union on a program of nuclear arms acquisition combined with a civil defense "survivability" effort[17] which may bespeak an intention to acquire a nuclear war-winning capacity, a capacity presumably not to be used to incinerate the globe, but to neutralize much of the power of the non-Communist world.

A US-PRC strategic partnership, in terms of existing nuclear establishments, makes a certain amount of sense. To begin with, Communist China evidently has foregone the development of delivery systems that would make her a theoretical direct nuclear threat against the United States.[18] In addition, the PRC inventory aimed at the Soviet Union is magnified in value when the Soviet leadership has to calculate the possibility that it is covered by the American nuclear umbrella. For the Soviet Union, at any rate, the best remedy would seem to be to concentrate on neutralizing the American arsenal.

Assuming that 1977 brings to the Soviet Union the strategic nuclear superiority projected for it, the advantage may be evanescent, for technological breakthroughs and a new generation of weapons systems (defensive and otherwise) may well in the end reduce the Soviet buildup of the past decade to little more than a costly and largely unilateral squandering of enormous resources on obsolete weapons. In that event, early 1977 may well offer the Soviet Union the only strategic window in a long time for decisive action on the China issue. In the end, the strategic struggle is not fought in the air, although that space remains a key instrument; the real game is still played on the ground to gain political mastery of geostrategic space.

Assuming then that the Soviet Union is ready and may be compelled to act to restore her control over the Chinese Communist leadership, what can be done?

In the first instance, the USSR will have to demonstrate massive power in a big way. This is going to be neither a palace revolution nor a glorious short war for them, but an extremely tough confrontation that cannot be limited to the low-risk level that has rendered previous Soviet "interventions" ineffective, nor can it be pursued with such abandon that it will lead to all-out war. The whole problem goes considerably deeper than the mere replacement of one ruling clique with another more friendly. Whether or not a contending group in China decides in favor of returning to cooperation with the Soviet Union will not depend on the whims or idiosyncracies of a few individuals, but on complex calculations of the national interest and on powerful political forces. The task for the Soviet Union will be to apply external pressure not to a military conquest of China, but to an operation that must make the Soviet Union the deciding political factor inside China.

Given the sheer magnitude of the problem, the Soviet Union will not succeed with commando raids or political agents; instead a massive power presence must be credibly demonstrated—not to give the Chinese Communists a choice, but to make sure there is no alternative to going back to Moscow.

Secondly, it will be in the Soviet Union's interest to have a prolonged period of turmoil during which the basic conditions and forces opposed to dependence on Moscow can be eliminated or altered. When a leading and responsible Soviet China specialist told this author that the death of Mao would be followed by about seven years of internal disorder, his prognosis was probably less a prediction than an expression of hope.

Finally, and this goes to the root of the problem, no Chinese leadership, no matter how pro-Soviet it professes to be, can long be relied upon to resist the temptations and indeed compulsion to pursue the independent course China's geostrategic size justifies. One necessary step in any Soviet program to reassert its claim to strategic mastery over China will be to reduce the country in size. Stalin had attempted to guarantee China's second-rate status by limiting the amount of capital investment; Khrushchev benefitted from the failure of the go-it-alone campaigns. But Brezhnev cannot, in the face of the industrial powers having ended their isolation of China, rely on the perpetual industrial pauperism of that country. At the height of the Soviet encirclement campaign against the Chinese Communists in 1969, Comrade Wang Ming gave a hint of long-range Soviet thinking by challenging any claims China may have to sovereignty over Manchuria, thereby indicating that one part of the solution would be an independent Manchurian Peoples Republic—as independent, say, as the Peoples Republic of Mongolia. More recently, a TASS report on ex-PRC General Zunum Taipov conveyed the two important ideas that the Soviets continue to refer to Sinkiang as East Turkestan, and that a Sinkiang national-liberation movement existed,[19] confirming that the idea of detaching Sinkiang from the PRC is still alive and well in the Soviet Union.

Manchuria is what the Soviet Union must have to be able to project its power directly into East Asia. Its loss, combined with the loss of Sinkiang, might be sufficient to lessen the strategic weight and significance of China to a point where it might matter a good deal less than it does today whose side she is on.

The foregoing the Soviet Union can, and must do to regain its influence in China and Asia, but it can do so only if the United States is either indifferent, incapable of acting, or hostile to the Chinese Communists. The first is unlikely, the last a thing of the past, which leaves the Soviet Union with the task of limiting the ability of the United States to interfere in ways suggested in this analysis and in other ways.

To summarize, the Soviet Union cannot put off a confrontation with China after Mao dies because a similar opportunity to reestablish strategic hegemony over China may not recur for some time, and because the strategic balance may be as favorable to the Soviet Union in late 1976/early 1977 as it is likely to get for some time to come.

The political forces in Communist China have powerful reasons to resist Soviet encroachment, and few reasons to consider returning to a "normal" relationship with the Russians. Even among circles friendly to the Soviet Union, there must be awareness that the USSR can have no interest in helping China to become a superpower, and may think it necessary to reduce Chinese power to a level even lower than at present. Chinese resistance to the Soviet Union will require the support of a superpower—or its equivalent in other allies, and for this reason, the PRC will remain strategically dependent on the United States in any confrontation.

The USSR, on the other hand, cannot move with the forces required to end China's "rebellion" from the socialist camp unless the United States has been placed on the defensive in Europe (or Africa and the Middle East)—and at a disadvantage in the strategic balance. Whether a Sino-Soviet confrontation actually occurs, then, may largely depend on what the United States does under the circumstances.

FOOTNOTES

[1] S.P. Ivanov, ed., *Nachal'nyi period voiny*, Moscow, Publishing House of the Ministry of Defense, 1974. See especially Introduction and Chapters 8 and 11.

[2] The first current analogy to this move can be seen in the successive promotions of Dmitry Ustinov, Minister of Armaments Production since 1941 and Defense Minister since the death of Marshal Grechko, from Colonel-General to Marshal. This move places the Soviet defense complex under the command of an individual with "symbiotic" competence and status in the industrial, administrative, party and military bureaucracies of the Soviet Union. A second analogy is the *promotion* (so termed in Krasnaia Zvezda, 11 September 1976) to five-star military rank of the Minister of Internal Affairs and the Chairman of the KGB, thus placing the heads of the police and security apparatus within an emerging supreme "command" center.

[3] *The New York Times*, 22 February 1976.

[4] Indications abound that the Chinese Communist leadership is as insistent on a statement of principle regarding its claims to rule in Taiwan as it is prepared to remain patient about implementing the transfer. Since any liquidation of the Government of the Republic of China on Taiwan and the transfer of the island under PRC jurisdiction is unlikely to proceed as smoothly as the Western proponents of this policy appear to believe, the attempt would more likely create precisely the kind of political instability or military confrontation the Chinese Communist leadership has an interest in avoiding if it is to remain in an effective position vis-a-vis the USSR. Under these circumstances, it is not unlikely that at least one school within the Peking establishment would hold it unwise to provoke a Taiwan crisis at this time.

[5] There is no shortage of speculation alleging prior collusion between the former President and the current administration on the trip. Suffice it to say that it was officially acknowledged that the President and the Secretary of State received and read written reports from Nixon on the China trip. *Time* magazine thinks that Nixon indicated that Mao invited him to demonstrate China's desire that the US remain in Asia as a counter to the USSR *New York Times*, 22 March 1976.

[6] I have no interest in disputing those who tie the event to voter dissatisfaction in the United States or Soviet conduct on Angola; the fact remains that the Chinese Communists have reason to be as satisfied with the implications of the new term as they were irritated with what the old one meant for them.

[7] FBIS, *Daily Report*, 18 June 1976.

[8] Peoples Daily, FBIS, *Daily Report, China,* 17 June 1976.

[9] Ambassade de France, Service de Press et d'Information, "France's Defense Policy, Address by Valery Giscard D'Estaing." 76/73

[10] *Washington Post,* 26 June 1976, pp. A1 and A9.

[11] Cf. John M. Collins and John S. Chwat, *The United States/Soviet Military Balance* (Library of Congress Congressional Research Service Study), Washington, GPO, 1976.

[12] Cf. *TASS,* 11 January 1976.

[13] *Washington Post,* 1 July 1976, p. A23.

[14] *TASS,* 23 June 1976.

[15] *Soviet World Outlook,* University of Miami Center for Advanced International Studies, vol. 1, No. 5 (15 May 1976), pp. 1, 5 and 6.

[16] Paul H. Nitze, "Assuring Strategic Stability in an Era of Detente" *Foreign Affairs,* vol. 54, No. 2 (January 1976), p. 226.

[17] Cf. Leon Goure, *War Survival in Soviet Strategy: USSR Civil Defense,* (University of Miami Center for Advanced International Studies), 1976.

[18] For Lt.Gen. Daniel Graham's explanation, see *New York Times,* 25 February 1976.

[19] *TASS,* 22 June 1976.

TOWARD A NEW EQUILIBRIUM?

Tripolar Politics, 1964-1976

Dr. Richard C. Thornton

The past twelve years begin to take on the aspect of an historical watershed, separating the earlier structure of international relations which emerged in the aftermath of World War II from a new equilibrium which has not yet evolved but whose main outlines now seem dimly visible. The questions are: what were the primary catalytic factors forcing change in this period? How did the United States, the Soviet Union and the People's Republic of China react to the crises and opportunities each faced during these years? What is the likely shape of the future equilibrium?

The protracted conflict in Southeast Asia must occupy a prominent place in any attempt to comprehend the underlying reasons accounting for change. The Vietnam vortex involved each one of the powers in major decisions still imperfectly understood. This essay is an attempt to assess the strategic impact of that conflict on the power and position of the United States, the Soviet Union, and the People's Republic in an effort to identify with greater clarity the general outline of the emerging strategic balance.

Year of Decisions, 1964-1965

Lyndon B. Johnson, upon assuming office after the assassination of President John F. Kennedy, sought to refrain from taking any overt action with United States' forces in Southeast Asia which might further intensify the conflict there. By early 1964, however, it was clear that the combined North Vietnamese-Vietcong (NVA/VC) assault, begun the previous December, would topple the South Vietnamese Government if no countermeasures were taken. The increased intensity of the assault gradually but unmistakably was tipping the balance against a crumbling South Vietnamese Army progressively incapable of matching the communist forces in the field and a leadership still in disarray following the assassination of President Ngo Dinh Diem the previous November.

The threat of defeat prompted President Johnson to lend immediate support to South Vietnam, but, initially, assistance was covert in the hope that it would not have an adverse affect upon his own election chances the coming November. The Tonkin Gulf incidents of 2 and 4 August, in which North Vietnamese naval craft fired cannon and torpedoes at two United States' destroyers, provided him with the opportunity to act decisively, openly and with full Congressional support before the elections.[1] Clashes between North and South Vietnamese naval forces had occurred with increasing frequency as the NVA/VC offensive gained momentum in 1964. It was highly probable that United States' naval forces providing covert support for South Vietnamese commando raids would come into contact and even conflict with North Vietnamese forces.

Whatever the cause of the "incidents," their occurrence permitted President Johnson to justify extending vitally needed American assistance to South Vietnam, whose forces were on the verge of total defeat. In less than a week, the United States has initiated a massive deployment of American power into Southeast Asia. On 6 August, Secretary of Defense McNamara announced

that reinforcements were already moving into the area and, two days later, Congress overwhelmingly passed the Tonkin Gulf Resolution empowering the President to employ "all necessary measures . . . to prevent further aggression."[2] The alacrity with which the United States acted suggested strongly that alternative means of dealing with the problem of supporting South Vietnam had been under deliberation for some time prior to the occurrence of the incidents.

The fundamental assumption underlying President Johnson's decision to deepen American involvement in Southeast Asia centered around the increasingly antagonistic relations between the Soviet Union and the People's Republic of China, but was essentially tactical. It was believed that the conflict between the two powers would enable the United States to take short-term, but decisive action in Southeast Asia. Specifically, Sino-Soviet conflict was presumed to preclude Soviet access to Vietnam across Chinese territory. Soviet access—provided the decision were made to supply war materiel to Vietnam—would necessarily be by sea, a risky alternative, at best, given United States' dominance of the sea lanes and, at worst, could lead to the kind of conflict which the two powers experienced less than two years earlier in the Caribbean. If the assumption held true, the United States would be in position to control the level of conflict in Southeast Asia and accomplish the objective of forestalling South Vietnam's collapse with a relatively short span of time. It was for this reason that the Administration chose neither to mobilize American military power nor marshal domestic support for its position.

Meanwhile in Moscow the Tonkin Gulf incident and the immediate American response precipitated a crisis in the Soviet leadership, which in two and a half months culminated in Khrushchev's removal from power. Soviet long-term strategy in Asia centered around the effort to reestablish Sino-Soviet unity. From mid-1957 onward, the Soviets had sought to generate various kinds of pressures upon the Chinese leadership to induce a change in Chinese strategy with scant success.[3] Economically, the Soviets at first restricted extension of credits to the Chinese from mid-1957 and three years later curtailed credits entirely. Diplomatically, they either declined to support the Chinese, as in the Taiwan Straits crisis of 1958, or actually supported China's opponents, as in the Sino-Indian border conflict of 1962. Ideologically, too, the Soviets sought to generate pressure on the Chinese by reviving the long-buried concept of the Asiatic Mode of Production. Soviet ideologists argued that Chinese society was threatened with a great "historical zigzag" which would preclude the achievement of communism—unless current policies were reversed. As part of this many-faceted policy of pressure, the Soviets signed an agreement in 1957 to supply China with nuclear weapons technology, then broke it unilaterally two years later.

Finally, in the geopolitical arena, the Russians moved to support North Vietnamese designs for the forceful reunification of Vietnam. In a very real sense, Soviet support for North Vietnam produced the conditions which led to American entanglement in Southeast Asia.[4] Thus while the Tonkin Gulf incident and the rapidity of the American response may have taken the Soviet leaders by surprise, American involvement in Southeast Asia was by no means unanticipated. Khrushchev probably assumed that President Johnson would not attempt to make a major move in Southeast Asia until after the November elections still some three months away. Eventually, of course, growing American involvement in the region would serve the larger objective of increasing pressure on the Chinese to repudiate Mao's strategy of independent development. Khrushchev's immediate concern was to avoid direct confrontation with the United States, yet the beginning of heavy American involvement in Vietnam created a dilemma for him. To do nothing and permit the

United States to contain and localize the conflict would not further the strategic objective of intensifying pressure for Sino-Soviet rapprochement. On the other hand, if the Soviet leadership decided to maintain the battlefield capability of Vietnamese forces, the issue of logistics became paramount.

If the decision were made to match the United States' buildup, it would be necessary to gain land access to North Vietnam through China, the only invulnerable line of communication. There was no question of providing long-term military aid to Hanoi exclusively by sea. Yet Khrushchev's public and personal identification with an anti-Chinese policy made it extremely unlikely that he could secure Mao's cooperation. Indeed, Mao had repeatedly impugned Khruschev as the wrecker of the international socialist movement, suggesting that only his removal would facilitate the normalization of relations.

The question which Khrushchev and his colleagues addressed in the weeks following the Tonkin Gulf events was: how should the Soviet Union respond to the American decision to move rapidly in support of South Vietnam? Although data is sparse, the existence of a policy crisis over which the leadership split seems undeniable. In retrospect, the crisis revolved around the question of whether or not to accept the challenge posed by the United States' move. Khrushchev adopted the minority position in proposing that the Soviet Union decline action at this time. His colleagues, however, especially Brezhnev and Kosygin, were in the majority and decided to accept the challenge. The result was Khrushchev's ouster.

A decision to accept the challenge would necessarily entail, among other things, major upward revision of the defense budget. Khrushchev, for reasons which are still unclear, expressed the view that defense expenditures had already reached "a suitable level," thus opposing any increase in defense allocation.[5] In other words, in the context of the policy debate over Vietnam, Khrushchev decided that conditions were inappropriate for matching the American move. His decision was probably based on the belief that the Chinese would not grant land access and any extensive Soviet commitment to North Vietnam would only lead to a confrontation between the Soviet Union and the United States.

The coalescence of Brezhnev's and Kosygin's opposition is clear enough in the weeks prior to Khrushchev's fall, but not specifically over the issue of Vietnam. Differences between them and Khrushchev were most clearly expressed over the issue of Germany.[6] Earlier, Khrushchev had attempted to improve relations with West Germany. His view was that "the Germans themselves must decide" the German question. The Chinese immediately began criticism of this position declaring that Khrushchev was preparing to "sell out" East Germany in making a deal with the West. On October 6, a week before Khrushchev fell, Brezhnev and Kosygin visited the German Democratic Republic where both attempted to refute this criticism, at the same time setting themselves apart from Khrushchev as well. Brezhnev, for example, declared in his speech that "only short-sighted politicians . . . can console themselves with the hope of making some kind of decision or deal behind the back of the GDR . . ."

The upshot of the Kremlin policy crisis was Khrushchev's removal from the Politburo and several changes in Soviet strategy and policy. In short, the new Soviet leadership decided to accept the challenge posed by the United States and embark upon an accelerated military spending

program designed to equal or surpass American arms in virtually all categories. In the wake of the leadership change, Brezhnev and Kosygin marshalled support for several key decisions. Internally, in addition to a general budget increase, it was determined to accelerate the production, testing, and deployment of intercontinental ballistic missiles to reduce the United States' advantage in strategic weapons and to expand greatly conventional weapons production and inventory. Externally, the new leadership sought to develop a strengthened position from which to deal with the future China-Vietnam nexus. The decision dictated consolidation of the European flank, principally by making concessions to West Germany in the hope of obtaining formal recognition of East European boundaries.

In recognition of the fact that, initially at least, delivery of materiel to Vietnam would occur by sea, Soviet leaders decided to increase the level of diplomatic activity in the key states along the water route from Turkey to Indonesia and including Syria, Egypt, Yemen, India, and Indonesia. It was most important to secure the bottleneck areas of the Dardenelles, Suez, and Malacca Straits; therefore Soviet activity in the controlling states was most intense. For example, Moscow reversed policy toward Turkey now supporting Ankara against Athens over the Cyprus issue, increased aid to Egypt and support for Egypt's intervention in Yemen, but unsuccessfully sought to improve relations with Djakarta.

There were undoubtedly other, regional, motivations for activity in these areas, but the pronounced increase in activity in these areas following Khrushchev's removal is consistent with the hypothesis. The increase in diplomatic activity was paralleled by greater Soviet naval presence, especially in the Eastern Mediterranean. For the next decade Soviet, American and Chinese policies would increasingly and with ever-widening impact pivot on the Vietnam question.

In removing Khrushchev the Soviet leaders also eliminated Mao's principal public objection to improving relations with the Soviet Union, opening up the possibility of obtaining transit rights to Vietnam. Throughout 1965 the new leadership sought to parlay the growing conflict in Southeast Asia into the reestablishment of Sino-Soviet unity. The Soviets pressed for "united action over Vietnam," while the Chinese resisted countering with the charge that Soviet policies were nothing more than "Khrushchevism without Khrushchev."[7] The Soviets persisted. Kosygin, while on an Asian trip in late January, stopped off in Peking where he pressed for land access and/or reconciliation. His visit touched off a leadership crisis in Peking over the issues of Sino-Soviet relations and intervention in Vietnam, a crisis that was intensified by the introduction of American combat troops into Vietnam. Beginning on 6 March 1965 the United States began the deployment of combat troops. From an initial complement of roughly 14,000 advisors, by June some fifty thousand troops were in country and on the 27th had begun combat operations. By December there were over 184,000 troops in Vietnam and more were on the way.[8] It was against the backdrop of the escalation of American troops that the Chinese debate on "united action" took place.

Although several leaders were involved in the "debate," the principal public spokesman for the pro-Soviet and Maoist positions were Chief of Staff Lo Jui-ching and Minister of Defense Lin Piao, respectively. In early May Lo delivered a speech in which he advanced arguments for reconciliation with the Soviet Union as the best means of affording assistance to North Vietnam and preparing for conflict with the United States which would follow inevitably.[9] This, of course,

was precisely the objective which the Soviets sought. Lin Piao, on the other hand, took the Maoist position of independent action, arguing that there was little probability of a Sino-American conflict. Only a direct United States' attack on Chinese territory would mean conflict and, in such an eventuality, the Chinese response would be "people's war." In essence, Lin argued that China should not intervene in Vietnam, an option which also obviated the necessity for reconcilation with the Soviet Union.[10]

Mao and his supporters managed to stem the demands of the pro-Soviet group for intervention and restoration of the Sino-Soviet alliance, but the American escalation in Vietnam forced him to make a fateful decision. Within three weeks of the introduction of United States' combat troops into Vietnam, Mao at the end of March agreed to grant the Soviet Union land access across Chinese territory to Vietnam. Even though the Sino-Soviet conflict continued and deepened over the next few years, Mao was forced to agree to limited, although extremely important, cooperation with the Soviet Union over Vietnam. The decision in reality permitted Mao to keep China from direct intervention in the conflict and war with the United States, but it reversed the strategic situation then existing between the Soviet Union and the United States, shattering the assumption upon which President Johnson had based his choice for action.

Until Mao's decision to grant rail access the strategic advantage in Vietnam lay with the United States. The initial failure of the Russians and Chinese to cooperate was the basis for the President's assumption that the United States could ultimately govern the level of conflict in Vietnam. Indeed, as long as the Russians were forced to rely solely upon the vulnerable sea lanes, the United States could proceed with some degree of confidence in Vietnam.

Within a week of the Chinese decision, President Johnson had perceived the fundamental change in the nature of the conflict. In his speech of 7 April at Johns Hopkins University, he noted that the United States "must be prepared for a long, continued conflict" in Vietnam, thus dashing all hope for a short war.[11] Indeed, the opening of the land route transferred the strategic advantage from the United States to the Soviet Union. The Russians now had the power to raise and maintain the level of conflict in Vietnam according to their own interests. The United States, on the other hand, having committed itself to the introduction of combat troops, could only continue to inject its forces or face certain defeat. President Johnson chose to continue. As both sides escalated the level of conflict over the course of 1965, pressure mounted on the Maoist leadership to participate in a more direct fashion.

Mao Tse-tung fully recognized the dangers for his own position of preeminence inherent in the increase in United States froces in Vietnam. He realized that at some level of conflict, external Soviet pressure combined with that from within the Chinese leadership itself might well prove irresistible. Should his policy be overturned and China adopt a policy of "united action over Vietnam" which meant reconciliation with the Soviet Union, he would lose his own position of primacy in the leadership, regardless of how the fact would be disguised. Mao had, after all, become personally identified with and, in fact, his position was based upon the policy of China's development independent of the Soviet Union. Reversal of that policy would be to repudiate Mao himself.

There was only one course of action for Mao to take if he were to remain in control and keep China on his course of independent development. He would have to eliminate his internal opponents before the crisis in Vietnam made it impossible to refuse united action. The external manifestation of Mao's decision was the Great Proletarian Cultural Revolution.[12] There were obviously other factors involved in the decision to initiate the Great Proletarian Cultural Revolution at this particular time, but Mao's conflict with his pro-Soviet, interventionist opponents was a primary one. In fact, in the early stages of the cultural revolution Mao removed those who opposed him, a development which had its repercussions in Moscow.

The Development of Positions

Perceiving that the pro-Soviet leaders were being removed, thus reducing if not eliminating the possibility of reversing Mao's policy course, the Russians altered policy. No longer able to influence the decisionmaking process from within, Soviet leaders moved to influence it from without. Beginning in early 1966, the Soviet Union began a massive buildup of military forces all along the Chinese border – a buildup which by the spring of 1968 reached a total by some accounts of 50 divisions, plus an equally large logistical and support force. By the fall of 1968 the Soviet Union had in place a large combat-ready force on China's northern border.

During the same three-year period the United States had systematically increased its force levels to the point where, by the spring of 1968, the troop figure reached 549,500. Despite the Tet offensive of that year, the United States had gained mastery over the ground combat situation, but had not been successful in bringing about a peace settlement. Although peace talks had begun in May following the initial thrust of the North Vietnamese offensive, they led nowhere. American forces had demonstrated excellent fighting qualities in combat situations, yet were bogged down in Indochina with little prospect for extrication on favorable political terms.

Meanwhile in China the cultural revolution dramatically altered the alignment of forces in Asia. In that national upheaval Mao had succeeded in removing his principal opposition in the central leadership but encountered substantial difficulty in extending control over provincial power structures. As opposition to the cultural revolution mounted, Mao was forced to rely increasingly heavily on the main force units of the People's Liberation Army to retain control. Indeed, by the fall of 1967 more than one half of the PLA's main force units (twenty of thirty-five army corps) had been diverted from national defense to internal pacification duties, seriously eroding Peking's capability to contend with external threats to China's security.[13] Mao took a great and perhaps necessary risk in committing the PLA to defense of the cultural revolution, but he did so at precisely the time when the Soviet Union and the United States (for clearly different reasons) were building their force levels at China's northern and southern borders. By the spring of 1968 Soviet and American power shifts starkly outlined a potential two-front conflict situation for Peking only dimly apparent a few years before and which the Chinese were progressively unable to deal with due to deep internal crisis.

