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Arms Control: Mutual and Balanced Force Reductions

May 1986

Background: Negotiations on Mutual and Balanced Force Reductions (MBFR) in Central Europe, involving 12 members of NATO and the 7 Warsaw Pact members, began in Vienna in 1973. The primary Western objective is to improve stability in Central Europe by:

- Concluding, as an initial step, a time-limited, first-phase agreement monitoring US-Soviet troop reductions, followed by a commitment not to increase the remaining forces on both sides.
- Eventually establishing parity at lower levels in the form of a common collective ceiling on each side's military manpower--700,000 troops in ground forces and 900,000 for combined ground and air force personnel per alliance.

Disagreement on data: Eastern superiority in ground forces is a potentially destabilizing factor; its elimination could reduce the risk of war. Both sides continue to disagree about the size of Eastern forces in the Central European reductions area. Until recently, NATO sought agreement on current Eastern troop levels prior to signing an accord.

February 1985 Eastern proposal: In February 1985, the Eastern negotiators proposed:

- A framework for a time-limited first-phase agreement;
- A focus on a limited reduction of US and Soviet forces;
- A no-increase commitment for all forces in the reductions area after US-Soviet cuts; and
- Deferral of data agreement on Eastern troop levels, which Eastern negotiators claimed was the most important obstacle to an agreement.

December 1985 Western proposal: In December 1985, the West presented a proposal to break the 12-year deadlock in the negotiations. It was designed to be as compatible with the February 1985 Eastern proposal as Western security interests would permit.

Basic provisions of the new Western initiative are:

- Reduction of 5,000 US and 11,500 Soviet ground troops in units, with up to 10% of the reduction total as individuals. The length of the reductions period, to be agreed, should not exceed 1 year.
- A collective no-increase commitment on NATO-Warsaw Pact and US-Soviet ground and air forces remaining in the MBFR zone. The no-increase commitment would begin when reductions are complete and last for 3 years.

- A package of comprehensive verification measures, including yearly exchange of detailed information on units down to battalion level; 30 annual onsite inspections designed to monitor compliance with the no-increase commitment (to begin concurrently with that commitment); and permanent Entry/Exit Points to be established to monitor troop movements in and out of the zone of reductions.
- The agreement would expire at the end of the 3-year no-increase commitment. Negotiations to extend the commitment and to negotiate further reductions could be entered into at any time.

Eastern reaction: Initially, the Eastern reaction was encouraging. General Secretary Gorbachev voiced optimism in his mid-January 1986 statement on arms control negotiations. He stated that there would have to be some sort of "reasonable verification provisions," and also stated that "...it would be possible to establish permanent monitoring (entry/exit) points to monitor the entry of any troop contingents into the reductions zone." Eastern negotiators in Vienna agreed to lower initial US-Soviet reduction figures but suggested reducing 6,500 US troops for 11,500 Soviet troops (an arbitrary 30% increase in the figure NATO proposed for US cuts).

In February 1986, the East offered a draft agreement incorporating its February 1985 proposal and subsequent revisions and offered to begin drafting a treaty encompassing these revisions, which, in reality, were little more than old Soviet proposals repackaged. In this document and accompanying statements, the East has undermined the value of any verification regime designed to determine compliance with reductions and the no-increase commitment. For example, the Soviets have stated that Entry/Exit Points would not be used to monitor troops on normal semiannual rotations, which include more than 400,000 soldiers in all, but only those in major unit rotations. In addition, the Soviets' position on verification of the no-increase commitment would be to give each country the right to refuse requests for onsite inspections, which effectively would destroy any sort of verifications regime.

Outlook: NATO's December 1985 proposal made radical moves in many areas, most importantly by deferring its requirements for agreement on current Eastern troop levels in advance of reductions. For further movement to take place in Vienna, the Soviets will have to match the West in flexibility and imagination. Nonetheless, the West remains committed to progress in the talks and to seeking an equitable outcome for both sides that will enhance security in Europe at a lower level of forces.

Dealing With Gorbachev's Soviet Union



United States Department of State
Bureau of Public Affairs
Washington, D.C.

arms control

Following is an address by Michael H. Armacost, Under Secretary for Political Affairs, before the Dallas World Affairs Council, Dallas, Texas, April 8, 1986.

It is a pleasure to speak in Dallas' "Salute to the World" before a distinguished audience on a topic I hope you will find timely: dealing with Gorbachev's Soviet Union.

Our relationship with the Soviet Union shapes the atmosphere of international relations. The Soviets are our principal rivals as well as a necessary partner in averting nuclear war and preventing conflicts from escalating into global confrontation.

U.S.-Soviet Relations Since the Summit

Public perceptions of this relationship oscillate between euphoria and despair. Neither is appropriate. The November Geneva summit between President Reagan and General Secretary Gorbachev raised our relations to a somewhat higher plateau. Progress was modest, to be sure, but new hopes were aroused. To date, they have not been fulfilled.

On the positive side, we have concluded bilateral agreements which promise to expand educational, cultural, and people-to-people exchanges. We are exploring possibilities for increasing trade in nonstrategic areas. Civil aviation agreements have been signed which will permit U.S. carriers to fly to the Soviet Union and which will increase cooperation in ensuring the safety of

flights in the North Pacific air corridor. We will soon open a U.S. Consulate in Kiev.

In the human rights area, we welcome the Soviet release of Anatoliy Shcharanskiy; the decision to permit the wife of Andrey Sakharov, Yelena Bonner, to receive medical treatment in this country; and the resolution of a number of divided family cases. We note with regret, however, that the rate of Jewish emigration remains at a trickle.

In the arms control area, we welcome dialogue with the Soviets on the nonproliferation of chemical and nuclear weapons. At the same time, however, there has been no progress on the key nuclear and space arms issues under discussion in Geneva, despite General Secretary Gorbachev's summit agreement to accelerate work in these areas.

Specifically, Mr. Gorbachev agreed to early progress in areas where there is common ground, including deep reductions in nuclear arms and an interim agreement on intermediate-range nuclear forces. Unfortunately, the Soviets have been unwilling to engage in serious give-and-take on these issues at the negotiating table in Geneva. Instead, they have devoted themselves to propaganda statements and public diplomacy. They have yet to respond in Geneva to specific proposals we tabled last November.

Finally, there has been little progress in attenuating regional conflicts, which involve Soviet troops and Soviet proxies in such places as

Afghanistan, Nicaragua, Cambodia, Angola, and Ethiopia. Yet, there can be no lasting improvement in our relationship without concrete progress in resolving these regional disputes.

In sum, developments on bilateral issues, human rights, arms control, and regional conflicts present a mixed picture. They suggest that, without sustained efforts on both sides, the competitive elements in our relationship will tend to overshadow the cooperative ones. In this connection, the Soviet failure heretofore to set a date for the Washington summit can only retard progress.

Gorbachev's Soviet Union at the Crossroads

The absence of forward movement in our bilateral relations in recent months may be attributable in part to the Soviet leadership's involvement in preparations for the 27th Party Congress which convened in Moscow in late February. The Party Congress afforded Mr. Gorbachev an opportunity to consolidate his domestic position and set forth his domestic and international priorities. The results of the Party Congress suggest the following conclusions.

- Mr. Gorbachev is well on his way to consolidating a younger, more energetic, and more professional Soviet leadership. In the last year, he has appointed a new prime minister, a new foreign minister, five new full Politburo members, five new alternate Politburo members, and seven new members of the Central Committee secretariat.

In addition, he has brought much new blood into the Central Committee; 40% of the full members were elected for the first time at the last Party Congress. These men and women are generally younger and better educated than their predecessors. And they appear to be determined to reverse the stagnation that has afflicted Soviet policy in recent years.

- Mr. Gorbachev professes to favor change in both domestic and foreign policy. On the home front, he has challenged the Soviet Union to double its agricultural and industrial output by the year 2000. While he urges "radical reform" in economic management and appears intrigued with high technology, he has stopped short of embracing policy measures that promise the revival of rapid growth. He portrays himself as a reformer but has adopted only modest palliatives such as temperance and discipline campaigns rather than announcing fundamental structural changes.

- Such palliatives are unlikely to revive an economy stultified by centralized planning, excessive military expenditures, low labor productivity, and an obsolescent industrial base. Meanwhile, the fall in the price of oil has cut Soviet usable hard-currency earnings by a third. Compounded by a shortfall in Soviet oil production, this development further jeopardizes Gorbachev's plans to finance a swift modernization of Soviet industry.

Whatever its long-term economic challenges, the Soviet Union retains short-term reserves of economic resiliency. And Moscow remains a first-class military power with sophisticated strategic capability and an ability to project a global conventional force.

- Mr. Gorbachev has also tried to inject new dynamism in Soviet foreign policy. In his trips abroad, he has displayed an aptitude for public relations rarely seen in a Soviet leader. He has accorded high priority to relations with the United States. For the first time in 10 years, a Soviet foreign minister has visited Japan. And, as evidenced by the recent increases in Sino-Soviet trade, the Soviets have intensified efforts to improve their relations with China.

To date, however, these changes appear to be tactical rather than substantive. Mr. Gorbachev has injected new energy into the implementation of policies that are reasonably familiar. He has hinted at more far-reaching changes. But these hints have not yet been confirmed.

This is especially true in the Soviet approach to regional conflicts.

Soviet Approach to Regional Conflicts

In the 1970s, the Soviet Union embarked on a series of regional adventures. We are all familiar with the results: 30,000 Cuban troops in Angola, thousands of Cubans in Ethiopia, a Soviet Army at war in Afghanistan, Soviet-bloc advisers in Nicaragua.

Under Gorbachev's leadership, Moscow's involvement in Third World regional conflicts has not diminished. Indeed, there is some evidence that it has intensified.

In Afghanistan, the quality and quantity of Soviet arms, facilities, and troops have increased, and Soviet battlefield tactics have become even more brutal.

In Indochina, the Soviets daily provide more than \$3 million in aid to Vietnam and have further entrenched themselves in military facilities at Cam Ranh Bay and Da Nang.

In Northeast Asia, the Soviets have increased their presence by providing advanced MiG-23 fighters to North Korea, increasing port calls with military ships, and securing rights from Pyongyang for intelligence purposes against our friends and allies in the area.

In Angola, the Soviets have substantially increased military supplies to the MPLA [Popular Movement for the Liberation of Angola] government in Luanda for use against Dr. Savimbi's freedom fighters. Their aid has amounted to \$2 billion since 1984.

In Nicaragua, a significant influx of Soviet-origin munitions, vehicles, armored attack helicopters, and radars which form the nucleus of an air-defense network has provided the war materiel for more than 60,000 Nicaraguan regulars.

In South Yemen, the Soviets intervened in January in an attempt to preserve a dominant role in that country and to protect access to port and air facilities needed to project military power in the region. First, they forced their clients to repatriate an opposition leader, then they abandoned him in the midst of political conflict. The result was a bloody civil war, the full human toll of which is still unknown.

Thus, the Soviet determination to consolidate and, where possible, extend their influence in the Third World persists. But Moscow's ability to sustain such policies is being challenged in a new way. They now confront growing indigenous resistance movements in the regional outposts of influence they established in the 1970s.

In Afghanistan, the *mujahidin*—the insurgents who have successfully held the Soviet Army at bay for over 6 years—struggle valiantly against the Soviet occupation army and the forces of the puppet government installed there.

In Indochina, democratic forces in Cambodia, once all but annihilated by the Khmer Rouge, are now increasing their participation in a brave fight against a puppet regime imposed by communist Vietnam.

In Angola, Jonas Savimbi and his UNITA [National Union for the Total Independence of Angola] forces have extended the territory under their control in their armed struggle against the Soviet- and Cuban-backed Luanda regime.

In Nicaragua, democratic resistance forces are holding their own, despite lack of significant outside help in the face of a massive influx of sophisticated Soviet weaponry and thousands of Soviet, Cuban, and Eastern-bloc advisers.

The Reagan Doctrine

The United States cannot fail to respond to these emerging democratic resistance movements. Our reason is simply stated: freedom for others means greater peace and security for ourselves.

Our efforts to promote freedom, prosperity, and security must accommodate the differences among these regional conflicts and the conditions under which they arose. The form and extent of our support must be carefully weighed in each case. Since popularly supported insurgencies enjoy some natural military advantages, our help need not be massive to make a difference.

But our assistance must be more than symbolic: our help should give freedom fighters the chance to rally the people to their side. As President Reagan has made clear, "...resistance forces fighting against Communist tyranny deserve our support." And in Afghanistan, Angola, Cambodia, and Central America, where people are fighting for national independence and freedom, we should provide support.

Diplomatic efforts are underway to promote political solutions to each of these regional conflicts. In Afghanistan, Angola, Cambodia, and Central America, we strongly support diplomatic efforts—conducted variously under UN, regional, and bilateral auspices—to find peace and resolution on terms satisfactory to the parties involved. But our

diplomacy for peace can only work when real pressures create genuine incentives for our adversaries to negotiate.

If Mr. Gorbachev is serious about putting Soviet policy—both domestic and foreign—on a new footing, we invite him to reconsider Soviet involvement in regional conflicts and accept forthrightly the requirements for peaceful solutions.

Afghanistan

Afghanistan is a good place to begin.

The Soviet Union has little to cheer about in Afghanistan. After more than 6 years of bloody fighting, Moscow and its Afghan clients have been unable to overcome heroic Afghan resistance. Yet there is little evidence that the Soviets have given up their resolve to subjugate the Afghan people. On the contrary:

- The Soviets have increased somewhat the size of their Afghanistan garrison, which now includes special forces used in extensive offensive operations, and upgraded the weaponry available.

- The Soviets are expanding their efforts to subvert the rural population, and their attempts to eliminate the resistance in heavily contested regions are carried out without regard for civilian casualties.

- Cross-border bombing and strafing raids by Afghan and Soviet aircraft, coupled with sabotage activity in the tribal areas of Pakistan, have become more frequent as the Soviets have increased efforts to reduce the flow of supplies to the resistance.

- The Soviets are annually sending 10,000–15,000 Afghans to the Soviet Union for study and training in hopes of creating reliable cadres to serve their cause in Afghanistan over the longer term.

- The Soviets continue efforts to give their puppet regime a fig leaf of legitimacy. The regime has been cosmetically broadened with the addition of ministers described as nonparty members and a revolutionary council which includes retired civil servants—albeit men and women with close links to the regime.

The Resistance. Meanwhile, the Afghan resistance has increased its effectiveness. During the past year, it has employed larger, better organized, and better equipped units to take the field against Soviet garrisons and their Afghan allies.

The resistance has also begun to develop national political institutions. The emergence of the resistance alliance is a sign that a new Afghan nationalism, forged on the battlefields of Afghanistan, is coming of age.

The continuing military standoff in Afghanistan represents an impressive success for the resistance and a telling failure for the Soviet Armed Forces. The political and military cost to the Soviets of their occupation continues to mount. It was perhaps with this reality in mind that Gorbachev at the recent Soviet Party Congress referred to the war in Afghanistan as a “bleeding wound.”

U.S. Policy. Soviet occupation of Afghanistan brought their forces closer to areas of vital strategic importance to the United States, namely the Persian Gulf and Indian Ocean; and it converted our long-time friend, Pakistan, into a front-line state, thereby upsetting the fragile balance of power in South and Southwest Asia. Aggression unchecked in Afghanistan is aggression encouraged elsewhere, perhaps closer to home.

U.S. policy toward Afghanistan for the past 6 years has been directed toward one clear-cut objective: a negotiated political settlement which promotes the early and complete withdrawal of Soviet forces and permits the Afghan people the opportunity to choose their own government.

This objective is widely shared by other nations. The UN General Assembly has passed, by overwhelming margins, seven resolutions calling for a political settlement based on four basic points:

- Complete withdrawal of Soviet forces;
- Self-determination for the Afghan people;
- Return of the Afghan refugees in safety and honor; and
- Restoration of Afghanistan’s independent and nonaligned status.

These four points are closely related. Without the complete withdrawal of Soviet forces and the establishment of a government in Kabul reflecting genuine self-determination for the Afghan people, it is unlikely that the 3–4 million Afghan refugees presently in Pakistan and Iran would voluntarily return to their country. Nor is it likely that the *mujahidin* would put down their arms. The restoration of Afghanistan’s independence and nonaligned status would allay Moscow’s concerns about having a hostile government on its southern border, as well as relieve major security concerns in Pakistan.

Since 1982, the UN Secretary General’s personal representative, Diego Cordovez, has been conducting negotiations between the Government of

Pakistan and the Kabul regime. The so-called proximity talks are conducted indirectly, rather than face to face.

This reflects Pakistan’s refusal to recognize the regime of Babrak Karmal, which was installed and is maintained solely through Soviet military force. The Pakistani position is entirely understandable. Their government is currently caring for the 2–3 million Afghan refugees who have fled the excesses of the Soviet occupation and the Karmal regime. They experience daily the consequences of the Afghan Government’s lack of legitimacy.

Last week, UN negotiator Cordovez announced the May 5 resumption of the seventh round of UN-sponsored proximity talks. Mr. Cordovez stated that “for the first time... the crucial issue of the interrelationship between noninterference and withdrawal of Soviet troops” would be discussed. He also confirmed that he had received a suggested timetable for troop withdrawal from the Kabul regime. We hope this development is not a mere propaganda play but reflects a political decision by Kremlin policymakers to negotiate a settlement that protects the legitimate security interests of all parties.

The next round of talks represents a clear test of Soviet intentions. If they are serious about healing “the bleeding wound,” they should commit themselves to a prompt timetable for troop withdrawals to be implemented simultaneously with other elements of an agreement. Beyond this, they must accept this basic political reality: until there is a government in Kabul that inspires enough confidence among the refugees that they will be prepared to come home voluntarily, millions will remain along the border, providing the infrastructure of resistance.

We have made it clear to Moscow that if it makes the political decision to withdraw, we will work to facilitate a negotiated solution. We have affirmed that we seek no unilateral advantage in Afghanistan. Our objective is not to “bleed” the Russians in Afghanistan but to get their troops out of Afghanistan. So long as the Soviets pursue a military option, we will continue to support the Afghan cause through all appropriate means. And Afghanistan will remain an obstacle to the overall improvement in U.S.-Soviet relations.

Humanitarian Assistance. Let me say a word about our humanitarian aid to the Afghan refugees. Our assistance has relieved human suffering and continues to bolster the impressive efforts of Pakistan’s people and government. Pakistan has generously and responsibly

shouldered the burden of hosting what is the largest refugee community in the world today. Their actions are in the best traditions of their culture and of Islam.

With the strong support of the Congress—Congressman Charlie Wilson has given a strong lead—we are supporting a number of programs to assist war-affected Afghans. These include support for voluntary Western medical teams, the provision of food for Afghans in areas controlled by resistance commanders, and a dramatic expansion in the training of Afghan paramedics for service in their own country. And we have just begun.

Conclusion

Let me sum up. Soviet-American relations have not fulfilled the expectations generated by the Geneva summit. Yet,

opportunities for progress exist, and we shall continue to work on a broad agenda involving arms control, bilateral issues, human rights, and the resolution of regional conflicts.

What the Soviets call the “correlation of forces” has changed, and in our favor. Nevertheless, the Soviet Union remains a formidable military power and global adversary.

The growth of indigenous resistance to Soviet domination in the Third World also reflects a new reality: the age of imperialism is over. The tide of history is a freedom tide. It will lift the hopes and fortunes of those around the world determined to shape their own destinies.

If the Soviet Union is prepared to end its occupation of Afghanistan and heal the “bleeding wound” in that

country, a negotiated solution can be achieved. However, if they are determined to persist on their current course, they will have to shoulder the long-term military and political costs of a bitter, divisive, costly, and inconclusive struggle.

The essence of statesmanship is to recognize and adjust to new realities. We stand ready. We invite Moscow to join us in placing U.S.-Soviet relations on a more stable and cooperative foundation. Let history record that this was a time when both our countries seized the possibilities at hand. ■

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U.S. Underground Nuclear Test

*Arms
Control*

JUDY WOODRUFF: The United States has conducted almost 800 nuclear tests since the 1940s, but the U.S. underground test last Saturday in Nevada created almost as much political fuss as all the ones before.

[Clip of countdown to test]

WOODRUFF The Soviets, who have conducted more than 600 tests, had been following a self-imposed testing moratorium since August, which was scheduled to expire on March 31st. The Saturday test here drew a sharp Soviet criticism, followed by an announcement today that the Soviets would stick with their moratorium, at least through the end of the month.

To explain why the Administration went ahead with the test we have joining us Richard Perle, Assistant Secretary of Defense for International Security Policy.

Secretary Perle, why did we go ahead with this?

ASSISTANT SECRETARY OF DEFENSE RICHARD PERLE: Because we have a deterrence that is intended to keep the peace, that has kept the peace since the last world war, that depends on nuclear weapons. It's an unfortunate fact of life. We wish it weren't necessary, but it is. And as long as we require nuclear weapons in order to maintain the peace we have to test those weapons. We want to be sure that they're safe, that they're secure, and that they're reliable. And we don't know of any way to do that except by nuclear testing.

WOODRUFF: But the Soviets, of course, have been under this self-imposed moratorium since August. Doesn't this make us look like the aggressors in this situation?

SECRETARY PERLE: Well, I think it's intended to do that. It's a shallow propaganda maneuver. The Soviets, even during the moratorium, were preparing for the test series that will begin shortly when they resume. They knew that we would not accept an abandonment of nuclear testing because they know that

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QUESTIONS...Continued

warheads to reach their targets in Moscow; and that depends in turn on strict and predictable limits to Soviet anti-missile defensive system.

Under the 1972 Anti-Ballistic Missile (ABM) treaty, the two superpowers are each allowed one site of 100 anti-ballistic missiles. The Americans scrapped their system at Grand Forks, Dakota, because they thought it would not work; the Russians, who kept their round Moscow, presumably thought that it was worth keeping. It may not be all that effective; but then it does not need to be all that effective to pose a potential threat to the warheads of 16 Polaris missiles. The threat to a small deterrent could become much more serious if American Star Wars research and its Soviet counterpart led the two superpowers to break out of the constraints of the ABM treaty, and start to deploy much more capable defensive systems.

It follows, therefore, as night follows day, that neither France nor this British Government will make any international commitment on the future size or configuration of their nuclear deterrents, until they secure guarantees that the superpowers will make no increase in their anti-missile defences. Naturally, Britain's specific concern is with Soviet defences; but the method of securing this concern, as Sir Geoffrey made clear in his recent speech, would be clarification and a tightening up of the ABM treaty. The consequence of such a tightening up would, in effect, be a ban on any deployment of President Reagan's Star Wars.

In public, President Reagan does not accept the case for such constraints on Star Wars; it is possible that he will never accept any constraints, whatever the inducement of a major arms control deal with the Soviet Union. What is clear, is that a curb on Star Wars would be a major political concession on his part, and the *quid pro quo* would have to be correspondingly spectacular.

It would have to be spectacular from the point of view of American security interests, and there is only one item on the lengthy agenda of arms control negotiations which matches up to that requirement: a major reduction in the long-range strategic nuclear missiles of the super-powers,

A Euro-missile deal would, no doubt, be welcome in Washington, as would a chemical weapons ban, an agreement on conventional forces in Europe, or a package of confidence-building measures. But none of these would carry the weight to shift President Reagan from his commitment to Star Wars. If anything can do that, it can only be a big reduction in strategic nuclear weapons.

Now it may be worth pointing out that the two British conditions operate at two quite different levels of reality. A ban on anti-missile defences is a logically absolute military requirement; a big reduction in the arsenals of the superpowers is a hazier politico-atmospheric requirement.

A ban on defences could make the effective difference between a small British deterrent or none; whereas even a 50 per cent reduction in super-power strategic weapons would still leave the Russians with

far more missile warheads than they would know what to do with. The significance of this criterion is, first, that it points towards an objectively equitable trade between Moscow and Washington and, second, that a deep reduction would imply an improvement in East-West relations, and by inference an easing of the Soviet threat.

So what is Mikhail Gorbachev playing at? For much of last year, it looked as if he was seriously aiming both at an improvement in US-Soviet relations, and at a major arms control deal, specifically one which would put the clamps on Star Wars. For domestic economic reasons, he needed to contain defence spending now, to secure freer trade with the West, and to avoid a ruinous arms race in space in future. Even if there was a Janus-like ambiguity about his posture, at least it was consistent with such a policy. But there is, as yet, no clear evidence from Geneva that his negotiators are making any very urgent efforts to secure the kind of strategic arms deal which might eventually deliver a trade on Star Wars.

By contrast, the rhetorical traffic is increasingly overloaded with secondary issues, like the flirtation over the date of this year's summit. Mr Gorbachev makes much of his nuclear-test moratorium, and of his proposal for a joint ban; and he also claims, in general, to

accept the need for more effective verification of arms control, an issue dear to the Pentagon hawks. But when President Reagan proposes on-site calibration for the verification of nuclear testing, he is turned down flat by the Russians: all they are ostensibly interested in is a total ban, and they claim that verification poses no problems.

What they conveniently forget is that the US has still not ratified the 1974 Threshold Test Ban Treaty, which limits tests to 150 kilotons, because it does not trust the Soviet Union or the effectiveness of existing verification methods. A very recent report suggests that the US has in fact succeeded in monitoring a Soviet test of less than one kiloton from a station in Norway, but let that pass. If the Russians really wanted a total test ban agreement (which may be doubted), as a first step they would at least try to make sure that the US could no longer refuse to ratify the TTBT.

In short, while Mr Gorbachev is making great propaganda play with his arms control proposals, witness his plan for total disarmament by the year 2000, it is becoming increasingly difficult to believe that any of it is seriously intended for negotiation.

At least two hypotheses are possible. The first is that the specifics of arms control are for Mr Gorbachev, secondary to the requirements of atmosphere, image and propaganda. He may believe that the kind of arms deal he needs cannot be negotiated with the Reagan administration; but that a reduction in international tension and an improvement in the Soviet image can be achieved, in the short run, without it.

The second is that the multiplication of propaganda initiatives conceals a failure to persuade the old guard and the military lobby to go along with any radical arms control; or second thoughts about the advisability of curbing anti-missile defences. If there is a large gap between the radicalism of Gorbachev in arms control and the conservatism of the military lobby, his future may be even more heavily dependent on his success in delivering economic reform at home; which could prove at least as difficult as doing a deal with the Americans.

TEST...Continued

we depend on nuclear weapons, and must therefore test them. They were in a position to propose a moratorium, knowing that it would be refused by the United States, and hoping thereby to gain some propaganda advantage.

But I don't think that we can afford to operate a nuclear force with unsafe, unreliable weapons in order not to grant the Soviets whatever propaganda benefit they may think they can achieve.

WOODRUFF: Is that the main reason for these tests, that we want to make sure our weapons, when and if we need them, are safe and sound and reliable?

SECRETARY PERLE: We also -- that's correct. And we also want to keep the numbers of these weapons to the absolute minimum.

You know, in the 20-or-so years since the American nuclear stockpile reached its peak, in the 1960s, we've had steady reductions in the size of the U.S. nuclear force, the number of weapons in it, and the yield, or megatonnage, of those weapons. Those reductions have been possible because testing has permitted the introduction of better, more effective weapons, so that fewer of them will provide an adequate deterrent; and perhaps most important, much smaller nuclear weapons that have tailored effects, rather than the very large weapons of the 1960s.

WOODRUFF: What was being tested on Saturday, exactly?

SECRETARY PERLE: I don't think we have said specifically what was being tested on Saturday. But the general tendency of our testing program over the last 20 years, or so, has been aimed at more effective weapons, fewer of them with lower yield. And I believe that's true of the current test series, as well.

WOODRUFF: Well, I read a report that it was supposed to be an early warhead design for a Midgetman intercontinental missile. Can you confirm that?

SECRETARY PERLE: Well, if it were that, I would only point out that there are many who believe that mobile missiles, because they can't be targeted, would introduce greater stability into the nuclear balance between the United States and the Soviet Union. I'm not sure that's true.

But it points up the fact that in a situation where the stockpile is evolving, testing is going to be necessary. And

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TEST...Continued

it's really putting the proposition backwards. We ought to be working on, and indeed are working on, proposals to reduce the number of nuclear weapons in the world, to diminish the importance of nuclear weapons in our overall defense. And then perhaps we can arrive at the point where we can get along without testing. But to have these weapons and not test them is foolish and dangerous.

WOODRUFF: Richard Perle, stay with us.

JIM LEHRER: A very different view of it now from Congressman Tom Downey, Democrat of New York, Chairman of the Arms Control Task Force for the House Democrats. He called publicly Friday for postponing Saturday's test.

Why? Why did you do that?

REP. TOM DOWNEY: Well, I think it's important to understand, Jim, that a very fundamental principle of American foreign policy under the six Presidents prior to President Reagan is to attempt to get a comprehensive test ban, that it's wise for the superpowers to practice what they preach. We've told the rest of the world that it's not good to have nuclear weapons. There's just no better way to do that than by the United States and the Soviet Union setting an example or not testing and not developing more weapons.

We have on this planet about 50,000 nuclear warheads today. We've got about 11,000 aimed at the Soviet Union. They have about 10,000 aimed at us. I don't think we need any more. I think that the whole world understands how dangerous the situation is.

And if we understand that, and also understand the fact that the vast majority of the tests that the United States has conducted have not been reliability or safest tests, rather they've just been tests to develop new and different type of weapons, you'll understand that testing means new weapons, weapons that are potentially hair-trigger on both sides.

And we have a golden opportunity now. The Soviet Union has not tested nuclear weapons for the last seven months. Indeed, the United States, in an attempt to work out some sort of deal, had not tested nuclear weapons since late last year. So we had that. And on top of that, we had an offer from six countries to verify a moratorium that they have offered the United States and the Soviet Union. And on top of that, you had the Soviet Union saying for the first time in 40 years, "Come on site and take a look at what we're doing. Put tamper-proof seismic monitoring stations."

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WASHINGTON POST 7 June 86 (9) Pg. 16

Lawmakers Seek Reversal On SALT II

Limits to Be Sought For 'Excess' Weapons

By Walter Pincus
Washington Post Staff Writer

House and Senate critics of President Reagan's decision to abandon the SALT II limits on long-range nuclear weapons say they are working on a three-step legislative plan to reverse that policy.

The first measures to be introduced would limit funds for weapons exceeding the SALT II limits. Sponsored by Norman D. Dicks (D-Wash.) in the House and Joseph R. Biden Jr. (D-Del.) in the Senate, the proposals are intended to unite the opposition by attracting cosponsors for future votes.

The second measures will be nonbinding resolutions expressing the view of Congress that SALT II limits should be maintained. Such measures are likely to have broad appeal, thereby providing leaders of both houses with an estimate of how many votes they could expect for a subsequent bill—the third step in the strategy—that would be attached to next year's defense authorization bill and require adherence to SALT II limits.

The House resolution will be drafted by Rep. Dante B. Fascell (D-Fla.), chairman of the House Foreign Affairs Committee. It is scheduled to be discussed at a hearing Thursday, with Secretary of State

George P. Shultz, Arms Control and Disarmament Agency (ACDA) Director Kenneth L. Adelman, former ACDA director Paul Warnke and retired SALT negotiator Gerard Smith expected to appear.

Congressional strategists expect the Fascell resolution to be approved Thursday. It will probably call upon the president to remain within the SALT II limits this fall.

In the Senate, one source said a resolution is "brewing" and that moderate Republicans in the Senate "want to give the president a chance to overrule his advisers."

The resolutions "will have an educational purpose," House Armed Services Committee Chairman Les Aspin (D-Wis.) said yesterday. The resolutions would give pro-SALT members a chance to explain their positions to their colleagues and the public.

Although bipartisan majorities in both houses—221 House members and 54 senators—signed letters to Reagan before his decision urging him to maintain the SALT II limits, "there is no guarantee they would vote to make him live within those limits," a Senate aide said yesterday.

Asked yesterday what Reagan thought of the congressional criticism, White House spokesman Larry Speakes said: "We don't like it. The president will take the congressional views in consideration, but his decision has been made."

The real political battle on Capitol Hill is likely to be fought on amendments to next year's defense spending authorization that is expected to come before both houses in July. Other opponents would like to "hold hostage" some military program dear to the president, by refusing to finance the Strategic Defense Initiative, for example.

A more likely strategy is contained in the Dicks and Biden bills.

NEW YORK TIMES 8 June 86 (9) Pg. E-1

Behind the Administration's Threat to Dispose of SALT II

By BERNARD GWERTZMAN

WASHINGTON

SECRETARY of State George P. Shultz held an unpublicized all-day meeting in his office last weekend to hear the views of a dozen arms-control experts on what the Reagan Administration should do next. The session underscored Washington's sense of uncertainty regarding arms-control policies.

Despite vows to seek dramatic weapons cuts, the Administration is perceived in many quarters as fundamentally uninterested in arms control.

The skepticism was evident in a discussion at a House Armed Services Committee hearing on the Administration's announced intention to scrap the 1979 strategic arms treaty. Arguing that abandoning the agreement would set the stage for a burst of new Soviet weapons, critics in Congress have introduced legislation that would force President Reagan to remain in compliance with it.

One Administration response last week was this, from Richard N. Perle, the Pentagon's chief arms-control expert: "Either the Congress will stand with the Administration or the Congress will stand with the Soviets."

For Mr. Perle to contend that Congress was encouraging Russian intransigence was not unusual. What was unexpected was the enthusiasm Mr. Shultz displayed for discarding the unratified 1979 treaty, known as SALT II.

For years, the Secretary of State had argued against such a move. Now he was vigorously defending the Presi-

dent's decision.

Calling the move "a shift of gears from a form of restraint under a treaty that we never ratified and was being violated, for that matter, and has been increasingly obsolete," Mr. Shultz explained: "The President said, let's shift to a form of restraint that looks at the behavior by the Soviet Union and looks at the responsibility that the United States has and its allies have for maintenance of defensive deterrent strategy."

In Geneva, meanwhile, Soviet arms control negotiators suggested the makings of a deal that would commit the United States to strengthening another treaty, the 1972 accord that limits defensive missiles and places constraints on developing new types of defenses.

The Pentagon View

In return, the Russians would move toward the significant, 50 percent cuts in strategic arms that Mr. Reagan and Mikhail S. Gorbachev, the Soviet leader, agreed upon as goals.

The Pentagon viewed the offer as a device to hobble Mr. Reagan's cherished defense project, the Strategic Defense Initiative, commonly called "Star Wars." Last week, the President again appealed to Congress to approve \$4.8 billion for the program for next year.

Casting doubt on Soviet intentions and insisting that research on the defensive weapons program must proceed, Defense Secretary Caspar W. Weinberger said: "What they want, and what they most of all have tried to get in every discussion we've had since 1983, is to have us give up the Strategic Defense Initiative."

which would prohibit funds for deploying or maintaining more than 820 land-based intercontinental missiles with more than a single warhead; more than 1,200 land- and sea-based multiple warhead ICBMs;

and more than 1,320 multiple-warhead ICBMs and bombers capable of carrying cruise missiles.

The measures contain waivers permitting Reagan to exceed the limits if the Soviets breach them.

WASHINGTON POST 7 June 1986 (9) Pg. 16

Two Sticking Points of SALT

President Reagan, in announcing his recent decision to exceed the numerical limits of the 1979 SALT II arms control agreement, cited "continuing Soviet noncompliance" with the pact.

Here is the background of the two Soviet programs mentioned by Reagan as violations of SALT II, which was signed by the two superpowers in 1979 but never ratified by the U.S. Senate, and of the pertinent limitations contained in the document.

SS25 'New Missile'

One of the hard-fought provisions of SALT II was that each side could flight-test and deploy

only one additional "new type" of land-based intercontinental ballistic missile during the life of the treaty.

In 1982, the Soviets began to test a new weapon dubbed the SS24; Moscow notified the United States that this would be the "new type" permitted under SALT II. In early 1983, the Soviets began testing a second new weapon, which the United States calls the SS25 and which is a violation of the limits, according to the U.S. government.

The U.S. objective in limiting "new types" of missiles was to impede the race in quality and effectiveness of strategic weapons, a race as serious as that in numbers of weapons. Ralph Earle, who was part of the U.S. negotiating team during

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Arms Control

**PENTAGON
RULES
CHANGING**

The competition to fill the orders for 300 new Air Force fighters could change the way defense contractors do business. The tried-and-true F-16, built for the Air Force by General Dynamics in the 1970s, is going head to head against Northrop Corporation's F-20 Tigershark. Northrop spent nearly \$1 billion of its own money developing the F-20. Pentagon normally foots the bill--and did for the F-16. Northrop also offers a performance warranty and guarantees that operating costs won't exceed a ceiling. Competition has forced General Dynamics to cut F-16 costs by scaling down options and match Northrop guarantees. F-16 has lots of Air Force fans. But congressional military reformers will push the F-20 to set precedent that contractors pay development costs.

POINTS...from Pg. 13

the SALT II process, said recently that the restriction on new types of missiles in the treaty was only "a gesture" toward limits on quality that Washington had hoped to obtain.

The Carter administration initially proposed a ban on any "new types" of ICBMs but the Soviets refused. Eventually the two sides agreed on one new missile each, so the United States could go ahead with its planned MX missile and the Soviets with either a new multiwarhead weapon (such as the SS24) or a new single-warhead weapon (such as the SS25). The Reagan administration contends that the Soviets went ahead with both in violation of the treaty.

How to distinguish a "new type" from an existing missile was the subject of much negotiation. In the end the two sides agreed to consider up to a 5 percent variation in length, diameter, launch-weight or throw-weight as a modification of an existing weapon; above 5 percent would be considered a "new type."

The Soviet Union has claimed that the SS25 is a permissible modernization of the SS13, an old single-warhead weapon from the 1960s. Rejecting this claim, the U.S. Arms Control and Disarmament Agency said recently the throw-weight of the SS25 is 50 percent greater than the SS13 and, thus, far from what is allowed.

Marshal Sergei Akhromeyev, Soviet army chief of staff, said this week that the United States has underestimated the throw-weight of the SS13 and overestimated that of the SS25, citing technicalities that the United States rejects.

Since the Soviets will not disclose the specifications of their weapons, the United States relies on calculations based on observation of Soviet missiles in test flights and interception of missile test data, known as telemetry, which is radioed to Earth.

Secretary of Defense Caspar W. Weinberger said June 1 that 72 SS25 missiles have been deployed, "each one a violation of the SALT agreement." The disputed weapon is being deployed atop a truck for easy mobility. This would make the SS25 less vulnerable to U.S. attack in time of war and particularly valuable if fixed, silo-based Soviet missiles are threatened or knocked out.

The United States is in the early stages of developing a second "new type" of missile, the single-warhead Midgetman. Officials said this is not a violation of the treaty now because it is far from flight-testing stage.

Telemetry Encoding

Limiting the encoding of electronic missile testing data—telemetry—was among the touchiest and most contentious issues of the SALT II ne-

gotiations and among the last to be settled.

Both sides "listen" to electronic data that the other side's missiles send from space to monitors on Earth. This is particularly important to the United States as one of few sources of detailed technical information about Soviet military programs and a key means of verifying whether the Soviet Union is complying with treaty restrictions.

Because secret U.S. intelligence capabilities were at stake, the issue was so sensitive that for several years U.S. negotiators under Presidents Nixon, Ford and Carter were forbidden to mention the word "telemetry" to Soviet negotiators, even while trying hard to restrict "deliberate concealment measures." Finally a Soviet negotiator mentioned the word and opened up the subject.

Telemetry usually consists of signals transmitted over 40 to 60 electronic channels carrying a variety of information about the performance of a test missile. The Soviets had encoded some of these channels on their missile test flights since the mid-1970s, and U.S. officials were eager to eliminate or minimize the practice.

The United States did not propose that all encoding of telemetry be banned, primarily because negotiators argued that the Soviets would never accept such a restriction. Instead the U.S. proposed—and the Soviets ultimately accepted—a prohibition on telemetry encryption that "impedes verification of compliance with the provisions of the treaty."

U.S. negotiators conceded then—and Reagan administration officials concede now—that it is a "judgment call" to determine when encoding is permitted and when it is so extensive as to impede treaty compliance. During the last stages of the 1979 negotiations, strenuous efforts were made by the United States to describe impermissible encryption in order to strengthen the restriction.

The Soviet Union is reported to have sharply stepped up its telemetry encryption around 1981, prompting increasingly strong U.S. protests. Earle, the final chairman of the U.S. negotiating team for SALT II, said recently his "subjective view" is that the Soviets raised encryption levels when the United States made it clear it would not ratify the treaty, but would merely refrain from undercutting it so long as Moscow did the same.

The Soviets have insisted publicly and in diplomatic channels that their encryption of telemetry has been within the range permitted by SALT II. The Reagan administration has called the encryption, which according to officials has been at its most extensive on the SS25 missile, "deliberate impeding of verification" and thus a serious violation of SALT II.

—Don Oberdorfer

Soviet Military Space Doctrine

1 August 1984

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Preface

This report presents a probable Soviet doctrine for the military use of outer space. It considers Soviet statements about general military doctrine and the possible methods of exploiting outer space for military purposes along with examinations of the organization and control of the Soviet space program and Soviet space propaganda and diplomacy. This report does not include an examination of the various capabilities of the Soviet military space program, which has been adequately presented in a number of other publications. The existence and capabilities of the Soviet military space program, therefore, are accepted as given.

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Summary

This report seeks to define Soviet military space doctrine. An examination of Soviet views on their general military doctrine reveals that this doctrine demands the inclusion of a strategy for using Soviet space-based military capabilities. (Although the Soviet concept of the term doctrine is much more precise than the Western concept, the Western understanding of the concept is used herein.) The key elements of Soviet military doctrine are the overwhelming offensive application of superior military force to further Soviet interests and the combined arms approach to combat operations. Both of these elements are equally essential for Soviet military space doctrine.

Consideration of Soviet statements on military space doctrine reveals a change in Soviet public expressions following Moscow's accession to the 1967 Outer Space Treaty. Before the treaty, Soviet views reflected a need by the USSR to defend itself against attacks from outer space; after the treaty Soviet commentary changed in favor of complete insistence on a purely nonmilitary interest in space. This Soviet insistence, however, in comparison with actual Soviet military space capabilities, only seems to buttress further the offensive and independent (regarding the alleged action-reaction element of the arms race) nature of the Kremlin's military space program. Western analyses of the Soviet space program provide convincing evidence of Moscow's intention to acquire military superiority in outer space. Soviet military space capabilities illuminate Soviet objectives in outer space much more effectively than their statements do.

These analyses, along with an overview of the organization and control of the Soviet space program and an examination of Soviet space propaganda and diplomacy, which further underline the military nature of Soviet space capabilities, permit the following determination of Soviet Military Space Doctrine:

The Soviet Armed Forces shall be provided with all resources necessary to attain and maintain military superiority in outer space sufficient both to deny the use of outer space to other states and to assure maximum space-based military support for Soviet offensive and defensive combat operations on land, at sea, in air, and in outer space.

Soviet Military Space Doctrine

1. Introduction

Considerable interest in the Soviet space program is developing in the West. Western analyses catalog a continuous and in-depth Soviet drive to improve on its current military space capabilities and to develop new ones as technological breakthroughs are achieved. Inevitably, questions arise: Why does the Soviet Union need these military space capabilities?; How do they intend to use them?; and Why do the Soviet authorities steadfastly refuse to acknowledge that they have military interests in outer space? This report will attempt to answer these questions by presenting a Soviet military space doctrine that elucidates the ultimate Soviet objectives in outer space.

At the outset, it is important to note that the Soviet Union has a dynamic, expanding, and prodigious military space program. This determination is necessary because Soviet propaganda would have the world believe that the Soviet space program is wholly peaceful in nature, dedicated only to scientific and economic pursuits. In point of fact, however, the exact opposite is true: the Soviet space program is not only overwhelmingly military in nature, but the civilian scientific and economic aspects of the program are entirely subordinate to the military functions. This is not to imply that the nonmilitary benefits, including those related to Soviet prestige re-



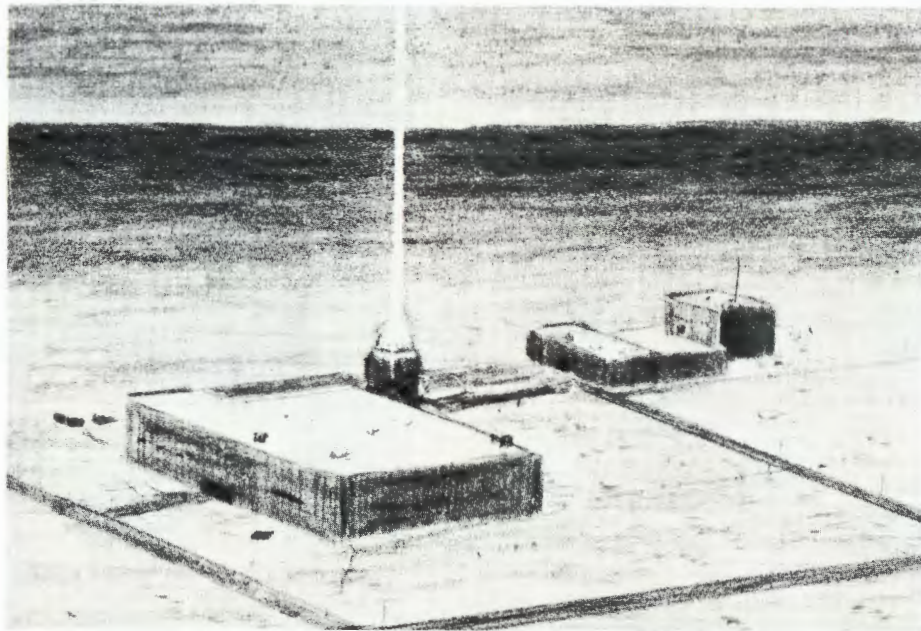
The SL-4 Booster, Workhorse Launch System for the USSR.

garding space accomplishments, are worthless; they are not. Within the Soviet system, however, they are simply not nearly as important as the military benefits. For these reasons, it is more accurate and more objective to refer to the Soviet space program as the Soviet military space program and to Soviet space doctrine as Soviet military space doctrine.

Soviet propaganda, early in the space age, expressed some interest in the need to defend the USSR from enemy attacks from space, but now even these statements are judged inappropriate for the Soviet propaganda effort; only general statements, which do not specifically exclude defense against space attack,

are permitted. Different approaches to this issue center on what can be construed as a space warfare function, that is, actual operations — either space- or land-based — to destroy enemy space systems on the one hand, and as space-based military support functions for terrestrial combat operations on the other. This issue goes beyond the issue of offensive weapons versus defensive weapons, for it can be demonstrated that both of these functions could be used to serve offensive and defensive operations.

As for the actual Soviet military space capabilities, it is beyond the scope of this report to give them due consideration. There are numerous publications that describe Soviet mil-



Artist's Concept of the Soviet ground-based laser which is a potential ASAT weapon.

itary space capabilities in detail.¹ This report will accept as a given the vast space-based military capabilities of the Soviet Union in the fields of reconnaissance and surveillance; command, control, and communications; missile launch detection and early warning; meteorology; geodesy; strategic and tactical targeting; and weapons (such as its antisatellite (ASAT) and laser programs). Also accepted as a given is the largely military nature of manned Soviet space systems, including their *Salyut* space station, their *Soyuz* spaceship, and their numerous manned systems under development, including a modular space station, a space plane, and a space shuttle. Furthermore, although it can be difficult to distinguish between offensive and defensive functions in the relatively unfamiliar environment of outer space, the military nature of much of the USSR's space capabilities is overwhelmingly offensive in character, since that is the essence of their military doctrine.

2. Soviet Military Doctrine — General

The first step in developing an understanding of Soviet military space doctrine is to establish an understanding of general Soviet military doctrine, within which Soviet military space doctrine functions. Since the Soviet military space program did not begin until 1961, with the launch of the first Soviet photoreconnaissance satellite, this review of general Soviet military doctrine will begin with the most immediate au-

thoritative statement of Soviet military doctrine after 1961 — the first edition (published in 1962) of Marshal of the Soviet Union (MSU) V. Sokolovskiy's *Voyennaya Strategiya* (*Military Strategy*).

The first edition of *Military Strategy* defines military doctrine as: *The expression of the accepted views of a state regarding the problems of political evaluation of future war, the state attitude toward war, a determination of the nature of future war, preparation of the country for war in the economic and moral sense, and regarding the problems of organization and preparation of the armed forces, as well as of the method of waging war. Consequently, by military doctrine one should understand the system of officially approved views on the basic fundamental problems of war.*²

Except for the addition of the words "scientifically based" between the words "approved" and "views" in the last sentence of the above passage, this definition remained unchanged in the second (published in 1963) and the third (published in 1968) editions of the book.³

Another Soviet definition of military doctrine appeared in 1965 in the *Dictionary of Basic Military Terms*, part of a series of Soviet books called the Officer's Library:

A nation's officially accepted system of scientifically founded views on the nature of modern wars and the use of armed forces in them, and also on the requirements arising from these views regarding the

country and its armed forces being made ready for war.

*Military doctrine has two aspects: political and military-technical. The basic tenets of a military doctrine are determined by a nation's political and military leadership according to the sociopolitical order; the country's level of economic, scientific, and technological development; and the armed forces' combat material, with due regard to the conclusions of military science and the views of the probable enemy.*⁴

Perhaps the most authoritative Soviet treatment of this subject can be found in the *Soviet Military Encyclopedia* (SME), an eight-volume compendium published between 1976 and 1980 under the direction of the Chief of the Soviet General Staff, MSU N. Ogarkov. The SME may in fact be intended to replace *Military Strategy* as the definitive Soviet comment on military matters. Its definition of "military doctrine" covers over four pages of text and begins as follows:

Military Doctrine, a system of views adopted in a state for a given period of time on the objectives and character of a possible war, on preparation of the country and armed forces for war, and on methods of waging the war. Military doctrine usually determines the enemy who will have to be fought in a possible war; the character and objectives of a war in which a state and its armed forces will have to participate, and their missions; what armed forces

are needed for successful conduct of a war and the directions in their development; procedures for preparing the country for war; and methods of waging war. The basic provisions of military doctrine are determined by the social-political and economic system, level of production, status of the means for waging war, and the geographic position of one's own and the probable enemy's country; and they also stem from a state's domestic and foreign policy.

*Military doctrine distinguishes two closely related and mutually dependent aspects—political and military-technical, with the leading role played by the former. The political aspect takes in matters concerning the political objectives and character of a war and their effect on the development of the armed forces and the country's preparation for war. The military-technical aspect, in conformity with the political provisions, includes matters concerning methods of waging war, military development, the technical outfitting of armed forces, and keeping armed forces combat ready.*⁵

The SME then proceeds to offer a historical overview, based on a Soviet Marxist-Leninist analysis, of the development of military doctrine, with discussions of the military doctrines of various nations (the United States, the United Kingdom, the Federal Republic of Germany, and Japan) preceding the description of Soviet military doctrine. This approach is intended to emphasize the contrast

between the "aggressive" military doctrine of imperialist/capitalist states and the "peace-loving" military doctrine of socialist states. The SME then provides a brief history of the development of Soviet military doctrine, culminating with the statement:

*Contemporary Soviet military doctrine is a system of guiding principles and scientifically grounded views of the CPSU [Communist Party of the Soviet Union] and Soviet Government on the essence, character, and methods of waging a war that might be imposed on the Soviet Union by imperialists; and on military development and preparation of the Armed Forces and the country for defeating the aggressor.*⁶

This is further amplified by claiming that:

Soviet military doctrine is uniform for all the Armed Forces. This means that its concepts have identical importance both for the Soviet military structure as a whole and for each Service of the Armed Forces. The military-technical aspect of Soviet military doctrine envisages, in case of an aggressor's attack, the conduct of decisive combat operations using the entire military might of the country and its Armed Forces. Soviet military doctrine proceeds from a multitude of forms and methods of accomplishing military missions in a possible war. Along with the attack as the decisive kind of military operation, it also recognizes

*the principle of defense on the strategic, operational, and tactical scale. But defense is viewed in Soviet military doctrine as a temporary and forced kind of military operation, which may be employed primarily on those axes and in those instances where there are insufficient forces and weapons, and time must be gained to build them up and create conditions for a subsequent transition to a decisive attack.*⁷

These definitions of military doctrine are not exceptionally divergent in their essence, especially considering the different purposes of the publications within which they appear. There are, however, a number of important issues that require further clarification. Foremost among these is the division of military doctrine into political and military-technical aspects. The Soviets emphasize that the political takes precedence, for it is Marxist-Leninist principles that determine the class essence of war and purportedly prevent the USSR from initiating "unjust, predatory wars." Furthermore, as the CPSU controls all aspects of Soviet society, so also does it control the Soviet Armed Forces, insuring that they will successfully protect the regime internally and support the regime's objectives externally. The primacy of the political aspect also serves to underline the dynamic nature of Soviet military doctrine: note that the SME, in the first sentence of its definition, stresses that military doctrine is "adopted ... for a given period of time...." It is therefore expected to

change as conditions and circumstances warrant.

The military-technical element of Soviet military doctrine is concerned with general policy guidance regarding the preparation of the Armed Forces to execute the political goals of the CPSU. The concern here is not with tactics, or even strategy:

*Military strategy occupies a subordinate position with regard to military doctrine. Military doctrine determines overall policy, in principle, while military strategy, starting from this overall policy develops and investigates concrete problems touching upon the nature of future war; the preparation of a country for war; the organization of the Armed Forces, and the methods of warfare.*⁸

In this sense, then, it is important to note that the Soviet understanding of the term doctrine is much more carefully defined than Western use of this term. Therefore, in this sense, it would be inaccurate to claim that the USSR has a military space doctrine; from the Soviet standpoint it might be a military space strategy or policy, but not a doctrine. For the purposes of this study, however, doctrine, unless specified to the contrary, will be used in the broader Western context.

Two other aspects of Soviet military doctrine merit further elaboration. One is the primacy of the offensive, in recognizing the attack as the decisive kind of military operation; the other refers to the uniformity of the concepts of Soviet military doctrine in their application to the Soviet Armed Forces as a whole and to each

of the five Services of the Soviet military.⁹ These points are of special interest in considering Soviet military space doctrine, for they emphasize that the role of the Strategic Rocket Forces and the Air Defense Forces, the two Soviet Armed Services most deeply involved in the Soviet space program, in overall Soviet military doctrine is equivalent to that of the other Soviet Armed Services. Certainly, then, Soviet military doctrine, requiring overwhelming force to defeat completely any enemy, while preserving the homeland, is sufficiently well developed to include space operations within its scope.

3. Soviet Views of Military Space Doctrine

a. Soviet Statements Before 1967

Given the dynamic nature of Soviet military doctrine, it follows that the Soviet leadership began formulating a doctrine concerning the military use of space at some point in the 1950s. Whether this process began before or after the launching of Sputnik (October 1957) is unknown, but it most likely was underway by the time the Soviet military space program began in 1961. Moscow does not, at the moment, admit that it has a military space program; consequently, it does not admit to possessing a corresponding doctrine for the use of its military space capabilities. It clearly has both, however, as will be shown by this chronological evaluation of Soviet statements on these issues. More

evidence will be provided in later sections, which consider the organization of the Soviet military space program and Soviet space propaganda and diplomacy.

The first edition of Sokolovskiy's *Military Strategy* provides the starting point for this consideration of the Soviet view of military space doctrine. This edition contained an entire subsection, entitled "The Problems of Using Outer Space for Military Purposes," under a larger section, "Methods of Conducting Modern War," in Chapter VI, "Methods of Conducting Warfare." This highly polemical subsection concentrates entirely on the "aggressive military purposes" of the imperialist forces in their pursuit of "the mastery of space." The United States, especially, is singled out, with the claim that its space program is essentially military in nature. Various US satellite programs in reconnaissance ("espionage"), navigation, and communications are briefly discussed, as are US plans for such space systems as "satellite bombers," "manned space bombers," "orbital bombers," and "carrier-satellites (antisatellites) with antimissile missiles and interference apparatus." Sokolovskiy also claimed that "a considerable part of the US program of the mastery of space for military purposes is the creation of antispace weapons for the destruction of aerospace vehicles." The Soviets reached the following conclusion:

In this regard Soviet military strategy takes into account the need for studying questions on the

*use of outer space and aerospace vehicles to strengthen the defense of the socialist countries. This must be done to insure the safety of our country, in the interest of all socialist cooperation, for the preservation of peace in the world. It would be a mistake to allow the imperialist camp to achieve superiority in this field. We must oppose the imperialists with more effective means and methods for the use of space for defense purposes. Only in this way can we force them to renounce the use of space for a destructive and devastating war.*¹⁰

In a different section of the same chapter, Sokolovskiy mentions the importance of antiair, antimissile, and antispace defense as factors in defending the USSR and the possibility of using "a stream of high-speed neutrons" to defeat incoming rockets.¹¹ Space also was discussed in Chapter II, "Military Strategy of Imperialist Countries and Their Preparations of New Wars," which offered a general breakdown of the US space program in a fairly straightforward manner; and in Chapter IV, "Nature of Modern War," which mentioned the influence space systems are expected to have in future wars:

The achievements of modern science, technology, and industry in the creation and production of nuclear charges, rockets of different types and classes, and military radio-electronics constitute the base upon which the entire system of armament of a modern army is

constructed. It must be assumed that in the near future radical corrections will be able to be introduced into this system as a result of the incorporation of various cosmic means. All of this in turn conditions the nature of a future war, the methods of waging it, and the principles of organization of the armed forces.¹²

The conclusion also contained a reference to the military use of outer space:

*The methods of waging war as a whole are expressed by the totality of the types of military actions: nuclear rocket strikes...; protection of a country and its armed forces against nuclear rocket strikes; actions in land theaters, and actions in naval theaters and probable types of military actions in space. Because in recent years the imperialist aggressors have devoted great attention to a study of the possibilities of carrying out military actions in space, and through space, Soviet military strategy cannot ignore this fact and must study the possibilities opening up in this sphere of military action.*¹³

The second edition, published only 1 year after the first, contained some changes, but these were mainly additions of updated information. There were no significant omissions. For instance, the second edition mentioned the possibility of studying the use of lasers, plasma (ball lightning), antimatter systems, and antigravity as weapons; emphasized a number of Soviet space accomplishments, including the flight of the first woman

astronaut, as evidence of "the tremendous achievements of the Soviet Union;" and claimed that the United States is planning to use the moon for military purposes.¹⁴

A more notable addition concerned the inclusion of outer space as an area that may be used for military operations in a future war. In the first edition concern was expressed for the "enormous dimensions" of a future war, which was expected to "encompass practically every continent of the world," but no specific direct mention of outer space was made in that context. The second edition supplements this concern with the statement: "The concept of 'geographic expanse' of war in the future will require a substantial supplementation inasmuch as military operations may embrace outer space."¹⁵ The similarities between the first two editions of *Military Strategy* are extensive largely because they were published so close to each other in time. The third edition contained many changes, but before these can be considered another source of Soviet military space doctrine from the mid-1960s will be considered.

The 1965 publishing of the *Dictionary of Basic Military Terms* introduced a series of open Soviet statements on the military uses of space. Some of these statements, however, are allegedly non-Soviet in nature, which is indicated by appending the qualifier "foreign" in parentheses after the title of the term being defined. This is a common Soviet propaganda tactic, which

permits the discussion of sensitive or controversial topics and concepts without admitting that the Soviets possess similar or identical views on the subjects. Use of the qualifier "foreign" is particularly widespread in Soviet treatment of military space issues, largely because Soviet propaganda denies any Soviet military exploitation of outer space. Moscow is then free, supposedly, to discuss US military space programs while denying the existence of equivalent Soviet capabilities. As shall be shown below, however, Soviet use of the qualifier "foreign" provides an additional indicator of the actual, though unstated, Soviet approach to the use of its military space systems. And, in any case, simply appending the word "foreign" to a concept does not mean that the Soviets are not involved in the activity. It only means that they will not admit their involvement.

The *Dictionary of Basic Military Terms* includes a definition of SPACE (AEROSPACE) DOCTRINE (space-related subject headings from this and other Soviet sources are capitalized), qualified as "foreign": "A doctrine envisaging active hostilities in space, and regarding mastery of space as an important prerequisite for achieving victory in war." The definition of MILITARY SPACE SYSTEMS, however, is not qualified as "foreign": "Systems used for military purposes in space, namely, to carry nuclear weapons, to conduct reconnaissance, to organize radio-countermeasures, to effect communication and control, and to destroy space vehicles. Military

space systems will include various types of artificial earth satellites and space ships, such as missile-armed satellite bombers, manned space bombers, etc."¹⁶ ANTSPACE DEFENSE also is not listed as "foreign": *A component part of air defense. The main purpose of antispace defense is to destroy space systems used by the enemy for military purposes, in their orbits. The principal means of antispace defense are special spacecraft and vehicles (e.g., satellite-interceptors), which may be controlled either from the ground or by special crews.*¹⁷

It is important to note that this definition refers to destroying space systems "in their orbits;" it does not, therefore, apply to antiballistic missile systems, which are the responsibility of the antimissile defense component of the Air Defense Forces.¹⁸ This passage can be interpreted in two ways: either the USSR has, or intends to develop, satellite-interceptors (ASATs), or the United States has them to use against "the enemy" — which could only be the Soviet Union. Either way, the implication is clear: the Soviets have, or intend to develop, military space systems. They tested their first ASAT in 1968.

This publication also defines AIR-AND-SPACE SUPREMACY — "Attainment of an advantageous position by a given country in the means of air-and-space attack, and in the use of space for military purposes"; AEROSPACE OPERATIONS — "Offensive operations effected by means of missiles and aviation... for

the purpose of destroying (neutralizing) objectives on land, on water, and in the air ..."; and AEROSPACE FORCES — "A major formation consisting of units and formations armed with the means of aerospace attack. They constitute the basis of the air forces of the US and NATO, and are the principal strategic weapons." All of these are qualified as "foreign".¹⁹ Several other relevant definitions, however, are not so qualified: AEROSPACE ATTACK — "An attack from the air and from space, made with missiles and aviation ... for the purpose of destroying (neutralizing) objectives on land, on water, or in the air"; MEANS OF AIR AND SPACE ATTACK — "Weapons used to inflict strikes from the air (or from space), on aboveground (or underground) and abovewater (or underwater) objectives, and to destroy targets in the air or in space. Means of air and space attack include: ... orbital and aerospace craft, carrying or capable of carrying various munitions (means of destruction);" and RECONNAISSANCE SATELLITE:

A space vehicle specially equipped with reconnaissance instruments, injected into a given orbit for intelligence purposes. A reconnaissance satellite may be launched into space in order to reconnoiter enemy ground installations and to determine their coordinates; to detect launchings of intercontinental ballistic missiles; to detect submarines and nuclear explosions; to identify enemy satellites in orbit; etc. The reconnaissance information obtained may be re-

*turned to earth in containers or may be transmitted automatically.*²⁰

The inconsistencies in the Soviet use of the qualifier "foreign" in the *Dictionary of Basic Military Terms* are glaring, except in the case of ANTISPACE DEFENSE: at this point in time, 1965, it was still permissible for the USSR to admit an interest in defending itself from an attack from space. For the other concepts, it appears that the Soviets are attempting to distinguish between the possession of aerospace weapons and military support capabilities (MILITARY SPACE SYSTEMS, AEROSPACE ATTACK, MEANS OF AIR AND SPACE ATTACK, and RECONNAISSANCE SATELLITE) by both the US and the USSR on one hand and the way these weapons and systems would be used (SPACE (AEROSPACE) DOCTRINE, AIR-AND-SPACE SUPREMACY, and AEROSPACE OPERATIONS), i.e., aggressively by the United States, defensively by the Soviet Union. Only AEROSPACE FORCES seems out of place under this scenario. Despite these inconsistencies in the application of the qualifying term "foreign," the *Dictionary of Basic Military Terms* is essentially consistent with Soviet statements in the first two editions of Sokolovskiy, with ANTI-SPACE DEFENSE presented in a more detailed manner.