The Soviet invasion of Czechoslovakia in August of 1968 persuaded Mao that the possibility of a similar threat against China existed from which it had to be protected at all costs. He reacted quickly, abruptly terminating the cultural revolution, withdrawing the main force units from their domestic political functions and returning them to their normal defense positions. China girded for

confrontation with the Soviet Union, acting at the same time to enlist the support of the United States as a counterweight to Soviet pressure.

The Chinese decision to curtail the cultural revolution and seek American support came none too soon, for the year 1969 saw the most serious crisis in the entire history of the Sino-Soviet relationship. During 1969 the Soviets escalated political and military pressure on the Chinese to force a change of strategy away from the clearly emerging danger of rapprochement between Peking and Washington. Beginning in March with the Ussuri River incidents and culminating in mid-September with the threat to deliver a "surgical" nuclear strike, the Soviet version of nuclear brinksmanship failed to restore the alliance structure, instead hastening the Chinese movement toward the United States.

The Nixon Initiative

The crisis which faced newly-elected President Nixon in Vietnam was also an opportunity to restructure global politics and most importantly the Soviet-American balance, which had changed dramatically in the previous four years. The state of Sino-Soviet relations, too, had undergone important alterations. For example, when President Johnson decided to deploy combat troops to Vietnam in 1965, the issues of Chinese intervention in that conflict and Sino-Soviet rapprochement had not yet been settled. By the end of 1968 when President Nixon was working out his own set of policy objectives the Chinese had decided against both intervention and rapporchement, and the Soviet Union was threatening the People's Republic with armed conflict. The war danger made Mao and his supporters highly sensitive to the problems facing the United States in Vietnam and to the possibility of reaching a *quid pro quo*.

The opportunity for President Nixon therefore was not only to bring the Vietnam crisis to an end, it was also to create what he termed a "stable structure of peace" on a far broader basis. The crucial relationship remained the Soviet-American; the problem was to redress the imbalance that had evolved in the previous four years. Since the decisions of late 1964 to accelerate the buildup of Soviet arms, the Russians had rapidly acquired a strategic arsenal which in gross terms was nearing parity with that of the United States, a conventional weapons stockpile of enormous dimensions, and a delivery capability which enabled them to attempt to manipulate the geopolitical balance in virtually any region, no matter how distant from the Soviet homeland—a capability superbly being demonstrated in the Vietnam conflict.

Forging a new structure centered on adopting policies which would offset growing Soviet power. The central objective toward this end in Nixon's strategy was the establishment of a more or less permanent adversary relationship between the Soviet Union and the People's Republic of China. Among other things, the United States would attempt to create conditions which would permit both powers to confront one another without concern for their respective rear areas. In each case a two-stage process would be followed. For the Soviet Union, Europe was the rear area in this conception and initial American policy was designed to foster the resolution of outstanding issues between Western Europe and the Soviet Union. Negotiations on Berlin, the West German treaty, Mutual and Balanced Force Reductions, and European Security were all pointed toward the alleviation of pressure on the Soviet Union's flank, thus permitting the allocation of greater resources eastward to deal with Moscow's "China problem." There would be no hard and fast line

stages. The second stage would begin once settlements appeared to be within reach. At that point the United States gradually would move to bring about greater West European integration. It would appear that the United States has already initiated stage two in Europe, if policy toward France is any indication.

For the People's Republic of China, the principal rear area was of course Southeast Asia. In the first stage, President Nixon sought to parlay Sino-American cooperation in establishing a military balance in Southeast Asia into an improved Chinese defense capability against the Soviet Union. American troop withdrawals would permit the reallocation of Chinese resources northward to counter large Soviet troop concentrations on the border. Although an extremely complex and delicate policy in itself, once accomplished, the United States would begin the second stage of withdrawing its presence entirely from the mainland of Southeast Asia to facilitate the creation of a large, although communist, state of Vietnam on China's southern border. Ultimately the creation of a Big Vietnam would serve the purpose, with the Soviet Union in the north and a pro-Soviet client state in the south. The United States, fully extricated from any entanglement on the mainland of Southeast Asia, would then be free to exert pressure wherever necessary to maintain the "structure," which may ultimately include the development of close Sino-Japanese ties.

The obvious risk in such a strategy is the possibility that the Russians and Chinese would decide to resolve their differences and cooperate rather than continue to contend with each other. In either case, however, even though the adversary relationship is the preferred outcome, the United States would be in a position to exert pressure from without. The baseline assumption is that no long-term cooperation is possible between the two communist powers.

Vietnamization—Securing China's Rear Area

The first stage of Nixon's strategy involved the establishment of a *quid pro quo* with the People's Republic in which the United States moved to support China against the Soviet Union. In return, Peking acted to facilitate the withdrawal of American troops from the Southeast Asian region and creation of a military balance. Long-term Chinese strategy toward Southeast Asia (which the United States fully supported in the first stage, but diametrically opposed in the second!) was to foster a Balkanized peninsula over which no single state held sway. It was therefore in Peking's interest to cooperate with the United States in establishing a military balance in which North Vietnam would be hedged in the south by a pro-American South Vietnam and, perhaps, even Cambodia and in the north by China itself. What the Chinese leaders did not perceive was that this was only an interim American objective not a long-term one. The consequences of their discovery of Washington's ultimate intentions were to precipitate a policy crisis in Peking which has at this writing not yet been fully resolved.

President Nixon's first stage program consisted of two essential policies: the gradual substitution of South Vietnamese fighting forces for American and the isolation of the strategic battlefield. President Nixon's Vietnamization program was markedly different from that of his predecessor. President Johnson had sought to build a South Vietnamese army which would deal with an internally based and essentially limited insurgency without promoting the development of a viable infrastructure. President Nixon's plan was to create a larger, more powerful armed force capable not only of defeating an internally-based insurgency, but of meeting outright invasion from

North Vietnam. To support this projected capability, it was necessary to create a broad-based infrastructure.[14]

Isolation of the strategic battlefield revolved around the effort to interdict the supply of war material primarily from Soviet and East European sources. In this effort, too, President Nixon acted on a much broader scale than did President Johnson. President Johnson concentrated primarily on attempting to interrupt the flow of supplies inside territorial Southeast Asia itself. President Nixon, on the other hand, sought to preclude entry of war material into the region and sought to choke off those entry points. Of the three principal points of entry—China, the Haiphong port complex, and Sihanoukville, Cambodia—only the Chinese route could not be interdicted by unilateral American action. China therefore played a crucial role in President Nixon's strategy, for only if the Chinese leaders saw it in their interest to curtail the flow of supplies traveling over their rail system was there any point where the Vietnamization effort could be successful.

As noted above, China's own internal difficulties and crisis with the Soviet Union made Mao Tse-tung willing to entertain the prospect of striking a mutually advantageous agreement. Shortly after the United States' elections in November, the Chinese requested that the Warsaw talks be resumed. Although they were subsequently postponed, other channels of communication were opened.[15] The intention was stated, and President Nixon responded at the public level by unilaterally relaxing restrictions on China trade and travel. These were but the initial, visible steps in the improvement of relations between two countries which had been locked into a mutually antagonistic stance for two decades. Less apparent but far more significant was the Chinese decision to reduce the volume of war materiel flowing along the rail system into Vietnam as American troops began their withdrawal. As early as July 1969 the President himself noted that the Chinese had reduced by 60 per cent their share of inputs by the rail route.[16]

Once the China link had been effectively managed the President proceeded to interdict the remaining routes of access, Sihanoukville, Cambodia and the Haiphong port complex. The opportunity for the first came in the spring of 1970 with the deposition of Sihanouk, ascension of Lon Nol and the joint United States-South Vietnamese drive into the border sanctuaries. The principal achievement of the incursion was, of course, the closure of the port of Sihanoukville, which severely crippled the Soviet Union's efforts to supply needed materiel to its North Vietnamese ally.[17] From mid-1970 therefore only the Haiphong port complex remained open to unrestricted use and it, too, was closed during North Vietnam's offensive of 1972 (about which more below).

The Laotian crisis of early 1971 further revealed the extent of the Sino-American rapprochement and its essential limits. The agreement between the two countries centered on the effort to create a military balance in Southeast Asia. Facilitating American withdrawal simultaneously removed China from the threatening two-front conflict situation which had developed as both the Soviet Union and the United States established great concentrations of forces on China's northern and southern borders. The point, however, was that the PRC sought a military balance which involved neither victory nor defeat for North Vietnam and survival for South Vietnam. Thus, in the Laotian operation in February 1971 when South Vietnamese forces experienced initial successes in battle, the Chinese moved quickly to bolster North Vietnam with

materiel assistance—for the first time since 1969 sending a high-level military delegation to secure this agreement. Having ensured that the balance would be maintained, the Chinese did not follow up the North Vietnamese counterattack with massive assistance, nor threaten direct intervention.

During the peak of the crisis of operation Lam Son 719, on 25 February, the President in his State of the World message referred to China as the People's Republic for the first time and called for a new dialogue between the two countries. The Chinese responded by extending an invitation to the United States' table tennis team in April and (in an interview with Edgar Snow) Mao himself indirectly extended an invitation for the President to visit China. Finally, on 15 July, the announcement that the President's chief foreign policy advisor Henry Kissinger had just returned from Peking and that the President himself would visit China early in the following year overshadowed the events in Laos.

Soviet Reaction to the Nixon Doctrine

Soviet leaders were acutely conscious of American success in interdicting the logistics routes in North Vietnam. In addition, the decision to carry out the buildup of troop levels along the Chinese border strained the capacity of the Trans-Siberian Railway, requiring increased reliance on the long and exposed sea route from the Black Sea port of Odessa through the Suez Canal across the Indian Ocean to the ports of Sihanoukville and Haiphong. The closure forced the re-routing of supplies around Africa and stretched a 2,200 mile long route from Odessa to the Indian Ocean into an 11,000 plus mile route. When first the China and then the Cambodian supply routes were squeezed off, the Russians, sometime in the summer of 1970, decided upon a major alteration of strategy.

From mid-1970 the Soviet Union evolved a counter strategy to the American one that was formally adopted at the Twenty-fourth Party Congress in March of 1971. Publicly stressing the "detente" theme, the Soviets decided to strengthen their position in each of the five regions which constitute the margin between Soviet and American power on the Eurasian continental land mass: East Asia, Southeast Asia, South Asia, the Middle East and Europe. In Europe, the Soviet Union moved to reach a settlement on the Berlin question, the objective being to reduce tension to the degree possible to permit action in other regions. In the Middle East, the death of Nasser the previous September complicated the Soviet position, but strenuous efforts were undertaken to legitimize by treaty the Soviet position in Egypt, as well as strengthen it in Syria, Iraq and Somalia. In East Asia, concerned efforts were made to wean Japan away from an improved relationship with the PRC. Although Japan-Soviet discussions had been going on for some time, it was not until the post-Twenty-fourth Party Congress period that new impetus was given to discussion of a final peace treaty and the issues which had blocked progress, such as the northern islands question and various joint projects for exploitation of Soviet natural resources, and trade.

South and Southeast Asia constituted the central focii of Soviet geopolitical activity in the immediate months following the Congress. In retrospect, it is clear that the South Asian situation presented an opportunity for both the Soviet Union and India to restructure the regional balance to their mutual advantage and to the disadvantage of Pakistan, the PRC, and the United States.[18] By the spring of 1971, in part due to extension of a one billion dollar 5-year aid program from the Soviet Union (1966-1971) and in part due to the internal crisis then rocking the Pakistani polity,

India had established clear military superiority over Pakistan. The success of Pakistani troops in re-establishing control of main population centers in East Pakistan by May did not seriously redress that imbalance, but Indian leaders may have feared the opportunity to move against its neighbor was beginning to slip away. Further, the revelation in mid-July of the dramatic change in US-PRC relations had to be interpreted by India as also involving Pakistan, with which both powers had a security relationship (even though the United States had not been generous with military aid since the 1965 embargo and PRC aid was comparatively meager). In any case, Indira Gandhi moved to conclude the treaty for which Moscow had been pressing since 1969 but with renewed vigor following the Twenty-fourth Party Congress.

The 9 August 1971 treaty established the essential conditions which permitted India to attack and dismember Pakistan. The Soviet strategic role in the conflict was to check action by the PRC and the United States. In the United Nations the Russians vetoed two resolutions sponsored by the United States, blocking action in the Security Council until after India had achieved its main objectives. In strategic-military terms, the Soviets threatened military action against Peking if the PRC should enter on Pakistan's side and, against the United States, deployed some thirty-five ships in the Bay of Bengal to neutralize any attempts the United States might take with the Seventh Fleet to defeat Indian action.

India emerged from the conflict the unrivaled power on the Asian subcontinent surrounded by weak states. The Soviet Union, too, moved a step toward its larger objective of establishing an effective encirclement of China. The partition of Pakistan removed a pro-Chinese buffer state and replaced it with a pro-Indian (and Soviet) one, Bangladesh.

Perhaps the most crucial decision made in Moscow at this time was to conclude the current round of struggle in Southeast Asia and prepare the best possible bargaining position for North Vietnam. Stemming from the realization that a North Vietnamese victory was impossible as a result of Sino-American cooperation, Soviet leaders stepped up the flow of arms supplies to Vietnam via the remaining Haiphong route for a final, full-scale assault on the South.[19] The North Vietnamese offensive which began in late March 1972, after President Nixon returned from Peking but before he left for the Moscow summit, was designed to achieve the best possible bargaining position for Hanoi. American leaders who had observed the increased supply effort following the Twenty-fourth Party Congress, anticipated the offensive but its ferocity and scale took them by surprise. Aside from hastening to ship in tanks and anti-tank weaponry to counter the initial shock, President Nixon ordered the mining of the Haiphong harbor complex—an act aimed directly at the Soviet Union.

Most important, in terms of the President's strategy of interdicting the logistics routes to North Vietnam, the offensive provided the opportunity to close off the remaining route of access to Hanoi. Thereafter, the only material received by the North Vietnamese was the reduced flow of supplies still trickling overland from China, an amount insufficient to permit continuation of the offensive, which failed. Combined with the intensive bombing in December, the North Vietnamese were finally persuaded to sign the Paris Peace Accords the following January.

Stage II North Vietnamese Victory

For Peking the accords appeared to signify the achievement of long-term objectives in the region. The peninsula would remain fragmented and Vietnam divided. While North Vietnam retained de-facto control over Laos, a weak buffer state, Cambodia and South Vietnam would continue to occupy a containing position. The United States appeared to have accomplished a

major strategic victory by successfully extricating the nation from what only a few short years before had been a hopeless, open-ended involvement. At the same time, the United States preserved for itself a seemingly defensible position on the Southeast Asian mainland.

The peace accords were never put into effect. It quickly became apparent that North Vietnam had not the slightest intention of honoring the provisions of the agreement, immediately, flagrantly and grossly, violating restrictions on the buildup of troops and equipment in the South. It also became clear that, contrary to repeated pledges of support, the United States would neither extend war materiel to South Vietnam at a sufficient level to counterbalance the North Vietnamese effort, nor in any other substantive way attempt to deter Hanoi from completing an outright military conquest of South Vietnam.

The Chinese leadership had not expected the sudden turnabout in what appeared to have been a brilliantly executed American policy—in which they had cooperated. When informed of the change, probably by Henry Kissinger himself during his trip to Peking in mid-February 1973, the Chinese were thrown immediately into a serious and prolonged policy crisis.[20] If the evolution of Sino-American relations and cooperation in establishment of a military balance in Southeast Asia had been an integral part of Chinese strategy, then the failure of the United States to maintain that balance predictably had to raise questions about the strategy. In fact, Chinese leaders, both those currently in and those out of power, began to question the validity of the general strategic course set by Mao Tse-tung, and those who had disagreed with that course from the beginning were given a hearing. Beginning in April 1973 with the rehabilitation of Teng Hsiao-p'ing, debate grew over two related issues: how to respond to the immediate issue of Southeast Asia, and the more far-reaching one of how to employ American power to counterbalance the Soviet Union?

As far as Southeast Asia was concerned, the Chinese concluded that their only alternative was to attempt to forestall North Vietnamese control over the entire Southeast Asian peninsula—the objective which they believed to have been achieved by the signing of the peace accords. Following the Tenth Party Congress in August 1973, the Chinese resumed large-scale military assistance to and through North Vietnam in an effort to establish whatever degree of "influence" was possible in Cambodia and Thailand to counterbalance the anticipated North Vietnamese conquest of the South. Balkanization of the peninsula remains as Peking's strategic objective, which appears to be increasingly unlikely of fulfillment. For example, the recent resignation of Prince Sihanouk, who symbolized Chinese influence in Cambodia, portends the extension of North Vietnamese dominance over the country.

The Southeast Asian question was easier to resolve than the larger issue of Mao's general strategy of employing American against Soviet power. The realignment of the top leadership which occurred at the Tenth Party Congress was preparatory to the extensive strategic debate which continued for the next three years and which even Teng Hsiao-p'ing's removal from power in April 1976 seems not to have brought to a conclusion. Mao's death will provide the further opportunity for the differing factions to fight out the issue all over again.

For the United States the Paris Peace Accords constituted the end of Stage I, the withdrawal of American forces and the establishment of what appeared to be a viable South Vietnamese regime. The viability of South Vietnam was, however, directly a function of a long-term American

commitment and therefore entanglement. That outcome also left the United States dependent on China for its perpetuation. It placed Peking in the controlling position, providing the Chinese with leverage in matters affecting United States-Chinese relations. The Chinese could also pose a threat to alter policy toward South Vietnam. It was a position which the United States chose not to sustain.

Instead, President Nixon initiated "Stage II" of his larger strategy, which called for the complete withdrawal of American support for South Vietnam and the establishment of a "Big Vietnam." It was the final piece in a complex strategy designed to "build in" a long-term adversary relationship between the PRC and the Soviet Union. Establishment of a big Vietnam left China situated in a potential two-front conflict situation between the Soviet Union and Vietnam, a Soviet ally. It left China dependent on the United States for support and placed the United States in position to maneuver from a flexible stance.

Was it necessary to go through the two-stage process; could not the United States have simply pulled its forces out of Southeast Asia in 1969 and achieved the same result? An immediate pullout would have served the purpose of withdrawing American power from the Vietnam conflict, but would have had no impact on the larger objective of reinforcing Sino-Soviet enmity. In fact, it might have had a negative effect on that larger objective, leaving the United States with no bargaining leverage whatever. On the other hand, once having spent four years building South Vietnam into a viable political entity, why was it necessary to cause its destruction? Heartless as it was to the South Vietnamese people, American interests came first. To have retained a commitment to South Vietnam and to a fragmented Southeast Asia would have been to further Chinese interests but not necessarily those of the United States. South Vietnam could not survive without continued American support, which in effect placed the United States in a dependent position and left the PRC in the position of ultimately determining Saigon's viability. Withdrawing support from the South Vietnamese government and facilitating the establishment of a big Vietnam placed a strong state on China's southern border and reversed the dependence relationship. North Vietnam will continue to rely primarily on the Soviet Union for support against Chinese pressure.

A more pertinent question is: if the main thrust of American strategy was to buttress the Sino-Soviet adversary relationship, why did the United States place that objective in jeopardy by the withdrawal of support from the South Vietnamese government? There is little doubt that the timing of the United States' decision precipitated the severe foreign policy crisis in which Peking has foundered for the past three years. Would it not have been more prudent to continue to support Saigon for a longer period, at least until the Chinese policy course seemed more or less fixed? It would seem that the answer to this question is yes, and that extenuating circumstances forced premature action. The reference, of course, is to the Watergate crisis which began to engulf the administration in February 1973 and which, presumably, prompted the move to Stage II somewhat earlier than may have been planned.

The question remains: did the United States in fact decide to discontinue support for the South Vietnamese government with full knowledge of the consequences? Again the answer is yes. North Vietnamese violations of the peace accords were noted almost immediately after the ceremonies had concluded and the Administration made no substantive attempt to deter Hanoi. The point bears restating. It was the Administration not Congress that withdrew support, although

Congress abetted that aim with passage of the War Powers Act later in August. The legislative history of the War Powers Act tends to confirm the interpretation of the Administration's intentions. The Nixon Administration made no sustained attempt to defeat the bill. At the very least, if President Nixon has opposed the Act he could have disassociated himself from it with the veto, which he did not do. After August of 1973 the United States could give no further direct military support. Congress then cut the aid allocation, leaving the outcome in no doubt. The Administration similarly made little more than a token effort to dissuade Congress from cutting appropriations. On the surface, it appeared as if a suddenly roused Congress had risen up against the Nixon Administration and acted contrary to his policies.

Could Nixon or his successor Ford have supplied aid to South Vietnam despite Congressional opposition? No firm answer can be given. Interested third countries could have provided funds with which South Vietnam could have purchased arms. Resupply could have occurred through third countries, as well. The Administration could have sold materiel to South Vietnam directly. True, such sales would have to have been reported to Congress, but the attempt, at least, could have been made if the Administration genuinely sought to provide assistance. No attempt was made. Former Secretary of Defense, James R. Schlesinger, put it succintly in February 1975 on the eve of Saigon's destruction:

> *A small state . . . struggles to maintain its independence, but we have neither the temerity to sever its lifeline nor the resolution to pay the relatively small but necessary price to assure its continued existence. We have chosen, instead, to put an ally—facing an increasingly intensive attack—on the military equivalent of starvation rations.*[21]

Toward a New Equilibrium

If the past decade witnessed the dissolution of the strategic set of international relations which emerged out of the initial impetus of the cold war, then the Vietnam conflict catalyzed movement toward a new structure. The principal change has been in the Soviet-American strategic relationship which has forced policy readjustments by both parties. Under the previous condition of strategic weapons superiority over the Soviet Union, American policies were generally designed to preclude the coalescence of any third power grouping which would upset the balance. A divided Europe (especially a politically fragmented Western Europe) and a weak China fit this structural schema nicely, however much or little the United States has to do with bringing it about. A more or less symmetrical view could be attributed to the Soviet Union regarding both areas.

Under the new condition of approaching nuclear weapons parity, the United States sought to halt the adverse trend, which, if continued, could place it in a position of strategic inferiority vis-a-vis the Soviet Union. Thus, the United States—under the impetus and one is tempted to say cover of the Vietnam conflict—reversed policies toward both Europe and China seeking ultimately, in the second stage of a two-stage process, to offset the growth of Soviet power. The logical extension of the decision to build counterweights to Soviet power is the withdrawal of American power, whose presence has had an inhibitory effect, from those areas. The questions are: how far and how rapidly will the process go? What will be the future position of the United States with regard to the Eurasian continental land mass?

In the same time period the Soviet Union moved from a position of great nuclear weapons inferiority to one approaching parity. The capability of neutralizing the United States at the strategic level opened up opportunities for the Soviet Union to manipulate the geopolitical balance to its advantage. The change in American policies could scarcely have gone unnoticed by the Soviets. Therefore, is the current "active phase" of Soviet policy at bottom designed to probe for a new balance and develop positions of leverage from which to defeat the new American strategy?

And what of the People's Republic of China? A reversal of Chinese strategy from the independent stance maintained for the past decade and a half to a new cooperative relationship with Moscow would mark a major failure in American strategy toward the Soviet Union. Such an accomplishment would then permit the Soviet Union to apply the full force of its power against a not yet fully prepared and unified Western Europe. It could serve to accelerate the withdrawal of United States' power and influence from the entire Eurasian continental land mass. In that instance, the new equilibrium in the eastern hemisphere, at least, would necessarily be termed "pax Sovietica." Such an outcome, of course, would clearly not be in the interests of any Peking leadership, however comprised. The Chinese appear to be "locked in" to a position remarkably similar to that of the United States. The People's Republic, too, must employ all available means to offset the growth of Soviet power, a position which dictates continued cooperation with the United States toward that end.

Footnotes

[1] Admiral U.S.G. Sharp and General W.C. Westmoreland, *Report on the War in Vietnam* (Washington, 1968), Section II, Report on Operations in South Vietnam, p. 85-86.

[2] *New York Times*, 7 and 9 August 1964.

[3] See the author's *China, the Struggle for Power, 1917-1972* (Indiana University Press, 1973), Ch. IX, X for discussion.

[4] See the author's "Soviet Strategy and the Vietnam War," *Asian Affairs* (March-April, 1974) for an elaboration of the earlier Soviet strategy in Southeast Asia.

[5] See report of his speech in *Pravda*, 2 October 1964. His hesitancy is evident from other sources. In a speech given on 19 September, Khrushchev implied that China was the stumbling block in any attempt to provide aid to North Vietnam. "If the countries that are struggling against the colonialists need weapons and if they can be delivered from the Soviet Union, we can provide them . . . The struggle of the peoples unfolds under different conditions and it is necessary that these conditions be ripe . . . ." Khrushchev's "Address to International Youth Forum," *Current Digest*, 14 October 1964, p. 10. For an analysis of the strategic problem and the decision-making process in Moscow, see F. Charles Parker, *Soviet Strategy and Vietnam, July 1963-April 1965*, unpublished M.A. thesis, Georgetown University, 1975.