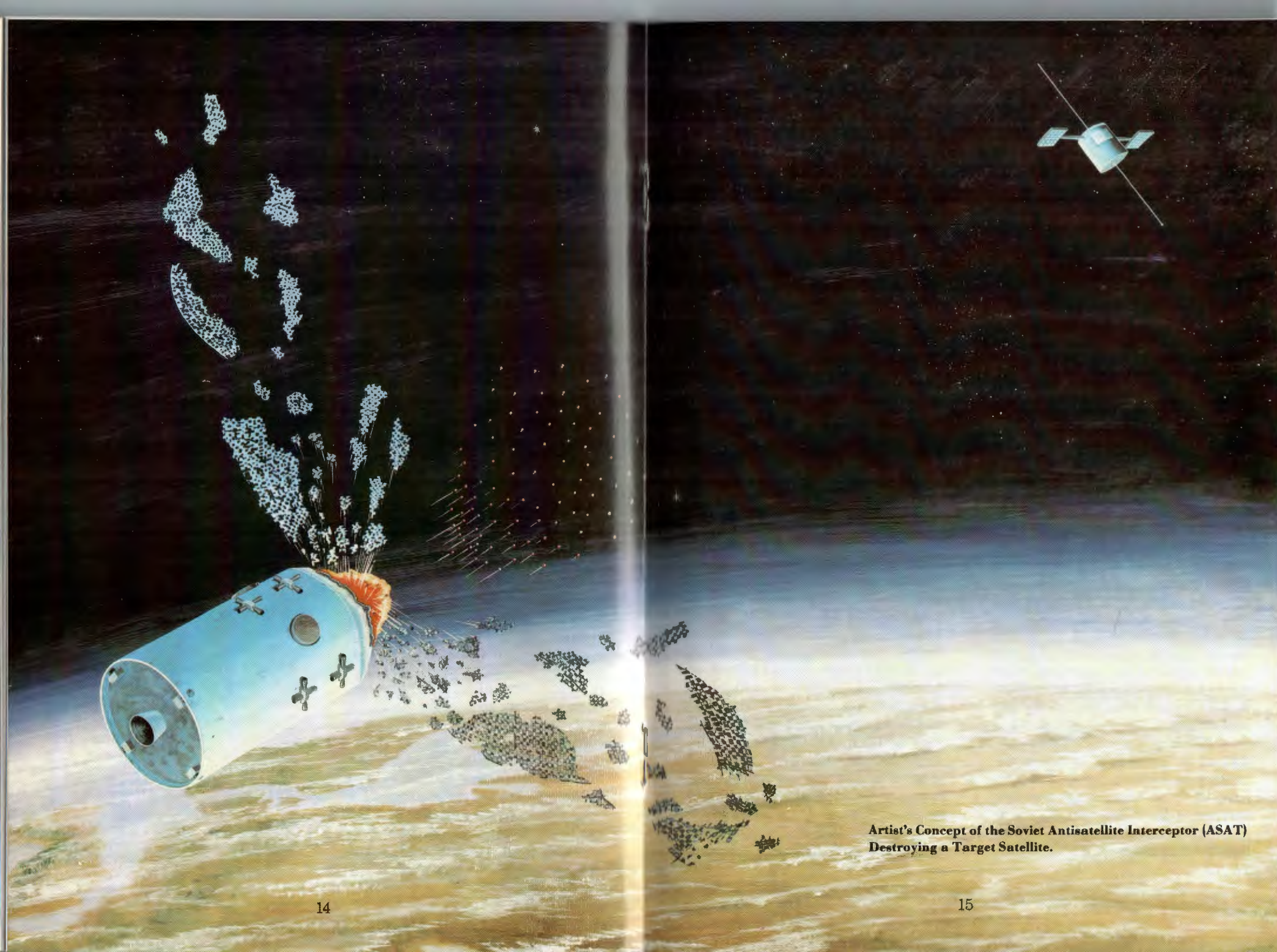
b. Soviet Statements After 1967

Until 1965, the Soviet leadership, while condemning US military use of space and not admitting, outright,

any Soviet military use of space, nonetheless was sufficiently vague in some of their statements to indicate, at least, an intention to explore the possibilities of defending the USSR from a spaceborne attack, and, by extension, to deny an opponent the opportunity to gain supremacy in space. In the Soviet view, such an objective is best accomplished by the Soviet acquisition of such supremacy; the idea of maintaining a balance or "staying even" with a foe is alien to Soviet military thought. Such statements are not usually made openly, due to propaganda considerations, but they clearly are implied in some of the statements considered above. In 1967, however, Moscow signed the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (hereinafter referred to as the Outer Space Treaty). That event marked a perceptible change in Soviet statements regarding the military use of space. The treaty prohibits the placing of "nuclear or any other weapons of mass destruction" in orbit around the earth, on the moon, or any other celestial body, or anywhere else in outer space; it also limits the use of the moon and other celestial bodies exclusively to peaceful purposes.²¹ The treaty does not, however, restrict the use of space for communications, reconnaissance, early warning, or other military support functions. It also, of course, does not restrict the stationing of nonnuclear weapons in outer space (except on celestial bodies, apparently).

Moscow's acceptance of the treaty's provisions, nonetheless, caused some noticeable changes in Soviet rhetoric concerning their alleged dedication to the peaceful use of outer space.

The third edition of *Military Strategy* (published in 1968), in particular, reflected this change of emphasis. The entire section entitled "The Problems of Using Outer Space for Military Purposes" previously found in Chapter IV was omitted, with much of the material located instead in Chapter II, "The Military Strategy of Imperialist Countries."²² This was obviously an attempt to buttress the Soviet claim that only the imperialists seek to exploit outer space for military purposes. Several key passages, which indicate a concern that the USSR not allow the West to gain superiority in outer space, were also omitted (see the passages sourced under footnotes 10 and 13), eliminating any indication that the Kremlin might be developing its own military space program. On the other hand, two passages that remained in the third edition of *Military Strategy* seem to indicate an unalterable Soviet interest in exploring the development of military space technology: one was mentioned above (see the passage sourced under footnote 12); the other, in referring to the development of Antispace Defense, states that "...as surely as an offensive weapon is created, a defensive one will be too."²³ As a result of the Outer Space Treaty, therefore, the Soviet leadership had begun restricting the



Artist's Concept of the Soviet Antisatellite Interceptor (ASAT) Destroying a Target Satellite.

tions."²⁶ (As noted above, space reconnaissance, under the heading RECONNAISSANCE SATELLITE, was not qualified as "foreign" in the *Dictionary of Basic Military Terms*.)

SPACE WEAPONS are described as "equipment designed to perform military missions in or from space," including such equipment "located on celestial bodies." Again, all examples are described as those of the US Armed Forces. The various types of SPACE WEAPONS include automatic satellites for radar ferret and photoreconnaissance, navigation, communications, meteorology, geodesy, early warning, and nuclear detonation detection, as well as "manned spacecraft, aerospace vehicles, orbiting space stations," and the "reusable space shuttle." The latter is described as a particularly effective space weapon, whether conducting missions on its own or supporting the operations of orbiting space stations.²⁷ Insisting that only the United States possesses such weapons and systems, when the USSR either has or is actively developing all of them, stretches the bounds of credibility too far: how can statements of Soviet peaceful intentions regarding outer space be taken seriously when Moscow so duplicitously distorts the actual situation?

SUPREMACY IN SPACE is described as "a situation in which the military space systems of one side have decisive superiority over the systems of the other side. The side dominant in space is capable of performing its missions without signifi-

cant enemy opposition." Furthermore, "superiority in the quantity and quality of space systems is important for achieving supremacy in space." While space-based military support missions figure in this determination, "military space weapons capable of destroying targets in space as well as ground (or naval) objects are of decisive importance." SUPREMACY IN SPACE, finally, "is examined on a global scale and not tied to a theater of operations, the territory of individual countries, or military coalitions;" it "encompasses all of space, both close and distant."²⁸ While the SME repeatedly mentions that these are the views of "foreign military experts," there can be no doubt that the Soviet leadership holds similar views, particularly when one considers the military space capabilities of the Soviet Union.

The other three items that deal with the military use of space, and are therefore qualified by the term "foreign," are more technical in nature than the entries already considered. SELECTION OF AEROSPACE TARGETS is concerned with the differentiation of targetable objects in air or space from a background of false images created by natural or manmade interference with the means of detection.²⁹ MEANS OF DETECTING AEROSPACE TARGETS briefly discusses the use of radar to monitor the aerospace environment as an element of antiair, antimissile, and antispace defense.³⁰ THE AEROSPACE SITUATION is described as the general conditions

prevalent in air and space over a specific period of time. This includes the presence of manmade objects in space, the means of tracking them in space and as they return to earth, and various natural phenomena, such as meteorites and climatic conditions. The SME notes here that the nations of the world have agreed not to orbit nuclear weapons.³¹ These passages reflect just how hypocritical the Soviet leadership is in regard to the military use of space. While the Soviets openly discuss military requirements and principles for their ground, rocket, air and naval forces, they do not do so for the military forces they have or may develop to use in space, even when the purpose of these forces could be couched in purely defensive terms.

The SME offers definitions of a number of other possibly military-oriented, space-related subjects that are not claimed to be foreign in nature. These include: AEROSPACE VEHICLES, THE 1967 OUTER SPACE TREATY, ARTIFICIAL EARTH SATELLITES, SPACE COMMUNICATIONS, SPACE SYSTEM, SPACE TECHNOLOGY, SPACECRAFT, SPACE LAW, COSMONAUTICS, COSMOS, METEOROLOGICAL SATELLITE, SPACE STATION, SPACE PLANE, SALYUT, SOYUZ, and TRANSPORT SPACECRAFT. (There are others that deal with various natural phenomena and purely technical issues that need not be considered.)

AEROSPACE VEHICLES are described as a class of flying vehicles that can achieve near earth orbit in

space and also maneuver in the atmosphere with the help of aerodynamic forces. An example is the US space shuttle, which the Soviets designate as the "reusable transport spaceship." The entry mentions that a number of countries began work on developing such vehicles for military purposes in the 1950s and 1960s and then cites only the US space shuttle as an example.³² The SME, therefore, does not exclude the possibility that the USSR is developing such a vehicle. The Soviet description of THE 1967 OUTER SPACE TREATY is fairly straightforward and nonpolemical; although it is noted that the Treaty's intent is to avert an arms race in space, no state is accused in this article of hindering such a development.³³ Likewise, in the passage on ARTIFICIAL EARTH SATELLITES, the SME is largely concerned with technical and orbital characteristics. The various types of satellites are discussed with Soviet (only non-military) and Western examples provided. It is noted that some countries use satellites to perform military functions such as photoreconnaissance, radar ferret collection, ballistic missile launch detection, and military communications. Again, the SME does not specifically deny that the USSR uses satellites for such purposes. But neither is such Soviet usage affirmed.³⁴

The SME definitions of SPACE COMMUNICATIONS and SPACE SYSTEM again are largely technical in nature. The use of satellites for military communications is briefly described — with appropriate exam-

ples from US and Western systems—and a SPACE SYSTEM is defined as a complex of interworking facilities on earth and in orbit designed to perform tasks in space and from space.³⁵ SPACE TECHNOLOGY is also limited to a brief, nonpolemical description involving the accomplishment of various scientific and applied objectives. No mention is made of any military exploitation of SPACE TECHNOLOGY.³⁶

The SME entry on SPACECRAFT offers a fairly detailed description of the various types of satellites and manned vehicles that operate in outer space, noting that they can perform various scientific, economic (commercial), and military functions. Predictably, the SME emphasizes that it is only abroad, especially in the United States, that specialized spacecraft are used for military purposes. The major types listed by the SME — reconnaissance, navigation, communications, and multipurpose — are broken down by category and discussed in some detail, in a fairly straightforward manner. It is evident from the passage that the Soviets do not consider all communications satellites to be military in nature (even some nonmilitary US examples are offered). On the other hand, while the SME discusses all of the different types of military support satellites, no mention is made of space weapons such as ASATs.³⁷

The Soviet definition of SPACE LAW follows the standard pattern of exaggerating the Soviet role in fostering the peaceful use of space, but otherwise presents a nonpolemical

overview of the important international agreements that have come to regulate the use and exploration of outer space. The SME notes that these agreements have succeeded so far in achieving only a limited demilitarization of space, since “suborbital flights of military objects through outer space” have not been affected. It is also noted that the United States and the Soviet Union have agreed that national technical means of verification are permissible for the monitoring of arms control agreements, and that these functions may be performed by SPACE TECHNOLOGY.³⁸ Soviet inconsistencies in discussing national technical means of verification, however, raise a question regarding their intention to comply with existing treaties (see the SME entry on SPACE RECONNAISSANCE above).

The entry on COSMONAUTICS is entirely devoted to technical and historical information; it discusses US, as well as Soviet, manned space flights without any reference to the military use of space.³⁹ The SME’s description of the COSMOS series of Soviet satellites, of course, also refers only to peaceful scientific and economic exploitation of outer space, although virtually all unmanned Soviet military spacecraft are given a *Cosmos* designation.⁴⁰ The passage on METEOROLOGICAL SATELLITES follows the same pattern, mentioning US and Soviet programs and referring only to nonmilitary functions.⁴¹ The Soviet designation for SPACE STATION (literally, “Orbital Station”) covers the same ground while dis-

cussing the Soviet *Salyut* series and the US Skylab program; there are no references to either having a military function.⁴²

Of particular interest is the SME entry on the subject SPACE PLANE (literally, “Orbital Aircraft”), which is not qualified as foreign. It reads, in its entirety:

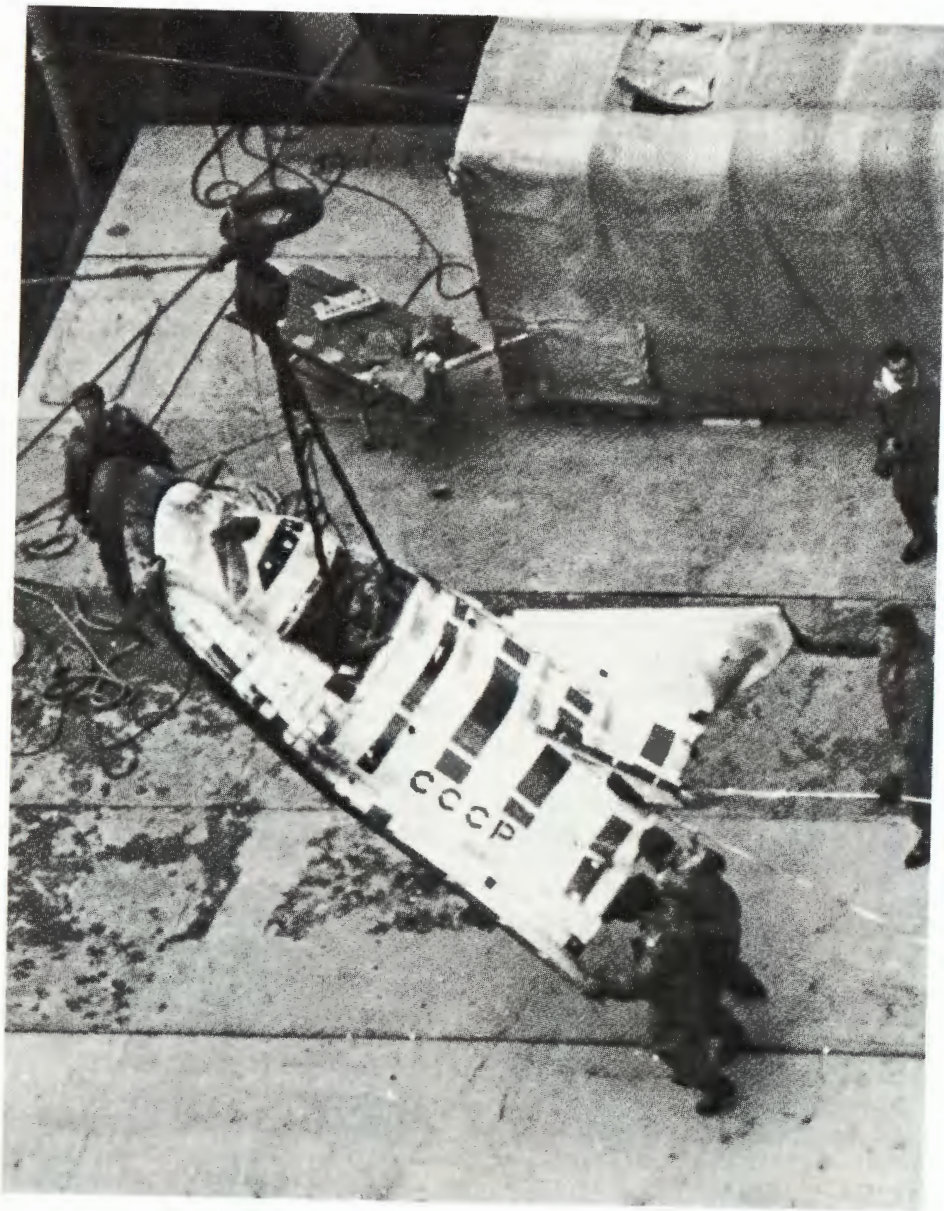
*SPACE PLANE, a reusable, piloted aerospace vehicle. A special feature of its flight is its ability to enter and achieve near earth orbit, descend from orbit for maneuvers in the dense layers of the atmosphere (using aerodynamic forces), and return to a new orbit in outer space.*⁴³

While such a spacecraft, as noted in the SME entry on AEROSPACE VEHICLES, would apparently be used to supply orbiting space stations, it would also have a broad range of possible military functions, including surveillance. Such functions are not included in the entry on AEROSPACE VEHICLES, though the discussion of the US space shuttle mentions that it has unspecified military uses. The SME, therefore, does not specifically deny the possibility that the USSR might develop a space plane.

The SME’s coverage of the USSR’s *SALYUT* and *SOYUZ* manned space programs, predictably, offers no hint that they have any military functions.⁴⁴ The third link in this orbital complex (which the linking of a *Salyut* and a *Soyuz* creates), the unmanned TRANSPORT SPACECRAFT *Progress*, is also described in purely nonmilitary terms.⁴⁵ (While

the Russian term “transport spacecraft” could be rendered in English as “space shuttle,” it would be too confusing to use that designation.) The SME also has an entry on LASER and one on BEAM WEAPONS (LASER WEAPONS), with the latter entry qualified by the term “foreign.” The BEAM WEAPONS (LASER WEAPONS) entry does not specifically mention using such weapons in outer space; it merely mentions that airplanes and rockets are likely targets for such weapons. The SME entry on LASER, however, notes that laser weapons are a promising means of destroying (*porazheniye*) intercontinental ballistic missile warheads and military satellites, strongly implying a space weapons function.⁴⁶ The entry includes laser weapons as a type of Beam Weapon, so it can still be claimed that such uses are “foreign” in nature.

While the SME indicates that the Kremlin’s claim to have only a peaceful interest in outer space has intensified significantly since the mid-1960s, it is also evident that the Soviet approach to this issue is not entirely consistent. The passages on AEROSPACE VEHICLES and SPACE PLANE, for instance, hardly address the military possibilities of such spacecraft, and then only regarding the US space shuttle — presumably because the Soviet Union intends to develop them, ostensibly to service its manned orbital complexes. Indeed, the utter lack of Soviet statements regarding a Soviet interest in the defensive use of space-based military capabilities is incredi-



Recovery of the "Space Plane" by a Soviet Ship in the Indian Ocean.

ble, considering the Soviet propensity to discuss defense-related issues. The only possible conclusion is that the Soviets are interested in such matters, but prefer to conceal their interest for purposes of strategy and propaganda.

In mid-1983, the Soviets published their most recent compendium of military terminology, the *Military Encyclopedic Dictionary* (MED), again under the general direction of MSU Ogarkov. The title of this one-volume publication, transliterated as *Voyennyy Entsiklopedicheskiy Slovar'*, could actually be translated as "Military Encyclopedia" (an encyclopedic dictionary is, essentially, an encyclopedia and the Russian phrase "entsiklopedicheskiy slovar'" translates into English as encyclopedia), but that could engender confusion with the SME. There is the possibility, of course, that the MED is meant as an abbreviated version of the SME. According to the MED's Main Drafting (Editorial) Commission, the MED is based on the SME, although the former contains updated material (as of September 1982). Indeed, the various commissions and editorial boards of the two publications are essentially identical in structure and personnel.⁴⁷ An examination of the MED, however, reveals that the updating of information does not account for all of the differences between the SME and MED. This report, then, will concentrate on the differences between the presentation of space-related military subjects in the SME and the MED. Where no change is noted, the

entry has essentially remained unchanged from the SME to the MED (taking into consideration the different nature of each publication).

There are noticeable variations in the MED regarding six space-related entries in the SME that were qualified as "foreign." Most glaring is the complete absence of entries on SPACE WEAPONS, SUPREMACY IN SPACE, and THE AEROSPACE SITUATION. Regarding the latter, mention is made of the concept of "The Aerospace Situation" as one existing among some foreign armed forces, under the MED entry on THE AIR SITUATION.⁴⁸ The MED, however, makes no reference whatsoever to SPACE WEAPONS, other than noting, under the entries for COSMONAUTICS and SPACE SYSTEMS, that the United States uses outer space for military purposes.⁴⁹ The absence of an entry on THE AEROSPACE SITUATION does not seem highly significant; the lack of an entry regarding SPACE WEAPONS and SUPREMACY IN SPACE, however, would appear to indicate a continuing, perhaps even increasing, Soviet reluctance to comment on the possible military uses of outer space.

The MED entry on SPACE RECONNAISSANCE is noteworthy in that it is not qualified by the term "foreign," as the entry is in the SME. Whether this can be interpreted as Soviet acceptance of the principle of space reconnaissance, even if only as a means of treaty verification, is not entirely clear. The entry still insists, as does the SME entry, that space reconnaissance "is a component part of

the US strategic reconnaissance." The MED definition is essentially an abbreviated version of the SME definition, except that the concept is no longer qualified as "foreign".⁵⁰ Another notable variation is present in the MED entry on SPACE WAR. In the SME this entry states that the objectives of a SPACE WAR would be the weakening of the "space forces" of the enemy or the achievement of superiority in outer space. The MED entry mentions neither of these objectives. It does state that the United States has a wide program of research into the military uses of space and that the USSR is resolutely opposed to such uses of space.⁵¹ It is possible that this omission is the result of the need for brevity in the MED's entries. It may also, however, refer to the inconsistency of Soviet statements vis-a-vis their actions regarding outer space. If the United States uses space for military purposes, and the "enemy" of the United States has "space forces," then who could this enemy be? The USSR, allegedly, has no "space forces" of a military nature and it is, apparently, in the interests of maintaining this charade that the Soviets have altered their definition of SPACE WAR as it appears in the MED.

The final variation in this category involves the entry MEANS OF DETECTING AEROSPACE TARGETS. While both versions of this entry are essentially technical in nature, the MED is more specific in identifying the type of space tracking radar (those using very long-range super-high-frequency bands) used to de-

tect satellites and other space objects. The MED version also omits the concluding reference in the SME version to the need, when necessary, to provide "systems of destruction (porazheniye)" with "target designation" data.⁵² The significance of this variation is not entirely clear. The MED entry is still qualified as "foreign," so it can be maintained that it is not discussing Soviet tactics or equipment. It may simply reflect the different nature of the MED.

There are a number of noteworthy variations among the other category of space-related entries in the SME and the MED — those that are not qualified as "foreign" but may have military significance anyway. One example can be found in the MED entry on THE 1967 OUTER SPACE TREATY. In the MED this entry concludes with the statement "In violation of the Treaty on Outer Space the USA is working on a program for the militarization of outer space (see "Shattl")" (with the parenthetical reference alluding to the MED entry on the US Space Shuttle).⁵³ The SME entry on the same subject contains no statement even remotely similar to this one, reflecting the intensification of Soviet propaganda on this subject since the SME was published. (In fact, the United States has not violated this treaty, with the space shuttle or any other system.) Another similar variation occurs in the MED entry on ARTIFICIAL EARTH SATELLITES. In this instance, after proclaiming that only capitalist states — especially the US — use satellites for military pur-

poses, the MED notes that work is also progressing on the development of combat (boyevykh) satellites, earmarked for destroying (unichtozheniye) space vehicles and for attacking earth from space.⁵⁴ Again, the SME entry contains no such similar statement. These variations indicate that the Soviet leadership is only willing to discuss the militarization of outer space by the United States; this does not, however, resolve the inconsistency evident in the Soviet reluctance to mention any of its own antispace defense measures.

The pattern continues in the MED entry SPACE SYSTEM with a concluding statement that the United States is devoting great attention to the development of military space systems.⁵⁵ This statement stands in sharp contrast with the SME entry SPACE SYSTEM, which was largely technical in nature. The MED entry on COSMONAUTICS varies from the SME only in its mention of the successful flight of the US space shuttle Columbia in 1981. It states that the primary aim of Columbia is to acquire information on the universe through the accomplishment of scientific and economic tasks, but concludes by noting that the US also uses it for military purposes.⁵⁶ Such a statement, in this context, is relatively nonpolemical and it would appear that the primary motivation for this variation is to provide updated information.

The SME entry SPACE PLANE (literally, Orbital Aircraft — from *Orbital'nyy Samolyot*) is found in the MED under the following heading:

Orbital'nyy Korabl, literally "Orbital Ship," which is not to be confused with *Kosmicheskyy Korabl*, literally "Space Ship." It appears that the Soviet designation *orbital'nyy*, in this case, indicates that the vessel in question can operate both in the atmosphere and in outer space, as opposed to a *kosmicheskyy* vessel (such as the Soviet *Soyuz* and the US Apollo), which functions only in outer space (doing little, if any, actual maneuvering upon reentry into the earth's atmosphere). The designation *orbital'nyy* does not have this meaning when applied to space stations such as the Soviet *Salyut* and the US Skylab. The designation of this type of spacecraft as a *korabl'*, rather than a *samolyot*, apparently reflects a more accurate description of the vessel's working environment, but to minimize confusion over terminology, this space ship will still be referred to as a space plane. The MED definition does not differ substantially from the SME version, except that the new definition of SPACE PLANE allows for automatic, as well as piloted, flights, does not specify that it is reusable; and refers to it as a type of space ship rather than a type of aerospace vehicle, in keeping with the new designation.⁵⁷ The variations in the Soviet definitions of SPACE PLANE appear to indicate a refinement of Soviet thought on the subject, which would tend to reaffirm the likelihood that the USSR is developing such a vehicle.

There is an additional variation regarding Soviet descriptions of the

"foreign" term AIR DOCTRINE. While the SME and MED definitions are essentially identical, the MED apparently equates air doctrine with aerospace doctrine. (The SME definition of AIR DOCTRINE does not mention aerospace doctrine.)⁵⁸ At one point in the body of the entry the term "air doctrine" is simply followed by the term "aerospace doctrine" in parentheses; this arrangement, however, is not observed at the beginning of the entry, after the subject heading, where it would presumably carry the most authority. If it can be assumed that air doctrine and aerospace doctrine are equivalent terms, it would appear that the Soviets believe the United States intends to use its air and space forces extensively, in concert with its ground and naval forces, in any appropriate conflict. The same also can be said for the Soviet Union, whose military doctrine applies uniformly to all five Services of the Soviet military.

Beyond the variations noted above, the MED contains several entries on space-related subjects of possible military orientation that are not included in the SME. These additions appear to involve updated information, and support recent trends in Soviet propaganda. The MED entry on the COLUMBIA, the first US space shuttle to complete an operational mission, for instance, describes the space shuttle as a purely military spacecraft, intended to carry military cargo into outer space, including weapons and reconnaissance devices.⁵⁹ The MED entry entitled SHATTL (meaning the US space

shuttle) is only slightly less propagandistic. It claims that the shuttle is intended to place into orbit and return to earth "military and other payloads" and that the Pentagon is planning on it as a major element in its use of outer space for military purposes.⁶⁰ By contrast, the entry of REUSEABLE SPACE DEVICES is wholly technical in nature, making no mention of the possible uses of such spacecraft, although the US space shuttle Columbia is mentioned as an example.⁶¹ The implications of these new entries are clear: reusable US spacecraft are essentially military in nature and thus contribute to the destabilizing arms race. Since the USSR is also developing reusable spacecraft, however, it is necessary for the Soviets to describe such vehicles in neutral terms, which is accomplished in the nonspecific entries about the general types of such spacecraft.

The MED also has entries on SPACE SHIP (*Kosmicheskii Korabl'*) and SPACE COMPLEX (*Kosmicheskii Kompleks*), which were not included in the SME. The SME had a subject heading for SPACE SHIP, but directed readers to the entry on SPACECRAFT (*kosmicheskiiye Apparaty*); this entry then covered all the different types of artificial earth satellites and interplanetary scientific probes. SME coverage of the MED entry on SPACE SHIP (which are manned space capsules such as the US Apollo and the Soviet *Soyuz*) is found under the entries for these specific vehicles. Since the MED entry on SPACECRAFT is very condensed in comparison with

the SME entry, these changes are presumably related to the different natures of the two publications. SPACE COMPLEX is an entry which was not mentioned in the SME and thus reflects a relatively new concept in Soviet thought on space-related matters. A SPACE COMPLEX is defined as the combined space- and land-based elements of a particular method of accomplishing specific assignments in or from space; adding the users of such information to the space complex creates a SPACE SYSTEM, as defined by the MED, which is a slight variation from the SME entry on SPACE SYSTEM.⁶² While the Soviets use only nonmilitary examples in the MED, this structure may also apply to Soviet military space systems.

Analysis of the MED reveals that the trends of Soviet statements concerning the military use of outer space, which were identified in earlier publications, have been accentuated in their most recent presentation. Not only has Soviet propaganda regarding allegedly widespread US militarization of outer space, especially involving the now operational US space shuttle program, increased, but the USSR, as always, steadfastly refuses to acknowledge their own military space programs. Actually, such detailed Soviet descriptions of US space programs are additional indications of intense Soviet interest in space weapons. Indeed, Soviet treatment of subjects such as SPACE WEAPONS, SPACE WAR, and SPACE RECONNAISSANCE appear to indicate a certain refinement of Soviet

propaganda techniques regarding their reluctance to admit their use of even defense-related and military support space systems. Furthermore, purely technical entries on such subjects as SPACE PLANE and REUSABLE SPACE DEVICES indicate a continuing Soviet interest in the development of such space programs. This, in turn, reinforces the Soviets' need for a military space doctrine, whatever their protestations to the contrary, especially when the full implications of the Soviet Union's military space capabilities are considered.

4. The Organization and Control of the Soviet Space Program

The military nature of the Soviet space program is evident from what is known regarding its organizational structure. At the apex of the system undoubtedly stands the Politburo, and specifically those most powerful members of the Politburo who form the Defense Council. General guidance and major decisionmaking for the Soviet military space program resides here, with Minister of Defense Ustinov considered to be the Politburo/Defense Council member responsible for overseeing the program. Presumably, there is a division of labor between the Politburo and the Defense Council, with the former providing general control and direction of the space effort and the latter making fundamental national-level decisions on military space research, design, development, testing, and production.⁶³ It must be pointed out, however, that Soviet secrecy in these

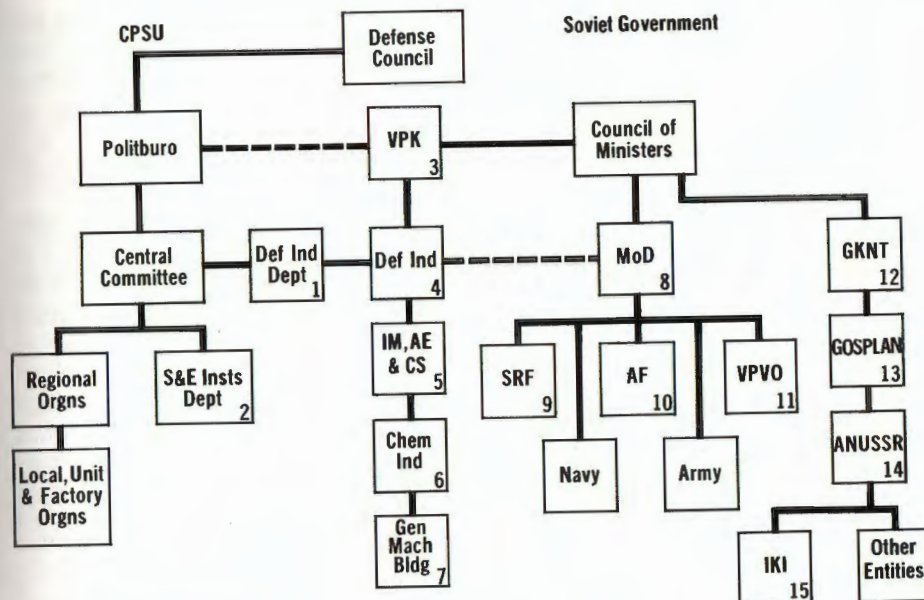
matters prevents the West from fully understanding the exact interrelationships among the various institutions or organizations involved in the Soviet military space program.