[6] For discussion of differences between Khrushchev and his colleagues over the German issue, see Roman Kolkowicz, *The Soviet Military and the Communist Party* (Princeton University, 1967), p. 297f.

[7] Maury Lisann, "Moscow and the Chinese Power Struggle," *Problems of Communism*, November-December, 1969.

[8] Sharp and Westmoreland, *Report on the War in Vietnam*, p. 100.

[9] Lo Jui-ching, "Commemorate the Victory Over German Fascism! Carry the Struggle Against US Imperialism Through to the End," *Hung Chi'i* (Red Flag), 10 May 1965.

[10] Lin Piao, *Long Live the Victory of People's War* (Peking, 1965).

[11] President Lydon B. Johnson, "Pattern for Peace in Southeast Asia," *Department of State Bulletin*, 26 April 1965, pp. 606-610.

[12] *China, the Struggle for Power*, p. 268ff.

[13] *Ibid.*

[14] Statement of Secretary of Defense Melvin R. Laird on the Fiscal Year 1972-1976 Defense Program and the 1972 Defense Budget, 9 March 1971 (Washington, 1971), p. 27.

[15] Richard Nixon, *U.S. Foreign Policy for the 1970's, Shaping a Durable Peace* a report to the Congress, 3 May 1973 (Washington, 1973), p. 18.

[16] "Excerpts From Unofficial Account of President Nixon's Meeting With Reporters at Guam, 25 July 1969," in *Background Information Relating to Southeast Asia and Vietnam*, (Washington, 1970), p. 320.

[17] "United States Military Actions in Cambodia: Questions of International Law," *Department of State Bulletin*, 22 June 1970.

[18] See the author's "South Asia: Imbalance on the Subcontinent," *Orbis* Fall, 1975.

[19] For the equipment types, see *The Washington Evening Star*, 17 April 1972.

[20] For detailed analysis of the Chinese internal scene during this period, see the author's "Teng Hsiao-p'ing and Peking's Current Political Crisis: A Structural Interpretation," paper delivered at the Fifth Sino-American Conference on Mainland China, Taipei, Taiwan, 9 June 1976.

[21] Annual Defense Department Report, FY1976 and FY197T (Washington, 1975) p. III-37.

PANEL IV

ECONOMIC INTERDEPENDENCE AND THE US-SOVIET RELATIONSHIPS

A discussion of the likely long-term development of the economic interdependence of the US and USSR in the world economy—to include discussion on the limits of interdependence, the effect on alliances (US and Soviet), and the implications for US national security interests of this changing worldwide economic balance. A consideration of the use of technology transfer as a lever.

Chairman: Mr. William R. Grant, Vice Chairman, Smith, Barney, Harris Upham and Co., Inc.

Authors: Mr. Joseph W. Willett, Faculty, The National War College and Director, Foreign Demand and Competition Division, Economic Research Service, US Department of Agriculture

Dr. Herbert S. Levine, Department of Economics, University of Pennsylvania and a Senior Research Consultant, Stanford Research Institute

Panelists: Dr. Robert W. Beckstead, Faculty, Industrial College of the Armed Forces

Mr. H. Stanley Dempsey, Director, Environmental Affairs, AMAX, Inc.

Major General John H. Dunn, USA (Ret.), President, Can Manufacturers Institute

Mr. William H. Edgar, Deputy Director for Economics, Department of State

Colonel Herman L. Gilster, USAF, Director, International Economic Affairs, Office of the Assistant Secretary of Defense, International Secretary Affairs

Mr. Robert Hormats, Deputy for International Economic Affairs, National Security Council

Mr. Eugene J. Milosh, Vice President-Operations, US/USSR Trade and Economic Council

Dr. Robert L. Pfaltzgraff, Associate Professor, Fletcher School of Law and Diplomacy

Mr. Allan Rau, Manager, East Europe Coordination, General Electric Company

Rapporteur: Captain Stuart C. Kirk, USAF, Assistant Professor of Economics, Department of Economics, Geography, and Management, USAF Academy

PANEL IV

ECONOMIC INTERDEPENDENCE AND THE US-USSR RELATIONSHIPS
PLENARY SESSION SUMMARY AND RAPPORTEUR'S REPORT OF PANEL DISCUSSION

Mr. William R. Grant, Dr. Herbert S. Levine, and Captain Stuart C. Kirk, USAF

The discussions of Panel IV fell generally into three topic areas:

- Background of East/West Trade Relations.
- Issues in Expanding Economic Relations.
- Implications for US Policy.

Preliminary Issues

Before reporting on specific panel discussions, a few preliminary issues should be noted. First, there was concern expressed by a number of panel members over the use of the term "economic interdependence." There was a general feeling that this term was inappropriate. Those panelists who have been involved for a long time in the analysis of Soviet behavior emphasized that none of the Soviet leadership seriously entertains policy suggestions that would make the USSR interdependent with the rest of the world, especially with the capitalist countries. In this regard, a more accurate depiction of an economy's involvement in external economic relations with the world was provided. Interrelationships are viewed as being on a continuum, a continuum the scale of which is measured by the extent of disruption to an internal economy that would be caused by the severing of external relationships.

On that continuum, point zero is usually referred to as autarky, while increasing involvement in external economic relations moves upward toward total interdependence. In this light the panel discussed where on this continuum the USSR is currently located and to what extent is the Soviet Union moving away from a very strong commitment to as much nondependence—as little dependence on other countries—toward a willingness to be involved in some degree of interrelatedness, but not interdependence.

A second preliminary issue discussed asked: Why treat economic relations with the Soviet Union any differently from the economic relations that the United States has with any other nation? Why not just proceed to normalize economic relations with the Soviet Union, expanding trade and extending involvement in economic relations as we have done with other major industrial trading nations of the world?

The view was held that there exists a special relationship vis-a-vis the Soviet Union. Aside from reasons for its existence, the adversary relationship and the institutional differences must be recognized. When the Soviet Union gets involved in economic relations, it has government institutions which consider the broad aspects of its national interests. To what extent these institutions are effective is uncertain, but the structure exists and it does attempt to consider all its national interests. Whereas, in the US, a free enterprise economy, basic business decisions are normally made upon the basis of private business calculations with minimal government inports.

The issue then arises; how can we interpose? In what ways and into what aims can we interpose all considerations of US national interests in these economic relations?

Lastly, an additional point was made that, contrary to previous arguments made by the Soviets, the recent experience has made it very clear that they are not insulated from developments in the world economy. The recent world recession—the Western World recession following the Oil Embargo of 1973-74—has had a very dramatic effect on the Soviet balance of payments. Soviet commitments for their imports from hard currency countries have been written into their economic plans and this sort of involvement was such that the Soviets were not willing to cancel import orders—or at least not cancel them to any significant extent—whereas orders for their exports to West European countries, under the impact of the recession, were cancelled to a very significant extent. This caused a deficit in their balance of hard currency payments for 1974 of something under $1 billion which skyrocketed in 1975 to something like $5 billion. This has caused great distress in Soviet decisionmaking circles.

Background Considerations in East/West Trade Relations

Early in our session, we were made aware of the historical reality that economic interrelationships are no guarantee of political and military calm. An argument frequently made points out that France and Germany were heavy traders yet France and Germany, in past experience, have not always lived in peace with each other. The same can be said of Russia and Germany before World War I; of England and Germany; Russia and France; the Soviet Union and China. Thus, economic interrelations do not guarantee peaceful relations, but to what extent they contribute is an open matter and perhaps even a matter for further research.

The second issue, and an important reality, is that even as we deliberated on the advisability of the expansion of economic relations between the United States and the Soviet Union, those economic relations are going on and have, of course, over the past five years, been expanding. In the near future, further expansion in the volume of trade is limited because the US needs very few of the products of the USSR. We do have requirements for their raw materials, however, the USSR does not have the required production facilities to extract these resources. Thus, we have no indication that Soviet production costs will allow competitive prices. However, trade, currently at an annual level of $2 billion, exists on its own merits of price, quality, and mutual benefit. Thus, the economic incentives for trade exist and will continue to encourage expanded relations.

With this in mind, the panel examined issues which led the Soviets to view with favor expanded trade. Important among these was the falling Soviet growth rate and, in particular, their problems with productivity. These are reflected by Soviet interest in trade—especially trade with advanced economies involving equipment and technology.

While the Soviet Union experiences systemic difficulties in absorbing modern technology, the argument was made that research in the US points to a substantially higher productivity from foreign capital in the Soviet Union than domestic capital in the Soviet Union. Thus the gains to the USSR from imported technology are significant.

Issues in Expanding Economic Relations

To date, financing for US/USSR trade has been handled mainly by banking firms in the private sector. However, these firms are currently unwilling to significantly increase their participation. This is due, in part, to their current credit relations with Lesser Developed Countries, to Congress having restricted the planned Export-Import Bank guarantees, and to the present East/West balance-of-payments position, which heavily favors the West. Thus it was argued that American lending institutions now are in a certain sense fully loaned up; that they have in their portfolios inordinate loans to LDCs that are causing them considerable (albeit private) disquietude. Therefore, even though one might make the argument that the Soviet Union is a much more reliable debtor than LDCs, the lending position of US banks is very tight.

The US Government currently has no policy to provide financial assistance for trade credit in the form of funding or loan guarantees. This issue will have to be addressed if expanded trade is to be encouraged.

West European nations are currently taking steps to encourage their exports to the Soviet Union by active trade promotion and liberalized credit arrangements. This is part of Western European nations' efforts to encourage expanded trade relations with the USSR. Many times these arrangements allow allied nations to fill a trade void which US firms could not fill due to unsupportive US Government policy.

Beyond US Government policy, significant expansion of trade would probably involve international economic organizations such as GATT and IMF. Currently, the USSR is not a member of these organizations and potential Soviet membership is hampered by the fact that the ruble is not a convertible currency. Under Soviet foreign trade arrangements, a foreigner who holds rubles is uncertain about the availability of goods for which to trade, and thus his willingness to hold rubles, a necessary element in successful convertibility, is limited. Further, under current policy, some of the economic data which members must furnish to the international organizations is not released by the USSR. Thus, the likelihood of their membership in these organizations in the near future is not bright.

Implications for US Policy

Providing concrete policy suggestions concerning economic interrelatedness and national security is most difficult. The problem is not so much in defining US security interests—protecting our values, freedoms, and standard of living—but in applying this or alternative definitions to the broad range of activities affected by US-Soviet relationships—energy and food production, Third World considerations, worldwide inflation, exploitation of the sea, technology transfer, and more.

Nevertheless, the panel was able to identify areas of major importance which must be recognized as future US foreign economic policy is developed.

Discussion of these topics starts with a recognition of the limitations concerning what can be expected if an active policy to promote increased interrelations is adopted. This reflects the panel's concern that we need to avoid the frustration which would accompany over-optimistic expectations.

Limitations

A. *Soviet Intentions*

What are Soviet intentions toward the world economy? Is the traditional pattern of the Soviets jumping in, buying the technology they want and then closing the door again, as they have done in a number of periods during past history, to be repeated? Or is there evidence of a new, more consistent, industrial-nation pattern of growing involvement international trade? Are the Soviets developing a policy which entails a long-term interrelatedness with the world economy?

B. *Identification of US National Interests*

US *economic* considerations concerning increased trade are more readily identified than US *national* interests. However, it was recognized that the nation's net gain from trade must be the ulitmate measure. Unfortunately, due to the pluralism of American society, the divergent interests within the United States, even the divergent interests within the US Government, identification of the net national position is difficult—if possible at all. How, then, is this national concern to be reflected in a free market economic decision process?

C. *Measurement of US National Interests*

Assuming that we were able to identify US national interests, and that we had general agreement that bringing the USSR into the world economic arena is a worthwhile objective, we still have to identify measures and techniques of measurement which would be useful in calculating the benefits. This was recognized as a very difficult problem but, in general, one worthy of effort.

D. *Structural Problems*

The US Government is not structured to orchestrate diverse public and private agencies. On the other hand, the Soviets, as noted above, are structured so that their national interests are explicitly represented. The questions then are: How can the US Government orchestrate the policies of individual government agencies, the independent policies of free private institutions within the US, and the very difficult problem of how can the US Government coordinate policy externally with our Western European allies.

E. *The Leverage Issue*

There is a degree of contradiction between the terms "interdependence" and "leverage." The latter term requires unilateral dependence, while the former indicates that there is bilateral dependence. Thus, if the trade is in goods which both countries consider essential, any leverage is either bilateral or nonexistent.

In our panel paper, "Interdependence in Food and Agriculture," Mr. Willett pointed out that in order to consider a traded good as having leverage potential, (1) the buying country must not be able to obtain the good from any other source, (2) they must not be able to achieve significant adjustment of internal consumption to reduce required import levels, and (3) the selling nation

must be willing to accept the economic and political costs associated with reduced exports levels of the good in question. Few trading relationships would fill these three criteria; thus, in the long run, few relationships hold the seeds of strong economic leverage.

We greatly stressed, that if there is any potential leverage in US-Soviet economic relations, it exists, in the economists phrase, at the margin. When we speak about leverage we have in mind two possibilities: To what extent can we affect internal US Soviet policies, and to what extent can we affect external Soviet policies?

With regard to influencing internal Soviet policies, any influence will only be in the long run. In that time frame there may be some contribution toward opening up contacts, implanting US methods, encouraging rationality and the decentralization of decisionmaking. But this influence is indirect and marginal. In terms of specific Soviet external policies, the feeling, although not unanimous, was that if done correctly—that is, not overtly—the maintenance of expanded relations with the US economy might have some marginal effect on some external Soviet policy, although again at the margin, in Soviet leaders' weighing of benefits and costs of specific policies and actions.

F. *Effects of Interrelatedness*

In considering economic interrelations with the USSR, what are the basic US aims? Is it in the US national interest to encourage Soviet growth and development? Or is it to our interest to discourage their growth and development? Is it to our interest to try to bring the Soviet Union into the world economic community? Or is it not to our interest? It was the general conclusion here that it is essential that economic relations not endanger the military balance and this has to be constantly considered. With that under control, our general feeling was that in the long run it is to the advantage of the United States to bring the Soviet Union into the economic community of the nations of the world.

There was some discussion that it might be particularly useful for the US to encourage energy and food production in the Soviet Union so as to increase a total global supply of these products for which we see shortages down the road. However, within the USSR, current availability of capital, managerial talents, and transportation limit the near-term realization of this goal.

Thus, even without leverage, we might expect some useful results from expanded interrelatedness. Beyond bringing the USSR into the world arena, trade expansion could serve to stabilize bilateral relationships and may encourage Soviet internal changes required if they are to fully utilize imported technology.

In summary, embodied in most of our discussions was the idea that expanded trade in non-strategic goods was potentially useful to both nations. For the US, trade has the potential of providing access to additional raw material stocks while the USSR would have access to secondary products not currently produced by her own economy. This would provide both the short-range benefits of trade and the long-range potential of marginal political influence. Given that some unencouraged trade already exists, any general encouragement of this trade relationship rests in large part on fresh US Government policy initiatives.

ECONOMIC INTERDEPENDENCE AND THE US–SOVIET RELATIONSHIP

Dr. Herbert S. Levine*

Introduction

To begin, a terminological issue concerning the word, "interdependence." In discussions of US–Soviet relations and especially of Soviet policy toward such relations, the tone of the word is all wrong. Soviet leaders are not interested in being interdependent with us. Indeed, one of the main objectives of their entire forced draft industrialization drive, which began with the introduction of centralized planning at the end of the 1920s, was to free the Soviet Union from economic dependence on the advanced, capitalist nations. Soviet national security was to be achieved through the build-up of Soviet military strength and the attainment of Soviet economic independence. These objectives remain today. Thus, most students of Soviet affairs find the possibility of a Soviet policy of interdependence with capitalist economies rather far-fetched.

In view of these economic independence objectives, Soviet policy toward foreign economic relations has often been described as a policy of autarky. The word "autarky," however, is as an inappropriate description of Soviet policy as the word "interdependence." It implies a policy of reducing involvement with other nations to zero. But a policy of non-dependence does not require the reduction of such involvements to zero, but only that the country not be dependent on any other country for any goods crucial to its existence.

The degree of involvement of a nation in the world economy may be said to lie along a continuous scale. The scale measures the amount of economic disruption that would be caused to a nation's internal economy if its external economic relations were broken. That is, increasing degrees on the scale of involvement in the world economy reflect the dependence of an economy on external relationships as measured by the extent of economic disruption that would be entailed in the breaking of these relationships. The zero point or lowest range of the international involvement scale is "autarky," and the highest range is "interdependence." The range above autarky may be called "non-dependence," and the range above that "interrelatedness."

The question to be addressed in this paper is not whether the Soviets may be moving from autarky to interdependence. They were never really at the former, and they are not in the foreseeable future about to opt for the latter. The more meaningful question and the one which will concern us in this paper, is whether the Soviet Union may in the near future be moving from the range of non-dependence to terms of involvement in the world economy, to the higher range of interrelatedness.

Alternative Soviet Policies Toward the World Economy

In exploring future Soviet policy toward the world economy, two alternative hypothetical patterns may be considered. The first is a traditional, rather broadly-held view that focuses on the aforementioned Russian objective to be free of dependence on other countries. The second

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hypothetical pattern is different from the first in that it embodies a significant increase in Russian interrelatedness with other nations; it is a view of possible Soviet policy that is still not so broadly held by specialists on the Soviet Union.

First Pattern

The first hypothetical pattern is based on Russia's historical pattern of involvement in the world economy—a pattern of periodic forays into the international economy, primarily to procure inputs required for growth and modernization, associated with Russia's general historical fitful pattern of economic development. Intense periods of rapid economic growth, in which Russian leaders attempt to catch up with the advanced nations of the West are followed by periods of withdrawal and relative stagnation.[1] Since the mid-15th century, the history of Russia has been dominated by the theme of territorial expansion: originating in the small principality of Muscovy just emerging from Mongol rule, Russia has grown to its present size. During this process of expansion, the Russian state frequently came into contact and conflict with more advanced and more powerful Western nations. In such confrontations, the expansionary ambitions of the Russian leaders were thwarted, primarily because of the relative backwardness of the Russian economy. The tension between ambition and ability would lead to the State's taking on the role of initiator of economic development. The State would apply pressure to the internal economy to get it to grow rapidly to be able to support the foreign policy aims of the State. Thus the fitful nature of economic development observed in Russian history: when the military needs of the State were pressing, the economy was pressured into rapid growth; when a degree of power parity was reached with the West, the need for rapid growth subsided and the State removed its pressure for growth; as a consequence, a period of rapid growth was followed by a period of little or no growth. In past periods of importation of advanced technology, the Russians were able, within a compressed period of time, to approach contemporary economic development levels in the West and, to some extent, even the levels of contemporary technology in the West. Yet in the longer run, as the advanced nations of the West continued to develop new technology, the Russians were not able to maintain their relative position, and they fell back.

This pattern is seen in the period of Peter the Great at the beginning of the 1700s, the period of rapid growth of the 1890s, and the period of massive industrialization launched by Soviet leaders in the 1930s.

Under Peter the Great, the Russian economy experienced a tremendous surge of growth which brought it toward the existing levels of industrial development in advanced Western nations. Peter emphasized the importation of foreign technology along with massive numbers of foreign technologists. In this way, he built an economic base for the support of his military ambitions.

Within the past hundred years, there have been two major periods of concentrated Russian involvement in the world economy, again with major emphasis on the acquisition of advanced foreign technology. The first of these was connected with the industrialization spurt in the 1890s. It was led by the Russian Minister of Finance, Count Witte, whose policy was to encourage foreign investment in Russia. As a result, foreign capital, especially French and Belgian, accounted for almost 50 percent of all new capital invested in Russia during the industrialization drive of the 1890s. In 1900, foreign companies owned more than 70 percent of the capital in mining, metallurgy and machinebuilding in Russia.

With this high level of foreign investment, not only was the capital stock of Russia greatly expanded, but also foreign technology was brought into Russia, both in the form of advanced

capital equipment itself and in the form of human capital. Foreign technologists, experienced businessmen, managers, and engineers came to Russia as foreign companies were set up within Russia. Direct foreign investment was thus responsible for the implantation of advanced techniques in several key industries. New technology was often incorporated with little or no adaptation. For example, the steel mills built in southern Russia after the mid-1880s were of the same technological level and size as those being built in Western Europe. And, in this period, with the continuing participation of foreigners in management, these steel mills kept up with West European progress and remained in the mainstream of world progress in steel making. Moreover, the foreign firms competed with Russian firms inside Russia and forced the latter to be more efficient if they were to survive.

During this period, Russian trade manifested characteristics typical of an underdeveloped economy. Russia exported raw materials and imported machinery and other industrial commodities. Its exports consisted chiefly of grain, lumber, and oil. Before the turn of the centry, Russia was the second largest producer and the largest exporter of oil in the world. Its imports, in addition to machinery and equipment, consisted of certain commodities that it did not produce (rubber and non-ferrous metals), and certain commodities that it did produce, but for which the domestic demand exceeded the domestic capacity to produce (rolled ferrous metals, copper, coal, and cotton).[2]

A second period of major involvement in world economy occurred within the past century, during the 1920s and, especially, the early 1930s. During the relatively free market-oriented period of the New Economic Policy of the 1920s, the Soviets attempted to import primarily foreign machinery and technology through the program of foreign concession. The quantitative importance of this program is a matter of debate. Nevertheless, the actual number of business arrangements with foreign concerns was larger than has been commonly believed.[3] However, it was during the period of the first five-year plan, 1928 to 1932, that major efforts were made to import foreign machinery and technology in connection with the industrialization program that was then being initiated.[4] With the emphasis on industrial capital formation, imports of machinery and equipment began to assume greater importance. By 1932 the imports of machinery and equipment rose to a level of more than half of the total imports of the Soviet Union, and imports of certain types of machines—turbines, generators, boilers, machine tools, metalcutting machines—accounted for between 50 and 90 percent of the growth in the supply of these machines during the period of the first five-year plan. On the whole, imports of capital goods from abroad amounted to almost 15 percent of gross investment in the Soviet Union during this period. Furthermore, imports of certain basic industrial materials—lead, tin, nickel, zinc, aluminum, rubber—accounted for perhaps 90 to 100 percent of these materials consumed in the Soviet industrialization program. Clearly, imports of machinery and industrial commodities played an important role in Soviet economic growth during the first five-year plan.

After the completion of the first five-year plan, Soviet involvement in this type of trade decreased. The decrease can be attributed to several factors. Among the direct economic factors were, first, the policy of non-dependence, i.e., trade was aimed at building import substitution capacity and was severely reduced after the delivery of necessary machinery. Second, in the recession of the Thirties, terms of trade worsened for the Soviet Union, i.e., the export prices of raw materials dropped significantly relative to machinery import prices. Third, the attitude in the

toward trade with the USSR shifted, after the granting of MFN status, away from the granting of credit on favorable terms and toward conditioning trade terms on political concessions.

In the next five-year plan—that is, the period 1933-37—imports of foreign capital goods fell drastically to about 2 percent of gross investment. Dependence upon the West for major products decreased dramatically. Sometimes, imports of equipment fell rather suddenly. For example, imports of tractors in 1931 accounted for about 60 percent of the growth of the tractor stock in that year, and in the next year they fell to zero.

From this brief survey of past Russian involvement in the international economy, it can be seen that underlying the spasmodic historical pattern of Russian economic development has been the desire to catch up economically with advanced Western nations, to achieve military parity with them, and in this way to protect and increase the national security and power of Russia. This objective of assuring national independence, of avoiding dependence on other nations has been of paramount importance.

In the 1890s, there were many, especially among the Russian nobility, who were opposed to Witte's policies. They charged that his program of bringing in foreign capital was endangering the national independence, and was leading Russia into a position of colonial dependence on foreign capitalists. Witte, in defending his program, also appealed to Russian nationalism. His program, he argued, was aimed at freeing the country from dependence on foreign supplies of manufactured goods.[5] Only by building up its productive forces could Russia remain independent and attain the position of a world power. He assured critics that Russia had the means and the power to control foreign investors who were being used to help develop the economy: "Only a disintegrating nation has to fear foreign enslavement. Russia, however, is not China."[6]

Soviet industrialization in the 1930s was imbued with the goal of gaining economic independence and strengthening the defense capabilities of the nation. In a famous speech, in 1931, Stalin stated: "One feature of the history of old Russia was the continual beatings she suffered for falling behind, for her backwardness. . .Do you want our socialist fatherland to be beaten and to lose its independence? If you do not want this, you must put an end to its backwardness in the shortest possible time. We are fifty or a hundred years behind the advanced countries. We must make good this distance in ten years. Either we do it, or they crush us."[7]

The pursuit of non-dependence was written into the USSR Constitution, and according to Soviet foreign trade authorities, became the guiding objective in the formulation of Soviet foreign trade policy and planning. Though, as indicated above, there were also other factors at work, the political policy of non-dependence, perhaps more than anything else, accounted for the drastic drop in Soviet trade in the middle and late 1930s.