There is no doubt about overall CPSU control of the space program. The Central Committee (CC), structured to parallel the Soviet Government at the ministry level, participates in the decisionmaking process through the CC Departments for Science and Educational Institutions and for the Defense Industry. The CC Defense Industry Department monitors the work of the defense industrial hierarchy. The CPSU, of course, exercises its control at all levels of the space program, from the apex to party cells in factories and military units. The Soviet Government, with the Council of Ministers as its highest organ, is charged with implementing party policy. The Council of Ministers oversees the following entities, which control research and development and all the industries involved in the space program: the Ministry of Defense, the Ministry of Defense Industries, the Military Industrial Commission (VPK), the State Committee on Planning (Gosplan), the State Committee on Science and Technology, the USSR Academy of Sciences, the Ministry of Instrument Making, Automation Equipment and Control Systems, and the Ministry of the Chemical Industry.⁶⁴

The VPK, reporting in accordance with party guidance to the Council of Ministers, is responsible for actual program management of the Soviet

military space program, coordinating the activities of all entities involved in the production of space systems. Its chairman, L. Smirnov, is a Deputy Chairman of the Council of Ministers as well as a member of that body's Presidium. The responsibility for the actual design and production of liquid-propellant ballistic missiles, space launch vehicles, and spacecraft most likely rests with the Ministry of General Machine Building.⁶⁵

Gosplan, the State Committee on Science and Technology, and the USSR Academy of Sciences are other government entities that have input into the management of the Soviet military space program. Gosplan has some input into the military space program because it is necessary to integrate the space effort with other national undertakings. The State Committee on Science and Technology is responsible for coordinating civilian industrial research and development; its ties to the Soviet military are not well documented, but a number of the committee's officials are also active in the defense industrial sector. For this reason, there is some speculation that it is involved, at least peripherally, in coordinating some of the associated research and development activity contributing to the space program. The USSR Academy of Sciences is presented by the Soviets as a rough equivalent to the National Aeronautics and Space Administration and it does oversee the work of such entities as the Institute for Space Research, the Commission for the Study and Use of Outer Space, the Council for Interna-



--- Informal Organization Ties

1. Central Committee Defense Industries Dept.
2. Central Committee Scientific and Educational Institutions Dept.
3. Military Industrial Commission.
4. Ministry of Defense Industries.
5. Ministry of Instrument Making, Automation Equipment and Control Systems.
6. Ministry of the Chemical Industry.
7. Ministry of General Machine Building.
8. Ministry of Defense.
9. Strategic Rocket Forces.
10. Air Force.
11. Air Defense Forces.
12. State Committee for Science and Technology.
13. State Committee for Planning.
14. USSR Academy of Sciences.
15. Institute for Space Research.

Soviet Military Space Organization.

tional Cooperation in the Studies and Uses of Outer Space, and the Commission for the Promotion of Interplanetary Flights; it also operates some of the space tracking stations within the USSR.⁶⁶ The contributions of these entities to the Soviet space program, however, appear to be minor, especially in comparison with the dominant role of the Soviet military.

All five components of the Soviet Armed Forces are involved in the development and operation of the Soviet space program. The Strategic Rocket Forces are responsible for all activities associated with space launches, satellite tracking, and space payload recovery, as well as providing all logistic support for the space program. The Soviet Air Force is heavily involved in the Soviet manned space program — so much so that the official journal of the Soviet Air Force is entitled *Aviation and Cosmonautics*. Soviet Cosmonauts are trained by the Air Force and generally wear Air Force uniforms.⁶⁷ The Director of Flight Training for the Cosmonaut Corps is Lieutenant General of Aviation V. Shatalov, a former cosmonaut, who is also the Deputy Commander in Chief for Space Navigation in the Soviet Air Force.⁶⁸ Soviet sources no longer publicize the antispace defense element of the Soviet Air Defense Forces (as noted above), but antispace defense was once officially listed, along with antiair and antimissile defense, as a component thereof. It can be assumed that the Soviet Air Defense Forces still have

this responsibility. The Soviet Army and Navy are less involved in the Soviet military space program than the other Services, but still rely on space assets for considerable, and sometimes significant, support functions.

In addition, the three Soviet space assembly and launch complexes at Tyuratam, Plesetsk, and Kapustin Yar are all run by the Soviet military. Tyuratam, which the Soviets call the Baikonur Cosmodrome (in an attempt to conceal the exact location of the launching facility), launches all manned flights and all the Fractional Orbit Bombardment System (an orbiting nuclear warhead tested in the late 1960s) and antisatellite inspector flights, among others. The Soviets do not specifically acknowledge the locations of their other two launch facilities either. Plesetsk launches many Soviet navigation satellites, weather satellites, and the majority of other military satellites (serving a wide range of purposes) and Kapustin Yar handles multiple payload communications satellite launches, among others.⁶⁹ As this analysis indicates, the organization, administration, and management of the Soviet space effort is overwhelmingly military in nature, as befits the overwhelmingly military nature of the space program itself.

5. Soviet Space Propaganda and Diplomacy

This section will examine Soviet propaganda regarding the US and Soviet space programs to ascertain why the Kremlin insists on denying

the existence of even a defensive Soviet military space program. Such a stance seems especially odd when the Soviet Union openly discusses the military forces it intends to use on land, in the air, and at sea. After considering recent Soviet propaganda on this subject, the focus will shift to an examination of Soviet diplomatic proposals regarding outer space. The objective is to determine how the Soviets seek to further their military aims in outer space through the use of these nonmilitary tactics.

Soviet propaganda is particularly hypocritical in its treatment of the space programs of the US and the USSR. Soviet propagandists would have the world believe that everything the United States does in space has military applications and that all Soviet space programs are wholly peaceful, dedicated only to scientific and economic pursuits. MSU Ustinov, the Soviet Defense Minister since 1976, wrote in 1982 that the USSR “upholds the necessity of not permitting the militarization of outer space” while “the United States has of late been embarking on a broad program for the militarization of outer space,” which he claims is contrary to the 1967 Outer Space Treaty and the 1977 Soviet-US Agreement on Cooperation in the Exploration and Use of Outer Space for Peaceful Purposes.⁷⁰ (This from a man who has been deeply involved in the Soviet military space program since its beginnings.⁷¹)

US statements regarding the military nature of Soviet space programs are summarily dismissed. A Soviet

Defense Ministry spokesman, Colonel A. Timofeyev, expressed it this way in an August 1982 *Pravda* article:

*The United States, supposedly, is developing space weaponry programs only out of fear that similar projects have been launched in the USSR. All this is a premeditated lie, a propagandistic myth. . . . The Soviet Government has undeviatingly striven to see that space will become an arena of exclusively peaceful cooperation.*⁷²

Nevertheless, Soviet reactions to US military space programs differs from Soviet reactions to other US military programs.

While the Kremlin was quite specific in detailing its military “countermeasures” to the deployment of US intermediate-range nuclear missiles in Western Europe, their response to US military space programs has been quite vague, promising reactions but refusing to describe them. In criticizing US proposals to develop a space-based antiballistic missile (ABM) system, a Soviet space spokesman stated that the deployment of such a system “will inevitably lead the other side to develop weapons for protection and counteraction. . . . The Soviet Union will never allow US military superiority and will never find itself disarmed in the face of any threat.”⁷³ These themes were repeated particularly forcefully in a March 1984 editorial in *Pravda*.⁷⁴ Although Moscow will not elaborate on these countermeasures, it seems to believe that “In the future space will become the principal

theatre of military operations," if for no other reason than because the United States, allegedly, will force the issue.⁷⁵

The Soviets claim that they wish to resolve this issue peacefully, for the good of all mankind, and maintain that they have supported the demilitarization of outer space since 1958. As proof of this, Moscow exaggerates the role it has played in the adoption of The 1967 Outer Space Treaty and other international agreements that have limited, partially, the military use of outer space. The Soviets did not, however, become particularly interested in this issue until 1981, following the first flight of the US space shuttle. Since then, the USSR has launched major diplomatic initiatives against the US military space program by proposing multilateral treaties at the 36th (August 1981) and 38th (August 1983) sessions of the United Nations General Assembly.

The 1981 Soviet draft "Treaty Banning the Deployment of Any Weapons in Outer Space"⁷⁶ requires in Section I, Article I, that:

The member states undertake not to put into orbit around the earth objects with weapons of any kind, not to install such weapons on celestial bodies, and not to deploy such weapons in outer space in any other way, including also on piloted space vessels of multiple use [read: US shuttle]. . . .

It also states, in Article III, that, *Each member state shall be bound not to destroy, damage, or disturb the normal functioning and not to*

alter the flight trajectory of space vehicles of other member states where the latter have, for their part, been put into orbit in strict accordance with Section I, Article I of the present treaty.

Article III, therefore, actually would permit the attack of space objects that are armed (i.e., those not in accordance with Section I, Article I of the treaty). This would create a "right" to attack satellites that goes beyond the internationally excepted definition of self-defense and that is certainly contrary to practice on earth.⁷⁷

Perhaps to improve on their 1981 proposal, the USSR submitted a "Draft treaty on Banning the Use of Force in Space and From Space with Respect to the Earth" in August 1983.⁷⁸ This draft did call for the peaceful resolution of any dispute arising in connection with the operation of the treaty and also expanded the number of prohibited activities in outer space to include: "The use of force or the threat of its use in space, in the atmosphere, and on earth" through the utilization of space objects that are "orbiting the earth, stationed on celestial bodies, or deployed in space in any other manner." It also prohibits any military, including ASAT, use of manned spacecraft (again, meaning the US space shuttle). Along with this proposal, then CPSU General Secretary Andropov declared a "unilateral moratorium" on the launching of any type of ASAT system for as long as other states, including the United States, do likewise.⁷⁹

Both proposed treaties, as well as other Soviet propaganda statements, also have expressed concern for the protection of national technical means of verification. However, only the Soviet Union has an operational ASAT weapon capable of destroying space-based systems (which they have never admitted possessing). Thus, Andropov's pledge concerning a unilateral ASAT moratorium is meaningless, for the Soviets can continue to test them, disguised as scientific research satellites, regardless of any treaty. On the other hand, since Moscow considers the US space shuttle a potential ASAT, it can always claim that shuttle launches violate the moratorium.⁸⁰ The Soviets also have called for the dismantling of all current ASAT systems, but, again, since the USSR denies that it possesses them, it has nothing to dismantle. The Soviet ASAT moratorium maneuver, in fact, may actually be aimed primarily at technological elements and both Soviet draft treaties concentrate heavily on space-based technology (both the operational Soviet ASAT and the developing US ASAT are ground-based).

These Soviet treaties are also questionable in that both place restrictions on the US space shuttle, which will be the primary US space launch vehicle (SLV) in the future, but place no restrictions on expendable SLVs, which the USSR will continue to rely on for years to come (partly because they currently trail the United States in shuttle-related technology). Moreover, the 1983

Soviet draft treaty expressly forbids any military use of the shuttle, which includes the launch and recovery of any US military satellite. In spite of the above-mentioned difficulties, it is possible to *infer* that the Soviets possess military space systems since they have: 1) offered to negotiate about space weapons; 2) threatened to deploy countermeasures against US space systems; 3) pledged not to launch ASAT weapons during their moratorium; and 4) mentioned, occasionally, the sanctity of space reconnaissance for treaty compliance verification. Inferences, however, are weak negotiating points, especially when negotiating with the Soviet Union, which adheres to the dictum "what's ours is ours, what's yours is negotiable."

Soviet propaganda attacks and diplomacy regarding US military space programs are designed to portray the United States as a threat to international peace and security, to belittle the impact of US space accomplishments, and to deflect attention from the overwhelmingly military character of the Soviet space program. They also indicate a continuing Soviet respect for US scientific and technological capabilities. Furthermore, it is obvious that the Soviet leadership is fully aware of the military significance of outer space and recognizes that a technological breakthrough in outer space could decisively tilt the "correlation of forces" in the world, at least temporarily. For this reason, Moscow will do everything possible to hinder or prohibit US military space programs

while refusing to accept restrictions on its own military space capabilities.

6. Conclusions

This examination of general Soviet military doctrine, of Soviet statements regarding the military use of outer space, of the organization and control of the Soviet space program, and of Soviet propaganda and diplomacy regarding space, leads one to conclude that a definition of Soviet military space doctrine would read as follows:

Soviet Military Space Doctrine—the Soviet Armed Forces shall be provided with all resources necessary to attain and maintain military superiority in outer space sufficient both to deny the use of outer space to other states and to assure maximum space-based military support for Soviet offensive and defensive combat operations on land, at sea, in air, and in outer space.

This version of Soviet military space doctrine satisfies the necessity of being compatible with, as well as subordinate to, general Soviet military doctrine. It has a political and military-technical thrust; it emphasizes the primacy of the offensive application of superior military force to achieve Soviet objectives; and it recognizes the combined arms approach to combat operations. Furthermore, this version places no limits on either the scope or depth of Soviet combat operations and is unequivocal concerning the requirements for allocating resources to the military effort.

This proposed Soviet military space doctrine also is essentially consistent with Soviet views on the military use of space, once the propaganda factors are filtered out of Soviet statements. Soviet comments prior to the 1967 Outer Space Treaty clearly recognized the utility of space-based military capabilities. More importantly, however, these statements openly insisted on a Soviet effort to exploit space-based military capabilities, though, allegedly, only for defensive purposes. With the signing of the Outer Space Treaty, however, Soviet statements paid less attention to the military use of space while continuing to attack US space programs and explicitly dropped references to the Soviet military space program. This change in Soviet propaganda is highly significant. For instance, there might be some cause for speculation about Soviet intentions if Soviet statements continued to discuss Soviet programs for the defensive use of space-based military capabilities and military support functions such as reconnaissance and surveillance. It might be possible to argue, then, that the USSR was only “reacting” defensively to US initiatives in space. But the current Soviet stance, refusing to admit the existence of any military element in their space program, can only mean that the Soviet leadership, rather than merely counteracting US moves, is actually seeking military superiority in outer space for offensive, as well as defensive, purposes.

The version of Soviet military

space doctrine offered above also aligns closely with Soviet propaganda and diplomacy regarding US military space programs. Most significantly, it corresponds decisively with the actual deployment and development of the USSR's military space capabilities, for an understanding of Soviet military space doctrine is much more dependent on what the Soviets do in space rather than what they say about space. The USSR has a vast, continually expanding military space program, capable of performing most, if not all, of the military support functions of the US space program, as well as additional space weapons that are beyond current US capabilities (the operational Soviet ASAT program, for instance). These Soviet military space capabilities emphasize the certainty of the existence of a Soviet military space doctrine and clarify its status within general Soviet military doctrine. Because the latter insists on the attainment of Soviet military superiority in terrestrial forces, it would be illogical to expect the Kremlin to strive for anything less in outer space, especially considering the military significance of this environment.

The final issue, concerning the relative importance of the two basic functions of space-based military as-

sets—support for terrestrial operations versus actual capabilities for waging war in outer space—can be resolved by stressing the mutual dependence of the functions. For the immediate present, of course, military support functions are more important, but, as the capability of conducting warfare in space becomes less technologically constrained, this function will increase in importance. In addition, the overwhelming majority of military objectives are located on the earth's surface and will continue to be for far into the future. In any case, the ability to provide space-based military support for terrestrial combat operations requires freedom to operate in, if not outright dominance of, outer space. Moreover, Soviet military doctrine fully recognizes the decisive need to disrupt, if not destroy, enemy command, control, and communications assets. Outer space is becoming more and more vital, if not essential, to military forces in this respect and therefore the Soviet leadership can be expected to pursue both functions with equal vigor, for the ability to conduct warfare in space and to provide space-based support for combat operations on earth are both dependent on the attainment and maintenance of military superiority in outer space.

NOTES

¹Details on the largely military nature of the Soviet space program can be found in the following: Curtis Peebles, *Battle for Space*. New York: Beaufort Books Inc., 1983; US Congress, Senate. Committee on Commerce, Science, and Transportation. *Soviet Space Programs: 1976-80*, Part I, 97th Congress, 2d session, December 1982; US Congress, Senate. Committee on Aeronautical and Space Sciences. *Soviet Space Programs, 1971-75*, Volume I and Volume II, 94th Congress, 2d session, 30 August 1976; Michael Cassutt. "The Military Salyuts," in *Spaceworld*, vol. P-4-184, April 1979, pp. 18-25; Gerald L. Borrowman. "Soviet Military Activities in Space," in *Journal of the British Interplanetary Society*, vol. 35, 1982, pp. 86-92; and US Department of Defense. *Soviet Military Power*, First edition (September 1981), Second Edition (March 1983), and Third Edition (April 1984).

²MSU V.D. Sokolovskiy. *Military Strategy* (published in English as *Soviet Military Strategy*). Edited by Harriet Fast Scott. New York: Crane, Russak & Company, Inc., 1975, p. 38.

³Ibid.

⁴General Colonel A.I. Radziyevskiy, senior editor. *Dictionary of Basic Military Terms*. Moscow: Voenizdat, 1965, (English edition published under the auspices of the US Air Force, Soviet Military Thought series, No. 9) p. 37.

⁵*Soviet Military Encyclopedia (Sovetskaya Voyennaya Entsiklopediya)* (hereinafter referred to as SME). Moscow: Voenizdat, 1977, vol. 3, p. 225.

⁶Ibid., pp. 225-229.

⁷Ibid., p. 229; The description of military doctrine in the 1983 Soviet publication *Military Encyclopedic Dictionary (MED)* (see p. 240) corresponds closely with the SME version. The sole notable difference concerns the tone of Soviet remarks regarding US military doctrine, which are considerably harsher than those found in the SME. For instance, US military doctrine is described in the MED as anti-Soviet and antidemocratic in nature and committed to achieving military superiority over the USSR.

⁸Sokolovskiy, p. 40.

⁹SME, 1977, vol. 3, p. 229.

¹⁰Sokolovskiy, pp. 455-458.

¹¹Ibid., pp. 285, 454.

¹²Ibid., pp. 84, 190, 409-411.

¹³Ibid., pp. 381, 463.

¹⁴Ibid., pp. 89, 454, 458.

¹⁵Ibid., p. 205.

¹⁶Radziyevskiy, p. 109.

¹⁷Ibid., p. 177.

¹⁸Ibid., p. 178.

¹⁹Ibid., pp. 46, 61.

²⁰Ibid., pp. 47, 206-207.

²¹US Arms Control and Disarmament Agency. *Arms Control and Disarmament Agreements*, 1982 edition, Washington, D. C., p. 49.

²²Sokolovskiy, pp. 84, 409-411.

²³Ibid., p. 251; this statement was added to the second edition.

²⁴SME, 1978, vol. 6, pp. 594-595.

²⁵SME, 1977, vol. 4, p. 380.

²⁶Ibid.

²⁷Ibid., pp. 388-389.

²⁸SME, 1976, vol. 2, p. 620.

²⁹SME, 1979, vol. 7, p. 316.

³⁰Ibid., p. 509.

³¹SME, 1976, vol. 2, p. 290.

³²SME, 1976, vol. 1, pp. 37-39.

³³SME, 1977, vol. 3, pp. 216-217.

³⁴Ibid., pp. 601-605.

³⁵SME, 1977, vol. 4, pp. 380-381.

³⁶Ibid., p. 382.

³⁷Ibid., pp. 382-387.

³⁸Ibid., pp. 390-391.

³⁹Ibid., pp. 394-400.

⁴⁰Ibid., pp. 402-403.

⁴¹SME, 1978, vol. 5, pp. 260-261.

⁴²SME, 1978, vol. 6, pp. 86-87.

⁴³Ibid., p. 87.

⁴⁴SME, 1979, vol. 7, pp. 219-221, 460-461.

⁴⁵SME, 1980, vol. 8, p. 95.

⁴⁶SME, 1977, vol. 4, pp. 559-561; and SME, 1978, vol. 5, p. 38.

⁴⁷*Military Encyclopedic Dictionary (Voyennyy Entsiklopedicheskiy Slovar')* (hereinafter referred to as MED). Moscow: Voenizdat, 1983, pp. 1-3.

⁴⁸Ibid., p. 148.

⁴⁹Ibid., pp. 364, 366.

⁵⁰Ibid., p. 364.

⁵¹Ibid.

⁵²Ibid., p. 702.

⁵³Ibid., p. 238.

⁵⁴Ibid., pp. 298-299.

⁵⁵Ibid., p. 364.

⁵⁶Ibid., p. 366.

⁵⁷Ibid., p. 518.

⁵⁸Ibid., p. 12; and SME, vol. 1, pp. 24-25.

⁵⁹MED, pp. 341-342.

⁶⁰Ibid., p. 813.

⁶¹Ibid., p. 365.

⁶²Ibid., pp. 364-365.

⁶³*Soviet Space Programs: 1976-80*, Part I, p. 311; and *Soviet Military Power*, 2d edition, p. 66.

⁶⁴*Soviet Military Power*, 2d Edi-

tion, p. 66; and *Soviet Space Programs: 1976-80*, Part I, pp. 309-312, 316-318.

⁶⁵*Soviet Military Power*, 2d Edition, p. 66; and US Central Intelligence Agency. *Directory of Soviet Officials: National Organizations*, CR83-13841, August 1983, p. 105.

⁶⁶*Soviet Space Programs: 1976-80*, Part I, pp. 314-315, 320-322.

⁶⁷*Soviet Military Power*, 2d Edition, p. 66; and Harriet Fast Scott and William F. Scott. *The Armed Forces of the USSR*. Boulder, Colorado: Westview Press, Inc., 1979, pp. 159, 161.

⁶⁸US Central Intelligence Agency. *Directory of USSR Ministry of Defense and Armed Forces Officials*. CR 83-13274, August 1983, p. 11.

⁶⁹*Soviet Space Programs: 1976-80*, Part I, pp. 41-51.

⁷⁰MSU D.F. Ustinov. *To Avert the Threat of Nuclear War*. Moscow: Novosti Press Agency Publishing House, 1982, pp. 5, 15.

⁷¹"Service to the Motherland (on the Occasion of the 75th Birthday of the Member of the Politburo of the CPSU Central Committee, USSR Minister of Defense, MSU D.F. Ustinov)," *Voyenno-istoricheskiy zhurnal* (Military Historical Journal), no. 10, October 1983, pp. 7-8.

⁷²Quoted in James E. Oberg. "Andropov's Orbiting Bombs." *Reason*, December, 1983, p. 21.

⁷³V. Avduyevskiy. "Outer Space Must be Peaceful." *Kommunist*, no. 15, October 1983, p. 117.

⁷⁴"A Massive Provocation Against Peace." *Pravda*, 23 March 1984, p. 5.

⁷⁵L. Tkachev. "Militarist Ambitions

of the USA." *Aviyatziya i kosmonavtika* (Aviation and Cosmonautics), no. 11, November 1983, p. 43.

⁷⁶Moscow TASS International Service, 1525 GMT 11 August 1981, in *Foreign Broadcast Information Service. Daily Report, Soviet Union*, vol. III, no. 155, 12 August 1981, pp. AA16-AA18.

⁷⁷Colin S. Gray. "Space is not a Sanctuary." *Survival*, vol. XXV, no. 5, September/October 1983, pp. 203-4 (n. 2).

⁷⁸Draft Treaty on Banning the Use

of Force in Space and from Space with Respect to the Earth." *Pravda*, 22 August 1983, p. 4.

⁷⁹"Reception of America Senators by Yu. V. Andropov." *Pravda*, 18 August 1983, p. 1.

⁸⁰Excellent analyses of these issues can be found in Oberg. "Andropov's Orbiting Bombs," pp. 20-25; and in James E. Oberg. "The Space Shuttle and Soviet Propaganda." *National Review* vol. XXXIII, no. 14, 24 July 1981, pp. 828-830.



Defense



M A Y

**THE
NUCLEAR
ISSUE**

*Arms
Control*

**PRESERVING
THE
PEACE**



DETERRENCE:

In 1918, a visionary president of the United States having led his country to victory in what he considered to be the "war to end all wars," sought, with but partial success, to establish a framework for lasting peace. That framework, the League of Nations, lasted less than a quarter century, never had the United States as a member, and failed to prevent a war that was even more devastating than that which had prompted its birth.

With the benefit of hindsight, we could have said after 1945 that there was no such thing as a "war to end all wars," that war was an inevitable characteristic of man, that it was

of our international activities, from diplomacy to international and multinational peacekeeping operations to less obvious forms of fostering international harmony such as economic and cultural activities. Yet, if we are to preserve the peace effectively, we must recognize threats to that peace and, based on our understanding of those threats, create policies and programs that would render peace a more attractive option for a potential aggressor than the initiation of military operations.

In assessing those threats, we must, first and foremost, take full account of the way the Soviet Union's awesome military machine

By Dov S. Zakheim

*Assistant Under Secretary of Defense
(Policy/Resources)*

fruitless even to try to prevent it. The leadership of the United States, with bipartisan support in Congress, said no such thing. Instead, we created the United Nations—originally the product of joint thinking by a liberal American president and a conservative British prime minister, Roosevelt and Churchill. We joined that body, offered it a home, and, for the past three-and-one-half decades, have provided the largest single contribution to its annual budget.

The United Nations has not prevented conflict, and many of its members profess to different ideologies than we do. But we have persisted in the belief that we must strive in every possible way to minimize the probability of war and maximize the probability that conflicts can be resolved peacefully.

Keeping the peace, preserving it, and restoring it when hostilities have erupted are most demanding tasks. They call for the full panoply

of our international activities, from diplomacy to international and multinational peacekeeping operations to less obvious forms of fostering international harmony such as economic and cultural activities. Yet, if we are to preserve the peace effectively, we must recognize threats to that peace and, based on our understanding of those threats, create policies and programs that would render peace a more attractive option for a potential aggressor than the initiation of military operations.

The Soviet Union takes war very seriously. Its planners think about the conduct and operations of war, and have designed their forces accordingly. Over the past two decades, Soviet forces not only have improved in quality while remaining quantitatively superior to those of the West, they have also absorbed new missions, many of which are only explicable in offensive terms.

We have seen the Soviet Army metamorphose from the slow moving entity of World War II to a rapid strike force capable of hitting deep in NATO's rear, both with ground units and helicopters, incorporating blitzkrieg tactics adopted from General Guderian and other German strategists. The slow-moving forces were clearly defensive. Blitzkrieg has never been associated with a defensive posture.

CORNERSTONE OF OUR STRATEGIC NUCLEAR POLICY

Peacekeeper, shown here undergoing tests, will be the first intercontinental ballistic missile to be added to U.S. strategic forces since 1970. In the same period, the Soviets have deployed three new intercontinental ballistic missile systems, developed a fourth, and have two more under development.



It's an
uncomfortable
strategy, but
with today's
world and
technology,
there is
none better.

Similarly, Soviet aircraft, once configured for defensive purposes, with limited range and strike capability, now are likewise capable of striking deep into NATO territory supporting rapidly moving ground forces or destroying NATO aircraft far from the edge of battle.

Why have the Soviets adopted such a posture? By all accounts, Europe is considered the least likely locale for conflict, while nuclear warfare is considered to be less likely than any other. Soviet writings shed no light on this question, other than to indicate that such capabilities are essential to a country that seeks a war fighting posture.

Twenty years ago, the Soviet Union's posture outside its own borders and Eastern Europe was a rather limited one. Today, the Soviets boast a worldwide network of facilities—they shun the term bases—coupled with a complex of surrogates who have been battle tested in Africa, Southwest Asia, and Central America. Soviet airlift forces, once geared to internal communications within the USSR, now have capabilities more suitable to long-distance intervention—and saw action in Angola, Ethiopia, and Afghanistan. Soviet naval forces, once geared to defending against a Western amphibious assault that never materialized, now are capable of steaming for great distances and launching airborne firepower ashore. New capabilities, new missions. And the ongoing conflict in Afghanistan demonstrates the willingness of the Soviet Union to put its principles into practice.

It is a paradox, yet a truism, that peace can only be preserved through strength. History's aggressors always seized upon the perceived weakness of their adversaries. If they proved correct in their assessment, they built empires. If they were wrong, they lost their wars. But the prime motivation was always an assessment that aggression could not be withstood.

The foremost challenge facing

those who seek to preserve the peace, therefore, is to convince those who would rupture it of the folly of their ways. The Reagan administration has acted upon this principle by adopting a two-prong approach: first, it is determined to restore the credibility of United States military strength, with credibility defined as the undisputed perception by others that the United States has the capability and will to resist aggression against its interests, people, and allies overseas. Second, the United States is equally determined to seek and achieve agreements that will reduce—not merely limit—the growth in strategic nuclear, intermediate nuclear, and conventional arms.

The United States and USSR took differing approaches to the development of strategic and intermediate nuclear forces. The result was an imbalance that attacked the heart of our strategy and threatened its viability.

United States defense strategy, in broadest terms, incorporates three main principles. First, our strategy is defensive. It excludes the possibility that the United States would initiate a war. It also excludes the possibility that we would pre-emptively attack an adversary's forces or territory. Second, our strategy is to deter war. We seek to maintain a military posture that will convince any potential adversary that the cost of aggression would be too high to justify an attack. Deterrence is closely related to our defensive stance. Third, should deterrence fail, our strategy is to restore peace on favorable terms. In responding to an enemy attack, we would seek to deny the enemy his political and military goals while terminating hostilities at the lowest possible level of damage to the United States and its allies.

Nuclear weapons, whether we like it or not, must play a role in this strategy.

In the wake of World War II, the United States and the Western democracies developed a policy intend-

ed to prevent any recurrence of the tremendous carnage and devastation which the war had caused. To that end, the United States made clear that it would use its atomic weapons not for conquest or coercion, but for discouraging—or deterring—aggression and attack against ourselves and our allies.

Today, deterrence remains—as it has for the past 39 years—the cornerstone of our strategic nuclear policy. Deterrence cannot be based on bluff. To deter successfully, we must be able to respond to any potential aggression in such a manner that the costs we will exact will exceed any gains the aggressor might hope to achieve. More importantly, any potential aggressor must perceive us as having this ability.

We have no illusions about the dangers of a nuclear war between the major powers. Nuclear weapons are not just larger bullets. They have fundamentally changed the nature of warfare. Nuclear war would be a tragedy without precedent, from which no country would emerge as a winner. This is why our strategy is centered on deterrence.

But our recognition of the catastrophic nature of nuclear war is not sufficient to prevent its occurrence; the Soviet leadership must recognize this as well. We must make sure that the Soviet leadership, in calculating the risks of aggression, recognizes that because of our retaliatory capability, there can be no circumstance in which it could benefit by beginning a nuclear war at any level or of any duration. If the Soviets recognize that our forces can and will deny them their objectives at whatever level of nuclear conflict they contemplate and, in addition, that such a conflict could lead to the destruction of those political, military, and economic assets that they value most highly, then deterrence is effective and the risk of war diminished. This is the outcome we seek to achieve.

Let me turn to the notion of a nuclear freeze. We do not doubt the

good intentions of those in the West who advocate a freeze. Indeed, our goal is the same as the proponents of a nuclear freeze: to minimize the likelihood of nuclear war. However, a freeze which locks us into the current imbalance does nothing to reduce that likelihood.

Once locked into the status quo, we would be prevented from taking measures to reduce the vulnerability of our weapon systems to the Soviets' potent first-strike capabilities. We could not, for example, develop new basing systems for our land-based missiles to reduce their vulnerability to the Soviets' highly accurate and lethal ballistic missile force. Nor could we take measures to increase the ability of our bomber force to penetrate the formidable Soviet air defense system.

The Soviets could nonetheless take measures, such as further strengthening their air defenses, to degrade our retaliatory capabilities. In addition, the freeze would halt programs designed to increase the safety of our nuclear weapons, replace aging weapons, and increase their security against seizure and use by terrorists or other unauthorized persons.

Finally, a freeze would eliminate the incentive for the Soviet Union to agree to proposals to reduce nuclear arsenals, particularly the most destabilizing components, such as large ballistic missiles. In sum, as one writer noted, a freeze would "freeze solutions, but not problems."

The movement for a nuclear freeze has been inspired in part by the mistaken belief that the United States has been steadily piling up more and more nuclear weapons. In fact, the United States stockpile has decreased markedly since the late 1960s. The average destructive power of each weapon and the total amount of destructive power have fallen as well.

The freeze movement is also inspired by public concern and unease over the risk of nuclear war. Such emotions can be useful in generating

COMPARING UNITED STATES & SOVIET STRATEGIC ARSENALS

As of November 1983

United States Nuclear Weapons

- About 20 percent of our weapons are on intercontinental ballistic missiles. Of these, 20 percent are on systems more than 15 years old.
- About 50 percent are on submarines; of these, 90 percent are on submarines 15-20 years old.
- About 30 percent are on bombers which are more than 20 years old.
- About three-quarters of United States weapons are on launch systems 15 years old or older.

Soviet Nuclear Weapons

- About 70 percent of Soviet weapons are on intercontinental ballistic missiles. Of these, about 90 percent are on systems with an average age of less than 5 years, and virtually all are on systems less than 10 years old.
- About 20 percent are on submarines. Of these, 80 percent are on submarines that are less than 10 years old.
- About 10 percent are on bombers. Of these, over half are on Backfires, which average less than 5 years old.
- About three-quarters of total Soviet weapons are on launch systems less than 5 years old; 90 percent are on systems less than 10 years old.

NOTE: Weapons are defined as warheads on missiles or bombers.

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discussion and debate, thus prompting a search for solutions. However, they can also paralyze the search for meaningful solutions, thus leading to proposals such as the freeze which do not address the underlying problem of preserving peace.

The appeal of the nuclear freeze springs from its simplicity. Yet simplicity is its greatest downfall.

The Reagan administration has adopted and is vigorously pursuing a

meaningful policy for arms reductions. This is the second and equal prong in our thrust for peace. The president's Strategic Arms Reduction Talks proposals aim at reducing the most destabilizing nuclear weapons—strategic nuclear missiles—by seeking warhead reductions to levels about one-third below current levels. The president has also incorporated into our proposals the recommendations of the Scowcroft Commission, which stressed the

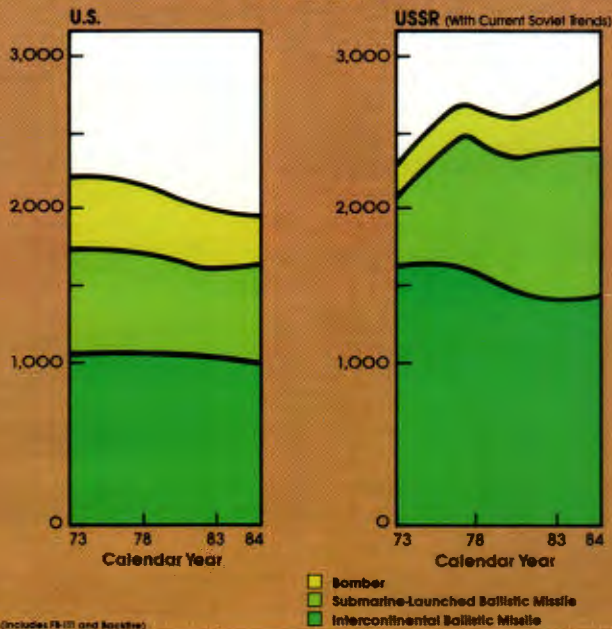
need to increase stability by reducing the vulnerability of both superpowers' arsenals; this can be done by spreading warheads out over a greater number of launchers.

Let me now turn to the other nuclear realm, that of intermediate-range nuclear forces.

To enhance deterrence of Soviet conventional and nuclear attack against our NATO allies, we have for many years stationed substantial

Strategic Nuclear Delivery Vehicles

As of January 1, 1984



Total Active Inventory (Includes FB-111 and Bockers)

United States Military Posture for FY 1984, OJCS

nuclear forces in Europe. In the past five years, Soviet deployment of SS-20 missiles targeted on Europe have posed a grave threat to the credibility of NATO's deterrent posture, particularly in the context of the overall Soviet force buildup. The purpose of the NATO decision to deploy United States Pershing II missiles and ground-launched cruise missiles in Europe is to restore the credibility of the NATO deterrent by dissuading the Soviets from believing that they might be able to conduct a nuclear war in Europe while keeping their territory a sanctuary from attack.

Ideally, we would like an arms control arrangement which would do away with the need to deploy the Pershing II and cruise missiles, in exchange for a Soviet agreement to dismantle their intermediate-range missiles, including the SS-20s. This elimination of an entire class of nuclear weapons was the essence of the president's so-called "zero option."

Although our preference is to reduce the number of intermediate-range missiles to zero, we have indicated a willingness to reach an

interim agreement above that level. Soviet responses at the bargaining table have all had one objective—to prevent the deployment of United States systems, thus locking into place the current Soviet monopoly of intermediate-range weapons. This objective underlies their proposal to match their forces against British and French forces, which are strategic forces for the defense of those countries, but not for the remainder of NATO.

President Reagan has made an additional initiative, after consultation with our allies, to provide the opportunity for a major step forward in the negotiations. The president announced that, if the Soviets agree to equal global ceilings on intermediate nuclear missile warheads, the United States will not fully offset Soviet global deployments with deployments in Europe. Moreover, the president expressed willingness to include nuclear-capable aircraft in an agreement and to reduce Pershing II as well as cruise missiles. We believe that his initiative merits an equally significant Soviet response.

In both the arms control negotiations and its propaganda campaign, the Soviet Union seeks to shatter the unity of the NATO Alliance. A primary purpose of this effort has been to force the removal of United States forces—nuclear and conventional—from Europe, leaving our allies exposed to threats of Soviet military power.

One ploy in the Soviet propaganda campaign is to contend that the United States intends to fight a "limited nuclear war" in Europe. Nothing could be further from the truth. We recognize that the use of any nuclear weapon would represent a most fundamental change in the nature of warfare. A principal purpose of our effort to strengthen conventional forces is to prevent a situation in which it would become necessary to use nuclear weapons to stop a conventional attack.

However, since the difference in the nature of Western and Soviet bloc societies precludes us from matching the military might of the Warsaw Pact, the nuclear option must remain an important element in deterring attack. This explains why another ploy of the Soviet Union is its promise of "no first use"—a promise as easily broken as it is made. A similar promise by NATO would be an invitation to the Soviets to use their conventional force superiority to blackmail Western Europe. The danger of a "no first use" pledge is that it could increase the chances of a conventional war. A large-scale conventional war today would entail massive destruction and suffering: Fifty million people died in the last world war. Moreover, a conventional war between the Warsaw Pact and NATO is the most likely way for nuclear war to develop. The danger of nuclear war cannot be divorced from the overall balance of power, as advocates of a "no first use" pledge would have us do.

The administration is actively seeking to reduce United States and NATO reliance on nuclear weapons

to deter conventional attack. In addition to our efforts to modernize and increase the readiness of current forces, the United States and its allies are investigating the utility of "emerging technologies" to increase conventional defenses without prohibitively-large increases in manpower or defense budgets. Certain aspects of these emerging technologies promise to add to our capabilities for conventional defense.

However, there are reasons to temper our enthusiasm for them: The technologies are not all yet proven in battlefield conditions; many could turn out to be prohibitively expensive; and most are susceptible to Soviet counterdevelopments. Thus, I wish to warn against a tendency which is growing in some circles to see these technologies as an easy solution to the nuclear dilemma—detering conflict with the threat of a destructive power which we pray remains unused.

I have spoken of the risk of nuclear war developing from a conventional war in Europe and of our efforts to reduce that risk. The risk of escalation to nuclear weapons could arise in other regions or circumstances as well.

One possible "spark" which could ignite a more devastating conflagration is a regional conflict involving superpower allies or interests.

The risk of nuclear war springing from a regional conflict increases with the continuing spread of the capabilities and special materials needed to manufacture nuclear weapons. Early on, the administration adopted a strong policy on non-proliferation. In addition to our continuing efforts to stem the spread of sensitive nuclear technology, we seek to reduce the motivations for acquiring nuclear explosives by improving regional and global stability and addressing the legitimate security concerns of other states.

Another potential source of nuclear conflict is the terrorism that seems to have become a ghastly characteristic of today's world. From

its inauguration, this administration has taken a strong stance in countering international terrorism and the support which it receives from the Soviet bloc. In addition, we are considering how to develop multilateral means for dealing with a nuclear incident created by an unauthorized group or individual.

To reduce the risk of nuclear war arising from any source, the president last spring approved Secretary of Defense Caspar W. Weinberger's proposals to augment the communication links between Washington and Moscow. These "confidence-building measures," as they are known, are under discussion with the Soviets: first, to add a facsimile capability to the existing Hotline; second, to establish a communication link at the military level; and third, to upgrade communications between our embassies and capitals.

Nuclear weapons can never be dis-invented, and arms control agreements cannot destroy the knowledge needed to build them. Nor can we expect an adversary, whose buildup has been as relentless as his propaganda and whose nuclear arsenal has increased in capability without reference to our own level of activity, to reciprocate a unilateral Western act of disarmament. Deterrence is an uncomfortable strategy, but with today's world and technology, there is none better.

More distant emerging technologies have allowed a vision of a future in which the role of nuclear weapons is markedly reduced. The United States is undertaking a quest to determine the feasibility of a defensive system that could intercept and destroy ballistic missiles in flight before they reach our soil or that of our allies. The Department of Defense has gathered some of the nation's top minds to work on this effort, but we fully realize that it could take many years and may require technologies which we have not yet developed.

Nevertheless, the president has offered us, in the words of his Secre-



Dov S. Zakheim

Before assuming his current position in February 1983, Dr. Zakheim was special assistant to the Assistant Secretary of Defense (International Security Policy), and prior to that, special assistant to the Under Secretary of Defense (Policy). He joined DoD in 1981, after serving as a principal analyst with the National Security and International Affairs Division, Congressional Budget Office. Dr. Zakheim, who earned his BA degree from Columbia University, spent his junior year at the London School of Economics. In 1974, he earned his Doctor of Philosophy degree at St. Antony's College, University of Oxford, England.

tary of Defense, "The dream of a world where fear of nuclear weapons is wiped away." This initiative meets the appeal made by the House of Bishops Pastoral Letter for the United States to take a "bold initiative in nuclear disarmament."

Peace through strength—the paradox persists. With strength we can bring about agreements for all sides to stop shooting and to stop building weapons. The Isaiah wall of the United Nations has been the scene of many a demonstration—but the words on that wall are the goals of this administration—words originally forged in the war-torn Middle East—"they shall beat their swords into plowshares, and their spears into pruninghooks: nation shall not lift up sword against nation, neither shall they learn war any more." A lofty goal, a prophetic ideal. We must never despair of achieving it, not merely in our children's lifetime, but in our own as well. ☒

There is nothing theoretical about the USSR's growing military capabilities

Over the past two decades, the strategic forces of the USSR have grown quantitatively and qualitatively. Beginning with Nikita Khrushchev, Soviet leaders have followed a determined path in the development of greatly increased strength for all Soviet armed forces. The record shows that the USSR has employed its military forces to their fullest for coercive leverage in peacetime. In wartime, of course, they would regard their forces as essential to success on the battlefield.

The Soviet Union views strategic forces as a necessary ingredient in its overall strategy of domination. Each element in the Soviet's strategic forces is, therefore, founded on the belief that these forces must be capable of protecting the homeland—the continental USSR—and eliminating the capability of any enemy to conduct warfare at home and beyond its own territory. In addition, the Soviets have developed a significant strategic defense system to ensure the protection of their homeland from any potential aggressor. The cost of this military buildup has been heavy—an estimated 13 to 15 percent of the nation's gross national product annually. Moreover, research and development for military purposes constitute the bulk of all research in the Soviet Union.

It is evident that strategic forces of the USSR, as they are now arrayed, go beyond what is normally required for defense alone of the homeland. These strategic forces present the greatest challenge we and our allies have ever faced. They require we maintain our own fully capable deterrent force.

Missile Forces—Land-Based. In the land-based missiles of the strategic Soviet forces, the intercontinental ballistic missiles, we see the Soviet development program at its most potent. Some 818 of the 1,398 intercontinental ballistic missiles currently on-line in the Soviet in-

ventory have been built since 1972, the date of the initial Strategic Arms Limitation Treaty agreement. These missiles—the SS-17, SS-18, and SS-19—are mostly in hardened silos and virtually invulnerable to strike by our current intercontinental ballistic missiles. While the most modern United States intercontinental ballistic missile, the Minuteman III, has three warheads, Soviet fourth generation intercontinental ballistic missiles contain up to ten per missile. Their destructive power

The remainder of the intercontinental ballistic missile force, some 580 "older" SS-11 and SS-13 intercontinental ballistic missiles, have modifications which are "new" by United States standards and were deployed beginning in 1966 and 1973, respectively. While in less survivable silos than the newest fourth generation SS-17, SS-18, and SS-19, these missiles have significant destructive potential against targets in the United States. All currently deployed Soviet intercontinental

THE SOVIET STRATEGIC THREAT

By Lieutenant General
James A. Williams, USA

Director,
Defense Intelligence Agency

is unmatched by missiles currently in the arsenal of the Free World. Each SS-18 mod 4, for example, is capable of destroying United States missiles in hardened silos and other hard targets in the United States.

As further evidence of the USSR's drive for strategic superiority, the Soviets have developed and are testing a fifth generation of missiles. The SS-X-24 and SS-X-25 are solid-propellant missiles, and both could be mobile when deployed. The impact of unrestrained development of mobile intercontinental ballistic missiles is obvious: Targeting would become much more difficult, and the Soviets would then have moved to close the last area of strategic missile vulnerability—counterforce capability and survivability.

ballistic missiles could be refurbished, both to increase their silo life and to improve their abilities.

The Soviets have probably undertaken improvements in their intercontinental ballistic missile force in anticipation of United States improvements in its intercontinental ballistic missile posture. The concept of the mobile intercontinental ballistic missile, for example, was tested in development of the USSR's SS-16 and its hybrid, the SS-20 longer-range intermediate-range nuclear missile. In addition, development of the new fifth generation SS-X-24 and SS-X-25 reflects the steps the Soviets are taking to maintain their lead in accuracy, throwweight, basing, and flexibility into the coming decade.

Further reinforcing the capabili-

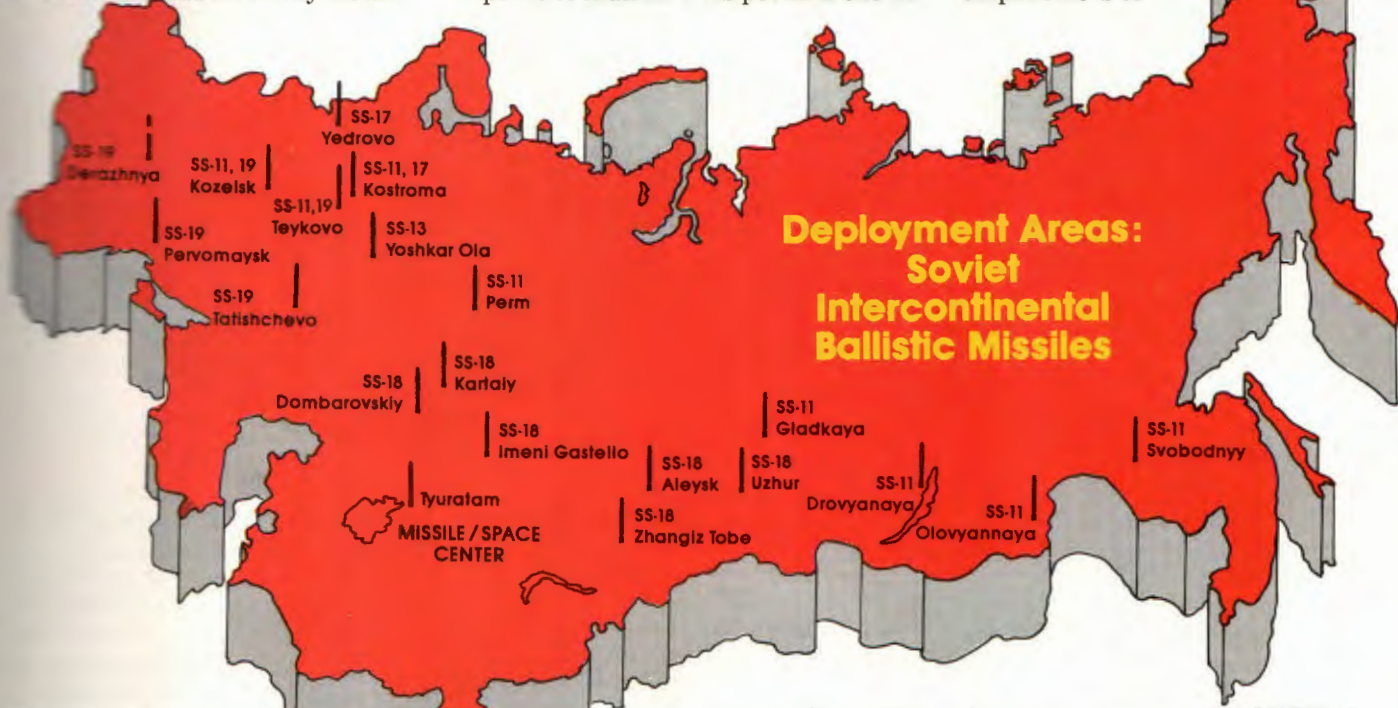
its view that strategic defenses are vital to waging and winning nuclear war.

...of the intercontinental ballistic missile force is the fact that the Soviets have stored and, we estimate, would be prepared to use additional intercontinental ballistic missiles for refiring after an initial launch. Reconstitution and refires of these missiles would allow the Soviets an unmatched advantage in total force level and almost certainly would

vanced multiple independently-targetable reentry vehicle submarine-launched ballistic missiles. None of these 16 is more than six years old.

Fully two-thirds of the force have missiles with range sufficient to allow them to patrol within the relative safety of home waters, yet still hit targets as far as 4,000 miles from point of launch. This permits the So-

of German pocket battleships of World War II. This submarine is designed to operate in northern reaches of the Arctic, perhaps under the ice cap, breaking through to launch its missiles, further complicating antisubmarine warfare operations. Based on the schedule followed by Soviet shipbuilders to



...guarantee them a second-strike capability in a nuclear exchange.

Missile Forces—Sea-Launched.

Soviet submarine-launched ballistic missiles have similarly been upgraded in the last decade. The USSR maintains the largest submarine-launched ballistic missile force in the world—64 submarines with 936 missiles. Another 60 older submarines carry missiles designated for theater missions and are not counted under the Strategic Arms Limitation Treaty criteria. Although the USSR is a relative newcomer to the multiple independently-targetable reentry vehicle submarine-launched ballistic missile, 16 submarines now in the force are fitted with 264 ad-

...viets to homeport their newest submarines, even when preparing for intercontinental attack, and to launch their missiles a short distance from their piers. This also could screen United States antisubmarine warfare forces from direct access to the submarines and diminishes our indications and warning.

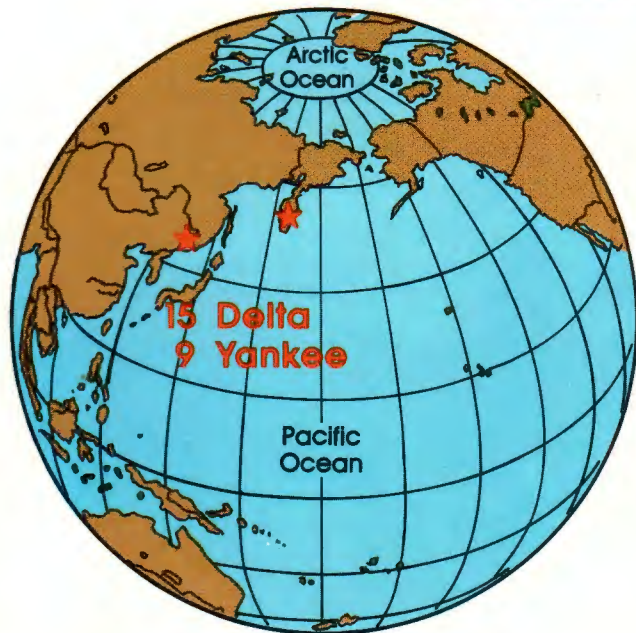
Indicative of the Soviet's submarine-launched ballistic missile development program is the newest class to become operational, the Typhoon. One unit in the class is now operational, and another will be soon. Each carries the SS-N-20 multiple independently-targetable reentry vehicle submarine-launched ballistic missile. The 25,000-ton Typhoon is the world's largest submarine, approaching the displacement

...date, we can expect the USSR to have at least six to eight Typhoons operationally deployed by the early 1990s.

Force developments are under way in the submarine-launched ballistic missile arena as well. In mid-1983, flight testing began of a new, long-range submarine-launched ballistic missile, the SS-NX-23. Probably designed to replace the SS-N-18 now carried in the Delta III-class submarines, the SS-NX-23 features improved throwweight and accuracy. We have received the first indications that an improved Delta III submarine will be launched as the at-sea testbed for this new missile. If successful, the 14 older Delta III submarines will likely be fitted with this new missile.

The Soviets have made other

Deployments of Modern Soviet Nuclear-Powered Ballistic Missile Submarines



plans to improve the accuracy of their submarine-launched ballistic missiles. Follow-on missiles are under development to replace the recently deployed SS-N-20 in the Typhoon, bringing the USSR closer to its goal of submarine-launched ballistic missile hard-target kill capability by the 1990s. Improvements to submarine quieting and communications while running submerged are two highlights of an across-the-board improvement effort being made in sea-based Soviet strategic forces.

Long-Range Aviation. The long-range bomber plays a key role in the Soviet's nuclear force structure. Comprised of over 1,660 strategic aircraft, including nearly 300 long-range bombers, the Soviet air force is formidable. Heading the force is the long-range Backfire, now deployed in both strategic aviation and naval aviation variants; some 230 have been built and deployed since 1974. The Backfire is a long-range aircraft capable of carrying nuclear

bombs, air-to-surface missiles, or cruise missiles.

The new Blackjack manned strategic bomber, still in flight test, will augment the Backfire force, but with greater range and payload. The Blackjack will almost certainly be capable of carrying cruise missiles, bombs, or a combination of both.

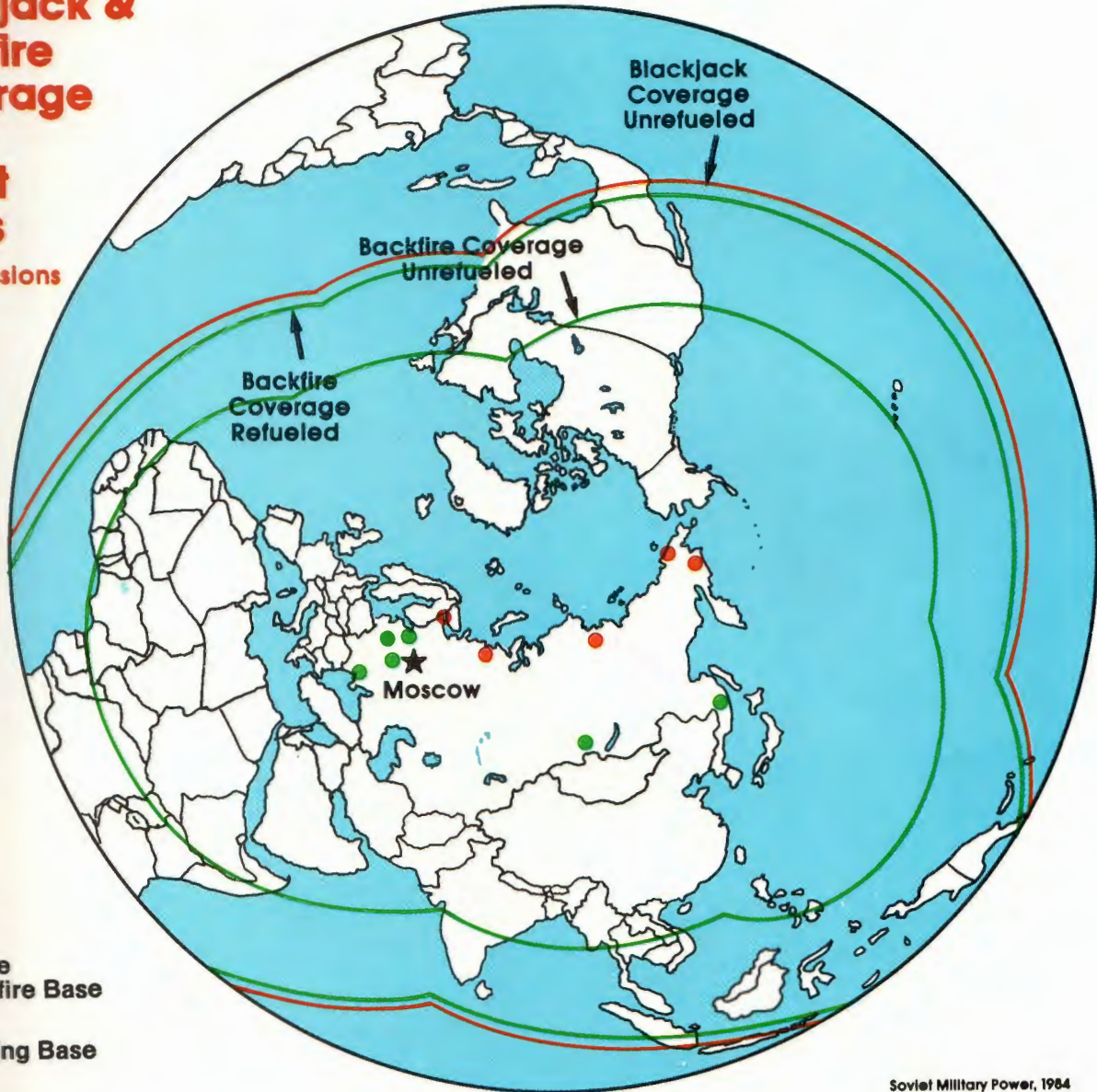
The Soviets have also developed a new variant for their older Bear bomber, the cruise-missile carrying Bear H. Already in production, the new Bear H will apparently be produced at the rate of five to ten per year. At least 15 of these new Bear aircraft are in service. Another variant of the Bear, the G model, is being fitted to accommodate the newer supersonic AS-4 air-to-surface missile. Tanker development continues as well, with the testing of a new IL-76/Candid-based aerial refueling aircraft. Together with the total aircraft now being produced, the Soviet inventory of long-range aircraft is growing steadily, reversing a decline in the past few years.

Cruise Missiles. Long-range land-launched, sea-launched, and air-launched cruise missiles currently receive high priority as an integral part of the Soviet Union's strategic force. There are now at least five such missiles under development. Three are small, subsonic, low-altitude cruise missiles with a range of some 1,500 miles, like the United States Tomahawk. These missiles will likely have missions for land-based and sea-based carriers. One, the SS-NX-21, is small enough to be fired from torpedo tubes of submarines with only minor modifications. At least four Soviet submarines are likely candidates for this missile. Three of these submarines are now under development—the Mike, Sierra, and a modified Yankee-class. The missiles could also be fired from existing Victor IIIs. This missile, which is difficult to track and destroy, gives the Soviets an increased capability in both theater and intercontinental attack roles.

A larger cruise missile has been tested in two variants, as the

Blackjack & Backfire Coverage From Soviet Bases

2-Way Missions



- Active Backfire Base
- Staging Base

Soviet Military Power, 1984

ground-based SSC-X-4 and the air-launched AS-X-15. They will have ranges of about 1,800 miles. The SSC-X-4 apparently will be used as a strategic support of theater missions, since it is unlikely the missile will be deployed outside the USSR. Moreover, the experience gained in fielding the SS-20 longer-range intermediate-range nuclear forces missile can easily be applied in basing and in mobile operations. The AS-X-15 has utility for both the

Bear H and the Blackjack bombers. The fourth and fifth cruise missiles under development are expected to be sea-based and ground-based variants, and could be operational by mid-decade. It is expected that the cruise missiles now under development could have both nuclear and non-nuclear warheads, providing them both strategic and theater roles.

Strategic Defense. While investing this heavily in its forces for in-

tercontinental attack, the Soviet Union has concurrently allotted tremendous resources to strategic defense. This is in keeping with the Soviet view that strategic defenses are vital to waging and winning nuclear war. Thus, the USSR is deploying a layered defense which allows the Soviets to compensate for any disadvantage of a single system through multiple, overlapping systems.

Antiballistic Missile Systems. The USSR has the world's only operational antiballistic missile system. Within the provisions of the 1972 United States-USSR Antiballistic Missile Treaty, the Soviets have built and deployed an antiballistic missile defense for Moscow to afford protection for the city and for military and civilian command authorities. This antiballistic missile system has been upgraded to include both long-range and short-range silo-based interceptors—one designed to work within and the other outside the atmosphere. In addition, the Soviets have improved radar coverage through emplacement of a large, phased-array radar at Pushkino which, along with smaller radars, will control antiballistic missile engagements. Under development is a more modern, transportable antiballistic missile system, which could provide the Soviets the capability to deploy an antiballistic missile system nationwide should they decide to do so. Future antiballistic missile development could include the fielding of directed energy weapons, including ground-based and space-based lasers, and particle beam weapons.

Surface-to-Air Missiles. As part of strategic defense forces upgrading, Soviet progress in development of surface-to-air missiles continues, with one new strategic defense missile, the SA-10, now fully operational and another, the SA-X-12, nearing that capability. It is estimated that this missile will be deployed in a point-target role, against cruise missiles and low-altitude bombers, as well as in a tactical surface-to-air missile role.

Antisatellite Weapons. The USSR is also placing emphasis on the development of antisatellite weapons, and, since 1971, has had the capability to attack near-earth orbit satellites using a ground-launched orbital interceptor. The number of launch pads available for these antisatellite weapons at the

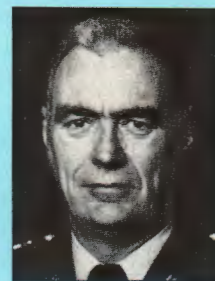
Tyuratam launch complex indicates that the Soviets could launch several interceptors in a few hours.

Future developments in antisatellite technology will likely include deployment of a ground-based or space-based laser within the next 15 years. A particle beam weapon is being investigated by the Soviets and might be tested by the mid-1990s. Such a system could blind satellites or interfere with their electronic equipment and, in more advanced variants, destroy the satellites themselves.

Passive Defense. The last component of the strategic forces, passive defense, is, in the view of the Soviets, essential to reconstitution and post-nuclear attack recovery. Soviet passive defense preparations began in earnest in the 1950s, and have now spread in coverage from a few key metropolitan centers to most of the military and political power centers throughout the USSR. Civil defense is a military-run operation in the Soviet Union. The system includes more than 1,500 hardened facilities in the USSR, each with special communications, ensuring post-attack continuity for some 175,000 key personnel. Shelters and alternate facilities allow protection for additional personnel. Passive defense provides the USSR with some expectation that it would be able to absorb a large nuclear strike and emerge with some of its military and political infrastructure intact and functioning.

One cannot view the growth of Soviet military power over the past two decades and not be struck by the gains that have been made:

- The military posture of the USSR has shifted from defensive to offensive;
- The USSR is now a global military power and has under development systems which will ensure their strategic might for the coming decades;
- This continuing military buildup has been made at the expense of



Lieutenant General James A. Williams, USA

A veteran of more than 29 years active commissioned service, Gen. Williams was Deputy Chief of Staff for Intelligence, U.S. Army Europe and Seventh Army, before assuming his present duties. Prior to that, he was Deputy Assistant Chief of Staff for Intelligence, U.S. Army. From mid-1976 to mid-1979, he was with the Defense Intelligence Agency, first as chief of the Missile Forces/Strategic Arms Limitation Branch, Soviet/Warsaw Pact Division, and then as Deputy Director for Estimates. He was graduated from the U.S. Military Academy and awarded a masters degree in Latin American Studies by the University of New Mexico.

other segments of the economy.

There is nothing theoretical about the Soviet threat. The invasion of Afghanistan, the imposition of martial law in Poland, and the shoot-down of the Korean Air Lines Flight 007 are stark reminders that the USSR is willing to use force, or the threat of force, to achieve its goals. Moreover, the discovery of a large arms cache on the small island of Grenada and the buildup of both Nicaraguan and Cuban armed forces underline the USSR's willingness to project its power worldwide and use surrogates to achieve its goals.

As a free nation we must be vigilant and we must be strong. An understanding of Soviet power and intentions is vital to our defense program and posture as we ready ourselves—as indeed we must—to meet the challenge presented by Soviet military power in the 1980s. ❧

ARMS CONTROL NEGOTIATIONS

THE ROCKY ROAD TO ACCORD

Blending
a policy
of arms
reductions
with the
need for
modernizing
the forces of
deterrence is
a difficult,
frustrating
process.