This, then, is the traditional, established pattern of Russian involvement in the world economy. In analyzing the current surge of Soviet interest in expanding its international economic relations, especially with the US and other advanced capitalist nations, is this the pattern which should be employed? In other words, is this current expansion of Soviet interrelatedness with other countries another example of the traditional pattern at work? And will the Soviet leaders, after acquiring the advanced machinery and technology they desire, reduce their degree of international interrelatedness and retreat from their expanded involvement in the world economy?

Before proceeding to a discussion of these issues, let us explore an alternative hypothesis concerning Soviet policy toward the international economy.

Second Pattern

The second pattern for assessing future Soviet trade policy differs from the first in that it focuses on a more general pattern of trade and development among industrial nations rather than solely on a unique Russian pattern. Further, it argues that as Russia progresses along the path of industrialization it will come increasingly under the influence of this general pattern of industrial development.

According to the long-term data compiled by Kuznets, the international flow of goods and resources grew at rapidly accelerating rates in the period from the 1820s to World War I, declined in the interwar period, and then accelerated again in the post-World War II period.[9] Thus, the general pattern for industrialized nations appears to be one of increasing international involvement as economic development proceeds (the interwar period can be viewed as a recession-ridden anomaly in regard to the role of international trade).

That this is the pattern for capitalist nations has always been asserted in the Marxist-Leninist literature. What was not so clear was whether it also applied to socialist nations. For the Soviet foreign trade literature, following the political positions taken in the 1930s, did not stress the economic efficiency advantages of foreign trade and thus did not argue that international economic relations of a socialist economy would increase with economic growth. Although after World War II the advantages of the international division of labor within the socialist bloc and the expansion of intra-CMEA trade were stressed, the emphasis on the advantages of trade was muted. But after the death of Stalin, arguments in support of the advantages of trade began to be made with more force, both by economists and by Soviet officials. And from the beginning of the 1970s, major emphasis has been placed on the expansion of Soviet economic relations also with developed capitalist nations.[10]

An important theme running through current Soviet discussions of the advantages of trade is the role played in contemporary developed economies by the "scientific-technical revolution."[11] The development of modern science and its application through modern technology to economic activity, it is argued, has profoundly increased the role of international economic relations in advanced economies, primarily due to the effects of the international nature of science and the way in which it develops. This argument is similar to Kuznets' fundamental point about the crucial importance of the internationalization of knowledge.[12]

Do these recent pronouncements on the advantages of international economic relations mean that the Soviets have abandoned their policy of non-dependence on foreign countries and have adopted a policy of interdependence? The answer to that question, at the present time, is clearly no.

First of all, much of the Soviet discussion of the advantages of foreign trade has been directed toward trade within the socialist bloc, and thus has not involved the issue of interdependence with capitalist countries. Furthermore, the literature on intra-CMEA trade and planning consistently

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stresses the maintenance of the sovereignty of the individual nations within the bloc, rather than stressing the growth of their interdependence.[13]

This is, however, only a partial answer, for increasingly in the current period, Soviet discussions have emphasized the need for extending Soviet economic relations beyond the socialist camp into the capitalist camp. A key early pronouncement here was Kosygin's speech at the November 1971 Supreme Soviet in which he openly invited Western participation in the development of the Soviet economy:[14]

> *With the transition to the practice of long-term agreements, which guarantee stable orders for industry, new possibilities are opened up in our relations with Western nations. Consideration can be given to the mutually beneficial cooperation with foreign firms and banks in the working out of a number of important economic problems, connected with the use of the natural resources of the Soviet Union, the construction of industrial enterprises, and the search for new technologies.*

The advantages of trade with Western nations were described in the following terms, in the 1973 annual report of Minister of Foreign Trade Patolichev:[15]

> *Mutual advantage is one of the leading principles of Soviet foreign trade associations, and they adhere to this principle in trade with their Western partners. In developing economic ties with Western Europe, our country receives an opportunity to make fuller and more rational use of its own resources and possibilities, and at the same time to acquire, by way of commercial exchange, goods of other countries that are not produced in our country or whose production would cost more than it does to import them. Thus, foreign economic ties offer a more efficient solution to a number of problems arising in the course of economic construction.*

And finally, at the recent Twenty-Fifth Party Congress held in February-March 1976, Kosygin reemphasized the continuing and growing importance of international economic relations with capitalist nations, but also added a reference to the need for political support and cooperation in capitalist countries for the development of such economic relations:[16]

> *The role of international economic cooperation in accomplishing the five year plan's tasks will grow. . .*
>
> *In conditions of the easing of international tension, our economic relations* with the developed capitalist countries, *which can expand successfully on the basis of the principles set forth in the Final Act of the Conference on Security and Cooperation in Europe, are taking on new qualitative aspects. We shall continue the practice of concluding large-scale agreements on cooperation in the erection of industrial projects in our country and on the participation of Soviet organizations in the construction of industrial enterprises in Western countries. Agreements on a compensatory basis, especially with short reimbursement periods for new enterprises, various forms of industrial cooperation and joint scientific research and design work are promising forms of cooperation.*
>
> *Needless to say, our trade and economic ties will develop faster with countries that show a sincere willingness for cooperation and concern for ensuring normal and equitable conditions for its development. Only in this event is it possible to have truly broad and lasting economic relations, which will be reflected in our national-economic plans.*

A second response to the question 'are the Soviets giving up their policy of non-dependence on Western countries' is related to the level of economic development that has been attained by the Soviet Union. It is the argument that the original objective of Stalin to acquire sufficient economic development to guarantee the national independence of the Soviet Union has been achieved. The development of economic relations with capitalist nations at this stage extends beyond this core of economic power but does not endanger it. In other words, under present conditions, expanded economic relations with the West do not involve capitalist countries in the basic core of the Soviet economy (which is now sufficiently developed to guarantee the independence and national security of the Soviet Union), but operates at the margin to improve the performance of the Soviet economy. Thus the expansion of economic relations with the West represents for the Soviet Union an increase in what we have called *interrelatedness* with Western economies, but does not involve, in any significant sense, an increase in Soviet-Western *interdependencce,* or in Soviet dependence on the West.

Thirdly, this distinction between interrelatedness and interdependence is further brought out when account is taken of the type of international specialization or division of labor which has been developing among industrialized nations and which is envisioned by the Soviets. In an important article, in 1966, Bela Balassa argued that postwar trade among advanced European economies, especially after the founding of the Common Market, has not followed the precepts of traditional comparative cost specialization; it has been marked by intra-industrial specialization rather than inter-industrial. In discussing the consequences of a general multilateral tariff reduction, Balassa stated:[17]

> *Only a few manufactured goods (e.g., steel ingots, nonferrous metals, paper) traded among the industrial countries are standardized commodities, while the large majority are differentiated products. . .In the presence of national product differentiation, multilateral tariff reductions may lead to an increased exchange of clothing articles, automobiles, and other consumer goods, for example, without substantial changes in the structure of production. Further, the expansion of trade in machinery and in intermediate products at a higher level of fabrication. . .may entail specialization in narrower ranges of products rather than in the demise of national industries. These changes, then, would involve intraindustry rather than interindustry specialization.*

This leads to different conclusions about the advantages of trade. The economies of scale resulting from long production runs associated with narrow specialization within industrial branches replace the more general productive efficiency advantages which in the traditional explanation result from intersectoral specialization.

Soviet trade authorities have long stressed the principle of intraindustrial specialization. It is reflected in the 1962 CMEA "Basic Principles of International Socialist Division of Labor,"[18] and it is emphasized in discussions of contemporary capitalist trade and development, and in discussions of the expansion of Soviet trade with the West.[19] It is a very important principle, for it means, as Balassa indicated, that trade between countries can expand without necessitating substantial changes in the internal structure of production of the trading partners. And to the extent that intra-industrial trade with Western nations involved final rather than intermediate goods the Soviets could increase their international interrelatedness with little immediate danger of becoming dependent upon capitalist nations.

The implications of the Second Pattern are then quite different from those of the First Pattern. Instead of another periodic Russian expedition into the international economy, the expectation would be a greater and more lasting Russian involvement in the international economy. It would also be expected that the Soviets would press for intra-industrial trade, and would thus try to develop the production of exportable manufactured goods of a relatively high level of fabrication, rather than continue to rely on their traditional raw material exports.

Though the Second Pattern may appear radically different from past Russian experience, it is not totally so. During the period 1905-13, the traditional Russian, state-dominated, inwardly focused pattern of development did show signs of giving way to the more general, international involvement pattern of Western industrialized nations. After 1903, with the removal of Witte, the Russian state withdrew from its role as initiator of economic development. Its place was taken over by Russian banks who began to perform managerial and entrepreneurial functions, and who also began to take over these functions from foreign managers, leading to a process of Russification of industrial management. With the encouragement of the banks, cartels and syndicates were formed giving the banks and a growing group of Russian industrialists significant control over the Russian economy. These bankers and industrialists, while supporting the need for the Russian economy to become independent in crucial areas of manufacturing, opposed as medieval the "desire to shut oneself off from the world by a Chinese Wall."[20] They advocated that Russia follow the path marked out be the advanced nations of the West, and they called for the development of foreign markets for the products of Russian industry. During the 1905-13 period, Russian trade increased significantly and Russian banks and corporations began to participate in West European capital markets.[21]

This process was cut off by the Communist Revolution and the return to inwardly focused economic development under the Soviets. The Second Pattern argues, now that the Soviet economy has attained a level of development which assures national independence, the underlying forces which gave rise to the short, pre-revolutionary period of growing Russian international interrelatedness may again move the Russian economy in that direction.

Importance to the Soviet Economy of Technology Imports

The exploration of future Soviet policy toward economic interrelatedness with Western nations and its implications for US policy must include an assessment of the Soviet economy's need for and potential gains from these interrelationships and especially Soviet machinery and technology imports from the West. Moreover, of particular relevance are the Soviet leaders' perceptions of those needs and potential gains. It is to these issues that we now turn.

We begin with some data on Soviet postwar economic growth. If the postwar period is divided into three subperiods–1950-58, 1959-67, and 1967-74–a relationship of some significance can be observed. First of all, the rate of growth of Soviet national product has been decreasing.This is true, both in Western calculations on the Soviet economy and in official Soviet data. According to certain US Government calculations, the rate of growth in the first subperiod was 7.4 percent per year; in the second, 5.7 percent; and in the third, roughly 5.1 percent.[22] Official Soviet data show higher rates, but also a downward trend: 10.9 percent, 7.2 percent, 6.8 percent.

Secondly, while the rate of growth of output was declining, the rates of growth of labor and capital inputs into the economy have remained relatively stable over the entire 1950-74 period (slight decrease in the growth of capital stock in recent years). Thus, what has been occurring is an erosion of the rate of growth of factor productivity. When a statistical comparison is made between the Western calculations of the rates of growth of output and the rates of growth of combined labor and capital inputs, it is seen that the rate of growth of total factor productivity in the Soviet Union has persistently decreased: from 2.7 percent per year in the period 1950-58, to 1.1 percent in 1958-67, to 0.8 percent in the period 1967-74. Thus, during the most recent period, output has grown only slightly more rapidly than inputs.

In developed industrial economies, increasing factor productivity is an important source of economic growth. Its decline in the Soviet economy has, therefore, become a matter of grave concern to Soviet leaders. It can be seen as an erosion of the effectiveness of the Soviet growth model, which—in somewhat oversimplified form—has called for Soviet authorities to concentrate on the maintenance of a steady growth in the supply of inputs into the economy with the expectation that this will lead to a more than proportional increase in output. Furthermore, the decline in factor productivity casts its shadow ahead, and leads to forecasts of some tensions in the economy during the 1980s. For example, we have run several long-term projects with the Stanford Research Institute (SRI)–Wharton Econometric Forecasting Associates (WEFA) Soviet Econometric Model, and these indicate future productivity problems: declining capital productivity, which combined with low labor force growth (caused by demographic factors) leads to an ever-increasing share of investment in GNP and concomitant fall in the share of consumption. In addition, of course, agriculture remains a serious problem.

These clear and perceived needs have contributed to the Soviet interest in Western advanced technology, which began at the end of the 1960s. And, as was indicated at the Twenty-Fifth Party Congress, it will contribute to the continued interest of Soviet leaders in Western technology, machinery and equipment, through the period of the tenth FYP, to the end of the 1970s and most likely beyond.

This turning to the West for advanced technology to solve productivity problems is, as was discussed above, within the Russian historical tradition. While the Russians in the past were able to approach (but rarely attain) contemporary world levels of technology with the technology they imported, in the longer run, as Western nations continued to develop new technology, the Russians were not able to keep pace with the changes. Why have the Russians had trouble in fully assimilating advanced technology and why have they been particularly weak in maintaining technology at world levels: Certain aspects of the situation under the Soviets have been amply discussed in the literature on the Soviet economy. We will mention these briefly and will add some additional observations which will explain Russian difficulties in evidence also before the Revolution.

Among the Soviet economic institutions which affect the ability of the economy to absorb, master, and create new technology, the one which has received primary emphasis in both the Western and Russian literature on the Soviet economy is the managerial incentive mechanism that has more or less dominated the Soviet scene since the 1930s. The Soviet economy, in the past decade, has been undergoing certain administrative changes, and, while the current picture is not totally clear, the incentive mechanism is still basically related to the fulfillment of performance

targets. In any situation such as this, there are two ways of assuring success or increasing the possibility of success: (1) performance, and (2) keeping the target within reasonable distance. The second aspect of target-type rewarding is detrimental to the innovation process. Innovation always involves risk. The compensation for risk, contained in the reward for possible over-plan fulfillment, is reduced by the fact that success today will mean a higher target tomorrow, and success in the system requires the rather regular meeting of targets. Thus, managers resist innovation and try to keep targets low. There is much discussion in the Soviet Union on how to get around this problem, but nothing very effective has been introduced so far. Professor David Granick, in a recent SRI study,[23] argued that, indeed, nothing very effective should be expected. He maintains that attempts to improve Soviet technology assimilation through the modification of specific forms of success indicators, cost sharing and pricing devices, and the length of the plan time period against which enterprise results are evaluated will at best have limited results. For they are primarily cosmetic. What is necessary, he states, is to change the basic managerial philosophy, to move from making managerial income and promotion rewards direct and immediate functions of measurable objective performance indicators,[24] to a system where these rewards are decided upon by superiors, using subjective evaluation criteria. The latter is the system used in East Germany and in many capitalist economies including the US. Soviet leaders, Granick argues, could adopt this approach without doing violence to the socio-political beliefs and without running the major economic and political risks of radical economic reform. However, there is nothing in the Soviet literature to indicate that such a change in managerial philosophy is in the offing.

A second factor inhibiting the absorption and diffusion of advanced technology in the Soviet Union involves the organization of research and development (R and D). A great deal of effort is put forth on research and development in the Soviet Union, but to a great extent it is separated from production, and insufficient attention is paid to development in comparison with research. As a result, a fair amount of new technology is generated or foreign technology identified, but the implementation and the diffusion of it are limited. For the reasons just discussed, the managers of industrial enterprises try to avoid incorporating new technology because it will cause problems and will not lead to sustained rewards. Thus, simply giving the control of R and D to the production managers is not an acceptable solution, since the expectation is that they will not encourage the development of new products and processes. One of the reforms currently underway, the creation of large "scientific production associations," offers the promise of bringing the Soviet organizational relationship between research, development, and production more into line with the pattern dominant in the West. In this regard, the practice appears to be to have a scientific institute as the managerial unit in the association, so as to give primacy to technical change as an objective. Whether this will have significant results, operating within the present incentive, planning, and control environment, is difficult to say, though it might be considered one of the more promising current reforms.

Third, the technology transfer process is primarily a people-process. That is, technology is best transferred from firm to firm and from country to country by people (managers, engineers, sales engineers, etc.) rather than by publications (including blueprints) or products themselves. The Soviets have, in the postwar period, concentrated on the latter approaches while making minimal use of the former. Currently, however, they appear to be paying more attention to the people part of the process.

Related to this, but also directed toward increasing Western interest and participation in effective technology transfer to the Soviet Union, has been the current Soviet discussion of new forms of industrial cooperation with Western businesses. As Kosygin has stated, "We are convinced that for the realization of such cooperation there can be found various organizational forms which would be to the interest of all participants."[25]

The elements discussed so far have related to Soviet institutions and practices. But the Russians under the Tsars also had trouble mastering modern technology and maintaining its dynamic change. What common elements in the pre-and post-revolutionary Russian scene may explain these common difficulties?

One such feature concerns the creative destruction aspect of technical change–that is, when something new is done and it is successful, the old is destroyed. In a politicized, bureaucratized economy, such as is found under both the Tsars and Communists, those who operate the existing types of activities are much better able to protect themselves against the threat of new types of activities and new technologies. In this respect, one of the advantages of a private enterprise system is that it does not internalize within the state decision sector the destruction of the old. The price paid for new technology is absorbed by individual elements in the society rather than the society as a whole.

In the Soviet Union, and in Tsarist Russia, creative destruction has been limited by the bureaucracy; this has been an important and difficult aspect of the whole process of technical change in the Russian economy. In general, bureaucracies tend to possess a high degree of risk aversion, and ability to protect themselves against the pains of change. Established bureaucratic rules and lines of authority hamper change and experimentation with new ways of doing things. Bureaucracies tend to penalize failure more than they reward innovational success. Bureaucracies tend to favor large-scale output–this has always been true in Russia–and large-scale output itself increases the cost of change. Finally, bureaucracies establish firm lines of administration, preventing "invasion" of a stagnant branch by groups from a more dynamic branch. Such "innovation by invasion" has been a significant source of technology diffusion in the West.

Furthermore, the absence of a threat of bankruptcy in the non-competitive Soviet economy has its effect. In competitive economies, the innovational process responds in a positive way to high rewards for successful innovation; it also responds to the fear of being driven out of business by dynamic competitors. Indeed, the spur to innovation from the latter is probably stronger than the former. The absence of defensive innovation from the Soviet economy thus removes an important contribution to technical change.

Frequently, dynamic men do appear in leadership positions in a bureaucracy who press for change. While they may enjoy some success through the exercise of their power, they are not at the production level, and thus their influence over day-to-day operations is limited.

A final factor in the Soviet picture is that the Soviets have primarily imported foreign technology for domestic purposes rather than for exports which would have to be internationally competitive. Thus, once the new technology was in place, there was no pressure on those using it to keep it up to changing foreign levels, and the technology languished. This was also important in the

Tsarist period. The success experienced by the Japanese in developing a self-sustaining technological advancement through the import of technology for international competitive purposes highlights the influence of the purpose of imported technology, i.e., whether it is to be used just internally or whether it is also used for international competitive purposes. Moreover, this argument contributes to an explanation of why the Soviets have been much better in military technology than in civilian technology. Military equipment is in its nature competitive; its performance and its utility can be judged only relative to the equipment possessed by the (potential) enemy; whereas this is not true of non-military equipment.

The foregoing discussion speaks of the difficulties experienced by the Russians in absorbing advanced technology and in mastering the process of technical change. Does it mean the Soviets derive little if any benefit from the importation of advanced technology? Not necessarily. First of all, what we have presented is qualitative analysis. And while there is ample supportive anecdotal evidence, it does not provide quantitative information. It is, for example, quite possible that even though the Soviets do not handle foreign technology nearly as well as the foreigners do, the foreign technology imported into the Soviet Union is still significantly more productive than the existing domestic technology.

With the aim of deriving a quantitative estimate of the relative productivity of imported and domestic technology in the Soviet Union, we recently ran a series of calculations with the SIR-WEFA Soviet Econometric Model.[26] In the Model, industrial capital is disaggregated into domestic and imported (from the West) capital. Using a form of a production function that treats technical change as embodied in factors of production, we calculated the separate effects on output of domestic and imported capital. Taking into account the additional domestic investment required for putting imported machinery into use (a rule-of-thumb three rubles of domestic investment for every ruble of imported machinery), the Model indicated that imported industrial machinery is approximately four times more productive than domestic industrial machinery. In addition, we ran a counter-factual scenario that removed an estimate of the detente associated increase in machinery imports from the West during the period 1968-1973. It showed that the total increment to industrial output (28.4 percent) would have been 15 percent lower than it actually was (33.7 percent).

These quantitative results indicate a rather substantial payoff to imported machinery and technology, more than might have been assumed from the anecdotal literature and the qualitative analysis presented above. The Model results are still tentative and are subject to revision. However, if their order of magnitude is generally accurate and if they reflect Soviet leaders' perceptions of the gains from technology transfer, then the current Soviet desire for expanded economic relations with the West may be strong indeed.

Conclusions

It is time to draw some brief conclusions from the analysis presented so far. First we will discuss the likely positions of the two patterns of Soviet policy toward the international economy over the next decade. And second, we will outline some of the implications for US leverage on the Soviet Union.

We begin with the possible impact and observation of Patterns One and Two. While the working out of the differences between the two patterns are long-run phenomena, Soviet behavior in the medium run (ten years) will be affected by which pattern is dominant. For example, to the extent that Pattern One is currently felt by Soviet leaders to be dominant, major decisions in regard to export expansion and long-term hard currency earnings will be put off, and reliance will be placed on the current composition of exports with its emphasis on raw materials exports to the West. However, it is wrong to view Soviet policymaking as a monolithic, totally centralized process. Within a dominant environment of Pattern One, some appearances of Pattern Two are possible, especially in regard to intra-industrial specialization.

A second conclusion concerns the difference between interrelatedness and interdependence. Decisionmaking in regard to the Second Pattern involves the former rather than the latter, although, in the long run, aspects of the latter might develop.

Third, it is sometimes said that central planning itself inhibits trade and thus would reduce the possibility of Pattern Two. While there are some arguments in favor of this position, there are also arguments that, since under planning the entire national interest can be viewed, trade will be increased. The issue is not settled, but clearly central planning, in the USSR and Eastern Europe, has not lead to the destruction of trade. Furthermore, trade is not as inhibited by the establishment of specific plans as some think. As Kosygin and others have made clear, plans can be adjusted to meet the changing demands and opportunities in the international market.[27]

The fourth conclusion concerns the possible ways of observing the development of the two patterns. First, it may be said that the greater the degree of decentralization in a society, the greater the possibility that decentralized decisionmakers will pursue economic rationality and develop expanded interrelationships with foreign economic units. Thus one sign to look for as to the emergence of Pattern Two is the degree of decentralization in regard to foreign trade that is being permitted. The recent slight increases in the role played by using ministries and associations in import decisions are relevant here. Also relevant are the veiled call for getting on with fundamental economic reform in Brezhnev's report to the Twenty-Fifth Party Congress, and the lessening of plan tautness in the tenth Five Year Plan, which will contribute to a better environment for economic reform.

Another indication of the emergence of the Second Pattern would be the commitment of productive capacity and R & R efforts to export purposes. According to one of the Soviet participants at the June 1975 SRI-IMEMO/IUSA Joint Symposium, the present Gosplan practice is to spread export orders widely over many producing enterprises. As a result, the enterprises have little incentive to gear up for foreign markets. Gosplan is being urged to concentrate its orders on a few enterprises, so that each will have enough interest in exports to adjust its production practices to world standards. This proposal was supported by Kosygin at the Twenty-fifth Party Congress.[28]

Closely related to this would be signing of long-term contracts not only for Western sales to the Soviet Union but for Soviet sales of manufactured products to the West. The Soviets support such long-term arrangements, at least in theory.[29] So far, however, practice is lagging.

A final conclusion on the two patterns concerns the process of change in Soviet policymaking. When Krushchev visited the US in 1959 and observed automobile traffic on American highways, he indicated that it was Soviet policy to avoid the wastes of the automobile age, that the Soviets would limit the production of private automobiles. Yet a decade later that policy was changed. It can be argued that the imperatives of industrialization, in this case the obvious fact that Soviet industry could have the capacity to mass produce automobiles plus the workings of the "demonstration effect" on Soviet demand (especially elite demand), led to the alteration of Soviet policy. In similar fashion, it can be argued that, while it may well be true that most Soviet leaders today are supporting expanded economic relations with the West with the traditional First Pattern in mind, there are forces at work moving Pattern Two forward. As time passes, more members of the Soviet decisionmaking strata will become involved in economic relations with the West. To the extent that they are successful relations, these decisionmakers will benefit directly in their own work. Given a long enough period without a major world crisis breaking East-West relations, the size of this group may approach a critical mass. The discussions at the recent Twenty-fifth Party Congress give some evidence that this process, at least at the verbal level, is well underway.[30]

Second, a brief outline on leverage. To what extent do the substantial Soviet need for the potential gain from expanded economic relations and technology transfer and the possible emergence of a new Russian pattern of increased interrelatedness in the world economy on a long-term basis given to the United States the possibility of exercising leverage over Soviet policies? This is a broad issue. In its examination, a number of aspects have to be differentiated and problems addressed.

First of all, leverage can be exerted directly or indirectly: directly, as through a specific action; or indirectly, as through the expansion of open contacts between people. Secondly, leverage (especially direct leverage) can be applied overtly or quietly as through diplomatic channels. Third, the object of applying leverage may be to affect Soviet external behavior or internal behavior.

Fourth, there are a number of major problems that inhibit our ability to use leverage as an effective US policy instrument. These include difficulties in the:

1) identification of US national interests.