United States nuclear forces policy is now, as it has always been, driven by one overriding goal: to prevent nuclear conflict. We maintain nuclear deterrent forces to convince the Soviet Union that it could never hope to gain from an attack on us or our allies. At the same time, we seek to achieve negotiated arms reductions that will lead to a more stable and secure nuclear balance at far lower levels of armaments. We are also pursuing other arms control measures to reduce the risk that nuclear war could ever break out as a result of accident, misinterpretation, or miscalculation.

Defense Policy and Arms Reductions

Conventional wisdom often holds that our nuclear force modernization and arms reduction policies are basically in conflict—one strives for more weapons and the other for fewer. In fact, however, the two are linked in a coherent strategy to preserve peace in the nuclear age.

United States nuclear forces policy aims at retaining only the minimum nuclear forces necessary for deterrence. Thus, we have over time made substantial unilateral reductions in our nuclear arsenal, none of which were required by arms control agreements. We had one-third more nuclear weapons in 1967 than we have today. The total explosive power—megatonnage—of the United States nuclear stockpile has fallen even more dramatically; it is now one-fourth what it was in 1960.

We are also implementing similar reductions in our nuclear stockpile in Western Europe. In 1979, the NATO governments agreed that we would remove 1,000 nuclear weapons from Europe immediately and withdraw one more nuclear warhead for each Pershing II and ground-launched cruise missile that we would have to deploy. In October

1983, NATO further decided that we would remove an additional 1,400 nuclear weapons from Europe over the next few years. When those withdrawals are complete, our European nuclear stockpile will be one-third smaller than it was in 1979, even if we do not succeed in our goal of negotiating intermediate-range nuclear arms reductions with the Soviet Union.

Thus, the record shows that we have been more than willing to undertake unilateral nuclear arms reductions when that could be done safely. Regrettably, the same cannot be said for the Soviet Union. Far from taking comparable steps to lower its nuclear armaments, the Soviet Union has steadily expanded its stocks of strategic, intermediate-range, and short-range nuclear weapons. In February 1980, former Secretary of Defense Harold Brown remarked that "When we build, the Russians build. When we stop, the Russians build." And we might well add, "When we reduce, the Russians build."

What all this means is that there are distinct limits on how far the United States can act unilaterally to reduce nuclear weapons. Our obligation to maintain a credible deterrent requires that we preserve a nuclear balance, that we do not grant the Soviet Union the unquestioned military superiority it seeks. We are dedicated to the pursuit of substantial nuclear arms reductions, but in the future those reductions will have to be negotiated bilateral ones, not unilateral.

Paradoxical though it may seem, our defense modernization programs encourage rather than discourage progress toward real reductions. This paradox is borne out by the history of past efforts to control nuclear arms. Clearly the existence of a United States antiballistic missile program was a principal factor be-

By Frank J. Gaffney, Jr.

*Deputy Assistant Secretary of Defense
(Strategic & Theater Nuclear Forces Policy)*

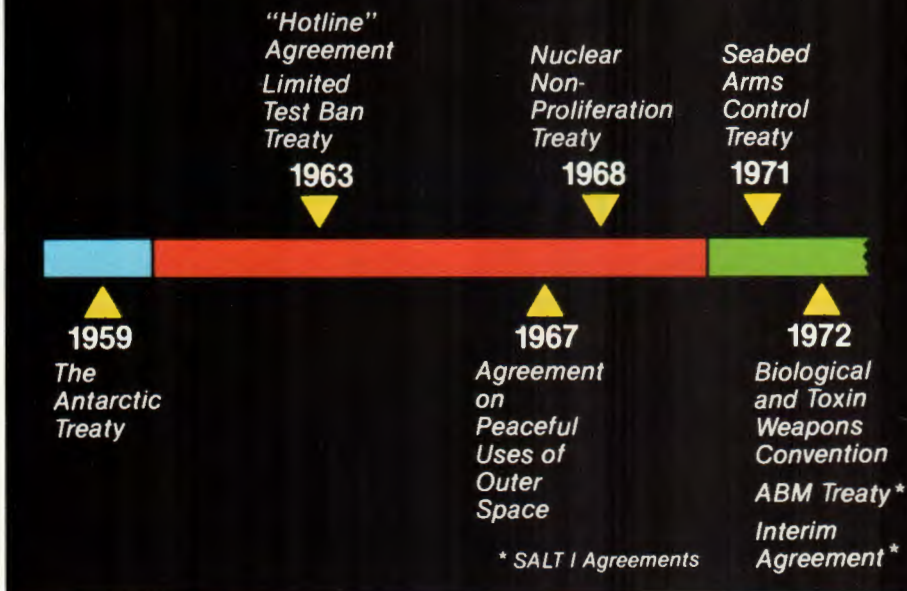
hind the Soviet decision to agree to the severe limits on ballistic missile defenses in the 1972 Antiballistic Missile Treaty. It is equally likely that the Soviet refusal in March of 1977 to discuss strategic arms was based on the judgment that a United States administration which had just campaigned for unilateral cuts in defense spending would not take any steps that would warrant Soviet restraint.

The lesson to be learned is quite fundamental. Simply put, the USSR will have no interest in equitable reductions which create a stable balance at lower levels if it believes that it can achieve military advantage by engaging in desultory and unproductive negotiations, by agreeing to strictly "cosmetic" arms control agreements, or by dint of United States unilateral restraint in the absence of agreements or in anticipation of the fruits of negotiating an arms control agreement. The Soviets will accept such reductions only if they are convinced of our determination to maintain the balance.

A Strategy for Genuine Arms Reductions

In order to ensure that future agreements avoid the problems of the past and make a real contribution to global security, President Reagan has identified certain essential principles which govern our approach to nuclear arms negotiations. First, we seek real reductions, rather than simple limits on future weapons growth or a freeze at current levels. Second, arms control agreements must not ratify dangerous military imbalances, but instead establish a stable balance which will enhance the security of all the parties. Third, arms control accords must be precisely drafted and include effective verification provisions, so that both the obligations and the compliance behavior of the parties are made clear. The Soviet history of noncompliance with arms control agreements demonstrates that such provisions are absolutely vital.

Arms Control Agreements



The United States program for negotiated nuclear arms reductions that embodies those principles is ambitious and yet reasonable; it is founded on an understanding both of the kinds of arms control agreements that we need for greater stability and security, and of the means required to achieve those agreements. That remains true even though the Soviet Union walked out of the Strategic Arms Reduction Talks and Intermediate-range Nuclear Forces negotiations in late 1983. The United States is ready to resume both talks at any time, and we hope that the USSR will agree. Its suspension of the negotiations was completely unjustified, a ploy to try to perpetuate the dangerous Soviet monopoly in longer-range intermediate-range nuclear missiles. Rather than damaging the prospects for successful arms reductions, the West's determination to maintain a military balance gives the Soviets every reason to join with us in reducing nuclear arsenals.

Whereas the Strategic Arms Limitation Treaty permitted more—and more destabilizing—strategic weapons, the United States in the Strategic

Arms Reduction Talks is calling for substantial, equitable reductions in the most destabilizing weapons. Our highest priority is to reduce ballistic missile warheads, the weapons which cause most concern to each side because they have such rapid times of flight and currently face no effective defenses. Our proposals would also encourage movement away from multiple independently-targetable reentry vehicle ballistic missiles toward single-warhead missiles and limit slow-flying strategic systems such as bombers.

The United States has proposed that it and the Soviet Union reduce the number of their ballistic missile warheads by about one-third—to 5,000 each—and lessen the disparity in ballistic missile destructive capability and potential (throwweight). Those central elements of our Strategic Arms Reduction Talks position have remained unchanged since the negotiations began in June 1982. But we have made several major adjustments in other aspects of our Strategic Arms Reduction Talks position which met several Soviet concerns and should facilitate the attainment of an agreement.

In one of the most important adjustments, the president in October 1983 proposed that a Strategic Arms Reduction Talks agreement include a mutual guaranteed "build-down" of ballistic missile warheads. He suggested two methods for that build-down, which can be called the ratio and percentage methods. Together they would guarantee regular annual reductions and provide a strong incentive to channel any future modernization toward more stabilizing weapons.

Under our proposed build-down system, each side would dismantle at least 5 percent of its strategic ballistic missile warheads each year, but could be obliged to dismantle many more if it modernized its forces. The ratio method would require each side to remove two existing ballistic missile warheads for every warhead deployed on a new multiple independently-targetable reentry vehicle intercontinental ballistic missile, three for every two deployed on a new multiple independently-targetable reentry vehicle submarine-launched ballistic missile, and one for each new single-warhead ballistic missile. The percentage method would require each side annually to dismantle 5 percent of its current total of ballistic missile warheads until it reached the floor of 5,000 weapons. The method which governed in any given year would be the one which required the greater reductions.

The president also announced in October 1983 that we would be willing to discuss a build-down arrangement for strategic bombers and to negotiate tradeoffs between areas of United States and Soviet advantage in strategic systems. Earlier, in June 1983, he had announced that we would consider limits on strategic bombers and air-launched cruise missiles that were below those provided in the SALT II agreement.

Unfortunately, even before the Soviet Union chose to interrupt the negotiations, it did not demonstrate a real interest in reaching agreement on significant strategic arms reduc-

tions. The Soviet Strategic Arms Reduction Talks proposal provides for reductions in strategic ballistic missile launchers, but it need not reduce the number and power of ballistic missile warheads. Indeed, it may afford an opportunity for the Soviets to increase significantly the number of nuclear warheads in their arsenal. What is more, its detailed provisions favor multiple independently-targetable reentry vehicle systems which are particularly destabilizing. In addition, the Soviet proposal fails to draw any distinction between ballistic missiles and bombers. Although the United States advocates important limits on strategic bombers and bomber weapons, it is essential to recognize that American weapon systems of this type are far less threatening than ballistic missiles because they take some hours to reach their targets and face much more powerful defenses along the way.

It is now up to the Soviet government to agree to a date for the start of the next round of the talks and to begin to negotiate seriously on the central issues. Such a constructive approach to the goal of strategic arms reductions is as much in its interest as it is in that of the United States, and indeed of the world as a whole.

The same holds true for the negotiations on intermediate-range nuclear forces that began in November 1981. The United States proposals in the Intermediate-range Nuclear Forces talks, as in the Strategic Arms Reduction Talks, have focused on the systems of greatest concern to both sides—in this case, on longer-range intermediate-range nuclear forces missiles such as the Soviet SS-20 and the United States Pershing II and ground-launched cruise missile. The original United States proposal in the talks, which is still our preferred outcome, called for the most sweeping possible result: the elimination of all of these weapons on both the United States and Soviet sides. The elimination of such an important class of weapons would en-

hance the security of the United States and its allies, and indeed of all the states in Asia, the Middle East, North Africa, and Europe that are within range of the Soviet SS-20. By the same token, the Soviet bloc would be more secure as well.

The Soviet Union, however, insisted that it would not accept such a dramatic solution, so the president in March 1983 proposed an interim accord which would reduce United States and Soviet longer-range intermediate-range nuclear forces missile warheads to substantially lower, equal global levels. In September, he offered to discuss limits on longer-range intermediate-range nuclear forces aircraft, to apportion any negotiated reductions in an appropriate manner between Pershing II and ground-launched cruise missiles, and to consider a commitment not to deploy in Europe all the longer-range intermediate-range nuclear forces missiles which the United States would be allowed under a global ceiling.

The United States position in the Intermediate-range Nuclear Forces talks thus has been marked by considerable flexibility as well as by dedication to achieving an equitable, security-enhancing agreement. The Soviet approach to the negotiations, however, has been completely different. The Soviets have adhered rigidly to the same basic, inequitable aim: to ensure the preservation of a sizable SS-20 force while the United States would be prohibited from deploying even one Pershing II or ground-launched cruise missile in Europe.

The USSR attempted to justify that demand in two ways. First, it insisted that an intermediate-range nuclear forces agreement should limit European-based systems only. That would permit the Soviets to expand their SS-20 force in the East at will, thus increasing the threat to Asia and—because of the SS-20's long range, mobility, and transportability—to Europe as well.

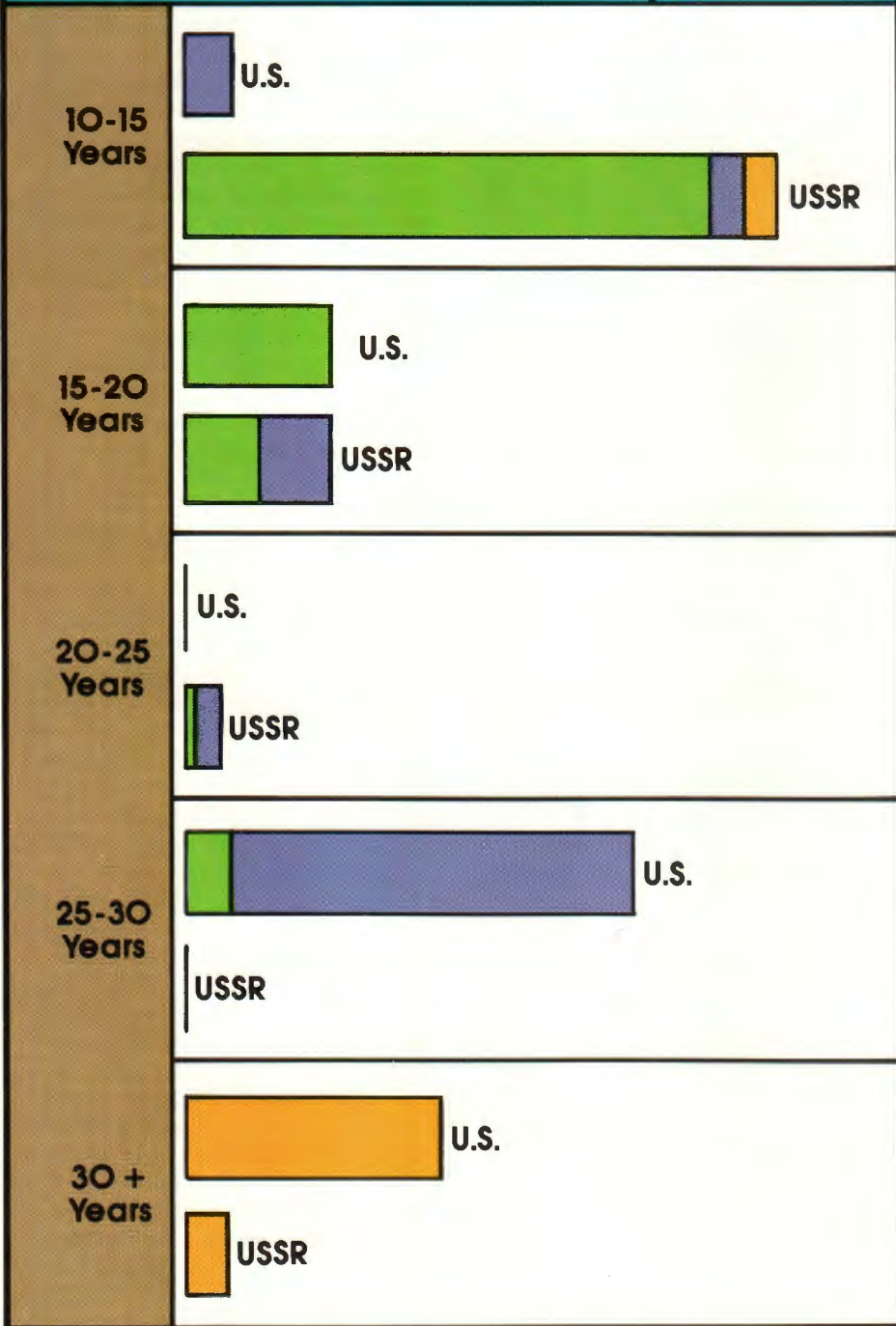
Second, the USSR insisted that it be compensated for British and

Inventory of Warheads in 1993 by Average Age of Launch Systems

(Based on hypothetical nuclear freeze in 1983)

LEGEND:

- Intercontinental Ballistic Missile
- Submarine-Launched Ballistic Missile
- Bomber



French strategic systems. In pressing that demand, the Soviets ignored the basic international legal precepts of national sovereignty, as well as some fundamental military facts. We refuse in bilateral negotiations with the USSR to impinge upon or otherwise constrain the defensive capabilities of our allies. Moreover, the minimum national deterrents of Britain and France are in no way comparable to the Soviet SS-20 force. Those countries would still face the threat of thousands of Soviet nuclear warheads even if all SS-20s were dismantled.

The Soviet insistence on compensation for British and French systems had one aim and one aim only: to prevent the United States from fielding a counter to the SS-20. That counter would stand as unambiguous proof that the United States was firmly committed to the defense of its European allies. The preservation of the Soviet longer-range intermediate-range nuclear forces missile monopoly, on the other hand, would cast doubt on the strength of that link and leave the USSR as the clearly superior nuclear power on the continent, with all the potential for dominance and intimidation that would entail.

Since we had not reached an intermediate-range nuclear forces agreement with the Soviets by the end of 1983, we began at that time to deploy the first NATO Pershing II and ground-launched cruise missiles, in accordance with the schedule laid down by the alliance in December 1979. The Soviet Union thereupon suspended the Intermediate-range Nuclear Forces negotiations, without agreeing on a date for resumption—despite the fact that the United States had continued to negotiate for two years while the Soviets deployed more than 100 additional SS-20s. We for our part are ready to resume negotiations at any time and to dismantle any and all of our longer-range intermediate-range nuclear forces missiles in accord with an equitable reductions agreement. But we cannot be intimi-

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dated into granting the Soviets the longer-range intermediate-range nuclear forces missile monopoly that they seek. To do so would tell them that they can use the SS-20 to intimidate the West and to shatter the NATO Alliance. By progressing on schedule with Pershing II and ground-launched cruise missile deployments, we are maintaining a credible deterrent in the absence of an acceptable accord and providing the USSR with an incentive ultimately to agree to equitable, negotiated reductions in intermediate-range nuclear arms.

Confidence-Building Measures

The Intermediate-range Nuclear Forces talks and Strategic Arms Reduction Talks are the best known nuclear arms control negotiations between the United States and the Soviet Union. Another important set, however, deals not with numbers and types of weapons but with "confidence-building measures"—measures to increase stability in peacetime and in periods of crisis, and to reduce the risk that nuclear war could ever break out as a result of accident, miscalculation, or misinterpretation.

The chance of an accidental or unintended nuclear conflict between the United States and the Soviet Union is actually extremely remote. The United States has in place—and is continually upgrading—an extraordinary set of national communications, safety, and security mechanisms to prevent such a possibility. We have every reason to expect that the Soviet Union pursues a similarly responsible course in this area.

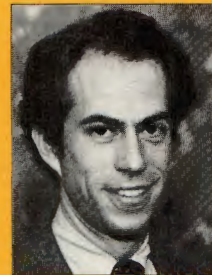
In addition, over the past two decades, the United States and the Soviet Union have signed several bilateral agreements to reduce still further the risk of accidental or unintended conflict. The best known, and most important, of these is the 1963 agreement to establish the "Hotline," the teletype link allowing the United States president and the Soviet head of government to com-

municate urgently and directly in time of crisis. Another which has, on balance, worked quite well is the 1972 Incidents at Sea accord, designed to prevent acts at sea which could increase the risk of war. Still another is the 1971 Accidents Measures Agreement, which is intended to prevent accidental nuclear conflict through such measures as mandatory notification of planned missile launches which will extend beyond national boundaries in the direction of the other party.

While the various national and bilateral mechanisms already in place have made the risk of unintended or accidental nuclear war very slight, we are determined to reduce that risk even further and have, therefore, proposed a broad set of new United States-Soviet confidence-building measures. In 1982, the president proposed several bilateral measures, to be negotiated in the Strategic Arms Reduction Talks and Intermediate-range Nuclear Forces talks, which would provide for an expanded exchange of data on each side's strategic and intermediate-range nuclear forces, and for advance notification of major military exercises and of all ballistic missile launches. In May 1983, the president proposed several additional bilateral measures to strengthen crisis stability which had been recommended by the Department of Defense. Those proposals called for the addition of a high-speed facsimile capability to the United States-Soviet Hotline; creation of a parallel Joint Military Communications Link between the two national military commands; and establishment by both governments of high-rate data links with their embassies in each other's capitals. Negotiations with the Soviets on these proposed communications improvements began in August 1983.

The United States efforts to reduce nuclear arms and lower the risk of accidental or unintended nuclear conflict, together with our force modernization policies, constitute a coherent, multifaceted strate-

gy to enhance stability and ensure continued peace in the nuclear age. That strategy is founded neither on wishful thinking nor on undue pessimism about the chances for substantial progress. Instead, it is based on a realistic assessment of the obstacles to progress and of the steps which we must take to overcome them. Thus, we are committed to maintaining an effective deterrent capability, which will preserve our security and that of our allies, and induce the Soviet Union to accept genuine arms reductions. We have also carefully defined the kinds of arms reductions and confidence-building agreements that will have a truly beneficial impact on global stability and security. Completing and implementing such agreements will not be easy. But our commitments to deterrence and dialogue provide the essential foundation for achieving them. ☛



Frank J. Gaffney, Jr.

Mr. Gaffney assumed his present duties in August 1983, after serving as senior professional staff member, Strategic and Theater Nuclear Forces Subcommittee, Senate Committee on Armed Services. He is also a former staff member of the Senate Committee on Armed Services and of the Permanent Subcommittee on Investigations, Senate Committee on Governmental Affairs. For three years, he was designated staff liaison to the Senate Committee on Armed Services for Senator Henry M. Jackson. Mr. Gaffney was awarded an MA degree by The Johns Hopkins University, and a BA degree by Georgetown University.

Soviet violations of important arms control agreements raise serious issues. As President Reagan told the United Nations Special Session on Disarmament in June 1982, "Agreements genuinely reinforce peace only when they are kept. Otherwise we are building a paper castle that will be blown away by the winds of war."

After a year-long intensive study of Soviet compliance with existing arms control agreements, President Reagan forwarded a report on Soviet compliance to the Congress in January 1984. He summarized the findings of the report as follows:

"The United States Government has determined that the Soviet Union is violating the Geneva Protocol on Chemical Weapons, the Biological Weapons Convention, the Helsinki Final Act, and two provisions of SALT II: telemetry encryption and a rule concerning ICBM modernization. In addition, we have determined that the Soviet Union has almost certainly violated the ABM Treaty, probably violated the SALT II limit on new types, probably violated the SS-16 deployment prohibition of SALT II, and is likely to have violated the nuclear testing yield limit of the Threshold Test Ban Treaty."

These are serious issues. Our concerns are deepened by the fact that Soviet violations in a number of cases involved treaties the terms of which are not very demanding—SALT II, for example. Even the strictest possible compliance with SALT II would allow an enormous increase in Soviet nuclear capability. Indeed, there has been almost a 75 percent increase in Soviet nucle-

Based on congressional testimony, February 22, 1984.

A BROKEN TRAIL OF PAPER PROMISES

The sorry record of Soviet violations of SALT, ABM, and other treaties.

ar warheads aimed at the United States since SALT II was signed in 1979. The fact that the Soviet Union has gone even beyond this and violated important treaty provisions is a cause for serious concern.

Another cause for concern is the fact, as Secretary of Defense Caspar W. Weinberger has observed in his recent report to the Congress, that: "Several of these violations must have been planned by Soviet authorities many years ago, in some cases perhaps at the very time the Soviet Union entered into the agreements."

There are serious potential security risks from Soviet arms control violations. This is particularly true

in the antiballistic missile area. Since the Antiballistic Missile Treaty does not limit the production of antiballistic missile interceptor missiles, which can be deployed rather quickly, the radar limitations, because large radars take months or years to construct, are its core provision. The Antiballistic Missile Treaty is hardly an optimum arms control agreement. Many of its provisions are permissive and thus involve a calculated risk. Even in 1972, the Soviet radar base was already more extensive than that of the then-proposed United States Safeguard antiballistic missile system. Indeed, a unilateral statement the United States government issued during the SALT I negotiations noted that, "Since Hen House [Soviet ballistic missile early warning radars] can detect and track ballistic missile warheads at great distances, they have a significant ABM potential." The new Soviet large phased-array radars, now deployed in significant numbers, are far more capable than the Hen House.

The United States has been concerned about the antiballistic missile potential of the new Soviet large phased-array radars. Indeed, during the Carter administration, the Joint Chiefs of Staff reported that: "Soviet phased-array radars, which may be designed to improve impact prediction and target handling for ABM battle management are under construction at various locations throughout the USSR. These radars could perform some battle management functions as well as provide redundant ballistic missile early warning coverage."

In mid-1983, the United States discovered the construction of one of these radars deep in the interior of

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the USSR near the city of Krasnoyarsk. After a minute analysis of this radar, its capabilities, and Soviet explanations for its construction, the United States government concluded that: "The new radar under construction at Krasnoyarsk almost certainly constitutes a violation of the legal obligation under the Anti-Ballistic Missile Treaty of 1972, in that in its associated siting, orientation, and capability, it is prohibited by the Treaty."

We have other serious concerns about Soviet failure to comply with the Antiballistic Missile Treaty. Over the years, we have expressed concerns to the Soviet Union about Soviet testing of bomber defense missile (surface-to-air missiles, or SAMs) radars against strategic ballistic missiles. A 1978 report of the Carter administration stated that this activity "... could have been part of an effort to upgrade the SA-5 system for an ABM role or to collect data for use in developing ABM systems or a new dual SAM/ABM system." Moreover, the Soviets have developed a rapidly deployable antiballistic missile system. In addition, as the Scowcroft Commission noted in its report, "At least one new Soviet defensive system is designed to have capability against short-range ballistic missiles; it could perhaps be upgraded for use against re-entry vehicles of some submarine-launched ballistic missiles and even ICBMs."

Concerning the SALT II Treaty, we have determined that there have been a number of violations or probable violations. We believe that the Soviets have probably deployed the SS-16 intercontinental ballistic missile in violation of a specific treaty prohibition. The Soviets have either flight-tested a second new type of intercontinental ballistic missile in violation of a treaty provision, or they have made impermissible modifications to an existing type. We believe that the Soviet SS-X-25

probably is a second new type in violation of the treaty limit of one new type.

The limit of one new type of intercontinental ballistic missile was described by the Carter administration as one of the principal limits of SALT II. To quote Secretary of State Cyrus Vance in 1979, "Based on their past practices they could be expected to acquire several entirely new types of land-based missiles by 1985; the treaty limits them to one." While the "new" type limit of SALT II was hardly as restrictive as the Carter administration made it out to be, the one thing the Carter administration did insist on was that the SALT II Treaty would prohibit their testing of both a new medium and a new small solid fuel intercontinental ballistic missile. They have now done both. They have flight-tested a new medium solid-fueled intercontinental ballistic missile similar to our MX and the SS-X-25, a Minuteman-sized solid fuel missile.

The United States has determined that Soviet encryption of missile telemetry impedes our verification of SALT II in violation of the agreement. This is a serious development because it also affects our ability to negotiate a verifiable Strategic Arms Reduction Talks Treaty. Indeed, President Carter told a Joint Session of the Congress in June 1979 that: "A violation of this part of the treaty—which we would quickly detect—would be just as serious as a violation of the limits on strategic weapons themselves." The Senate Foreign Relations Committee was so concerned about telemetry encryption in 1979 that it adopted an understanding to the resolution of ratification which provided:

That any practice with regard to the transmission of telemetric information during the testing of strategic arms limited by the Treaty, including but not limited to the failure to transmit relevant telemetric information,

"The fact that the Soviets have cheated in the past does not rule out the possibility of mutually beneficial agreements in the future."

“Arms control without Soviet compliance is nothing more than an exercise in unilateral disarmament.”

which results in impeding of verification by United States national technical means of any provision of the treaty, will be raised by the United States in the Standing Consultative Commission and if the issue is not resolved to the satisfaction of the United States, the United States reserves the right to exercise all other available remedies, including, but not limited to, the right to withdraw from the treaty.

Soviet violations of the chemical and biological treaties are more than simple arms control violations. They are atrocities. These weapons have been used against defenseless human beings in an organized effort to drive them from their homes by killing thousands of them. The decline in the use of these weapons reported in today's newspapers does little for the thousands who have died and nothing to absolve the Soviets from eight years of cruel and inhumane attacks with lethal mycotoxins.

The Soviet violation of the Helsinki Final Act involved an action contrary to the confidence-building measures included in that agreement.

Soviet testing of nuclear weapons, which we believe is likely to have exceeded the 150-kiloton limit of the Threshold Test Ban Treaty, could result in the development of improved warheads for their strategic weapons systems.

Violations, however, are more significant than the immediate military consequences of the acts themselves. They raise questions about the integrity of the arms control process that may be far more significant than the short-term military impact. Despite much rhetoric in the 1970s about the terrible consequences to the Soviet Union of arms control treaty violations, it is clear that these treaties are extremely difficult to enforce. There

are those who even now demand standards of proof that simply cannot be met by national technical means of verification. There are those who argue we should ignore violations because they are not militarily significant. Others suggest that these Soviet violations are somehow our fault—we have not been tough enough with them in the Standing Consultative Commission. Some even suggest we should sweep these issues under the rug because they spoil the climate for future arms control.

There has been some criticism of our decision to make public these Soviet violations. Some of this echoes the criticism of the Arms Control Association without repeating its most fundamental injunction: “Violations of arms control agreements cannot be overlooked or excused.”

The most fundamental misconception fostered by the Arms Control Association is that somehow Soviet arms control violations are our fault because until recently we have not raised SALT II issues in the Standing Consultative Commission. This is simply not true. We began raising SALT II issues in the spring 1981 session of the Standing Consultative Commission. We have also raised them through senior diplomatic channels. We called for a special session of the Standing Consultative Commission in 1983, which the Soviets refused to attend.

The fact of the matter is that the Standing Consultative Commission has been largely unsuccessful over the years in resolving compliance concerns. Unfortunately, previous administrations have exaggerated its effectiveness in order to sell unverifiable arms control agreements to the United States Congress. Ambassador Paul Nitze was correct in 1979 when, during the SALT II hearings, he testified that: “They [compliance concerns] were resolved by accepting what has been done in violation.” One can debate whether

the issues of the 1970s were violations or circumventions or a mix of both. There is no doubt that the Soviets have proven remarkably adroit at exploiting ambiguities in arms control agreements to proceed with activities that it was the intent of one of the parties—us—to preclude by treaty. In doing this, the Soviets have not hesitated to mislead us, deliberately and all too successfully. In order to achieve their purpose, while we regard the spirit of agreements as a guide to their implementation, the Soviets do not. They care nothing for the spirit of agreement and, while it suits their purpose, little more for their letter. This is a sad commentary; but, then, the truth is not always happy.

The charges we have made against the Soviet Union are the result of an extremely intensive study of Soviet compliance that lasted more than one year. We carefully reviewed the evidence and the negotiating record. These charges should not be confused with the Soviet propaganda contained in the Aide Memoire released by the Soviet government. The Soviets know full well that we are in full compliance with our arms control obligations.

In 1934, Sir Winston Churchill challenged the British government concerning German compliance with arms control provisions of the Treaty of Versailles. In the House of Commons he stated that, "... the worst crime is not to tell the truth to the public, and I think we must ask the Government to assure us that Germany has observed and is observing her treaty obligations in respect to military aviation."

Unfortunately, the British government did assure the British people, contrary to the facts, that Hitler was not violating the Treaty of Versailles. Thus, Britain slept until it was too late to avoid the Second World War.

This administration is dedicated to the negotiation of effective, mean-

ingful, and verifiable agreements for arms reduction. This cannot be accomplished by ignoring Soviet arms control violations and pretending that they do not exist. Arms control without Soviet compliance is nothing more than an exercise in unilateral disarmament. Arms control agreements must be complied with if there is any hope that they will increase our security.

The Soviet arms control compliance record must be taken fully into account when we formulate future arms control proposals. The fact that the Soviets have cheated in the past does not rule out the possibility of mutually beneficial agreements in the future, but it does rule out the type of ineffective agreements based upon wishful thinking that we have negotiated in the past—and which some propose today.

We will continue to press the Soviets for corrective action. However, we must recognize that the problem of Soviet arms control violations has not yet been solved. We must, if we are not to face an expanding pattern of Soviet violations, see that such violations carry costs at least equal to the gains they derive from them. The full funding of the president's strategic weapons program is essential in view of these violations. We are now in the process of assessing the implications of these violations for our mid-term and long-term programs. It is clear, however, that the enormous momentum of the Soviet strategic weapons program continues largely unconstrained by existing treaties. ❧



Richard N. Perle

Mr. Perle is a former staff member of the Senate Permanent Subcommittee on Investigations; Subcommittee on Arms Control, Senate Committee on Armed Services; and Subcommittee on National Security and International Operations, US Senate. He was a consultant prior to assuming his present position. Earlier he had been a consultant with Advanced Studies Group, Defense and Space Center, Westinghouse Electric Corp., and with Sandia Corp. His education includes a BA (International Relations) from UCLA, Honors Examinations at London School of Economics and Political Science, and an MA from Princeton Univ., Department of Politics.

NUCLEAR

NUCLEAR

Since 1945, nuclear weapons have been a fact of life. We can neither wish them away nor pretend they do not exist. What we must do is ensure that they are never used. To that end, United States nuclear weapons policy has focused not on conquest or coercion but on discouraging—on deterring—aggression and attack, both by conventional or nuclear means, against the United States and our allies.

Today, deterrence remains—as it has for the past 39 years—the cornerstone of our nuclear policy and, indeed, of our entire national security posture. To deter successfully, we must be able—and must be seen to be able—to retaliate successfully against any potential aggressor in such a manner that costs we will exact will exceed substantially any gains he might hope to achieve through aggression; by doing this, we can dissuade any attempt of aggression against ourselves or our allies in the first place. This central tenet of our nuclear policy has been

Based on a presentation at Williams College, Williamstown, Mass., January 13, 1984.

By Franklin C. Miller

*Director,
Strategic Forces Policy*

confirmed by every administration, Republican or Democrat, since that of President Truman and represents a unique consensus—which has survived the test of time—that a policy of deterrence is the most effective means of preserving the freedom and independence of the Western World in the nuclear age.

The past three-and-a-half decades have taught us two critical lessons with regard to carrying out this policy:

- First, in order for our deterrent to be seen as credible, we must be able to respond appropriately to a wide range of aggressive actions; if our declared response is perceived as inadequate or inappropriate, it will be regarded as a bluff and risks being ignored.

- Secondly, deterrence is a dynamic, not a static, concept. In order to continue to deter successfully, our capabilities must change as the

threat changes and as our knowledge of what is necessary to deter improves.

But deterrence is only one half of the search for peace. The other half is arms control. Our approach to arms control is to seek agreements that realistically diminish the risks of war and help to reduce the threat to our security and the security of our allies. Agreements which substantially reduce the weapons on both sides in an equitable and verifiable manner—particularly the most threatening and destabilizing weapons—diminish the likelihood of conflict at all levels of violence.

Within this framework of deterrence and arms control, we make numerous decisions about how best to achieve our twin objectives. Those decisions are, rightly so, part of the public debate. But that debate is often unfortunately clouded by a wide variety of misperceptions. In an effort to dispel some of those misperceptions, I would like to discuss what I call “nuclear myths and nuclear realities.”

MYTHS, REALITIES

MYTH #1: *"The United States has more nuclear weapons today than ever before."*

In fact, the United States has not been accumulating more weapons. The number of weapons in our nuclear stockpile was one-third higher in 1967 than it is today. Nor have we been accumulating more destructive weapons. The average number of kilotons—or explosive power—in each weapon has declined steadily since the late 1950s, and the total number of megatons in our stockpile was four times higher in 1960 than it is today. Once we have retired our older Titan missiles, average megatonnage will decline even further.

Titan retirements highlight an important—and often overlooked—point. Part of our modernization program is the retirement of obsolete systems—but somehow we rarely get credit for this. For example, the NATO decision to deploy Pershing IIs and ground-launched cruise missiles also included unilateral retire-

ment—without replacement—of 1,000 United States nuclear warheads from NATO's stockpile. During the late 1970s, we retired our 10 oldest Polaris submarines, shrinking our sea-based ballistic missile force from 41 to 31 during that period. The October 1981 strategic modernization program also called for immediately retiring 75 older B-52s and beginning the phased retirement of the 52 Titan intercontinental ballistic missiles. And a few months ago, NATO ministers announced that a further reduction of some 1,400 nuclear warheads will occur over the next several years.

MYTH #2: *"There is a new United States nuclear policy which is based on the belief that we can win a nuclear war."*

There is no new United States nuclear policy. As has been the case for the past 39 years, deterrence remains the cornerstone of our nuclear policy and indeed of our entire national security posture. Our strategy

is defensive, designed to prevent attack—particularly nuclear attack—against us or our allies. For our part, we are under no illusions about the consequences of a nuclear war: There would be no winners in such an exchange. But this recognition on our part alone is not sufficient to ensure effective deterrence or to prevent the outbreak of war: It is essential that the Soviet leadership understands this as well.

This is more important than it may sound for, unlike the United States, the Soviet leadership has—in its military deployments, exercises, and writings—provided strong evidence of its belief that nuclear war may be fought and won under certain circumstances. It is our task, therefore, to make certain that the Soviet leadership, in calculating the risks of aggression, recognizes that an effective American response is certain and understands that, because of our retaliatory capability, there can be no circumstance where the initiation of war at any level would make sense. The only goal of

our modernization program is to ensure this continues to be true.

MYTH #3: *"The MX is a new step in the arms race."*

Four presidents, six secretaries of defense, and a majority of members in many sessions of Congress have agreed that the capabilities embodied in the MX missile are necessary to continued effective deterrence. More recently, the important role which MX plays in deterrence and arms reduction was confirmed by the Scowcroft Commission and forms the basis of a new bipartisan consensus on this issue. Our program calls for deploying 100 MX missiles. Furthermore, under the build-down part of our Strategic Arms Reduction Talks proposal, we would remove two existing ballistic missile warheads for each new MX warhead which is deployed.

Now, what prompted our need for the MX? In the mid-1970s, the United States made a conscious and public decision not to build forces which threatened the Soviet Union with a first strike. Unfortunately, the Soviets did not follow our lead. Since the late 1970s, they have deployed more than 300 giant SS-18 missiles, each capable of carrying 10 warheads, each twice as large as MX, and 360 SS-19 missiles, each capable of carrying six warheads, and each larger than MX. A fraction of this force of approximately 5,000 highly accurate warheads—which itself represents only a portion of the Soviet intercontinental ballistic missile force—let alone all Soviet nuclear forces—has the capability to destroy most of the land-based missile leg of our deterrent. But the Soviets did not stop at this destabilizing act. They also began a major campaign designed to harden and protect their missile silos, launch facilities, and command centers against United

States retaliation, the net result of which was to provide a "sanctuary" for these facilities since United States forces can no longer retaliate against them effectively.

The 100 MX missiles are a measured response to these Soviet actions and will provide the increased retaliatory potential we need to offset the Soviet hardening efforts. Our 100-missile program is obviously too small to represent a destabilizing first strike force; in fact, given the Soviets' strategic programs, it would be destabilizing if we did not take the steps necessary to maintain deterrence in the face of their efforts to erode it.

As to the Soviet statement that if we deploy MX they will be forced to develop a counter, it should be known that a Soviet MX-like system was being flight tested several months before the MX was first test fired. Propaganda notwithstanding, this means the Soviets have been working on the design of this missile for about a decade.

MYTH #4: *"The United States strategic modernization program is designed to regain nuclear superiority."*

Consider the following facts:

■ The Soviets deploy today about 1,400 intercontinental ballistic missiles, 800 of which—including the SS-18s and SS-19s mentioned earlier—replaced existing missiles beginning in the late 1970s; these missiles and the Soviets' hardening of missile and control centers created the need for MX; but the MX program calls for only 100 missiles—deployment of which will not occur until 1986-1989; the Soviets currently have two new intercontinental ballistic missiles in the flight test stage of development while the United States only has one—the MX—in flight testing.

■ We are currently building one new type of ballistic missile submarine at the rate of one per year. We currently have 34 ballistic missile submarines, 31 of which were built before 1968; in contrast, the Soviets are now building two types of ballistic missile submarines, including the Typhoon, the world's largest. Currently, they have 64 nuclear-powered ballistic missile submarines, all of which were built after 1968.

■ Our bomber modernization program seeks to prolong the life of the B-52 force—the youngest of which was built in 1962—by adding cruise missiles to them. In addition, we plan to deploy 100 B-1B aircraft beginning in 1986. The Soviets, however, are adding Backfire bombers to their force at the rate of 30 per year and have been since the mid-1970s; they have their own air-launched cruise missile in advanced development; and, in 1986, they will probably be ready to begin deploying an aircraft we call "Blackjack," which looks remarkably like the B-1, except that it's bigger. We don't know how many of these they intend to build because, unlike the United States, the Soviets refuse to discuss their programs. What these numbers and comparisons make clear is that by no stretch of imagination can our effort to restore the balance be characterized as an attempt to achieve superiority. By the same token, the massive Soviet buildup can hardly be justified as an attempt to maintain a balance.

MYTH #5: *"The Pershing II, because of its short time of flight, is a particularly destabilizing system."*

First let's look at the background. In 1977, the Soviet Union began deploying a new intermediate-range missile, the SS-20, which posed a

new and dangerous threat to our allies in Europe and Asia. As this wholly unjustified and unilateral buildup continued, NATO—at the request of our European partners—convened a major study to develop a response. After two years of work, the alliance—not the United States acting alone—announced a two-track decision: first, to seek an arms control agreement with the USSR which would address the SS-20s; and, secondly, in the absence of such an agreement, to deploy 464 ground-launched cruise missiles and 108 Pershing II ballistic missiles between late 1983 and 1988.

Now let's look at the systems themselves.

Each SS-20 carries three independently targeted warheads and has a range of 3,000 miles, which means that NATO is threatened not only by those SS-20s stationed in European Russia but by many of those based east of the Urals as well. Today, there are 378 SS-20s—with 1,134 warheads—deployed, and more bases are under construction.

The ground-launched cruise missile is a small subsonic, unmanned airplane which carries a single warhead about 1,500 miles—half the range of the SS-20. The Pershing II is a single-warhead ballistic missile with a range of about 1,000 miles—one-third the range of the SS-20. Sixteen ground-launched cruise missiles and nine Pershing IIs became operational in December 1983.

The Soviets claim the Pershing II is destabilizing because it can reportedly strike key installations in the USSR from its bases in West Germany in a few minutes and because, while Pershing can hit Soviet soil, their SS-20 cannot hit ours.

This claim conveniently overlooks two key facts:

■ First, it would take a Pershing II 11 to 13 minutes to reach the USSR from its bases in West Germany. This equates exactly to the

flight time of an SS-20 over an equivalent distance from western Russia to targets in NATO; moreover, 90 percent of Soviet strategic forces, as well as Moscow itself, are out of range of the Pershing.

■ Secondly, the Soviets would like the United States to state that we do not view their nuclear threat to our allies as seriously as we view the Soviet threat to our homeland, a statement that would undermine and demoralize NATO. And they have been trying to separate the United States from our European partners since we formed our defensive alliance in 1949.

So, I ask you, which is more destabilizing:

■ A single-warhead United States missile with a 1,000-mile range designed to offset an unwarranted and growing Soviet threat, 9 of which are now deployed, only 108 of which will ever be deployed, and whose deployment we are willing to forego under an arms reduction agreement, or

■ A triple-warhead, 3,000-mile missile, 378 of which are already deployed.

MYTH #6: *“United States arms control proposals are unequal and unfair to the Soviet Union.”*

Our two major arms reduction proposals on strategic arms reduction and intermediate-range nuclear forces call for reductions to equal levels. In the Strategic Arms Reduction Talks, we have called for the deepest and most dramatic cuts ever in both sides' nuclear arsenals. Our proposal would reduce each side's land-based and sea-based strategic ballistic missile warheads to 5,000. We've also called for equal numbers of bombers and restrictions on missile throwweight or lifting power. Some critics point out that because

the Soviets have many more intercontinental ballistic missile warheads than we do, mutual reductions to 5,000 causes them to eliminate more of these types than we have to; that's true, but it's also true that because we have many more submarine warheads than they do, we have to eliminate greater numbers of those systems to reach the overall 5,000 warhead level.

In the Intermediate-range Nuclear Forces talks, we first proposed eliminating completely all longer-range intermediate-range nuclear forces missiles—SS-20s, older SS-4s and 5s, Pershing IIs, and ground-launched cruise missiles. Because the Soviets rejected that, we then modified our proposal to allow for deployments of equal levels of forces, but at lower levels than either current Soviet figures or the full NATO program. But the Soviets continue to suggest this is unfair. So we modified our proposal again to address points the Soviet negotiators expressed concern about. The Soviet reaction? “The U.S. proposal remains unequal.” The Soviet proposal? “No new U.S. missiles at all, and the Soviets keep the SS-20s.” And, of course, late last year, the Soviets suspended the negotiations without agreeing on a date for resumption. But we are committed to achieving significant, equitable, and verifiable arms reduction agreements, and we are ready to return to the negotiating table at any time.

MYTH #7: *“The United States should include British and French missiles in the Intermediate-range Nuclear Forces talks.”*

First of all, the United States cannot include the nuclear forces of other countries in the bilateral Geneva talks. We do not speak for either London or Paris, and both of those

sovereign governments have stated their independent strategic deterrents will not be a part of the Intermediate-range Nuclear Forces talks.

Critics say if you can't include them you should permit the Soviets to take them into account. This argument ignores two very important facts. First, the small British and French independent deterrent forces existed in approximately their current form well before 1977 when the Soviets began deploying the SS-20s. It is, therefore, ludicrous to suggest that because the Soviet Union upset the balance by its unwarranted creation and massive expansion of a new nuclear threat to Europe it should be compensated for this at the expense of a British force dating to the fifties and a French force dating to the 1960s.

Secondly, these are small national strategic deterrents. Their major role—and in France's case their only role—is to deter attack. As such, they are utterly inappropriate to—and cannot—offset the threat posed by the SS-20s to the nonnuclear members of NATO. This is something of which only United States forces are capable. And since they do not represent a balancing influence to the SS-20s, the British and French systems do not belong in the talks. Both London and Paris have indicated publicly, however, that if the Strategic Arms Reduction Talks bring about major reductions in United States and Soviet forces, then they will be willing to consider playing some role in future rounds of strategic arms reductions negotiations.

Finally, one needs to look hard at the Soviet demand for their inclusion, which the Soviets say is based on equality. Well, at the beginning of this century, the British Royal Navy was the largest navy in the world. The Royal Navy's standard was maritime superiority, and the Navy's measure for this was a fleet the size of the second and third larg-

est naval fleets in the world combined. Today, the Soviet Union is claiming the right to have nuclear forces as large as those of the United States, Britain, and France combined. The Soviets claim this is simply equality, a claim that has a hollow ring to it.

MYTH #8: "A nuclear freeze is the best and fastest way to stop the arms race and, therefore, preserve the peace."

A nuclear freeze is bad deterrence policy; it is also bad arms control policy.

Seeking to prevent nuclear war is crucial (indeed United States policy since World War II has had this goal as its cornerstone). But seeking to prevent—or reduce the risk of—nuclear war by supporting a nuclear freeze is a dangerous delusion:

- It ignores the reasons why we must have a deterrent.

- It ignores the means by which deterrence is made and kept effective.

- And it ignores the history of United States-Soviet arms control negotiations over the past 17 years.

And that applies whether a freeze is bilateral, as most have advocated, or unilateral, which appears to be a direction in which the freeze movement is turning.

Now, what are the facts?

Until we are able to negotiate real arms reductions, and thereby reduce the threat we face, the United States must continue to deter effectively Soviet aggression.

Effective deterrence thus requires the ability to threaten to retaliate against those assets a potential aggressor values most highly. The Soviet leadership has given us clear indications they place the highest value on preserving their military

forces, their ability to exercise political control, and the ability to sustain war. They have taken steps to protect these assets from United States retaliation—thereby undercutting deterrence.

As a result of more than a decade of relative United States inactivity, coupled with major Soviet strategic force expansion, we are now confronted by significant vulnerabilities in our strategic nuclear capabilities, of which the inability to threaten hardened targets is but one. Our five-point strategic modernization program is designed to redress these deficiencies. If a freeze were imposed now—even a bilateral one—that modernization effort would be halted and the United States would be locked into a position of vulnerability that would undercut both stability and deterrence, and, with it, world peace.

Consider the following: The backbone of our nuclear forces is our strategic Triad, made up of long-range B-52 bombers, land-based Minuteman missiles, and submarine-based Poseidon and Trident missiles. What would happen to this deterrent under a freeze?

- We would not be able to convert B-52s to carry cruise missiles, which we must do because these aircraft are increasingly unable to penetrate the Soviet air defense system, the largest and most sophisticated in the world. Nor would we be able to replace the oldest B-52s with more survivable B-1Bs. At the same time, Soviet air defenses, unchecked by a freeze, would increase, thus ensuring that the air-breathing leg of the Triad is blunted.

- We would not be able to modernize our land-based missile force to provide a capability to retaliate effectively against the large and growing number of missile sites and command and control bunkers which the Soviets have hardened—

and would continue to harden under a freeze—to protect against the effects of a United States retaliation. This would maintain indefinitely the relative invulnerability of these assets the Soviet leaders consider most important; yet the existing ability of the USSR's missiles to hold ours hostage in a crisis would be unchanged.

Thus, we would face a situation in this decade where two of the three Triad legs could be checkmated. We would not be allowed to improve the survivability and effectiveness of our submarine missile force, but the Soviets would be able to concentrate even more effort on antisubmarine warfare to counter the sole remaining leg of our forces.

Furthermore, we would not be able to deploy the ground-launched cruise missiles and Pershing IIs which the NATO Alliance has determined are necessary to offset the unwarranted creation and rapid expansion of the Soviet SS-20 force. But the freeze would do nothing to moderate or remove the threat, military and political, which those SS-20s pose to our allies.

The bottom line is that a nuclear freeze would first codify the current imbalance, and it would then demonstrably codify its further erosion over time.

It is unrealistic to believe the Soviet Union will ever agree to treaties setting equal limits at lower levels of weapons, unless its leaders are first persuaded that the United States is likewise determined to maintain equality at higher levels. Only when they are convinced beyond doubt that we are truly committed to gaining equality in this vital area will they have an incentive to negotiate seriously on nuclear arms reductions. We believe that our strategic and intermediate-range nuclear forces modernization programs provide the Soviets strong incentives for meaningful, balanced, and mutual force reductions. But, if

we terminate our efforts unilaterally, we will never get them to engage in real arms reductions. Thus, our programs—which a freeze would halt—not only bolster our ability to deter war, they also enhance our ability to negotiate agreements that will diminish the threat to peace and our security. And real arms reductions, by actually reducing and eliminating thousands of nuclear warheads and enhancing our security, are vastly preferable to a freeze that would preserve the current situation.

However, if a freeze went into effect now, the advantage the Soviets currently enjoy would be irreversibly sealed and stamped with the official imprimatur of an international agreement. Why, then, would they wish to change—that is—to lower their forces together with us? Granting them but the modicum of realpolitik they have consistently demonstrated, if we froze an imbalance in their favor, the Soviet leadership would not have the slightest incentive to achieve the major and bilateral reductions we must have in order to lessen the danger now existing. More importantly, there is nothing in recent history to provide any suggestion that they would.

The challenge then is to our heads as well as our hearts.

We all want and desire to prevent war, to reduce the risk of its outbreak, to reduce the nuclear arsenals on both sides. And it is right to follow our hearts in seeking these goals.

But our minds must be clear enough to determine which course of action will achieve our goals—and which will not. The intentions of the nuclear freeze are noble—but the results of such a policy would be instability, not stability; imbalance, and not arms reductions.

■ To prevent war successfully, we must maintain an adequate and

If a freeze were imposed now—even a bilateral one—our force modernization effort would be halted and the United States would be locked into a position of vulnerability that would undercut both stability and deterrence and with it, world peace.

Because of a policy of flexible response, Europe has known more peace since 1945 than at any time in the 20th century—indeed it is the longest sustained period of peace in Europe since the time between the Napoleonic and Crimean Wars.

credible deterrent. The modernization program does so. A freeze will not.

■ To achieve deep mutual and stabilizing arms reductions, we must accept the responsibility of realizing that ceding unilateral advantage brings neither matching concessions nor mutual reductions. The modernization program combined with the Strategic Arms Reduction Talks and Intermediate-range Nuclear Forces initiatives, accepts this. A freeze does not.

■ The nuclear freeze, therefore, presents a paradox—if you embrace its philosophical goals, you must reject its approach.

MYTH #9. *“NATO would make the world safer if it renounced ‘first use’ of nuclear weapons.”*

To the contrary, a no first use policy on nuclear weapons would make war more likely and weaken, perhaps fatally, the NATO Alliance.

We cannot prevent war simply by hoping that it will not occur. The Oxford University undergraduates who, appalled by the carnage of World War I, voted in the mid-1930s “. . . never to bear arms for King or country. . .” did not prevent the Second World War.

And NATO, which rose from the ashes of World War II, drew on the lessons of that war to prevent another global conflict from occurring. It does so through a 20-year-old policy of flexible response based on “. . . a whole spectrum of military capabilities which will enable NATO to meet aggression at any level with an appropriate response, while making it impossible for the aggressor to calculate in advance the nature of the response his attack will provoke or how the conflict may develop thereafter.”

By thus raising the spectre of a nuclear response to Soviet invasion should conventional defenses fail, NATO raises incalculably the risks of aggression, both conventional and nuclear. For we seek to prevent not only nuclear war, but conventional war as well. And we must not allow the horrors of nuclear war to blind us to the horrors of conventional war or to regard the latter as acceptable. Over 50 million people died in World War II, and in addition to the names of Hiroshima and Nagasaki, that war scarred us with another series of unacceptable names and memories: Auschwitz, Dachau, Treblinka, and Belsen; London, Shanghai, Dresden, and Tokyo. We do not propose, therefore, to make the world safe for another major conventional war. Since 1945, there have been more than 130 international and civil wars around the globe. But because of a policy of flexible response, Europe has known more peace since 1945 than at any time in the 20th century—indeed it is the longest sustained period of peace in Europe since the time between the Napoleonic and Crimean Wars.

What would be wrong with a no first use policy?

First, if we were to maintain some form of deterrence without some possibility of nuclear sanction, we in the West would have to pay enormous political, economic, and social costs to field a credible conventional force that would match the Warsaw Pact. Even if we were to do so, what would we have achieved?

History is littered with the remnants of failed deterrents from the nonnuclear age: The Maginot Line did not stop Hitler, nor did the fact that England and France had at least as many men and more tanks than the Wehrmacht in 1940. And surely our Pacific Fleet battleships anchored in Pearl Harbor on December 7, 1941, failed as a deterrent because the Japanese had devised a

way to neutralize them. We must not forget that perfect conventional defenses have in the past lasted only as long as an opponent's creative military genius had allowed. Under the best of military circumstances, therefore, a no first nuclear use pledge would set the stage for a possible conventional conflict at least as devastating as the two world wars we have already known—with no guarantee that the USSR would not use nuclear weapons anyway.

MYTH #10. *"The world is closer to nuclear war than ever."*

That is absolutely untrue. It is ahistorical and irresponsible to suggest this. True, United States-Soviet relations have been far better before; but that is no cause to believe we are in imminent peril of going to war. In July 1961, in the midst of the Berlin crisis, President Kennedy somberly discussed the possible prospect of nuclear war with the American people. In October 1962, the world was on the brink of a conflict between the United States and the Soviet Union. But there is nothing remotely resembling those events, or the tensions of those times, today. Therefore, the fact is we are much further away from a nuclear conflict. Newspapers reported recently that the Federation of Atomic Scientists has moved its doomsday clock up to three minutes before midnight. But what most of those newspaper articles failed to report is that the clock was at two minutes to midnight before—in 1953, when the Soviets exploded their first hydrogen bomb. Ten years after that date, in June 1963, President Kennedy addressed the fear that nuclear war was inevitable in the following manner:

"The United States, as the world knows, will never start a war. We do not want a war. We do not

now expect a war. This generation of Americans has already had enough—more than enough—of war and hate and oppression. We shall be prepared if others wish it. We shall be alert to try to stop it. But we shall also do our part to build a world of peace where the weak are safe and the strong are just. We are not helpless before that task or hopeless of its success. Confident and unafraid, we labor on—not toward a strategy of annihilation but toward a strategy of peace."

That was 20 years ago, 20 years which have seen continued successful deterrence. And there is every reason to believe that, if we continue to maintain an effective deterrent, we can keep the peace for subsequent generations as well.

MYTH #11. *"Nuclear deterrence is an immoral policy."*

Our deterrence policy—and our defense establishment—is designed to preserve our freedom and the freedom of our allies from those who would extinguish it.

We must never lose sight of the fact that, in far too many places around the world, the response of governments to even the flicker of the flames of political liberty is the water cannon, the rifle, and the concentration camp.

This fact imposes on us an unpleasant, long-term challenge that we cannot ignore. Those of us who share the tradition of freedom represent a small, but durable, enclave in a world dedicated to an experiment in the potential of mankind. As such, we have more than just an interest in preserving it from those who would destroy it—we have a moral responsibility to do so. As the 1930s demonstrated, we must al-

ways remember that a failure to maintain and demonstrate an adequate capability to defend our democratic way of life places it in great peril.


Thus our policy safeguards our Western political and religious tradition and prevents the outbreak of future wars of aggression against that tradition and its guardians.

One day, perhaps, the right to political liberty and religious toleration will be universal; in our present, imperfect world, however, our ability to enjoy these blessings—and the ability of our children and their children to do so—is inextricably linked to our ability to continue to defend them. Thus our policy of deterrence is not—and cannot be—invoked as an end in itself, but rather is invoked for the purpose of preserving a historical tradition that embraces man's most cherished moral principles. **SM**



Franklin C. Miller

Mr. Miller had been Director of Strategic Forces Policy, Department of Defense, since October 1981. He holds an undergraduate degree from Williams College and a Master of Public Administration degree from the Woodrow Wilson School of Princeton University. His previous government employment includes service as a naval officer aboard destroyers, a tour in the State Department's Politico-Military Bureau, and tenure as an Assistant for Theater Nuclear Policy in the Office of the Assistant Secretary of Defense (International Security Policy). Mr. Miller is a member of the International Institute for Strategic Studies.



The first large, high-explosives test to simulate a nuclear air burst—where detonation actually occurs above the ground—was conducted at White Sands Missile Range, N.M., last October. Some 600 tons of ammonium nitrate/fuel oil were used as the explosive agent for the test, called "Direct Course," which generated the equivalent of a one kiloton nuclear blast. The four plumes of powdered aluminum and liquid oxygen at the right were triggered seconds before the blast, as part of selected experiments in support of Direct Course. The plumes burned at about 4,000 degrees Fahrenheit, or half the temperature on the surface of the sun.

Why
we must
test and
evaluate
nuclear
weapons
systems
and their
effects.

THE TECHNOLOGICAL SPINE OF OUR DETERRENCE POSTURE



The basic purpose of United States nuclear weapons is to provide a deterrent to adversaries who have the capability of initiating a major war—nuclear or otherwise. In support of this purpose, the Defense Nuclear Agency focuses much of its efforts on weapon effects research and testing. The objective is to develop a sound technology base which can be used to assure the effectiveness of United States military forces against an enemy nuclear attack and to enhance the capabilities of our own nuclear weapon systems.

The services draw upon this technology base to improve the design of systems such as strategic missiles; satellites; aircraft; submarines; land combat vehicles; and command, control, and communications systems. In this regard, the Defense Nuclear Agency assists the services in ensuring that both the strategic and theater nuclear forces—this includes their warheads; delivery systems; command, control, and communications systems; and supporting systems—are sufficiently survivable to serve as a credible nuclear deterrent. To do this effectively, the agency maintains a close working relationship with every level of the Army, Navy, and Air Force, the Joint Chiefs of Staff, and other DoD agencies during weapon system development programs, from concept formulation to product delivery.

This broad, balanced research program is aimed at defining the phenomenology and environments associated with nuclear detonations, examining the properties of materials and structures, developing techniques and technology for protecting, or hardening, systems

against nuclear effects, and testing new developments to accurately determine their capabilities. This program is carried out through a series of theoretical analyses, laboratory experiments, large-scale, high-explosive tests, and underground nuclear tests.

Underground Nuclear Testing.

Each year, two to four underground nuclear effects tests are conducted at the Department of Energy's Nevada Test Site to obtain vital information required to develop hardened, less vulnerable weapon systems.

These tests enable us to study nuclear radiation effects on a wide range of military equipment. Testing usually takes place in horizontal tunnels drilled into a mesa in the Nevada desert. This makes it easier to put test instruments and materials in place and recover them afterwards; it also prevents accidental release of radioactive matter into the atmosphere.

Tunnels, which extend deep into the mesa, provide a working area for the installation of the nuclear device, a tapered line-of-sight pipe, electronic gear, the experiment protection system, and the nuclear containment system. A main drift, or tunnel, houses the line-of-sight pipe system; a bypass drift allows access to the key points of the pipe; and alcoves provide working space for experimenters and electronic gear.

The pipe contains several stations, or test chambers, where experiments are exposed to different levels of radiation. High-altitude and outer space environments are simulated by creating a vacuum of less than one micron (one millionth of a meter) of pressure in the entire, sealed

**By Lieutenant General
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line-of-sight system. At the same time, the tunnel and pipe system completely contains the radioactive products of the detonation and protects the experiments from the blast and debris.

Aboveground Testing. Aboveground, non-nuclear testing provides yet another means to obtain nuclear weapons effect data. High explosives and laboratory facilities are used to simulate such nuclear weapons effects as blast and shock, thermal radiation, nuclear radiation, and electromagnetic pulse.

Since the early 1960s, the Defense Nuclear Agency has maintained a large-yield, high-explosive test program using conventional explosives to provide a test capability that can simulate yields of up to one kiloton—the equivalent of 1,000 tons of TNT. In October 1983, the first large, high-explosives test simulating an air burst, rather than a surface burst, occurred at the White Sands Missile Range, just 3.5 miles from where the world's first atomic bomb was exploded in an area now known as the Trinity Site. Called Direct Course, the test included more than 200 experiments on structures, shelters, military systems, antennae, and equipment. More than 20 government agencies and 6 foreign countries participated.

The detonation of 600 tons of ammonium nitrate/fuel oil simulated a blast and shock environment equivalent to that expected from the airblast of a one-kiloton detonation. This test was accomplished by suspending the charge from a 200-foot high tower in a 35-foot diameter fiberglass sphere centered 150 feet above ground. In addition, four arrays of a nozzle-dispensed aluminum powder and liquid oxygen mixture provided a thermal radiation source simulation which generated temperatures as high as 4,580 degrees Fahrenheit.

In the area of nuclear radiation simulation, the Defense Nuclear

Agency operates a variety of laboratory facilities, each of which can simulate certain portions of the nuclear radiation spectrum. High-energy X-ray radiation effects are simulated at our Aurora facility, the largest laboratory X-ray simulator in the Free World. Operational since 1971, it simulates the ionizing effects caused by energetic X-rays. All major military systems have undergone extensive nuclear weapons effects testing at the Aurora facility.

Low-energy X-ray radiation is simulated at a variety of facilities sponsored by the agency, such as Blackjack 5, Python, and Casino. The effects of nuclear weapons X-rays on electronic components are also simulated at these facilities where the internal effects of lower energy X-rays on electronic boxes and cavities are duplicated.

In the very important area of electromagnetic pulse testing, a number of simulation facilities are available to DoD. The Advanced Research Electromagnetic Simulator at Kirtland Air Force Base, New Mexico, provides a realistic electromagnetic pulse environment. It has been used for such major missile systems as the Peacekeeper, Minuteman, Poseidon, and Trident.

Atmospheric Effects. Every nuclear detonation produces an electromagnetic pulse, which is a brief burst of intense electromagnetic energy. When it interacts with electrical or electronic systems, malfunctions can occur. Electromagnetic pulse is not expected to cause catastrophic failure of all, or even a high percentage of, the electronic circuits that could be exposed to it. Rather the upset and/or damage which could occur in a few circuits in modern systems could result in the degradation or loss of critical capabilities in times of crisis.