2) orchestration of diverse private and public agencies, including those of other Western nations from whom the Soviet Union can acquire advanced machinery and technology.

3) measurement of effects of our application of leverage.

   a) 'the shrewd Russians always get the best of us'

   b) economic relations and zero-sum games

   c) comparisons with what would have been

   d) political consequences of our ethnic make-up and constituency democracy.

Finally, despite all of these problems, the feeling here is that there is some potential for leverage of a limited sort on both Soviet external and internal behavior. It is limited by the fact that though the Soviet leaders want to import technology from the West it is not required for their survival. And, because of Soviet sensitivity to affronts to its sovereignty, it is limited to the quiet, diplomatic exercise of leverage, which may present particular problems in our open democracy.

Footnotes

[1] A. Gerschenkron, *Economic Backwardness in Historical Perspective* (Cambridge, 1972), pp. 17-18.

[2] See Franklyn Holzman, "Foreign Trade," in A. Bergson and S. Kuznets, eds., *Economic Trends in the Soviet Union* (Cambridge, Mass.: Harvard University Press, 1963), pp. 287-320.

[3] See Anthony C. Sutton, *Western Technology and Soviet Economic Development, 1917 to 1930,* Vol. 1 (Stanford, California: Hoover Institution Press, 1968).

[4] Holzman, "Foreign Trade."

[5] M. Miller, *The Economic Development of Russia, 1905-1914* (London, 1967), p. 219.

[6] T. Von Laue, *Sergei Witte and the Industrialization of Russia* (New York, 1963), p. 182. Soviet historians today generally side with Witte's critics and argue that Russia at the turn of the century was a colonial dependency of Western capitalist nations.

[7] Stalin, *Selected Writings* (Moscow, 1941), p. 200.

[8] S. Kuznets, *Modern Economic Growth: Rate, Structure, and Spread* (New Haven, 1966), Ch. 6.

[9] Ibid., and M. Maksimova, *Osnovnyye problemy kapitalisticheskoy integratsii* (Moscow, 1972). (Also English translation: M. Maximova, *Economic Aspects of Capitalist Integration* (Moscow, 1973).

[10] See, for example, Kosygin's speech at the November 1971 session of the Supreme Soviet Gosplan SSSR, *Gosudarstvennyy pyatiletniy plan razvitiya narodnogo khozyaystva SSSR na 1971-1975 gody*, Moscow. See also his speech at the Twenty-fifth Party Congress (February-March 1976) in *Pravda,* 2 March 1976, pp. 2-6 (English translation in *Current Digest of the Soviet Press,* 7 and 14 April 1976.

[11] This phrase is likely to appear in almost every current Soviet discussion or pronouncement on foreign trade. For an extensive treatment, see Maksimova, Osnovnyye Problemy, Ch. 2.

[12] Kuznets, *Modern Economic Growth*, pp. 286-294.

[13] "International economic relations between socialist countries take the form of relations between sovereign owners of the means of production, and not as relations built on the base of unified international property . . . this is one of the basic differences between CMEA and imperialist economic organizations like the "common market" which aspire to take for themselves functions of supra-national institutions." V. Ladygin and Iv. Shiryaev, *Voprosy ekonmiki*, 1966:5, p. 82.

[14] Kosyatn in Gosplan SSSR, *Gosudarstvennyy pyatiletniy plan*, p. 56.

[15] *Pravda*, 27 December 1973, p. 4. [Translation from *Current Digest of the Soviet Press*, 23 January 1974, p. 3]

[16] *Pravda* 2 March 1976. [Translation from *Current Digest of the Soviet Press*, 7 April 1976, pp. 5 and 20.]

[17] B. Balassa, "Tariff Reductions and Trade in Manufactures Among the Industrial Countries," *American Economic Review*, June 1966, p. 469. On the role of product differentiation in the commodity composition of trade, see I Kravis, " 'Availability' and Other Influences on the Comodity Composition of Trade," *Journal of Political Economy*, April 1956, pp. 143-55.

[18] M. Kaser, *Comecon* (London, 1965), p. 194. See also C. H. McMillan, "Soviet Specialization and Trade in Manufactures," *Soviet Studies*, April 1973, p. 529.

[19] M. Maksimova, *Osnovnyye problemy*, Ch. 2; M. Maksimova, "Vsemirnoye khozyaystvo i medizhdunarodnoye ekonomicheskoye sotrudnichestvo," *Mirovaya ekonomika i mezhdunarodnyye otnosheniya*, 1974:4, pp. 13-14, Patolichev in *Pravda* 27 December 1973.

[20] R. A. Roosa, "Russian Industrialists Look to the Future: Thoughts on Economic Development, 1906-17," in J. S. Curtiss, ed., *Essays in Russian and Soviet History* (New York: Columbia University Press, 1963), p. 201.

[21] Miller, *Economic Development of Russia*; O. Crisp, "Russia 1860-1914," in R. Cameron, ed., *Banking in the Early Stages of Industrialization*, (New York, 1967), pp. 183-238; and J. McKay, *Pioneers for Profit: Foreign Entrepreneurship and Russian Industrialization 1885-1913* (Chicago, 1970).

[22] These are essentially the data, in established prices, calculated by the Office of Economic Research (CIA). We have used these, rather than the data calculated in factor cost, because they correspond to the Soviet growth data used in the Stanford Research Institute (SRI) - Wharton Econometric Forecasting Associates (WEFA) Soviet Econometric Model (SOVMOD). And later in this paper, reference is made to calculations performed with the SRI-WEFA Model.

[23] D. Granick. *Soviet Introduction of New Technology: A Depiction of the Process*, SSC-TN-2625-7, SRI/Strategic Studies Center, 1975.

[24] This is essentially Taylorism, which was originally designed to increase the direct productivity of semiskilled workers, not the administrative and innovational activity of managers.

[25] Kosygin in Gosplan SSSR, *Gosvdarstvennyy pyatiletniy plan*, p. 56.

[26] See D. W. Green and H. S. Levin, "Implications of Technology Transfers for the USSR," paper presented at NATO Colloquium, "East-West Technological Co-operation," Brussels, March 1976 [in press].

[27] See, e.g., Kosygin in Gosplan SSSR, *Gosvdarstvennyy pyatiletniy plan*, p. 56.

[28] *Pravda*, 2 March 1976; *Current Digest of the Soviet Press*, April 1976, p. 10.

[29] Soviet economists appear to be very concerned about the possible communication of Western instability to the Soviet economy as a result of increased economic relations with the West. And they are searching for methods to reduce this danger.

[30] In this vein, note the comments of Kosygin: "A characteristic feature of the Tenth Five Year Plan will be the deeper involvement of our national economy in the international division of labor and the continuing conversion of foreign economic cooperation to a long-term basis." *Current Digest of the Soviet Press*, 7 April 1976, p. 10.

INTERDEPENDENCE IN FOOD AND AGRICULTURE, AND THE US-SOVIET RELATIONSHIP*

Mr. Joseph W. Willett

Since the Communist Revolution in Russia, many observers have recognized that agriculture presents particularly difficult problems to the Soviet authorities. Some have gone so far as to say that agriculture was the "Achille's heel" of the Soviet system. This designation seems to have been a considerable exaggeration, because, although agriculture has clearly been vulnerable, it has not been the only weakness; and it has not been the fatal weakness implied by that designation. However, when spectacular events focus renewed attention on Soviet agricultural problems, there is always speculation that the problems may be so fundamental that they cannot be overcome without major changes in the structure of the Soviet economy and society.

Within the last few years, there has been much discussion in the United States about whether or not US agricultural strength and Soviet agricultural weakness provides an opportunity for the United States to use food as a "tool," "lever" or "weapon" to influence Soviet actions in international affairs.

This discussion has been carried on as part of a broader discussion of the use of US "food power" in international relations. Interest in the subject has been generated by widespread concern over the world food situation and its prospects. Much of the discussion of the issue has been confused, in part because very different concepts of "power" are being considered. Some of the discussants are focusing particularly on the international market power deriving from US comparative advantage in the production of important agricultural products. Others see the possibility of US Government decisions to offer or withhold food from other countries in an attempt to influence their actions.

Some discussants have said that the United States, in its relations with the rest of the world, is in a similar position with respect to food that the OPEC countries are in with respect to oil. In December 1975 the *New York Times* published an article on "Grain Prices–Penalizing the Already Poor." It quoted Robert O. Anderson, Chairman of the Atlantic-Richfield Company, as saying "we have politicized food in the same manner that the Organization of Petroleum Exporting Countries has politicized petroleum." The article said that because the United States provides more than half the world's grain exports, and holds almost half of the global grain stocks, it enjoys "a degree of dominance over food resources at least comparable to that of OPEC in oil." It said that "agri-power" is potentially more formidable than "petrol power" because there is no substitute for food and that the world's poorest countries " are already spending almost as much on imported grain as on oil," which spending it referred to as "the grain drain."

These views are invalid in several respects. Although the US is responsible for a very large share of the world's exports of some major agricultural commodities, our customers have a number of alternatives to US supplies. The alternatives include obtaining supplies from other exporters, increasing their own production, and adjusting their consumption patterns. Although the US does

*Most of this paper was published in the National Defense University's *Forum* in July 1976.

supply major shares of world trade of important food commodities [in 1975 the US supplied about 48 percent of the wheat, 56 percent of the feed grains, 50 percent of the oilseeds, and 27 percent of the rice sold on the international market][1], it cannot be reasonably said to have monopoly power in the markets. US exports are sold by private traders. The US Government is not normally a direct participant except in the case of food aid. US exports go to many countries in the world and, under most circumstances, any single importer could fill a large part of its needs from other suppliers, unless they were operating in collusion with the United States. Also, food cannot be held with little cost for future use in the same manner as oil. Food is not a stock resource; it must be produced each year or it is lost forever; and there are costs of storing, including deterioration, for food which do not apply for oil left in the ground.

Some of the earliest and strongest suggestions for the use of US "food power" were that it be used to directly counter the "petro-power" of OPEC countries. In November 1973 the Congressional Research Service of the Library of Congress prepared a study which examined this possibility.[2] The study concluded that Arab countries had relatively small needs for imported food from the US [before 1973 the Arab oil-producing states, except Algeria and Saudi Arabia, received less than 5 percent of their food imports from the US]. They could easily be met from sources other than the United States, or perhaps by transhipment of food which might have originated from the US.

Mr. Anderson was mistaken in comparing US Government actions affecting food exports with the actions of the OPEC countries affecting oil exports. The high prices of grain and other food products which developed in 1972 and 1973 resulted from a combination of circumstances, including unusual weather patterns and policy decisions by many governments, but there was no cartel collusion in any way comparable to that behind petroleum prices. While policies and programs of many governments, including the US, contributed to the present food "crisis," no serious study has developed evidence of cartel action to exploit consumers.[3] Prices of food commodities have since declined greatly from the highs, and, although they remain volatile, their behavior has been in sharp contrast to the behavior of oil prices.

In the past the US Government had important influences on the international allocation of food produced in the US, and still exerts some influence, although considerably less. Food has been used as a diplomatic tool, particularly in aid programs. The US has accounted for the largest portion of international food aid (about 80 percent of the total since World War II). For many years much of the exports of US food was subsidized, a large share under Public Law 480, but other programs were used also. US food aid began in 1955 under P.L. 480 as a temporary measure for surplus disposal. Attempts were made to distribute the food aid with minimum interference with existing markets, to help in developing new export markets, to provide a source of finance for development projects, to improve nutritional levels, and as a means of emergency assistance.

Food has constituted a significant part of the total resources available in US aid programs. However, at present the uses of P.L. 480 are restricted by the fact that the US Government holds only small food stocks. Therefore, food aid is no longer relatively cheap, and must compete with other forms of aid for dollars in a more direct fashion. The new US foreign assistance laws put particular restrictions on the use of food aid, directing that most of it be used for "humanitarian," rather than "political" purposes.

For some time, it is likely that there will be needs for food aid in some developing countries, especially those hit with unusual weather or other natural calamities. However, the US is unlikely to be willing to produce the surpluses which permitted the large amount of past food aid. Although the food aid of the past was often used in beneficial ways, there is little doubt that in some cases it had negative impacts on incentives to increase agricultural production in the receiving countries. In the absence of surpluses, the alternative of increasing production in the developing countries will usually be preferable to that of large and continuing amounts of food aid. Well conceived technological assistance programs and financial assistance to purchase those inputs which the country itself cannot afford, if directed to increasing food production within the developing countries themselves, are likely to have a more continuing effect in improving the world food situation than is food aid.

When there are no government-held surpluses of food, and no government restrictions on food production, food used for foreign aid leaves less for domestic consumption and commercial exports; the latter two also compete with each other. This competition has at times created substantial problems in the last few years because rapid increases in food prices contributed to high rates of inflation. This was the basic cause for several US embargoes on food exports. The question of conflict between food aid and US food prices arose during the World Food Conference in November 1974, when there was pressure for the United States to increase the amount of its food aid.

Sales of agricultural commodities to state trading countries, especially the Soviet Union, have raised questions about the ability of present US institutions to deal with the problems satisfactorily. The Soviet Union, because of fluctuations in its production of grain, deriving largely from weather variations, has come into the market sporadically for very large amounts of grain.[4] The USSR had four major grain production shortfalls between 1960 and 1976. Production fell by 33 million tons in 1963, by 31 million tons in 1965, by 13 million tons in 1972, and by 56 million tons in 1975, with the shortfalls contributing significantly to lowered world production in all four years. Prior to 1963, the Soviet Union absorbed the grain production shortfalls internally by stock drawdowns, reduced human consumption of grains, and slaughter of livestock. But large grain imports were made to partially offset the 1963, 1965, and 1975 crop shortfalls, while the 1972-73 imports were enough to compensate for the 1972 shortfall. The Soviet Union has entered world markets without revealing the size of its intended purchases, and has deliberately withheld important information normally available to the market. This secrecy has given it power to obtain its grain at relatively low prices. In June 1973 the US and the USSR made an "Agreement on Agricultural Cooperation" which calls for the following: regular exchange of relevant information, including forward estimates, on production, consumption, demand, and trade of major agricultural commodities. The Soviets have supplied some information about their agricultural situation under this agreement. However, in several cases, they have failed to provide the essential series of historical data necessary for evaluation. In addition, the Soviet data has been less detailed than was expected, and the Soviets have not yet provided the forward estimates agreed to originally. Thus, there has been "little progress in acquiring data to enable an improved assessment of (Soviet) current production and foreign trade prospects."[5]

A grain purchases agreement between the US and the USSR reached in October 1975 is an attempt to rectify the uncertainty generated by the Soviet grain trade situation. The agreement

provides that the USSR shall purchase from the US between 6 and 8 million tons of wheat and corn per year for 5 years. However, the agreement does not limit the Soviet Union's options for sales to or purchases from other countries in the world market, with which US markets are now closely integrated. The Government of the US, in effect, agreed to not exercise any discretionary authority to control exports of wheat and corn to the Soviet Union within the limits and time specified.

Because of the demonstrated agricultural strength of the US and agricultural weaknesses of the Soviet Union, the review has been stated that in the future the US will be able to greatly influence the foreign policy of the USSR by offering or withholding, or the promise or threat to do either, food from the Soviet Union.

Agriculture does present serious problems for Soviet decisionmakers. Under Stalin, agriculture was deliberately starved for investment, and its surplus heavily taxed, to foster development of heavy industry. This policy was to some extent modified by Khruschev as part of policies of greater responsiveness to consumer desires for a better diet. The present regime allocates much more resources to the agricultural sector than did Khrushchev, but the farms still need more equipment, more spare parts, more irrigation facilities, and better livestock. In addition, agriculture is still burdened with an inefficient organization of huge collective and state farms, and tiny private plots.

Nature also has been severe with Soviet agriculture. As compared to the US, most of its farm land has a short growing season, and much of it has marginal rainfall, with large year-to-year variations in the amounts. Consequently agricultural production fluctuates greatly from year-to-year. Increased inputs and attention to agriculture have resulted in a substantial upward trend in Soviet grain production in recent years. However the fluctuations around the trend are great. For example, in 1963 production was 28 million tons below trend, in 1965, 26 million below, in 1966, 18 million above, in 1972, 20 million below, in 1973, 28 million above, and in 1975, 66 million below. As a result, the Soviet Union has at times been an important net exporter of grain, mainly to East Europe, but at other times has imported large amounts of grain.

There has been considerable discussion of the "needs" to increase the supply of food and the level of living in the Soviet Union. But the needs are impossible to measure objectively, because important information is unavailable. We have no information about the level of grain stocks, and some other basic information about the use of grain is uncertain. While Soviet consumers undoubtedly would like to have more livestock products, the effectiveness of their desires is questionable. The consumers are unaware of either the extent to which the Government trades in food products, or the real possibilities of importing food. Control over the press makes it possible for the Soviet authorities to tell consumers whatever they wish about the factors affecting food supplies. Soviet purchases of grain in 1975 and 1976 have been much less than the total "shortfall" in 1975. In the past, the Soviet Union slaughtered livestock when feed supplies were short, and it is doing so now.

Some discussants of the use of food by the US in relations with the Soviet Union have referred to humanitarian considerations, and have argued that the US should never withhold food from any country because that would condemn people to starvation. The moral judgments of Americans probably would prevent the United States from withholding food from a country if it

could be demonstrated that it would increase the suffering of very poor, malnourished people, but this argument is invalid with respect to the Soviet Union. It produces sufficient food domestically so that there is no need that a failure to import from the US should cause starvation. It might require stringent rationing of food but this would not be new for Soviet consumers.

The US Government is limited in its ability to control exports to the Soviet Union by domestic political considerations (i.e. farmer, labor and consumer reactions) and by US trading institutions. And, of course, at present we are specifically limited by an agreement to supply grain to the Soviet Union for five years. Also, we must be aware of the possibility that the Soviet Union might go to other suppliers, as Japan did when the US embargoed soybean exports. In the long run, the Soviet Union may be able to look to several potential suppliers of grain because many areas in the world have potential for increasing production of food. Also, the new Soviet 5-year plan indicates a serious intent to increase domestic production of grain sufficiently to support planned increases in livestock products. The planned increases in livestock products are modest compared with previous plans. Also, in the new plan for 1976-80 the feed production goals appear reasonable and more consistent with livestock production targets than in the past. Thus the 1976-80 plan seems relatively realistic in terms of matching the planned agricultural outputs with the available resources. This suggests that there will probably be a less strong demand for grain imports in the Soviet Union that has been the case in the past few years. On the other hand the Soviets may decide to import more meat and livestock products.[6]

In short, the potential of food as a flexible and reliable "tool" or "weapon" for the US in dealing with the USSR is very limited. US domestic political considerations, the power of the Soviet Union to control and conceal its "needs," the possibilities of their finding alternative suppliers, including increasing domestic production, all indicate that the "weapon" would have little power, poor reliability, and considerable threat of backfiring.

The problem of suitable institutions to deal with the secrecy and variable nature of Soviet trade may not have been solved to complete satisfaction by the present grain agreement. But with this important caveat, we can reasonably judge that food exports to the USSR are not undesirable. Food exports do not drain us of a stock resource, or weaken us economically. To the extent that they contribute to our overall balance-of-payments and economic exchange, food exports to the Soviet Union may be as desirable as exports to other countries.

The US has a comparative advantage in the production of important agricultural commodities. That is, it is to our economic advantage to produce far more than we can use domestically and ship it overseas in return for other goods and services. This advantage in our agriculture has been achieved through the bounty of nature, heavy investments in agricultural mechanization, a set of institutions which provide strong incentives to produce food efficiently, and investment in research and development of technology to continually increase productivity. Our agricultural productivity helps provide US consumers with food at relatively low cost, and thus makes an important contribution to the level of living. Although food costs in the US in recent years have risen faster than other elements in our cost-of-living, it still remains a relative bargain here, if we compare the cost of food in the United States with that in other industrial countries.

About 25 percent of our agricultural products are exported; and for some commodities such as rice and wheat, we export a much higher proportion. US agricultural exports make very important contributions to our balance-of-payments. The value of US agricultural exports has grown rapidly in recent years and reached nearly $23 billion during fiscal year 1976. In effect, our exports of food pay for imports of other commodities or for offsetting US expenditures abroad. Thus, US agricultural productivity contributes indirectly as well as directly to the standard of living of US consumers.

Some discussants of US "food power" have in mind this contribution of US food to our general economic strength. This contribution derives largely from decisions made in the market, although in the past, and to a lesser degree today, US Government programs have had important influences on our agricultural and food economy. Other discussants of "food power" have been referring to the possibilities of specific government decisions affecting the allocations of food, particularly decisions to sell or not sell to overseas customers. But the market and the Government are alternative decisionmakers; that is, both cannot be effective in allocating the same food. The market will nearly always sell the food to those customers who pay the highest prices. If the US Government is to use food in ways other than those determined by the market, then consideraitons other than the maximization of returns to the sellers must be made effective. Thus, part of the controversy about "food power" revolves around opinions about the best method of making decisions about the allocation of food. It is around this concept that discussion has been carried on as to the pros and cons of using food as a "humanitarian" and/or a "political" tool in international relations.

On three occasions in the last two years the United States Government embargoed the exports of food products. These embargoes were levied in response to concerns about the prices of food in the United States. The concerns were expressed not only by consumers but also by livestock feeders. The longshoremen apparently felt they should take it on themselves the representation of US consumer interests and for a time threatened not to load grain shipments to the USSR.

Now that the cushion of the surpluses is gone, exports of food do raise food prices in the US, at least in the short run, but the effect is much less than many seem to think. The Economic Research Service of the US Department of Agriculture estimated that the sale of specified amounts of wheat and corn to the Soviet Union would increase the 1975-76 average season price of wheat by about 75 cents per bushel and the price of corn by about 30 cents per bushel. At the time of the estimate, this would have been a 27 percent increase in the price of wheat and a 15 percent increase in the corn price. However, that would translate to only about a 2 percent increase in the retail price of bakery and cereal products and relatively small increases in the price of livestock products. The estimated increase in the retail price of food as a whole was less than 1.5 percent. The effect on costs-of-living would have been much smaller, and perhaps not positive at all because of the beneficial effects on the balance-of-payments and exchange rates. In the long run, we can be reasonably confident that commercial exports of food actually lower the cost-of-living in the US.

The US food and agricultural situation is now so intimately related to the world food situation that US agricultural and trade policies cannot be examined reasonably except with a background of understanding about the world food situation and prospects. One's judgments about the potential or limitations of US "food power" will depend to a considerable extent upon his

judgments about the future world food situation. It makes a difference whether or not one foresees continuing and probably increasing shortages and high prices of food, or the alternative of a probable return to more normal relations between food and other prices. The former opinion has been widely publicized by the neo-Malthusians. On the other hand, there is a consensus among economists who have studied this situation in detail that the world has sufficient basic resources and either has, or can produce, the technology to significantly increase the production of food per capita and keep up with increasing demand during the next 10 to 15 years.[7] I have myself analyzed world food problems and prospects and have written about them in a number of publications. I accept the more optimistic view about the potential to produce food, although with many others, I have serious reservations about the extent of the political will to take the actions necessary to achieve the potentials in all countries.

One aspect of the future world food situation that has been rather widely discussed is the weather. Some climatologists have said that it is likely that the world will face worse weather on the average, and more variable weather in the future than it has in the recent past. The weather still has major impacts on agricultural production around the world and, if this judgment is correct, then the problems we face are greater than those indicated by the studies by economists that I referred to in the previous paragraph. However, my evaluation is that the climatologists have by no means reached a consensus on the likelihood of the future weather, and have not provided us with an adequate basis for modifying our views of the future.*

Most studies agree that the food and agricultural needs of the poor countries are unlikely to be met satisfactorily unless there is a major increase in the productivity of their agriculture–in yields per acre and output per unit of input–and that this will be achieved only by a strong commitment on the part of the countries involved. The US and other developed countries can help by adjusting their trade policies and by aid. A critical contribution which the United States can make is to focus some considerable part of our technical expertise directly on the problems of increasing food production in the poor countries. The US has a large share of the well-trained agricultural scientists in the world. It is essential that more research be done on the agricultural productivity of the poor countries, and we can help with that.

Footnotes

[1] International Economic Report of the President, transmitted to the Congress, March 1976, p. 16.

[2] US Congress, House Committee on Foreign Affairs, 92nd Congress, 1st Session, 1973, "Data and Analysis Concerning the Possibility of a US Food Embargo as a Response to the Present Arab Oil Boycott."

[3] Report to the Congress; "Russian Wheat Sales and Weaknesses in Agriculture's Management of Wheat Export Subsidy Program," by the Comptroller General of the United States, July 9, 1973.

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*In 1976-77 the National Defense University's Strategic Research Directorate is undertaking a study of the probabilities of future changes in weather and climate.

[4] Mackie, Arthur B., "International Dimension of Grain Prices," *Southern Journal of Agricultural Economics*, July 1974.

[5] Bell, Richard E., Statement before the Technology Assessment Board Office of Technology Assessment, September 24, 1987, p. 5.

[6] The Agricultural Situation in the Soviet Union, USDA, Economic Research Service, Foreign Agricultural Economic Report No. 118, April 1976, p. 33.

[7] "The World Food Situation and Prospects to 1985," Economic Research Service, USDA, Foreign Agricultural Economic Report No. 98, pp. 34-37.

PANEL V

INTERNATIONAL TECHNOLOGY TRANSFERS

A determination of the role of international technology transfers and the implications for US national interests-military, economic and diplomatic. Examine the extent to which such transfers can and should be controlled with primary emphasis on the US-Soviet balance.

Chairman:	Mr. J.F. Bucy, President, Texas Instruments
Authors:	Dr. Roger E. Shields, Deputy Assistant Secretary of Defense, International Security Affairs
	Dr. Stephen J. Lukasik, Vice President, Systems Development Div., Xerox Corporation
Panelists:	Major General Richard C. Bowman, USAF, Director, European Region, Office of the Assistant Secretary of Defense, International Security Affairs
	Mr. Marvin Cetron, President, Forecasting International Ltd.
	Mr. Hans Heymann, Jr., National Intelligence Officer for Economics, Central Intelligence Agency
	Dr. Franklin P. Huddle, Senior Specialist in Science and Technology, Congressional Research Service, Library of Congress
	Dr. Robert R. Johnson, Vice-President-Engineering, Burroughs Corporation
	Professor Geoffrey Kemp, Fletcher School of Law and Diplomacy, Tufts University
	Dr. Rauer Meyer, Director, Office of Export Administration, Department of Commerce
	Mr. Rolf Piekarz, Senior Staff Associate, Policy Research and Analysis Division (STIA), National Science Foundation
	Dr. Albert Rubenstein, Technology Institute, Northwestern University
	Dr. Ralph Sanders, Faculty, Industrial College of the Armed Forces
	Mr. Robert B. Wright, Director, Office of East-West Trade, Department of State
Consultant (Computer Technology)	Dr. Ronald Finkler, Institute of Defense Analyses
Rapporteur:	Mr. Joseph D. Antinucci, Program Manager for Federal Laboratories, National Science Foundation

PANEL V

INTERNATIONAL TECHNOLOGY TRANSFERS

CHAIRMAN'S PLENARY SESSION SUMMARY

Mr. J. Fred Bucy

Well, gentlemen—and ladies—it's a real pleasure to be here. I must say that I'm quite surprised to find myself in front of this august group delivering a lecture.

I owe it to Colonel Stovall for my being here; I'm sorry he's out of the room and can't hear my tribute. Colonel Stovall called me and asked whether I would come and attend this session because of my interest in the transfer of technology. I told him I couldn't do it; that it was scheduled during the middle of my vacation; that I would be on the beach with my family and I had no intention of coming to Washington. He asked me if I would reconsider and so I did. I thought it would be a chance to meet some interesting people and to exchange some ideas with them. And perhaps pick up some new ideas. So I told him "yes."

Well, a few days later he called back and said, "Would you mind being a chairman?" And I asked "What does that entail?" He told me that all I had to do was to keep people talking. I said, "If that's all that's required, I'll do it." And he said, "That's it." Then I arrived here at National Defense University, looked at the agenda and found that I'm to make a talk.

So, I would like to commend Colonel Stovall to be a member of the SALT negotiation team.

Technology is very dear to my heart, and high technology particularly. I've shared the excitement of being associated with some, I think, startling innovations. It is because of this first-hand experience with high technology, and understanding what it can do, that I have taken the position that this is a strategic component of our arsenal that we ought to protect. I feel very strongly about that. Yesterday, when I first heard everybody on this panel talk about technology and their points of view, I personally didn't see how any of us were going to agree on anything.

Now, after two days of discussion, we did come to somewhat of a consensus on a few key issues. However, I did ask each man to say at least a couple of words on what he would like to be sure was entered into the record whether there was agreement or not.

I would like to illustrate what I mean by "high technology." The company with which I am associated invented the silicon transistor, the integrated circuit, and the hand-held calculator. These are our more famous innovations.

However, to me, one of the more exciting innovations that I was associated with was the Laser-Guided Bomb, the first "Smart Bomb." One of our fellows came to me and said, "I've got an idea of how to drop a bomb into a barrel from 10,000 feet." I said, "That's worth a case of whiskey if you can do it." So, he proceeded to develop the Laser-Guided Bomb. You gentlemen in the Air Force, I'm sure you'll get this history a little different, but I personally know that this was

done by a small team of engineers and with some critical help from Eglin Air Force Base personnel who went so far as to smuggle two bombs out to us so that we could fit them with the guidance devices and proceed to drop them into a barrel to show what could be done. Only after this live demonstration would the Air Force generals agree to fund a development program. That's the history of the Laser-Guided Bomb.

It took one critical device to make that possible, very high purity silicon, which we (Texas Instruments) were able to make. This high purity silicon was used as a laser radiation detector. We took the bang-bang servo-system off of a Shrike Missile, put it onto a regular old iron bomb from World War II, put this silicon detector on the front end, used a hand-held laser designator, and dropped it in a barrel. And it didn't take us that long to do it. And after that, of course, we spent a lot of money as a nation qualifying it for flight integrity after proving feasibility. It's now a very capable weapon system.

The other example of high technology, with which I was associated was the Forward-Looking Infrared system (FLIR), which eventually went into the C-130 Gunship. Our first FLIR went to Southeast Asia to be used in the DC-3 Gunship developed by Captain Terry during the early years of the Vietnam non-war. We proved that you could actually use this device to see targets at night. It was used to detect trucks and other things on the Ho Chi Minh Trail. The FLIR, again, took one small piece of Texas Instruments' technology—infrared detectors.

The last Texas Instruments' innovation I'd like to talk about is the terrain-following radar, which also was developed on our own nickel (the prototype that is). After we developed the prototype of the Terrain-Following Radar (TFR), and sold the concept to the Air Force, it went into a number of aircraft. One of the most impressive was the F-111.

A modified TFR is a now key part of the guidance system for the Harpoon short-cruise missile system which is to play a very vital role within our strategic arsenal. And that, again, was a very simple piece of technology that could have easily been transferred.

Now the point of this is not to break my arm patting ourselves on the back, but to make the point that it's a very simple thing to transfer a small piece of technology that has tremendous leverage on this nation.

Now, I give you this as a background just so you'll get a feel for what I mean when I say "high technology."

The first thing that we did in our panel was to try to define technology.[1] I have found that, in talking with various people on this subject, there is a great misconception among laymen as to what technology is. Normally, when you say "technology" to the layman—and I include John Q. Public and the majority of the Congress and the Executive Branch—they think that technology includes everything from pure research—science, through to, and including, a sophisticated product. Therefore, the Congress and the Executive Branch have been struggling in trying to come up with a universal export policy that handles this total spectrum. It can't be done that way.

Once before, I had the pleasure of being hauled off vacation to come up to Washington. The purpose of that "non-vacation" was to testify before Senator Church on the export of technology. I recommend that you look at the complete testimony of his hearings that were held in July 1974. As Chairman of the Multinational Subcommittee of the Foreign Relations Committee,[2] his hearings covered a wide spectrum, from energy through to semiconductors. I think you'll find the proceedings of these hearings very pertinent to this conference.

I also commend to you the papers that were written on this subject by two members of our panel, Dr. Lukasik[3] and Dr. Shields.[4]

The point that I want to bring across is that people don't understand what technology is, and they do not understand the importance of protecting it. And therefore, that puts the people who are responsible for the control of exporting of technology in a very tight position. So, they need some help. Now, I'm not so sure that some of my friends in Commerce think I'm trying to help at times, but I sincerely am.

Now, let me tell you what our panel's charter was, and then I'll try to summarize what we did accomplish during these brief two days. First, we didn't live up to our charter, in that it said that we were to make: "A determination of the role of the international technology transfers and the implications of US national interests, military, economic and diplomatic." We stuck to the military; we didn't take on the economic or the diplomatic. I thought we might not quite cover it all in two days, so we stuck to the military.

We were also asked to examine the extent to which such transfers can and should be controlled, with primary emphasis on the Soviet–US balance. We did restrict ourselves to this.

Now,what is technology? I think there is a simple definition. First, we must bear in mind what technology is not; it is not science; it's not hardware, and it's not products. Technology is the know-how that converts science into products. Now, what do I mean by products? This needs to be defined also. A product is an object that you can sell; it's an integrated circuit; it's an airplane, a computer or software, for example. You sell products; you teach technology.

We did have a consensus in our panel on this–that we must control know-how very closely, particularly on those pieces of critical high technologies that can make a strategic difference. At the same time, we need to control some products that can fill in the gap that can make a strategic difference. We should place the primary emphasis on know-how, and we should control some products. The control of "some products" is where all the controversy comes in, and I will not elaborate on this for the sake of time.

We did go through and try to list possible policy options on technology transfer to the Warsaw Pact countries. The range of policy options can range from active US Government encouragement of US technology transfer to the Soviet Union, granting incentives, all the way to the prohibition of any type of technology transfer to the Soviet Union, with heavy penalties for violation. An example of the center of the range of options might be to restrict strategic technology that could directly or indirectly improve Soviet military capability. Our panel's report will list a full spectrum of options. We need to develop the same spectrum of options regarding products. And then you

can go through quite a series of combinations to determine the best total option. Far be it from me to say what the final policy should be.

Now, I'd like to go through a few of the key thoughts that the different individuals felt would be important. And we did have people on our panel from many areas. We were fortunate to have people from Commerce, DOD, Department of State, CIA, NSF, academe, and industry. So, we had a real interesting cross-section. We also had interests in the transfer of DOD-developed technology to the civilian sector. This is a very important area, but it was outside of our charter. The individuals interested in the transfer of technology from the government to the industrial sector and from the USA to the LDCs brought a different viewpoint to our panel from those people who have been fighting the problem of what technology should or should not be exported to the Soviets.

The statement was made that "a differentiation must be made between technology that is critical for military versus civilian use." This is the gray area: it's not that simple. Because the same technology, the same know-how that allows us to make a hand-held calculator is the same technology that can be used to make a guidance system for a missile. So, it's just not that simple; it takes a lot of detailed thought and work.

But, once again, the point is, concentrate on the know-how rather than the product.

Another point–from one of the real pros on our panel–"the DOD has grave difficulty in sorting out the key technologies that are valuable to defense, and in lieu of having an all-encompassing system for evaluating technologies or one that is adequate, we must concentrate on a few key technologies and work on these very hard.

What we need is a means of cataloging and sorting out all technologies. I'll give you an example - the printed circuit board. A few years ago the technology of printed circuit boards was not important; simple printed circuit boards were used in radios and TV's to reduce cost. Then, all of a sudden, multi-layered printed circuit boards became a key component in making large-scale computers. Printed circuit board technology had become a very sophisticated technology. Thus, unless you continually update the criteria, strategic technology can be shipped to the Comecon with none the wiser except the Communist.

Another point was, along the same line, we need the resources and assets to weigh and evaluate the policy, analyses and alternatives to making some of the decisions as to what should be exported and what shouldn't.

Well, there were several other controversial thoughts that will be in the record; however, we're running out of time here and so I'll skip the things that we did have consensus on.

We did have agreement on what technology is, and that know-how is what we do need to control, and the issue is what know-how should we transfer and under what conditions? The objective that we're trying to accomplish by controlling the transfer of technology is to gain time. Time is what we can gain through the proper control of know-how.

We can also make the USSR allocate resources to catching up with us when we withhold certain technologies. Now, we cannot say they will never have a certain technology; they will get it through osmosis, if nothing else; sooner or later, they will get it; and, of course, it must be remembered there's an absolutely free exchange in the area of science which provides the foundation for developing technology; i.e., know-how.

To give you an example of the time element—and, of course, that's exactly what the Russians have won from us by SALT I, in that they held us in an almost frozen position while they brought their strategic forces up to or possibly ahead of ours—that time factor was very critical. And that's what we must do by controlling the export of technology.

The transfer of technology is a very strategic issue and I'm very pleased to see that it is being discussed, and particularly in conferences such as this.

Another point of consensus was that, so far, there has been no *quid pro quo* in the transfer of know-how. In the beginning this was a big flag-rallying point of detente; all of these negotiations were going to be on a *quid pro quo* basis, and therefore improve the probability of a peaceful coexistence. Well, I'd like to see this start. I think we're halfway there. We have given "the *quid*." We have given them know-how in war-making areas. What we have received in return as "the *quo*" is know-how in the areas of commercial development and some few medical developments. To give a specific example, in energy we have received technology for the gasification of coal that is being used down in Texas by the Texas Utility Company. The Russians sold the USA a very advanced process for burning coal underground and converting it to gas and bringing it to the surface. So, we have more gas in Texas. But I've got another solution, gentlemen: all we've got to do is lift the price controls on natural gas and we'll have all the gas we need. That's not a strategic decision; that's common sense.

A few other examples of our "*quo*": surgical stapling devices, pharmaceutical technology, tube mills to produce thin-walled tubing, a cord-wire manufacturing process, and a magnetic impulse welding for a nuclear fuel element. In mining we have received hydraulic mining technology; magnesium extraction technology; methods of leaching aluminum from aluminite; and so forth. And I thought one was particularly useful, which is a rock-breaking machine.

I asked our panel, "Can anybody tell me or give me a good example of where we've received a true *quid pro quo*?" And there was deadly silence. So, I don't think a *quid pro quo* exists; and if someone can prove me wrong, I'd like for you to do so, so that I can stand corrected.

There is no mechanism for insuring there will be a *quid pro quo*. We don't know how to measure it or how it could be implemented. In other words, we need a new system for export controls. We need a system that concentrates on know-how, particularly in the high technology areas; one that can properly identify the key technologies so that we don't let key technologies slip away from us. We need a means of insuring a "*quid pro quo*."

So, know-how is the issue. I would like to close by quoting from Dr. Shield's paper: "In the context of long-range US-USSR competition, it is abundantly clear on three counts, diplomatic, economic and military, that technology is a major asset on which the US can and should capitalize

in dealing with the USSR. To the extent that we and our allies keep careful control over the export to the Soviets and their allies of technology of military significance, we can retard the growth of the Warsaw Pact and the PRC military capabilities, contribute to the success of our deterrence strategy, and reduce the annual expenditures we must make for our defense. By so doing, we will not necessarily insure that the long-range US-USSR competition will continue to show a return in our favor, for there are many factors in the field of technology itself, as, for example, the need for a vigorous, well-supported research and development program, which can affect its course, but it is in this uncertain and contingent world that it is important for us to recognize the significance of current Soviet efforts to acquire Western technology and to guard this asset well."

FOOTNOTES

[1] Technology - The application of science, especially to industrial or commercial objectives – *The American Heritage Dictionary of the English Language.*

[2] Subcommittee on Multinational Corporations of the Committee on Foreign Relations, United States Senate, 93rd Congress, 2nd Session. *Multinational Corporations and United States Foreign Policy*, Part 10, U.S. Government Printing Office, Washington, DC, 1975.

[3] Technology, Transfer, and National Security, Seventeen pages plus bibliography, Dr. S.J. Lukasik, Vice President, System Development Division, Xerox Corporation.

[4] Soviet Acquisition of Western Technology, Sixteen pages, Dr. Roger E. Shields, Deputy Assistant Secretary of Defense, International Security Affairs.

PANEL V

INTERNATIONAL TECHNOLOGY TRANSFER

RAPPORTEUR'S REPORT OF PANEL DISCUSSION

Mr. Joseph D. Antinucci

In the context of long-range US-USSR competition, it is abundantly clear on these three counts–diplomatic, economic, and military–that technology is a major asset on which the US can and should capitalize in dealing with the USSR.

–Dr. Robert E. Shields

Technology is a strategic component of our arsenal that we ought to protect.

–Mr. J.F. Bucy

OBJECTIVES AND AGENDA SETTING

The agenda consisted of a set of questions and issues which was developed from discussions of the two presented initiating papers: "Soviet Acquisition of Western Technology," Dr. Roger E. Shields, and "Technology, Transfer and National Security," Dr. S.J. Lukasik.

There was general agreement that the context of the discussion should be:

> Development of policy options and indications of trends which governmental planners may need to consider in facing the issues of national security for the coming decade. The selection of one policy option over another, and delineating specific provisions was considered beyond the intent and scope of the two-day panel deliberations.

The specific charge of the panel was discussed and understood as:

> A determination of the role in international technology transfers and the implications for US national interests–military, economic, and diplomatic. Examine the extent to which such transfers can and should be controlled with primary emphasis on US-Soviet balance.

It was observed at the outset that the value of convening such a panel of this subject was the cross-section of individual expert opinion which would result. Varied views would surface a diversity of key characteristics and issues important to recognizing as many policy options as possible. In that regard, every effort was made by the chairman to solicit and record everyone's opinion and viewpoint.

The scope of the Panel V deliberation was to define the characteristics of international technology transfer, particularly with respect to trends which increase the war-making capability of the USSR and consequently affect the Soviet/US military balance. Although Soviet reallocation of resources toward consumer satisfaction could reduce military strength, it was noted that the volume of trade between the US and USSR has been historically slight (less than one percent of total US trade until 1973 and between one and two percent thereafter). Since trade is not expected

to increase substantially in the near term, economic considerations as influencing factors in a direct military sense were not discussed at length.

RANGE OF QUESTIONS

Specific questions posed by one or more of the panelists were:

1. What are the mechanisms for export control? What technologies should be controlled? Should we concentrate on certain critical areas such as micro-electronics, processing, software and agriculture or treat the entire spectrum of concerns?

2. Are pricing (value and/or *quid pro quo*) strategies required for effective trading in the best interest of both the company and country? Can one company be expected to represent the interest of an entire industry and the country?

3. Politics of control - How practical is it to expect that the government should control a technology transfer process which is most often an industrial/commercial activity? What should be the role of the government in the process?

4. What are the two-way considerations of trade between the US and USSR?

5. How should the global aspects of the US-USSR and Communist country relationships be treated?

6. What are the specifics of the strategic factors in technology transfer? To what extent is it possible to translate this understanding to practical administrative terms for effective bureaucratic response? Is it enforceable?

Although all of these questions were considered important to the full treatment of the technology transfer issue, only question one was discussed in detail due to the limited time available. Each of the other questions was treated in a cursory way or by example as it may have related to clarifying issues on export control of technology.

DEFINITIONS

Important to the overall understanding of technology transfer is the meaning of the word technology, since it was felt that its clarification was paramount to the development of effective and coherent policy strategies and options. After a great deal of discussion, it was concluded that, for the purposes of this conference, technology would *not* be taken to mean science, hardware, or product. Technology would be discussed as the *know-how* which transforms science (basic understandings) to products (the manifestation of science in the form of hardware, software, or sub-units of larger operational systems). In a practical sense, know-how converts theory to saleable hardware, such as wide body aircraft, computers, and integrated circuits. Several panel members had difficulty with understanding and accepting a sharp dividing line between science and technology, and voiced the opinion that it was extremely difficult at best to know where to place the line. This was especially true in the computer industry where new capabilities such as the

microprocessor are causing shifts in thinking relative to export control items. One panel member voiced the strong opinion that the "know-how" definition of technology was merely industrial shorthand and "hopelessly imprecise."

While it is true that know-how can be extracted from products, and scientific results when augmented by experience can eventually be extrapolated to know-how, the panel deliberation just focused on the *explicit* transfer of know-how from the viewpoint of what should be transferred and under what conditions. The "how to" revelations inherent in scientific, hardware and product transfers were not addressed.

To illustrate the military significance of technology and further formulate the definition of know-how, several examples were offered including the development of the Laser Guided Bomb and Forward Looking Infra-red System (FLIR) both of which were based upon a critical, small piece of high technology.

CONTROL POLICY OPTIONS

While it was generally agreed that the panel would not be able to develop a conprehensive export methodology, a range of technology transfer control policy options, which lie between the extreme end points of trade all and trade nothing, were briefly discussed. One panelist presented a set of detailed options which could provide the framework for the development of trade-off analysis, and criteria necessary for policy selection should that next step be taken:

Level 1. Active government encouragement of US technology transfer to the Soviet Union (granting incentives).

Level 2. Impose no restrictions on US technology transfer to the Soviet Union, but add little in the way of encouragement.

Level 3. Restrictions solely on strategic technology that could directly improve Soviet military capabilities.

Level 4. Restrictions on strategic technology that could directly or indirectly improve Soviet military capabilities.

Level 5. Restrictions on strategic and non-strategic technology that could assist in improving those portions of the Soviet industrial and economic base that have potential for strengthening the Soviet's general international competitive position.

a. Restrictions on the licensing of patented or proprietary products and processes (chiefly production), but not on exchange of the open literature and people, especially regarding non-proprietary research and development.

b. Restrictions on the licensing of patented or proprietary products and processes as well as on selective aspects of the exchange of open literature and people.

Level 6. Prohibition on any type of technology transfer to the Soviet Union.

Level 7. Prohibition on any type of technology transfer to the Soviet Union with sufficient penalties to deter potential violations.

It was generally agreed that a better control system was necessary, despite the fact that due to the complexity of influencing factors it would be extremely difficult to implement. Some of the critical parameters which are necessary to maximize effectiveness include: a feedback system to measure effects and stabilize results, explicit pricing methodology (value and/or *quid pro quo*) to determine what a fair price might be for the country and the companies (in a particular industry) involved, and an anaytical framework for adaptation to change.

If the government is to control technology transfer effectively, all principal channels of transfer should be addressed, not just one. The final decision on whether to export a certain technology or not should be based upon information regarding the national security balance and not made by someone who has a vested interest (especially financial). This suggests an important role for government, even though it is recognized that the essence of technology is most often an industrial/commercial activity.

Factors which affect the selection criteria and implementation strategy were discussed with the following observations. These observations do not necessarily represent panel conclusions but serve to indicate points that were made and not strongly contested.

Since the present US-USSR relationship implies free exchange of information between scientists, the evolution of scientific results into know-how is inevitable but nevertheless time consuming. The rate at which know-how is transferred and consequently, the rate at which new hardware and products are available, is a controllable factor. Therefore, in the absence of US export, the Soviets can exercise at least these three options:

(1) wait for enough scientific information and know-how leakage to build the required capability, or

(2) commit their own resources to accelerate the development of the necessary capability, or

(3) acquire the necessary capability from other Free World Countries.

It was the general reaction of the panel that the US exports technology to the USSR which has high potential for military uses, but no such technology flows from the Soviets. The panel could offer no evidence of a *quid pro quo* in the transfer of such know-how, and the US does not now possess a mechanism or statutory authority for fostering trade negotiations on that basis. Some examples of nonstrategically important technology received from the USSR included certain medical capabilities such as surgical devices and pharmaceuticals, magnetic impulse welding, hydraulic mining technology and a rock-breaking machine.

The panel did not attempt to identify those technologies which should be controlled, but did agree that new methods are required for identifying key technologies, *key know-how*, that must be

controlled in the interest of national security. A range of control options which were specifically related to computer technology was developed and discussed as a case example. Since mechanisms for effective technology transfers may differ from technology to technology, a degree of tailoring may be required for each specific key national security technology. This tailoring, therefore, suggests a case-by-case examination rather than a generic procedure. One observer pointed out that in certain technology areas, such as optics and semiconductors, there is an element of "art" (the specific human expertise), that really controls the manufacturing of "know-how," while in other technologies, such as software engineering and artifical intelligence, the flow of scientific information is a more significant driver in the transfer of technology.

One observer of the panel discussion presented a memo to the chairman which noted that the great bulk of export license application to allied and neutral countries (between 90 and 95 percent) is processed within 30 days. The relatively small number of high technology related applications which remain takes considerably longer because of the possibility that they may contribute to the military potential of the USSR and thus be inimical to the US.

One panelist presented and discussed a series of issues relating to the side effects of attempted control. Some of the issues were:

How can sellers of technological products and know-how be compensated for the loss of immediate and future markets?

Selling only to our friends does not necessarily protect us against loss to a third party.

COMPUTER TECHNOLOGY TRANSFER CONSIDERATIONS

Some time was spent discussing the technology of computers as an illustrative case study of control methodologies and options. According to one panelist, there are three aspects of computer technology that are considered in the current US export control strategy. In order of importance they are:

Export of know-how to produce hardware components and systems in large quantity. Critical technology for production processes and some components necessary to produce small machines is comparable to that necessary to produce larger machines. This aspect of computer technology is therefore tightly controlled and very few licenses are issued in this area.

Sale of component parts.

Sale of whole computer systems.

Although there has been US computer capability transferred to the USSR which has potential military application, there is no evidence of flow in the other direction. To magnify the issue, some critical components with potential for filling existing gaps in capability of the USSR and other

Communist countries have been identified as available in the US. These include MOS/LSI components and software operating systems, just to name a few.

Particularly in the computer field, one of the principal methods of technology transfer between the US and USSR occurs via the exchange of scientific personnel. This exchange of know-how is probably not directly significant for tactical military computers. For strategic military purposes, however, this exchange of scientific personnel might be significant. For example, it allows the Soviets to evaluate their extensive mathematics on our more powerful computers. This exchange also inherently familiarizes the Soviet scientists with the capabilities and structure of our big computers and software.

This scientific personnel exchange allows the Soviets to evaluate and improve the results of their decomposition techniques (the practice of breaking down a large problem into component parts, solving each separately, and eventually synthesizing the total answer) and comparing these results with our own results here in this country using our big computers. While this work is invariably done using socially acceptable and seemingly nonstrategic mathematics, such as the global weather problem, the numerical methods could be applied to military problems.

The principal superiorities of US computers have been that we make the biggest, fastest computers, and that we have developed an enormous software and application capability. The continual major performance/cost increase in the capabilities of our computers is due primarily to advances in semiconductors and software.

One panelist's view regarding options for control of computer technology could include:

Minimize the access of Soviet exchange personnel to the US software community, the new or large computer community, and the semiconductor field.

Expand US evaluation of, and probable exploitation of, Soviet mathematics, especially where applicable using our superior small computer capabilities.

Prevent all sales of high technology products, regardless of application, especially where that superiority is difficult to prove or perceive as in computer software, or where the overall capability is difficult to perceive without hands-on experience as with large computers.

Allow free exchange of scientific personnel; limit or delay any commercial business which might possibly improve the Soviet military capability.

This same panelist listed two sets of computer technologies, one which he felt was important from the US import point of view and one which he felt reflected importance from the USSR import point of view.

IMPORTANT FROM US VIEWPOINT

Excellent mathematical research is being done in USSR on the decomposition problem and in the area of automatically controlling many asynchronous processes inside a multi-computer system.

High-speed bipolar semiconductor technology comparable to the US exists in the USSR on a limited basis.

The Siberian Academy of Science expects to receive a big, high-speed computer of at least ten times the power of BESM 6 by 1979. There is a strong Soviet effort to develop this new, big computer system on their own.

There is real competition among Soviet computer institutions.

There exists very poor technology transfer between these institutes, as well as within each of them. Technical information appears to be treated as personal property by senior researchers and is used to further their personal growth within their profession.

Little interest in field service and maintenance issues on the part of Soviet computer engineers.

IMPORTANT FROM SOVIET VIEWPOINT

Computer production methodologies.

Architecture of leading US computers and software.

Interactive graphic terminals.

Laser stores.

Amorphous semiconductors.

Multi-chip packaging systems.

Advanced semiconductor know-how, for example 16,000 bit random access memories (16K RAM) and microprocessors.

KEY CONCERNS

Each panelist was requested to offer at least one area which he felt was critical to the issue of export control of technology. It was generally agreed that the US needed to know more about the Soviets from our technical and intelligence community in order to develop and implement a better export control system. Although there were disagreements relative to how these ends should be accomplished – some favoring more analysis, intelligence gathering, and the use of the *quid pro quo* approach, etc. – the overall result of the discussion centered around two main themes:

WE DON'T KNOW ENOUGH ABOUT SOVIET CAPABILITIES

The US has trouble differentiating between that technology which is considered critical to USSR military applications from that which is civilian oriented.

The intelligence community has difficulty in sorting out how US technology is related to the USSR ability to produce sophisticated weapons. A capability is needed for cataloging and indexing technologies which are or have potential for becoming important

militarily, so that a more complete set of controls can be developed rather than concentrating on just a few technologies of known importance. We ought to be explicit about what retards the Soviet's ability to absorb foreign technology and attempt to understand their manufacturing, design and management capacity more fully, especially in the defense industry.

Since the intelligence function is not directed at high enough levels in the JCS or NSC, the needs of the intelligence function such as early warning, feedback, collection and analysis of data are not recognized and given proper priority.

Soviet commitment to a demanding life-style—in terms of consumerism and industrial productivity—could very well serve the purposes of US security from Soviet aggressions better than a lot of agonizing over the transfer of technology of military hardware and computers.

Is the move by the USSR to acquire technology aimed at attaining self-sufficiency which will eventually lessen the trade base, or is the USSR under pressure domestically due to vast defense spending?

We must develop methodology to identify what the Soviets are interested in importing and make a reasonable assessment of what value it has to the USSR, so we can more reliably model and forecast its military significance.

Since technology is often thought to be lifeblood of a highly industrialized nation, does technology trade with the USSR give the US any form of leverage? One panelist expressed the opinion that the possibility of leverage is an important policy opportunity.

The present Department of Commerce control structure for technical data transfer is directed at strategic national security considerations and not economics.

AN IMPROVED EXPORT CONTROL SYSTEM IS REQUIRED

The COCOM list now reviewed on an ad hoc basis should be strengthened and built upon the concept of technology (know-how) and not just based on products. Key areas which have demonstrated connections to USSR military systems should be identified and we should attempt to detect key deficiencies of USSR rather than assume them. It should be recognized that enormous resources and assets are needed to weigh and analyze the policy alternatives necessary to make effective export decisions.

Since the present control system is a "blunt instrument" easily circumvented by the Soviets and it may never be totally effective because of political constraints, and we do not control scientific exchanges, we should actively seek to exchange technology with the Soviets on the *quid pro quo* basis. Any export mechanism developed for technology should necessarily recognize the essential coupling between arms agreements, such as SALT and MBFR, and technology.

The present Department of Commerce (DOC) control structure for technical data transfer is directed at strategic national security considerations and not economics.

The political realities of export control should be recognized to ensure feasible implementation.

Computer export practices should be modified as a result of important changes in key technology areas such as replacement of the main frame by the microprocessor and the demand of software over hardware as the determinant of computer utility.

AGREEMENTS/CONCLUSIONS

The following points were generally agreed upon by the panelists and provide a sense of what conclusions were reached as a result of the discussion:

Technology is *know-how*, not science or product.

The US does *need* an improved *export control* system for national security reasons.

Primary emphasis should be *control of know-how; control of products* should be reviewed; the *control* of international *scientific* exchange is extremely *difficult* due to professional infrastructure especially with regard to the academic community.

Through export control, we are trying to gain *time* and force the Soviets to *commit resources* to catch up with us when we withhold technology.

There has been no evidence of *quid pro quo* with the USSR in the transfer of strategic technology, and no mechanism for insuring *quid pro quo*; bilateral exchange agreements with the USSR do exist in a number of specialized, domestically important technology areas.

A *system* of control is necessary which concentrates on know-how, identifies key technologies and provides a scheme for *quid pro quo*.

The *exchange of people* is the most effective and fastest mechanism for transferring know-how.

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TECHNOLOGY, TRANSFER, AND NATIONAL SECURITY

Dr. Stephen J. Lukasik

There is an impressively large literature dealing with the above subjects and their inter-relationships. The policymaker is presented with a bewildering array of trade statistics, trends, and lists of negotiations completed or in process. Technology trends are identified; net technology assessments vis-a-vis the Soviet Union and other countries are made; and the relationships between various technologies, military capabilities, and the broader aspects of national security are analyzed. The economy of the Soviet Union is modelled to the extent possible in view of the limitations of macroeconomic theory and the availability of data for the Soviet Union. Institutional mechanisms are analyzed in detail, again limited in part by our lack of knowledge of the Soviets, in part by a lack of valid organizational theories, and in part by a lack of understanding of how the "science-technology machine" operates even within our own system.

But even if we had perfect information about the Soviet Union and the business plans of US and multinational corporations; even if we had well-developed economic and organizational theories; even if we understood all the interaction terms and coupling constants between technology X, military capability Y, and country Z, the policymaker would still be left with balancing the competing and usually incompatible demands of domestic investment, foreign investment, international trade, and national security. For although we lack the necessary calculus, we sense that the "equations" are over-determined and no solution exists, much less the optimum solution we constantly strive to achieve.

How, then, can one proceed to think through the problem in the face of the mass of data and analyses that are, of necessity, incomplete and inconclusive? The procedure proposed here is first to establish a base case that describes the current state of affairs and the way it is likely to evolve if no policies to encourage freer exchanges with the Soviets are implemented. Next the impact on national security of various degrees of exchange of various types of technologies will be reviewed to assess the extent to which technology can be exchanged without seriously impacting our national security. As a result of this analysis, the point will be made that in some areas to be specified technology exchange can possibly enhance our security.

The Base Case

Technology is one of the vital elements of an industrial nation and it must be understood that:

- Every nation will acquire the technology it judges it needs within its capacity to pay for it.

- Effective utilization of a technology requires it to be part of the fabric of the nation and this implies the existence of skilled people, training facilities, production facilities, and supporting research and development activities.

- Modern technology is heavily based on science that is well known and universally applicable.

Thus, there is no way to prevent a technology from being acquired and prudence demands that a nation minimize its dependence on foreign technology. In areas vital to national security, a country of the size, resources and capability of the Soviet Union can be expected to be totally independent of foreign technology. This is not to say that "gifts" will not be accepted but such windfalls can be expected to provide only marginal benefits. For smaller nations this situation will not obtain and varying *degrees* of dependence on foreign technology are necessary. The issue then is not one of *denying* a technology but simply one of *delaying* its acquisition and increasing the cost of its acquisition.

These two factors impact national security calculations in different ways. There is a cost to acquire a technology, either through internal invention or external purchase. If the time to acquire the technology is the same and if the external purchase option is available, the problem is a relatively straightforward cost calculation. The cost trade-off is rather more complicated if there is a time difference between acquisition of the technology by the two methods but the same cost-effectiveness calculus governs the decision. But refusing to export a technology or putting too high a price on it simply raises its cost to that of the presumed more expensive internal invention option.

The time delay becomes significant in the case of rapidly evolving technologies. A time delay in a continually evolving technology implies a permanent technological disadvantage to the side that is behind. The faster the rate of change of the technology, the larger is this disadvantage. External purchase of technology, if it is faster than internal invention, is one way of catching up. But the net gain will be transitory if the internal conditions that allowed the technology gap to develop in the first place are not corrected. However, this in turn often requires major cultural and infrastructure changes that may themselves have long time constants and/or large investment and domestic political costs and so they may not be adopted. This possibly was the case with the US technology transferred to the Soviet Union in the 1930s.

Before examining the question in more detail, the process of technology transfer can usefully be examined. Discussions of international technology transfer appear to assume that the process is a simple and efficient one. Thus advocates set it as an excellent way of providing a capability to a worthy recipient and alarmists feel that the most dire consequences follow from the most modest disclosures of technology. The process is, in fact, a difficult one under the best circumstances and often futile under less advantageous circumstances. Consider the far easier problem of transfer of technology from the research laboratory to the product development group of a sophisticated US corporation. While the success stories provide the basis for our much vaunted prowess (and the US probably is much better at it than other countries), the new technology more often than not is greeted with distrust and suspicion bordering on disdain. Closer to home and in a different environment, technology transfer from the Defense R&D establishment to the Services has been an uneven process in the past. The point is that new technology implies doing something differently and there are many reasons, some of then quite sensible, why an organization does not quickly or easily change the way it does things.

Transfers between organizations in different countries, implying different cultures, different conditions, and different infrastructure environments havye additional obstacles to overcome. Often the new technology simply does not "fit": An innovative system can often adapt the new

technology to its particular needs and constraints, but the recipient likely has a problem in innovation or he would not find it necessary to import the technology in the first place. In the case of the Soviet Union, the extensive vertical integration within the industrial ministries and the heavy emphasis on meeting production goals mean that new technology must have a powerful sponsor willing to take certain risks if it is to prosper. The Soviets admit to these problems, but the structural elements that cause the problems do not vanish merely by their identification.

Turning to military technology, Soviet forces are clearly quite good, effective in executing their assigned missions, sufficiently adequate to command the respect of their adversaries and usually making up in quantity any marginal deficiencies in quality. Their defense budget, however one estimates it, is robust and defense has first call on Soviet resources. Short of the outright gift of what we have that they do not have but could use, there would seem to be little technology that the US or its allies could give them that would change the essential nature of the military balance significantly.

Another reason why the current US/USSR military balance is not sensitive to detailed technology factors is that the balance is a convolution of so many non-technology factors: numbers of deployed weapons, bases, production capability, morale, training, perceptions, will, etc. In focussing narrowly on the technical issues, we may fail to grasp the true nature and extent of the problem. Technology export is only a concern when an important US advantage rests heavily on the technology in question, as is the case, for example, in semiconductors, large scale integrated circuits, and computer technology. Nevertheless, even in these cases, it is not clear that the Soviets lack the essential military capabilities that in the US rest on these technologies.

Further complicating the situation is the fact that the US already exports a substantial amount of technology. It is one of the important ways of acquiring from the rest of the world those commodities that our advanced society requires. In addition, our open society with its tradition in the free exchange of ideas, publishes a vast amount of information, freely trains people from many countries in our universities, provides technology in the form of economic and military assistance, sells technology and technology-based products on the world market, and has encouraged via the multinational corporation, the further diffusion of our native inventiveness. This is what makes us what we are and one should not be surprised that apparently narrowly-based warnings of what are perceived to be marginal disadvantages are greeted with skepticism. And technology is seen as a renewable resource; disposing of it poses no problem since one can always invent more. Finally, in a society oriented to growth and progress, a new technology is always seen as better than an old technology, which usually, but not always, is the case. The point is, the Soviets, in common with the rest of the world, have access to a great deal of US technology via various overt channels. And because it requires a certain industrial base to exploit technology, however it is acquired, the Soviets are in a preferred position compared to many other countries to exploit this flow of free information.

Augmenting this flow are the scientific and technical information exchanges we have negotiated with the USSR in recent years. These constitute an even more fruitful source of technology for the Soviets because they involve personal visits and joint endeavors which thereby improve the efficiency of the information transfer (though not necessarily of the final transfer of the technology for the reasons discussed earlier).

These ventures are represented as exchanges with the sense of symmetry that characterizes diplomatic initiatives. For the most part the US participants see them primarily as an opportunity to develop markets for their goods and services and secondarily as an opportunity to learn at first hand about the state of relevant technology in a country heretofore closed to them. It is unlikely in most cases that the major objective is to acquire advanced technical information unavailable to the US. Nevertheless the number of US companies that have entered into cooperative agreements with the USSR is large, as the attached list shows. More importantly, this list also serves to indicate some of their areas of deficiencies as perceived by the Soviets.

It is certain that, even without special assistance from the West, the Soviet Union will of necessity continue to develop in areas of advanced technology. Areas of critical concern to national security where the Soviets should expect little assistance from the US are space systems, electronics and computers, electro-optical devices, and aircraft propulsion. On the other hand, for the reasons indicated earlier, the Soviets should not and presumably will not allow themselves to be dependent on foreign sources in these vital areas. Nor is it likely that they will provide the West with their very latest ideas in these areas. Thus discussions in these areas are more likely to represent a probe for free ideas or an assessment of US trends for intelligence collection rather than with a serious intent to provide comparable information on a *quid pro quo* basis.

Some Possibly Fruitful Areas of Technology Exchange

The Soviet Union has a need for Western technology in certain key areas if their economy is to continue its current rate of expansion. Particularly noteworthy are their weaknesses in microelectronics, management and planning system, transportation, and agriculture. These areas are already represented in the agreements they have signed to date with US companies. Also illustrated is the Soviet interest in accelerating the development process by enlisting US assistance in the production of consumer goods.

Although the US has perhaps not aggressively sought out areas of Soviet expertise that could be brought to bear on the development of the US economy, there are a number of potential candidates. The Soviet interest in their industrial development has caused a major emphasis on R&D in manufacturing technology, electrical power distribution, and construction techniques. Their severe climate has forced them to develop the technologies needed for effective Arctic operations which could have useful spin-offs, both for US northern latitude construction and transportation requirements as well as for US efforts in energy conservation. The Soviets have put considerable resources into metallurgy, again because of their concern with industrial development. Their biological and medical research has been thorough and innovative, although their need for ideological conformity has produced periods of confusion and sterility. Nevertheless, these areas are likely to see major developments in the future and the Soviets are well-positioned to expolit new insights as they are recognized. In fact, one can argue that the entire Soviet basic science establishment is healthy and productive and well worth the effort to couple into it effectively. Thus, there are many potential areas where technology exchanges could be valuable, either exchanges within a specified field or on a *quid pro quo* basis between fields. This can be done with minimal impact on defense technology directly, and probably with minimal indirect impact from the standpoint of opportunity costs. In view of the budgetary preeminence of defense needs in the Soviet order of priorities, their defense efforts are unlikely to be seriously impacted the demands of the non-defense sector.

There are other areas where US/USSR cooperation and/or exchange can be usefully encouraged. In addition to the previously indicated areas of Soviet capability, one can conceive of activities in Energy R&D. Possible Soviet contributions in energy conservation were mentioned already. Also, it makes sense to encourage their development of exploration technologies since the world will have to wring every possible form of energy raw material from the earth if we are to bridge the gap to the promised future world of abundant fusion-generated energy. Not so clear is the desirability of making large investments in production facilities within the USSR in view of the questionable long-term investment prospects.

A similar type of reasoning applies to the case of food production. Aside from wishing to minimize Soviet raids on the world grain market, there is the desirability of encouraging all industrialized nations to apply their skills to the problem of food production. If the severity of the Soviet climate prevents them from becoming a major food exporter, at least they need not make the world's problem worse.

The Soviets also constitute a major power in space, with their capability to put heavy payloads into earth orbit. Thus their potential to assist the solution of the world's problems in earth resource analysis, support of manned space activities, communications technologies, and space science are unquestioned. Whether the theme is cooperation or competition, the Soviets have important contributions to make in these areas.

In other developing areas of science, such as climate modelling and genetics, the Soviets can also be expected to make important contributions. It is particularly important for us to track Soviet scientific research in these two areas because US progress is apt to be moderated by our concern about long-term environmental and societal impacts. The Soviet commitment to state control renders them less susceptible to individual pressures for restraint. This is not to say that the Soviets are insensitive to long-term deleterious impacts of science and technology. What it does say is that they are more likely to experiment in order to understand the potentialities. In the US the current tendency is to debate the issue first and impose moratoria until the risks are understood. The point is not which approach is "better" but merely that the Soviets are perhaps more apt to make early progress. Certainly in the area of climate modification, they have demonstrated a long-term interest in compensating for their unfavorable geography.

Proposed Principles Governing US/USSR Exchanges

Clearly, we must avoid providing the Soviets with technology in areas of US lead when that technology is critical to Soviet military requirements. Thus areas such as computers, radar technology and systems, transport aircraft, and engine technology should remain on the CONCOM list. One can take this position not only because of the national security implications, but also because these represent important contributions to the US balance of payments. Admittedly, in selling to other countries we allow the technology to diffuse and small third-party arrangements cannot be policed. But without the direct personal contact, these are unlikely to provide satisfactory ways of acquiring advanced US technology and the transfer process will be sufficiently slow and imperfect that the US lead will be maintained.

Nevertheless, there are many areas where US/USSR exchanges can be encouraged in ways that could be mutually beneficial. Thus exchange of Soviet raw materials for US finished goods, and

nonstrategic US raw materials for nonstrategic Soviet raw materials constitute defensible arrangements. In technology exchange, we should expect a *quid pro quo*, either in technology in the same areas or in complementary areas. Practical implementation of the latter is somewhat difficult for the US Government to effect, however, since the US Government does not, as a rule, have title to the technology being exchanged.

The export of production facilities to the USSR would seem to be a poor idea since not only does it make the USSR less dependent on the US subsequently, but it establishes a commercial competitor. Presumably, the US firms recognize this obvious point but persist either because the Soviet production can be expected to develop a latent Soviet market for US exploitation or the US technology involved is viewed as obsolete. In any case, this is a matter in which a more thoroughly understood US policy would be desirable.

One should avoid capital investments in the USSR, partly because the long-term investment climate is risky in view of the fundamental antagonisms of the two systems and partly because the US should not become dependent on the USSR for the production of a critical material, e.g., natural gas.

Finally, one should avoid making technology gifts to the Soviets; we should maintain our current structure of controls, not to eliminate the export of US technology, but to provide a systematic mechanism for calling for review and debate on a case-by-case basis in order to assess the national security implications of proposed commercial relationships. On the other hand, tenuous arguments of fatal consequences of any relationships with the Soviet Union are, in the end, counterproductive.

The Computer Issue

Aside from its continued policy importance, the case of the export of computer technology is useful to analyze since it brings so many complex technical and policy issues to a focus. But while the future can best be understood by tracing computer trends in the past, it is important to realize that the future in this area of technology will be quite different from the past. Hence, current models will provide an increasingly poor basis for policy judgments related to future states of the technology.

While led by the US technically and market-dominated by US-based companies, the computer field and industry is quite international and significant research results are readily communicated between countries. The first theoretical results in the field of electronic digital computers were the work of Turing in the UK, and first-generation vacuum tube machines were successfully designed and operated by US and UK organizations. Second-generation transistor-based machines, first produced in the late 1950s, were heavily dominated by the US, in part because of the strong US technical position in transistor electronics and in part by the rapidly developing US market for computers. Nevertheless, foreign manufacturers converted to the new technology in view of its clear superiority in terms of cost and reliability. Cost and reliability considerations continued to dominate the application of new technology with the appearance of integrated circuit machines in the mid-60s. The trend since that time has been to higher levels of circuit elements are designed and fabricated as a single physical unit. The electrical characteristics of the various circuit technologies

employed are such that the time to execute a single instruction has decreased by five orders of magnitude, from milliseconds to tens of nanoseconds. Memory technology has also gone through dramatic states of improvement; primary random access memory, while increasing only modestly in speed, has decreased in cost/bit by a factor of 40 and charge-coupled devices offer another order of magnitude decrease; secondary memory, while decreasing by one to two orders of magnitude in cost, has increased in capacity by four to six orders of magnitude to 10^{12} bit for the photographic storage devices or in access time by one to three orders of magnitude for magnetic devices.

Concurrently with these hardware advances that have impacted the performance of mainframe and input/output devices have been computer architecture and software advances that have enabled further improvements in performance and greater availability of computer capability to the user. These include such advances as asynchronous input/output, multiprocessor devices, parallel processing, and minicomputers for the support of displays, intelligent terminals, and the interconnection of computers into organizational and national networks. At the same time procedure-oriented languages, operating systems, and symbol-manipulation languages have allowed for multiple simultaneous users, the easier preparation of problems for solution, and a vastly increased range of computer applications. Finally, advances in communication technology have made possible the remote use of computers, wideband digital communication, and the efficient sharing of computer and communication facilities through, for example, the store-and-forward packet techniques. Through the extension of national networks by means of communications satellites, the worldwide availability of computing service is inevitable.

There are two consequences of this unbelievably rapid thirty-year avalanche of progress in computer and communication technology that must impact computer export discussions. The first is the replacement of the computer mainframe by the microprocessor as the unit of discussion and the second is the dominance of software over hardware as the determinant of computer utilization.

The microprocessor is the logical consequence of large scale integration. Instead of fabricating a large number of computer elements on a chip, one adds a little more logic and function and puts an entire processor on a chip. By the same techniques one can "hard-wire" programs and service routines into the processor. With our current sophisticated understanding of computer architecture, larger ensembles of computer devices can be fabricated. This can be done either by combining many microprocessors into a single package or microprocessors can be internetted locally or remotely through our understanding of those techniques. Greatly enhanced levels of performance can be achieved by adding as much semiconductor memory as desired, again using an inexpensive and widely available commodity. Industry projections suggest that current medium and large-scale computers will exist on a few chips and at high volume could be manufactured at a cost of $100. Given the low cost, small size, and widely distributed ability to fabricate the basic elements and the far easier job of assembling them into working devices, control of computer "mainframes" will be impossible in the future.

The second issue that must become more prominent is that of software. When software was unique to a one-of-a-kind computer, its transportability much less its exportability was clearly irrelevant. Succeeding stages in software came with multiple copy machines, families of compatible machines, and computer networks that allowed the transfer of information and instructions between dissimilar machines. These, coupled with the rapidly increasing cost of software, resulted

in the current emphasis on the optimization of hardware/software combinations, increasing the operating efficiency of software, embodying software in integrated circuit hardware to achieve efficient operation, and improving the efficiency with which software is produced. This, then, suggests the desirability of focussing attention on software export as well as on hardware export. The difficulty here is that the essence of the software is more often on the ideas on which it is based rather than on its specific implementation for a specific system. In fact, as higher level languages come into common use, both for writing operating systems as well as applications programs, the control of this essential element of future computer capability may become impossible and computing could become a "free good."

Summary

The subject of technology transfer has recently received a great deal of attention, but the lack of an adequate theoretical framework for the analyses leaves the subject in an ambiguous state for purposes of policy formulation. Nevertheless political and economic factors are such that the export of technology from the US is unlikely to diminish in the future. The transfer of militarily-relevant technology to the Soviet Union is, however, regulated by the COCOM mechanism which forces a review of proposed commercial transactions on a case-by-case basis. While this mechanism impedes the export of technology important to US national security, it can only delay its acquisition by the USSR. Hence, the technology transfer process should be developed into a two-way street by the US technical community and the current one-way flow of information should be compensated by the acquisition of useful technology from the USSR. While a balance in East-West technology transfer can be expected in more stable areas of technology, rapidly-developing areas such as computer technology pose a problem by virtue of their tendency to invalidate the state-of-the-art premises on which the policy analyses are based.

US Companies with Science and Technology Cooperation Agreements with the Soviet State Committee for Science and Technology

Abbott Laboratories – Infant nutrition (production and baby foods); pharmaceuticals.

Allis-Chalmers – Ferrous and non-ferrous metallurgy; electrical generating equipment.

American Can Company – Modern technology and high efficiency equipment for the production of packages from various materials and packaging of various products.

American Home Products – Pharmaceuticals; medical instruments; baby foods.

Amoco – Processing oil and other combustible minerals; oxidizing aromatic compounds; geological and geophysical surveys; oil production.

Armco Steel – Ferrous metallurgy; off-shore drilling equipment.

Arthur Andersen – Cost of production accounting; utilizations of the latest management information systems in industry; scientific research and commerce; questions of taxation connected with international economic relations; auditing and accounting operations; examination of financial statements, statistical data and other information.

Bechtel Corp. – Application of current technological management and administrative techniques to engineering and construction; joint development of industrial projects, in particular, those related to chemical and petrochemical, mining and metallurgical industries, as well as transportation of oil and gas.

Bendix Corp. – Automotive, aerospace and electronic products; scientific instruments; automation and machine tool products.

Louis Berger, Inc. – Transportation; architecture; environmental sciences; development planning; urban planning; governmental infrastructure.

Boeing – Civil aviation and aircraft construction, particularly manufacturing and certification of passenger aircraft; aircraft operation; air traffic control.

Bristol-Myers – Pharmaceuticals.

Brown & Root – Managerial methods and organization for engineering and construction; joint participation in developing projects, in particular, for gas and oil transportation.

Burroughs Corp. – Computer systems technology, including education, design, programming, manufacture and application.

Coca-Cola – Processing foods and beverages; agricultural research for wasteland farming; water purification and desalinization; nuclear pollution abatement; designing steam generators; designing audio-visual training techniques.

Colgate-Palmolive – Detergents; chemicals.

Control Data Corp. – Development and production of computers and components, peripheral equipment, information processing system, control systems for technological processes, and data communication equipment; application of computers; training in computer technology.

Corning International Corp. – Glass, glass-ceramics and biochemistry.

Deere & Co. – Tractors and agricultural machine building, including diesel engines, transmissions and other components.

Dresser Industries – Increasing effectiveness of geophysical research in boring wells by improvement of methods and technical means for data measurement and interpretation.

FMC – Agricultural equipment and technology; food and beverage equipment, technology and systems; petroleum equipment, technology and systems; materials handling and processing equipment, technology and systems; environmental equipment, technology and systems.

General Electric – Electric power generating technology; nuclear energy technology.

General Dynamics – Electronics and electromechanical telecommunication equipment and station apparatus; commercial ships and shipbuilding; asbestos mining and processing; commercial and special purpose aircraft; computer operated microfilm equipment, peripheral devices and software; navigation and weather buoys.

Gould, Inc. – Cooperation in storage batteries, electric motors, electronic instruments and powder metallurgy.

Gulf Oil – Oil exploration, production and transmission, especially with respect to operation under offshore and Arctic conditions; technology of systems for secondary and tertiary oil recovery; technology of marketing and distribution of oil and oil products across national frontiers between capitalist and socialist countries; synthetic fuels; nuclear energy and atomic power; petrochemicals; shipbuilding.

Hewlett-Packard – Medical electronics; applications of minicomputers; measurement instrumentation.

H. H. Robertson – Design, construction engineering.

ITT – Telecommunications; electronic and electromechanical components; consumer products, publishing of scientific and technical information.

Industrial Nucleonics – Automation for industrial management in the pulp and paper industry including machine process automation systems, pulp mill digester control systems and finishing room information systems, as well as in the field of plastics, rubber and steel industries.

International Harvester – Research and development, design and manufacture of heavy duty trucks, tractors, farm and road building machinery.

International Paper – Pulp, paper and paper products.

Kaiser Industries – Aluminum production; special steel; large diameter pipes; offshore drilling platforms; coal hydroextracting technologies.

Litton Industries – Geophysical equipment; business machines; medical electronics; machine tools; electronic components; chemical production; specialty paper.

Lockheed – Aircraft and helicopter construction for civil aviation including related systems and instruments; machine tools and other equipment for the aviation industry; air traffic control systems; navigation and communication systems; heavy off-road vehicles; earth resources exploration; oceanological technology; medical electronic systems; computer systems.

McKinsey and Co. – Management.

Monsanto – Application of computers in the chemical industry; development of chemical compounding ingredients for rubber.

Norton Simon – Cosmetics technology; soft drink technology; technology for production of baby foods; food and packaging machinery.

Occidental Petroleum – Extraction and refining of oil and gas; agricultural fertilizers and chemicals; metal working and metal plating; design and construction of hotels; utilization of solid wastes.

Pfizer International, Inc. – Pharmaceuticals; animal and plant genetics; animal nutrition; veterinary medicine.

Phillip Morris – Paper and packaging products; specialty chemicals technology (adhesives and coatings, textile chemicals, powder coatings, crown cork seals and lacquers); tobacco growing and cigarette manufacturing technology.

Reichold Chemicals – Production of synthetic polymeric materials; wood chemicals extraction.

Raymond Loewy – Design.

Revlon – Cosmetics; fragrances; toiletries; pharmaceuticals; optics and general health care goods.

R. J. Reynolds – Tobacco growing and processing.

Rohm and Haas – Plastics; agrichemicals; petrochemicals; energy.

SRI – Organization of scientific research; international industrial marketing research.

Singer Co. – Data collection and data communications; aerospace and marine products; electronic instrumentation; education and training devices; advanced sewing technology; textile machinery; climate control equipment; industrial control equipment, including electromechanical control equipment and liquid gas control and metering equipment.

Sperry Rand – Computer systems, peripheral equipment and terminals; office machines and business systems; farm and industrial equipment; fluid power systems, products and components; marine guidance and control equipment; consumer products.

Union Carbide – Chemicals; metallurgy; electric welding, environmental protection.

Universal Oil Products – Oil and gas processing; organic chemistry products, plastics; emission control and pollution abatement systems.

Varian Associates – High energy particle accelerators for scientific, industrial and medical application; analytical measuring instruments; vacuum systems and components.

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SOVIET ACQUISITION OF WESTERN TECHNOLOGY

Dr. Roger E. Shields

Summary Overview of Problem

The security significance of Soviet acquisition of Western technology, both short- and long-range, varies with the frame of reference considered; and with whether economic technology in general, or only military-related technology, is addressed. Soviet imports of technology may serve more than one Soviet objective, such as accelerating economic growth, strengthening defense, meeting consumer needs, or strengthening the domestic and international prestige of the Soviet system. These and other Soviet objectives may even be part of a more general Soviet policy which emphasizes defense, but which will eventually also require a choice between confrontation or cooperation with other countries of the international system.

In fact, the security significance of Soviet imports of Western technology is probably not limited to any one of these objectives. Consequently, the implications of Soviet imports of technology are ambiguous and unclear because the Soviet objectives and policies they actually or potentially serve (e.g., detente or dominance), are ambiguous and overlap. Finally, the Soviet Union itself may be as yet undecided about the long-run path which would require an ultimate decision between cooperation with other countries in the international system on the one hand or confrontation on the other.

The US policy response to this complex and ambiguous situation could address the entire spectrum between the two extremes, or might narrowly focus on only one dimension of the technology transfer issue, such as the economic or military. One school of thought emphasizes the need to build new economic and trade relationships with the Soviets in order to give them a stake in cooperation and interdependence. Another approach emphasizes the need to prepare for eventual confrontation in the absence of fundamental reform of the Soviet system and attitudes. In fact, the task of policy is, in part, to convince the Soviets that they have a basic stake in cooperation, with the US, and to find the reasonable alternatives that will make cooperation work.

It is not surprising that much of the popular discussion is in apparent disagreement because it is addressing different dimensions of this complex problem.Any policy, to be successful, must resolve these differences by placing Soviet acquisition of Western technology in the context of overall US-Soviet and NATO-Warsaw Pact relations. Once this is done, it will be clear that a stronger Soviet commitment to long-term cooperation is, in fact, the primary *quid pro quo* for further expanded trade relations. For example, the frustration of the Congress with Soviet emigration policies is in part a symbolic protest that the Soviet leadership does not yet realize that cooperation is more important than technology to the survival of civilization.

Once the overall issues are better understood and settled, the subordinate issues will be easier to resolve. Cooperation excludes neither reasonable competition nor special arrangements to share the costs as well as the benefits of trade, as in the case of the US-Soviet grain agreement. Neither does it exclude prudent steps to meet the needs and protect the resources and technology vital to

national security, as in the case of export controls. But it does recognize that all of the dimensions and elements of policy must be based on reciprocity and be consistent. Individual and isolated policies, if contradictory or incomplete, ultimately will fail.

The Importance of US Technology

In order to provide proper perspective, it is useful to consider first the global importance of US technology. One of the characteristics by which an economic system can be described is the level of technology it embodies at any given time. Certainly, if one were comparing the economic system of the US today with what it was 200 years ago, one would have to highlight the tremendous change in the kinds and amount of technology on which its operation now depends.

The importance of US technology is recognized by other nations in the world—hostile as well as friendly—who would improve their economic systems by importing as much technology as possible from us. What these nations are seeking is fairly obvious; what we are providing may not be. Typically, they seek to acquire a plant or a process which embodies better methods than they have been able to develop on their own. Superficially, what we supply is "know-how" of a particular kind, whether the intricacies of making an integrated circuit or the systems management needed to design, develop and produce large aircraft. What tends to get overlooked, however, is how the US came to have this technology in the first place.

The secret of US achievements in this field lies not in our having a different breed of man—we are not as individuals brighter or intrinsically more able than the people of other nations—but in the fact that our whole society, with its dedication to freedom, to enterprise, to reward for achievement, has invested heavily over the years in the education of creative minds, skilled workers and highly motivated individuals and in the formulation of productive capital and flexible management systems in order to give their efforts scope.

What we send abroad in the form of usable technology is the fruit of two centuries of this kind of successful national investment. What other nations get, in turn, is a plant or a process without having to expend their own resources in the costly investments necessary to make them possible. They can, in short, share in the harvest without ever having to till the soil, plant the seed or bear the burdens and risks of husbanding its development during the long growing season.

The result is an improvement in the technology of a foreign economic system with the investment costs being borne by the US. This is not necessarily a bad thing, but whether it is good or bad depends on what happens next. If this US technology deals with a field like oil exploration or development, and the result is an increase in the world's oil supplies, then enhancing the production capability of a foreign country's economic system through the transfer of technology may represent a clear gain for everyone. But suppose it represents a field like aircraft production and the result is to make the importing country no longer a customer but a competitor of the US in sales of aircraft to third countries. In this circumstance, it would be at least prudent to think carefully about the wisdom of exporting what Fred Bucy in a very interesting Defense Science Board report recently published has termed our "hard learned and hard earned" technology.

To a considerable extent, the problem with technology exports to Communist countries is similar. However, the stakes are more vital since transfer of US technology may directly affect our national security.

Definition of Technology Transfer

A fairly reliable way to insure that discussion of a complex subject will bear no fruit is to have each participant, when dealing with basic issues, use the same words to mean different things. If the participants can be kept from recognizing that this is what they are doing, a barren result can be made absolutely certain. With a complex subject like the present topic, this is easy to do but I do not propose to let it happen. So I shall begin by heeding the academic admonition: "Define your terms."

Technology, as I shall use the term, has to do not with the classic elements of economic production—land, labor and capital—but with the methods or efficiency by which these are combined. It is a term usefully applied only to data, know-how or production processes. For example, a modern machine tool is not itself an item of technology no matter how much unique data, know-how or sophisticated processes went into its design, development or production. It is, instead, simply a piece of capital equipment which is the end product of technology.

This leads directly to the second major term which needs definition, that of "transfer." If the machine tool to which I referred does not itself represent technology, then exporting it to another country does not involve a transfer of technology. There is, however, one exception. If, by having such a product in one's possession, one could take it apart and by so doing not only learn how it was made but also *learn to make it;* if, in other words, one could "reverse engineer" it, then the technology of its design, development or production would be extractable from the product itself. In such a case, its export would involve a *potential* transfer of technology. Note, however, that even here no *actual* transfer takes place until such time as the recipient decides to undertake the "reverse engineering" task and is successful. Up until that point, what has been exported is still no more than an item of hardware, an end product.

A second aspect of transfer to have clearly in mind is that, although it is possible, as shown above, to acquire technology through the sale of equipment, other methods are more common and more effective. A recent study by a Defense Science Board task force has developed a graded list of ways technology is exported, ranging from trade exhibits to turnkey plants. The critical element, they found, was the extent to which the seller's technical people worked with the buyer's technical people. The closer, the more numerous, and the more extended such contacts are, the more effective is the transfer process.

A third aspect of transfer that is important is that the export of certain equipment embodying high technology may provide a customer with a capability to perform a unique high-technology, economic or military-related task, although the customer may not be able to extract its design, development or production technology from the equipment itself. For example, a high-capacity late-model computer might be used to design more efficient nuclear weapons, or be diverted from passenger reservations to operate a more efficient air-defense system, even though the customer might not learn how to reproduce the computer itself. The operational and output capabilities built into a piece of equipment may also carry with them unique technologies related to the application of the equipment to specific tasks and enable the customer to acquire know-how in use not otherwise available.

With these concepts in mind, let us turn now to examine the place of technology transfer in current US-USSR relationships. Probably the first thing to note is that Soviet interest in the acquisition of Western technology is not a new phenomenon. In the 1920s and the 1930s the Soviets imported large amounts of advanced Western machinery and equipment, purchased foreign technical information, and employed industrial specialists from the West. In particular, as Anthony Sutton has documented in his recent work on *Western Technology and Soviet Economic Development* (Stanford Research Institute, 1969), many wide-ranging technical assistance agreements were concluded with foreign firms in 1929 and, in the following two years, there was a massive infusion of foreign technology, foreign engineers and foreign equipment. In 1931, for example, over 60 percent of US machine tool exports went to the Soviet Union as did three-fourths of our tractor and forging equipment exports.

Although most of the foreign engineers remained but a short time, the Soviets acquired a number of standard designs, based on Western models, and enormous new manufacturing capacity. The Urals ELMASH Combinat multiplied Soviet electrical equipment manufacturing capacity by a factor of seven. The KMEMZ facility at Kharkov, designed by the General Electric Company, had a turbine-manufacturing capacity two and one-half times greater than the main G.E. Schenectady plant. At Magnitogorsk, an expanded replica of the US Steel plant at Gary, Indiana, was the largest iron and steel plant in the world. Such imports were designed to solve specific Soviet production problems within the framework of a policy aimed at minimizing economic ties to the industrial West.

In spite of the devastation of World War II, the Soviet Union, thanks in part to Lend-Lease and the wholesale transfer to the USSR of plants and machinery as war booty and reparation from the conquered countries of Europe, was able to rebuild rapidly its status as a major industrial power. Thus it was possible, in the years immediately following World War II, for Soviet foreign economic policy to pursue autarchy and to limit economic ties with the West. Not only did the USSR refuse to join the Marshall Plan, but it also refused to allow its satellite countries in Eastern Europe to do so.

In the 1960s the Soviet policy of autarchy appears to have changed. As early as 1965, the Soviet leadership had decided to include in the Eighth Five-Year Plan (1966-1970), a project for FIAT to build an automobile passenger car plant in the Soviet Union. Further technology imports were part of the Ninth Five-Year Plan (1971-1975). Prominent in these technology imports was the mammoth Kama River truck factory. The pattern of such imports was widened in the Tenth Five-Year Plan (1976-1980) to include the areas of natural gas, oil, timber, metal extraction, processing and distribution technology, chemical processes, and computer assisted systems technology.

In keeping with this far-reaching interest in Western technology, we have seen a tremendous upsurge in the number of Soviet commercial visitors to the US. A recent count places them at over 2000 per year. They come in delegations made up of very competent engineers and technicians, with well-thought-out itineraries which seem to include only the technically most advanced firms and plants in the US. Paralleling this growth in Soviet visitors is the increasing use of technical

assistance protocols between Ministries of the Soviet Union and major US firms. Although, for the most part, the technical assistance protocols are no more than "agreements to agree," they do promise the best efforts by each party to enter into very close and continued exchanges of the most advanced technology.

While there have been a number of other contracts consummated, the most spectacular ones in the present period have been for imports to the Kama River truck factory, for which Western firms, including a number of American companies, have supplied huge amounts of equipment and technical know-how.

The interesting point about these recent developments is that most of the projects imply continued, long-term relationships between buyer and seller. To this extent, they appear to represent a noteworthy departure from the classic Soviet policy of economic self-sufficiency. The question we must ask ourselves is whether such a departure is actually taking place, and if so, what its significance is. More specifically, how do current Soviet efforts to acquire Western technology affect US national interests—diplomatic, economic, and military?

Implications for US/Soviet Competition

If we regard the realm of ideology as the province of diplomacy, I suggest that the chief diplomatic significance of the current Soviet drive to acquire Western technology is its demonstration that the Soviet economic system has not been able to develop the resources, skills and enterprise needed to keep pace with the technically advanced major industrial countries of the Free World. Moreover, it indicates that the Soviet leadership has been forced to recognize that the USSR and its Eastern European partners are steadily falling behind the US, Western Europe and Japan in economic growth and development. Faced with the alternatives of making changes in their economic system—changes which they believe could threaten their domestic political control and internal stability—or of seeking economic aid from abroad, the Soviet rulers have clearly chosen the latter. What this says about their claims that the communist/socialist system is superior to the modern mixed capitalist system that includes public and private sector cooperation, is, to put it gently, certainly not to the Soviet advantage in the arena of ideological competition.

What may be the principal long run economic significance to the US of Soviet efforts to import Western technology, is the fact that, in spite of the long-term nature of some of the projects, there is scant evidence that the Soviets intend them as forerunners of a new and continuing pattern of trade relationships with the US and other non-communist countries of the world economic system. Nor is there much evidence that this increased interest in Western technology is likely to lead to greater Soviet acceptance of the rules of the international economic system.

What the Soviets are seeking, at least for the present, is a wide range of capital goods to help meet their most urgent needs, technical assistance to enable them to exploit more of their natural resources, and production technology to upgrade the efficiency of their industrial output. Far from signalling the opening of a new era of mutually beneficial trade, their search for Western technology seems to be intended to reduce rather than increase the dependence of the Soviet world on the West.

The chief military significance of these Soviet efforts lies in their potential impact on the continued effectiveness of our deterrent strategy, a strategy in whose success we and our allies have a vital interest. A central element in that strategy has been and will continue to be the maintenance, as a minimum, of a military balance adequate to counter Soviet aggression across the spectrum of possible conflict. The present strong US position is in large measure due to the US lead in design, development, production, and operation of technologically advanced weapons and in the technology of its military-supporting industries.

We currently have a clear margin of advantage over the Soviets in this regard. For example, the USSR's technology applicable to nuclear weapons delivery systems lags significantly behind that of the West—from two to six years for such items as liquid and solid propulsion systems, guidance systems, integrated circuits, and advanced computers. It is the technology of the factory more than of the laboratory—the know-how born of experience rather than the knowledge arrived at by theorizing—which is the area of concern. Should Soviet efforts succeed in eliminating or substantially reducing our lead in this area, not only would our deterrent posture suffer, but major changes in the US force structure, deployments, tactics, and research and development, which would cost several billion dollars annually, could be required. This amount would need to be added to US defense expenditures each year simply to restore and maintain the prior military balance, until the present US lead in advanced technology could be reestablished.

In the context of long-range US-USSR competition, it is abundantly clear on these three counts—diplomatic, economic and military—that technology is a major asset on which the US can and should capitalize in dealing with the USSR. While this is much easier said than done, a few principles can be set forth to govern our specific actions.

US Policy Response

In the first place, technology, like any other asset, should not necessarily be hoarded. It is, in any event, in our long-range competition with the USSR a wasting asset in the sense that over time the Soviet Union, provided it decides to make the effort, ultimately can achieve any particular technological capability in which we now are superior. Depending on the technology chosen, the time may be very long or very short. However, the Soviets have the talent and the resources, and there is little we can do to prevent their using them to do almost anything, in time, that we can do.

In the second place, if all technology is not to be hoarded, we must, in spending it, recognize its value and spend it wisely. At a minimum, this means that, in any transfer of technology to the Soviet Union, we should make an adequate and fully informed assessment of the value of the national interest to be served—whether diplomatic, economic or military—and insure that it is commensurate with the value of the technology we are trading for it.

In the third place, this major asset can neither be conserved nor spent wisely, unless we insure that we have an effective means for regulating its transfer abroad. The US, the NATO nations, and Japan have a system of trade controls designed to accomplish just this purpose. Originally established in 1949 through a coordinating committee, since known as COCOM,* we have an

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* COCOM is the Coordinating Committee on Export Controls consisting of the NATO countries (minus Iceland, but including France and Greece) plus Japan. It was established in 1949 to control the export of militarily important goods to the communist countries.

internationally agreed list of commodities and associated technologies whose export to the communist world is highly restricted. On this international list are some items which have both civil and military uses, as, for example, advanced computers, numerically controlled machine tools, electronic gear, lasers, and the like, along with the technology needed to produce them. In deciding upon the release of such items to communist countries our underlying concern is whether a commodity purchased for a presumably peaceful end-use is likely to be diverted to a military purpose and, if so, how detrimental to our security that diversion would be.

At this point we should take note of a number of inescapable realities. First, there is the problem of uncertainty. Our knowledge of what goes on in the Soviet Union is not as precise or complete as we could wish. Consequently, in all judgments about the likely end-use of any strategic item there is room for error.

Recognizing this fact, a second reality is that the potential cost to the US of a mistaken judgment varies considerably depending on the direction in which it is made. If, for example, an error is made on the side of being too restrictive, whatever its impact on the prospective vendor, it will not result in a very great loss to the US economy because factors other than export controls on strategic items—such as a Soviet shortage of hard currency—impose signficant limits on increased US trade with the Soviets. On the other hand, an error on the side of relaxing controls on items which enhance Soviet strategic capabilities, could impose an enormous cost in the form of subsequently increased defense expenditures and greater security risks to the US.

A third reality is that errors made on the side of being too restrictive can be easily and rapidly corrected in the future whenever the error is discovered. All the US has to do is reverse its general position and there will be no resistance to the change. By contrast, as experience has shown, particularly with international controls, once an item has been decontrolled, even if in error, it is impossible to get it re-embargoed, and if vital technology has been transferred, a renewal of the embargo might be of little use in any case.

A fourth reality is that asking how much an individual export will adversely affect our security—as is often done when individual transactions are being considered—is the wrong question. It is fanciful to suggest that one strategic commodity could have overwhelming importance by itself. Indeed, it is possible to argue that there is probably not an item on the embargo list which, if exported in one isolated transaction to the Soviet Union and used by them for military purposes, would, by itself, represent a disaster for our national security. But in the world of export control, where every release is seized upon by other vendors or by other countries as a precedent for seeking equivalent releases, there is no such thing as an isolated case, any more than there is an isolated stone in a dike.

It is true that every transaction must be dealt with on its merits. Nevertheless, the cumulative impact of a number of transactions must also be weighed. If in each case those transactions which have preceded it need to be considered, so also must the consequences which are certain to follow be a matter of concern.

All of these problems are especially severe where technology transfer accompanies the export of the end items. To estimate the potential impact of an export of technology is much more

difficult than to assess the importance of exporting a finished product. Where a piece of hardware is concerned, there is a fair chance of determining that it went to its intended destination. Should diversion be detected, its value can be reduced by shutting off follow-on spares, and an additional sanction of refusing to make any further shipments of similar equipment can be invoked. Even if occasionally a judgment is made incorrectly, the damage to our security is likely to be limited, if only because machines and equipment have a finite utility and a finite useful life. This is not so with technology. We cannot be assured of the uses to which its end products will be put; we cannot recall; nor is its usefulness necessarily short-lived.

This brings us to the question of what constitutes effective export controls. Permanent prevention of the acquisition by Communist countries of any particular military capability cannot be, and in fact is not the US goal. As was pointed out earlier, any country with the brains, the resources, and the will to do so can, over time, acquire almost any weapon or military capability it chooses. There is little we can do to prevent it, and to make such an attempt would be wholly unrealistic. However, we can, through the judicious use of export controls, retard the achievement, by countries hostile to us, of military capabilities which would be detrimental to our security. This delay is the measure of success. So viewed, our security trade controls have proved to be highly effective, particularly in the area of production capabilities. This is attested to by the clear margin of advantage we continue to maintain over the Soviets in a number of militarily significant technologies.

To the extent that we and our Allies keep careful control over the export to the Soviets and their Allies of technology of military significance, we can retard the growth of Warsaw Pact and PRC military capabilities, contribute to the success of our deterrent strategy, and reduce the annual expenditures we must make for our defense. By so doing, we do not necessarily assure that the long-range US-USSR competition will continue to show returns favorable to US interests, for there are many factors in the field of technology itself, as, for example, the need for a vigorous, well-supported research and development program, which can affect its course. But in this uncertain and contingent world, it is important for us to recognize the significance of current Soviet efforts to acquire Western technology and to guard this asset well.