For example, when nuclear explosions occur at high altitudes, a very broad earth area is illuminated by electromagnetic pulse, which places

vulnerable electronic and electrical systems within this broad area at risk. Because of the large area of coverage of a single detonation, high-altitude electromagnetic pulse poses a unique threat to our command, communications, and control capabilities—and, therefore, to our national security.

To better understand this threat, the Defense Nuclear Agency has funded research to define and calculate it; simulators have been constructed that approximate the electromagnetic pulse threat for entire systems. Consequently, great strides have been made in perfecting assessment technologies. Hardening and test specifications have been developed and published, and major weapons have been hardened to withstand the effects of electromagnetic pulse.

Our atmospheric effects research also extends to infrared sensors, which are the primary eyes for the candidate systems being developed in response to the presidential initiative for space and ballistic missile defense weapons systems. The agency's technology base is insufficient to evaluate the operation of these sensors in a stressing, nuclear-enhanced, infrared environment, so we have developed a program to measure the infrared emissions of excited atmospheric chemistry and weapon debris products. Combined with theoretical predictions of weapon/atmospheric interaction, this program will support predictions of the enhanced backgrounds against which the sensors might fulfill their mission.

Survivability of Command, Control, Communications, and Intelligence. The Department of Defense depends upon its command, control, communications, and intelligence systems to carry out its military missions; to determine the actions and interactions of potential adversaries; and to maintain the chain of command from national command



authorities to our military forces throughout the world. The system consists of ground elements, interconnecting links, and, to an ever-increasing extent, satellites.

The Defense Nuclear Agency examines the effects of nuclear weapons explosions on each element of command, control, communications, and intelligence systems and on the performance of the system as a whole. The objective: to ensure that these systems can survive damage from nearby nuclear explosions, are

not subject to single-point vulnerabilities, and are not degraded as a result of the long-term effects of electromagnetic pulse and radio frequency propagation disturbances.

Satellites, the increasingly critical third part of our national command, control, communications, and intelligence assets, provide early-warning signals of missile attack, and enable quick, effective, secure communication among military forces throughout the world. Without satellites, civilian telecommuni-

Underground tests of nuclear weapons and their effects are carried out in tunnels (inset) at the Nevada Test Site. This is the only location in the United States where such tests are conducted; aboveground nuclear tests, of course, are forbidden by treaty. ABOVE: A tapered line-of-sight pipe, aligned to pinpoint accuracy with a laser, becomes a sealed vacuum during such tests. The accurate alignment is vital since experiments in the pipe's tightly-packed test chambers are exposed to different levels of radiation, and a misalignment would nullify test results. The tunnels are drilled deep into mesas in the desert and house the nuclear device, the pipe, electronic gear, and most of the other test equipment.

cations systems would be severely hampered. The vital importance of satellites to the national command, control, communications, and intelligence system is of special concern due to their susceptibility to the effects of both exoatmospheric (outer space) nuclear weapon detonations and directed energy weapons.

Improving the survivability of the important ground-based facilities is a related concern. In addition to assessing and hardening these ground-based facilities against the effects of electromagnetic pulse, the Defense Nuclear Agency is addressing the problems of hardening these facilities, both fixed and transportable, against airblast and ground shock.

Nuclear detonations can severely disrupt the communications element of our command, control, communications, and intelligence system. Under existing treaties, we cannot conduct atmospheric testing. Therefore, theoretical calculations supported by simulations in the laboratory and naturally occurring or man-made disturbances in the ionosphere are used to gain a deeper understanding of the effects of atmospheric disturbances on radio frequency propagation.

Simulator techniques have been developed for testing satellite response to communication link disturbances that would be caused by high-altitude nuclear weapons bursts. Two years ago, these techniques were used to test the Integrated Operational Nuclear Detection System. Testing is also planned for the Defense Support Program, the Navigation Satellite Timing & Ranging Global Positioning System, and the Defense Satellite Communication System.

In addition, the Defense Nuclear Agency's main experimental tool, a high-altitude ionospheric research satellite, was launched in June 1983. It carried experiments to observe the intense natural particle activity in the ionosphere and the

polar auroral regions and their effect on radio communication and radar propagation through the ionosphere.

Biomedical Effects

Understandably, the majority of our activities are related to military hardware and systems. But a great deal of emphasis is also placed on understanding the biomedical effects of nuclear weapons. More than 80 percent of the DoD research into the effects of ionizing radiation is conducted by the Armed Forces Radiobiology Research Institute. The remainder is performed by government and private agencies, or by the services directly.

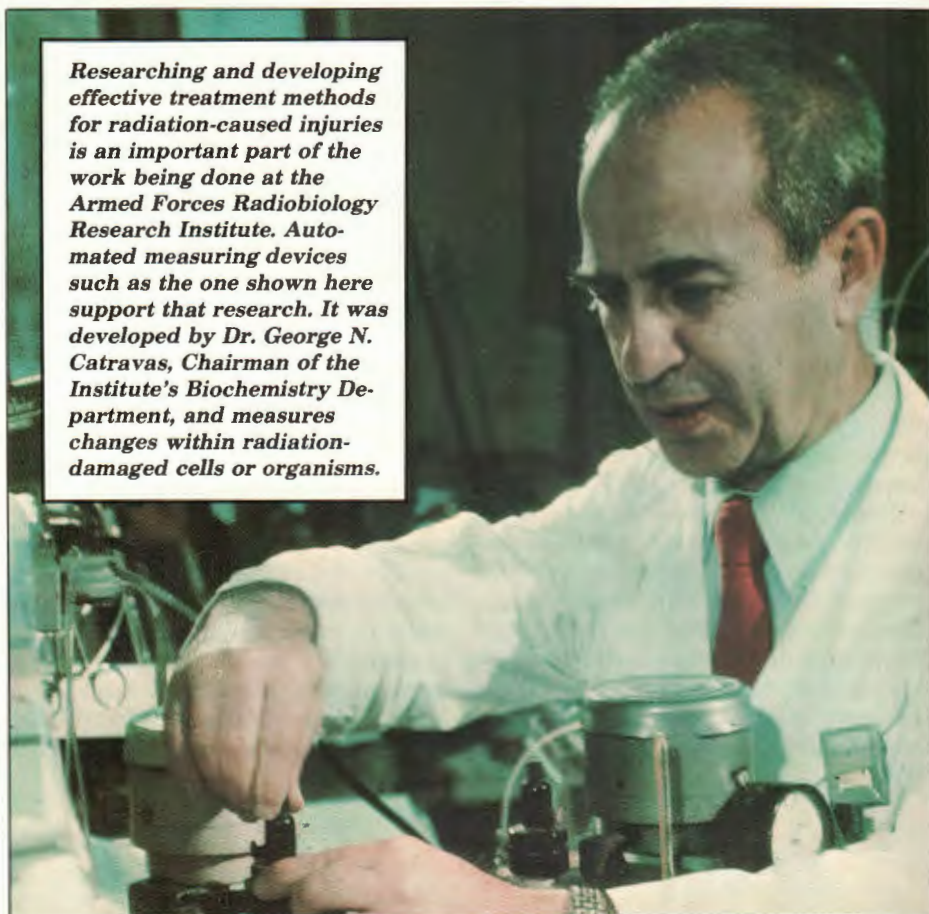
The objective here is threefold: to realistically assess the performance of combat units after exposure to radiation; to discover more effective ways of preventing radiation damage; and to develop better methods of treatment. The Defense Nuclear Agency concentrates on developing and improving methods of estimat-

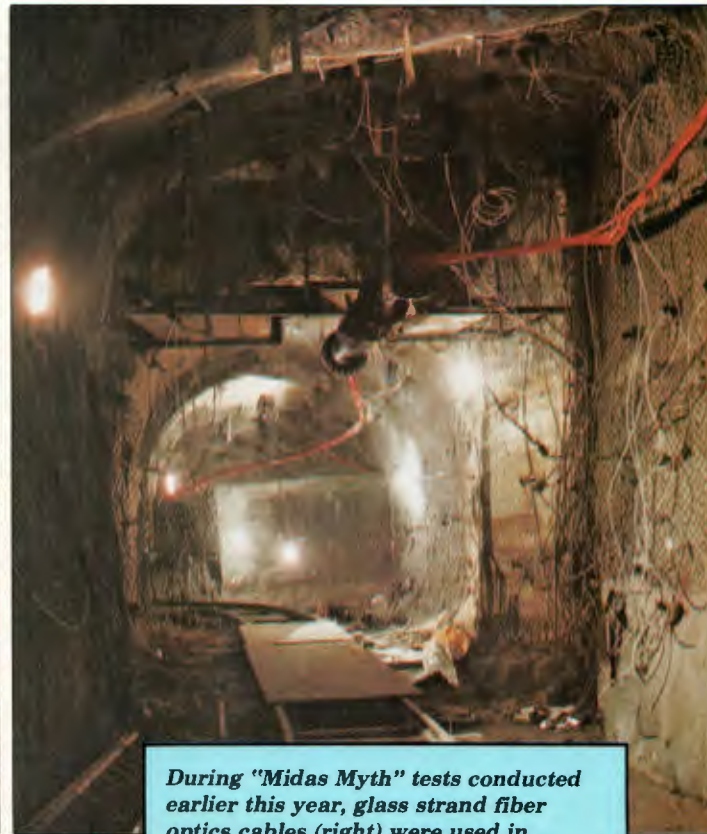
ing human responses to various levels of radiation. For example, the effects of ionizing radiation on individual and crew battlefield performance have been evaluated as a function of dose received and time after exposure. Results will play an important role in troop safety criteria and in better understanding of radiation injury treatment. Research is also under way on the effects ionizing radiation might have when combined with physical and mental stress.

Nuclear Test Readiness

In August 1963, the United States, Great Britain, and the Soviet Union signed the Limited Test Ban Treaty, which barred testing of nuclear weapons under water, in the atmosphere, and in outer space. Underground testing was not barred, although the treaty specified that such tests could not cause radioactive debris to be present outside the territorial limits of the nation conducting the tests.

Researching and developing effective treatment methods for radiation-caused injuries is an important part of the work being done at the Armed Forces Radiobiology Research Institute. Automated measuring devices such as the one shown here support that research. It was developed by Dr. George N. Catravas, Chairman of the Institute's Biochemistry Department, and measures changes within radiation-damaged cells or organisms.





During "Midas Myth" tests conducted earlier this year, glass strand fiber optics cables (right) were used in nuclear weapons testing for the first time. They replaced the bulky copper cable bundles (left) used in previous tests. The new cables provide an immunity to electromagnetic noise—a type of static—generated by the tests, which can interfere with clear reception of research data. They also provide an improved level of security for the data being generated because they are nearly impossible to "tap."

Before consenting to ratification of the Limited Test Ban Treaty, the United States Senate sought assurances that it would not impair national security, assurances that were incorporated into the following safeguards:

A. Continuing underground nuclear test programs would add to our knowledge and improve our weapons.

B. Modern nuclear laboratory facilities and programs would be maintained to ensure continued application of our human scientific resources.

C. Basic facilities and resources would be maintained to resume nuclear testing in the atmosphere should that be deemed essential to our national security.

D. Our capability to monitor the terms of the treaty, detect violations, and increase our knowledge of

foreign nuclear capabilities would be maintained.

The readiness-to-test mission, incorporated in Safeguard C, is the responsibility of the Defense Nuclear Agency and the Department of Energy. If national security should require the resumption of atmospheric nuclear testing, test support facilities to do so are maintained in caretaker status on Johnston Atoll, some 825 miles southwest of Hawaii.

Stockpile Management

Another of our primary responsibilities is the consolidated management of the national nuclear weapons stockpile. Guidance, coordination, advice, and assistance are provided to the Secretary of Defense, the Joint Chiefs of Staff, the services, and other DoD components on all nuclear weapons stockpile matters. These include production, composition, allocation, deployment,

movement, storage, maintenance, quality assurance, reliability assessment, reporting procedures, and retirement. Continuous auditing of the stockpile is provided through the Nuclear Weapons Accounting System. Supported by the Worldwide Military Command and Control System, this continuous audit gives us timely, accurate, and complete stockpile information on every nuclear weapon—including serial number, location, application, configuration, and condition.

THE DEFENSE NUCLEAR AGENCY

The Defense Nuclear Agency, oldest of the defense agencies, traces its history to World War II, when the Manhattan Project was formed to oversee development of the atomic bomb.

After the war, two distinct organizations—one civilian and the other military—emerged to concentrate on nuclear weapons research and development. The civilian organization, or the Atomic Energy Commission, assumed the Manhattan Engineer District's responsibilities for the research, production, and control of atomic bombs.

The second organization, the Armed Forces Special Weapons Project, inherited the basic mission of providing weapon effect research as well as technical, logistical, and training support to the military services on atomic weapons issues.

Over the years, most of the Atomic Energy Commission's functions were transferred to what has since become the Department of Energy. In 1958, the Armed Forces Special Weapons Project was redesignated the Defense Atomic Support Agency, and ultimately became the Defense Nuclear Agency.

The Defense Nuclear Agency functions as the hub for nuclear effects research and development,

and for nuclear weapons security, safety, and stockpile management activities. As the national focal point for such issues, the agency provides assistance and advice to the Secretary of Defense, the Joint Chiefs of Staff, the military departments, other DoD components, and, as appropriate, the Department of Energy.

Specific responsibilities encompass management of DoD nuclear weapons testing and effects research programs, development and maintenance of a national nuclear test readiness program, consolidated management of the DoD nuclear weapons stockpile, nuclear weapons physical security research and development, response to accidents involving nuclear weapons, and the evaluation of nuclear readiness and safety via technical inspections of all DoD nuclear-capable organizations.

The agency reports directly to the Under Secretary of Defense for Research and Engineering, who exercises staff supervision over activities related to research and development. The Joint Chiefs of Staff exercise primary staff supervision over operational functions involving such areas as the management of the nuclear weapons stockpile, allocation and deployment of nuclear weapons,

military participation in and support of nuclear testing, frequency of technical inspections, and requirements for technical documents.

Most of the Defense Nuclear Agency's research, development, test, and evaluation activities are directed from its headquarters in northern Virginia. A field command at Kirtland Air Force Base, New Mexico, constructs tunnels for and conducts underground nuclear weapons effects tests at the Department of Energy's Nevada Test Site in addition to constructing test beds for and conducting high explosives tests at the White Sands Missile Range. Its mission also encompasses nuclear weapons responsibilities in areas of nuclear stockpile management, safety, inspection, emergency actions, and research and development.

The Defense Nuclear Agency's in-house research agency—the Armed Forces Radiobiology Research Institute, Bethesda, Maryland—conducts virtually all of DoD's radiobiology research. Its mission is to examine the effects of ionizing radiation on personnel in an effort to prevent or mitigate radiation effects during operation under a variety of combat situations.

Nuclear Response

Both DoD and the Department of Energy support the Joint Nuclear Accident Coordinating Center. The DoD portion is operated by the Defense Nuclear Agency Field Command, which maintains an up-to-date listing of all units with the capability of responding to an accident involving a nuclear weapon. In the unlikely event of a nuclear weapons accident, this field command would function as a coordinating unit, offering information as well as transportation assistance to the response forces involved.

The agency sponsors nuclear weapon accident exercises for the Assistant to the Secretary of Defense for Atomic Energy; they are designed to evaluate the national capability to respond to an accident with a nuclear weapon and to minimize the impact of such an accident.

The exercises are conducted in a no-fault atmosphere in order to evaluate interagency relationships and assess the federal government's procedures for dealing with peacetime nuclear accidents. This provides the opportunity to examine the effectiveness of nuclear accident response equipment and procedures, to evaluate the coordination and communications of multi-service and Department of Energy accident response forces, and to examine the civil and federal coordination which would be required.

Physical Security Research and Development

Under the direction of the Under Secretary of Defense for Research and Engineering, we manage the DoD exploratory development program for physical security, which is coordinated closely with the theater nuclear force safety, security, and survivability program. Emphasizing the systems aspect of security, we provide the services with resources for enhancing the performance of their security forces as well as hardware, facilities, and doctrine.

The agency is currently pursuing a project that develops objective measures for security guard performance, measures the effectiveness of the security guard-electronic security system interface, establishes a basis to provide performance feedback, and identifies weaknesses in system design and operation. Through the newly constructed DoD security operational test site at Fort McClellan, Alabama, the agency supports test and evaluation and doctrinal development of security systems that are designed to protect nuclear weapons.

Our advanced storage technology effort is an example of a physical security/theater nuclear force safety, security, and survivability program that directly supports all three military departments. Under this program, new concepts and advanced design of facilities for the storage of nuclear weapons are being developed which use current and future construction technology. They optimize explosives safety, nuclear safety, security, survivability, and operational considerations. Each military service has designed at least one facility under this program. The resulting products offer significant life-cycle cost savings. For example, the number of security personnel required to secure an Air Force continental United States depot will be reduced from the present 480 to 160 in the advanced design underground facility.

Other prototype systems developed by the agency include an advanced design electronic security system prototype that uses emerging technologies such as distributed microprocessing, artificial intelligence, fiber optics, and an ultra-survivable communication net for security systems. Additionally, through its physical security program, the Defense Nuclear Agency supports those organizations with the roles of countering nuclear terrorism and recovering nuclear weapons.

Undoubtedly, the demand for higher technology related to nuclear and directed energy weapons effects will increase in the future. Advances in this technology will continue to introduce new threats as well as opportunities to improve the deterrent value, safety, and security of our own retaliatory forces. With added emphasis on strategic defense initiatives, the Defense Nuclear Agency will continue its work with the services in the effects area to ensure acquisition of nuclear survivable systems.

A decision not to develop survivable nuclear capabilities would reduce our ability to support our foreign policy interests and commitments, and seriously weaken our ability to deter aggression. ☒



Lieutenant General Richard K. Saxer, USAF

General Saxer was assigned to the Defense Nuclear Agency in February 1983 as deputy director (operations and administration) and became director of the agency in August. From April 1977 until joining the Defense Nuclear Agency, he was assigned to the Air Force's Aeronautical Systems Division, Wright-Patterson AFB, Ohio, where he served successively as deputy for aeronautical equipment, deputy for tactical systems, and vice commander. General Saxer is a graduate of the U.S. Naval Academy. He has been awarded a master's degree in aeromechanics by the Air Force Institute of Technology and a doctor of philosophy degree in metallurgical engineering by Ohio State University.

On March 23, 1983, President Reagan set as a long-term goal putting an end to the threat of nuclear ballistic missiles. The president recognized that this would not be an easy task, that there are many risks and uncertainties associated with achieving this goal. But he was also aware of our nation's finest resource, our creative and dedicated technical community.

The challenge which faces us encompasses many technologies, including space projects. As we proceed on this research and technology program, there are many areas where large scale venturing by the private sector is a vital ingredient to our success.

Much has changed in the past two-and-a-half decades since the possibilities for ballistic missile defense were first considered. The threat has grown from a few hundred single-warhead ballistic missiles to thousands of warheads on more than 2,000 missiles. The situation is even more complicated by the proliferation of tactical and intermediate-range missiles. Against this threat, however, an impressive array of new technologies is emerging.

To place our problem in context, the flight of a ballistic missile is broken into four phases. In the boost phase, the first and second stage engines of the missile are burning, producing an intense, and unique, infrared signature. A post-boost, or bus deployment phase, occurs next, during which the multiple warheads are deployed, along with possible penetration aids such as decoys. In the subsequent mid-course phase, warheads and penetration aids travel on ballistic trajectories above the earth's atmosphere. In the final, terminal phase, the warheads and penetration aids reenter the atmosphere and are affected by drag.

Our approach at this time is to engage the attacking missiles in each phase of flight. To accomplish this, we must have certain capabilities.

DEFENSE AGAINST BALLISTIC MISSILES

By James P. Wade, Jr.

*Principal Deputy
Under Secretary of Defense
for Research and Engineering*

We must have global, full-time surveillance to warn of an attack. We then hope to engage the missiles early in boost phase and destroy as many as possible to reduce pressures on later phases.

As the warheads are deployed and speed toward their targets, we must be able to discriminate warheads from decoys, lest our opponents simply overwhelm our defenses with low-cost decoys.

In order to eliminate the threat from incoming warheads which are salvage-fused to detonate when intercepted, we must engage them high enough in their terminal phase so that collateral damage to intended ground targets is minimal.

Finally, and most importantly, we must have an interconnected and survivable battle management and data processing system.

We have planned an intensive research and technology program for the remainder of this decade. Based on the success of this effort, we may proceed to full-scale development in the next decade. I want to emphasize that the Strategic Defense Initiative is not a weapons systems development and deployment program, but rather a broad-based, centrally-managed research effort to identify and develop the key technologies necessary for an effective strategic

defense. The research will be initially focused on technologies for sensing and tracking missiles; technologies for weapons to be used against missiles and warheads; technological support for control of such a system; and on technologies to ensure the survivability and sustainability of the system.

We have structured our efforts into five broad technology areas; each consists of technological development and a set of demonstrations and experiments.

1. The first area, and the one for which we plan the largest investments during the next five years, is designed to develop technologies for surveillance, acquisition, tracking, and damage assessment. We are particularly eager to develop means for imaging objects in space. This ability is vital if we are to discriminate warheads from decoys and debris.

We believe newly developed techniques of synthetic aperture radar imaging provide one option. Another includes optical synthetic aperture imaging. These technologies are in their infancy, and we are counting on industry to develop them and to propose new ones for performing this critical function. Infrared sensors offer us a new dimension for acquisition and tracking. However, we must have reliable, radiation-hardened, large-format-array infrared sensors if we are to utilize this capability.

Although we are counting on new optical capabilities for detection, tracking, and discrimination, we will continue to pursue radar technologies as an alternative approach to these problems.

2. Directed energy weapons—because they move at the speed of light—offer a capability to act nearly instantaneously over large distances. For this reason, they are extremely appealing for boost-phase intercepts. Although we have come far since lasers were invented two decades ago, we have far to go before

we achieve the power levels and capabilities needed for ballistic missile defense. It is in the directed energy area that I most anticipate breakthroughs. We will be pursuing several options for laser technology with the primary goal of achieving high power levels at shorter wavelengths.

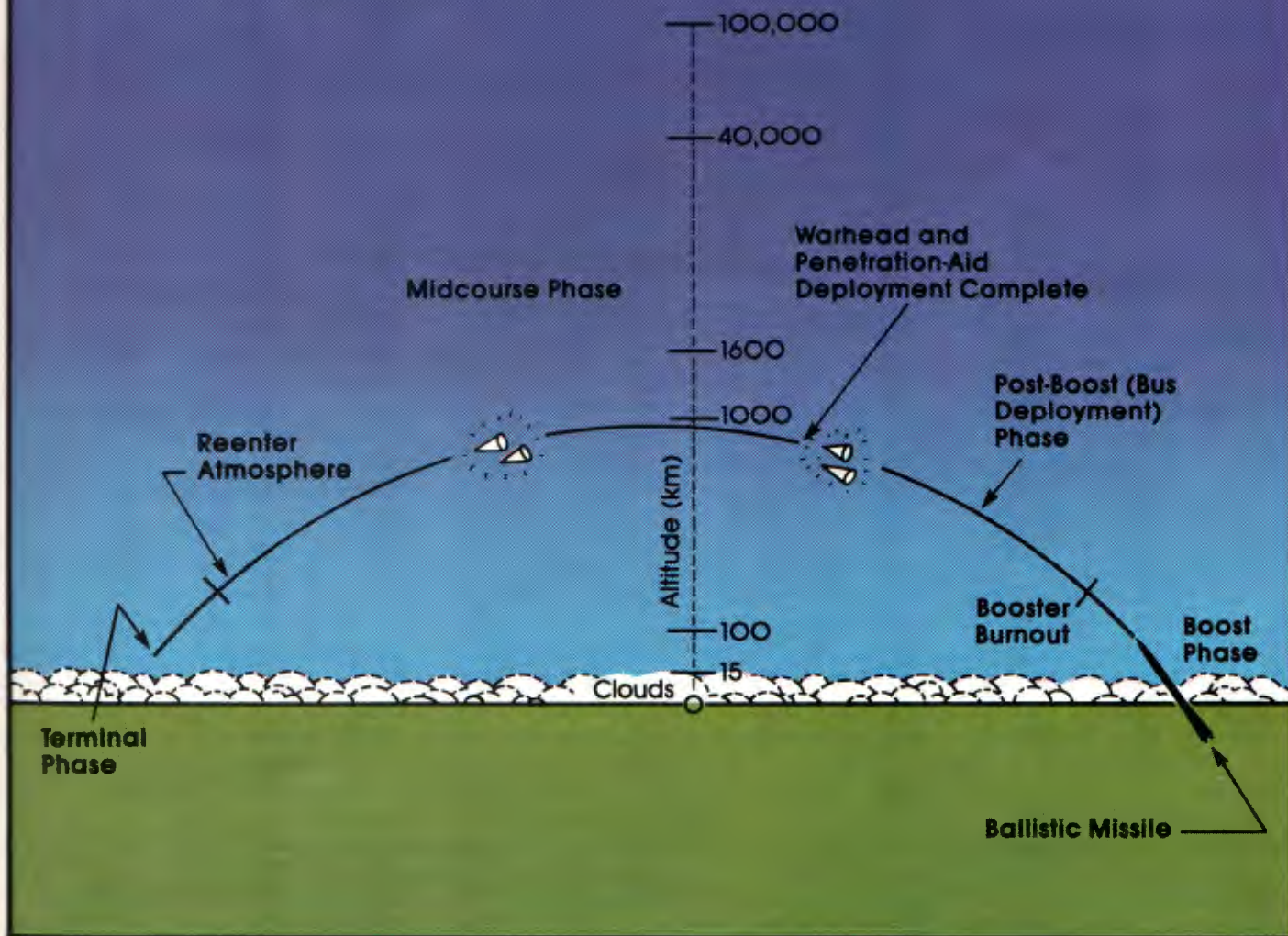
We believe both chemical lasers, such as oxygen/iodine, and electri-

cally powered lasers, such as free electron and excimer, are worthy of support. Neutral particle beams for space applications offer an appealing option, as they deposit their lethal energy at depth in their targets, thereby making it very difficult to shield against.

As important as the directed energy weapons themselves is our ability to manufacture lightweight space

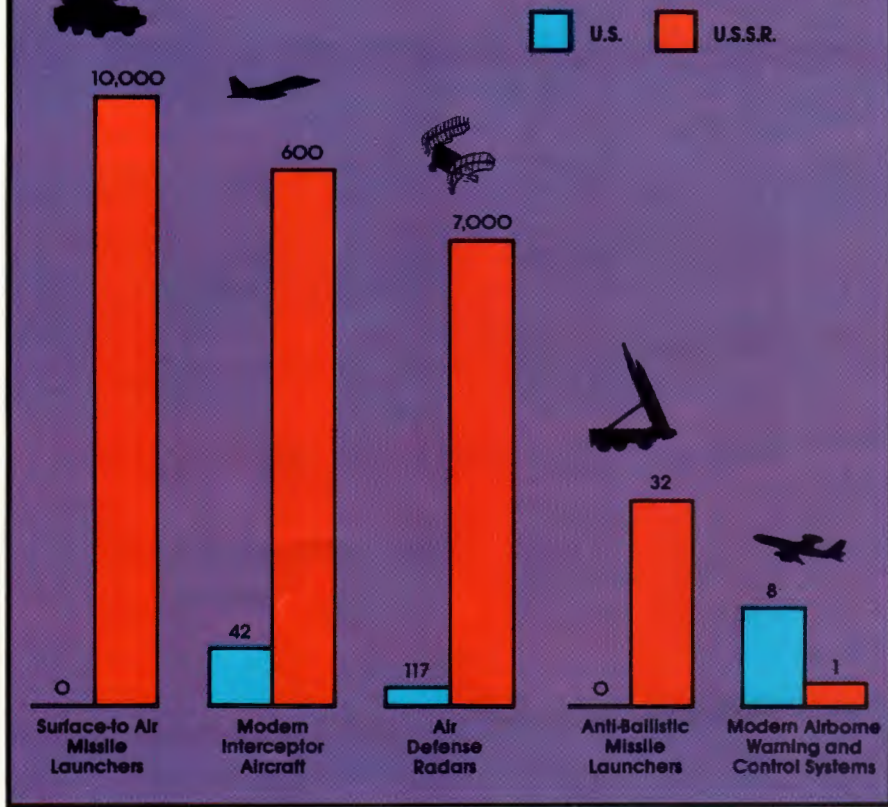
optics in sufficient quantities. I see a real opportunity here to develop new industries. I am told that the United States currently has but a limited production capability for space-qualified mirrors. We are also concerned with our ability to accurately point directed energy weapons over the distances they must operate. New approaches to this problem will be strongly supported.

Phases of a Typical Ballistic Missile Trajectory



Forces Dedicated to Strategic Defense

As of November 1983



OSD (ISP)

3. For later phases of the ballistic missile trajectory, we believe kinetic energy weapons—that is, weapons which destroy their targets by physically hitting them—are most appropriate. The key here is to develop small infrared homing hit-to-kill warheads. We will need to be able to produce these cheaply enough, along with the propelling rocket, so that an opponent will not attempt to defeat our defenses by building more offensive missiles, since we could proliferate interceptors more cheaply than he can proliferate offensive warheads.

We are very interested in the new technology known as hypervelocity guns; for example, the so-called electric rail gun. If the velocities are of sufficient speed, say in excess of ten

kilometers per second (21,000 miles per hour), these devices could accelerate homing warheads to intercept a missile, thus providing an alternative to directed energy weapons for boost-phase intercept. The challenge here is to develop the small homing projectiles which can withstand 100,000 gravities acceleration during launching.

4. The crucial technology needed for a successful ballistic missile defense program is survivable interconnected battle management and command, control, and communications capabilities. Although the hardware requirements for a fault-tolerant, radiation-hard processor are stressing, our greatest need is for automated tools for battle management software development.

I look forward to having those who've been successful developing video games working on our software problem. This is an area where the United States has a decisive advantage. I believe the creativity and foresight of our software development people will provide important keys for achieving the president's goal.

5. Our fifth major area is formulated to provide the supporting systems and technologies needed for strategic defense. Before we proceed on any weapon system, we must fully understand the vulnerability of an opponent's systems and the lethality of our own. We must develop the means to make our own defensive systems capable of surviving against an enemy surprise attack. Finally, we must carefully consider our space logistics requirements. We must have the ability to place up to 100 metric tons (220,000 pounds) in a variety of orbits and to move such payloads from orbit to orbit. Furthermore, we must seek novel ways to make available additional material for shielding and construction in space.

We recognize the critical need for innovation within the Strategic Defense Initiative, and we will reserve up to five percent of our budget for entirely new concepts. It is in this area where we most seek industry's abilities and investments. To provide just one example in the space area where very-large-scale venturing might pay off in the long run, we are looking at the possibilities of using "near earth" resources in lieu of launching massive amounts of material from the ground. By this I mean that consideration will be given, for example, to using lunar material for our satellite shielding and construction requirements.

To develop this capability will require substantial investments from the private sector. However, the potential payoff, both to our strategic defense objectives and to the ultimate industrialization of space, are

BALLISTIC MISSILE DEFENSE

- Dismantled
- 23 Mar 83 Defense Initiative

- Deployed Around Moscow—within Treaty
- Systems Available for Potential Breakout

AIR DEFENSE

- Surface-to-Air Missiles Phased Out in 1975
- 300 Interceptors
- 100 Radars

- 9,600 Surface-to-Air Missiles
- 1,200 Interceptors
- 6,300 Radars

SPACE DEFENSE

- Early Interceptor Dismantled
- F-15 Launched Anti-Satellite in Development

- Orbital Anti-Satellite System Operational
- Potential Use of Anti-Ballistic Missiles as Anti-Satellite

CIVIL DEFENSE

- Limited Program

- Strong Program

RELIANCE ON RETALIATORY CAPABILITY

- Effective Tactical Warning and Attack Assessment
- Survivable Triad

RELIANCE ON DAMAGE LIMITATION & OFFENSIVE CAPABILITY

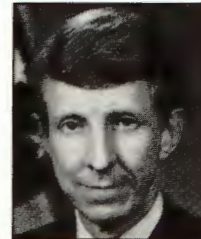
- Effective Tactical Warning and Attack Assessment
- Active Defenses
- Passive Defenses
- Survivable Superior Offensive Capability

United States Military Posture for FY 1985, OJCS

very high indeed. As concepts such as this one come to the fore, I hope and believe that the private sector will provide the innovation and impetus to make them a reality.

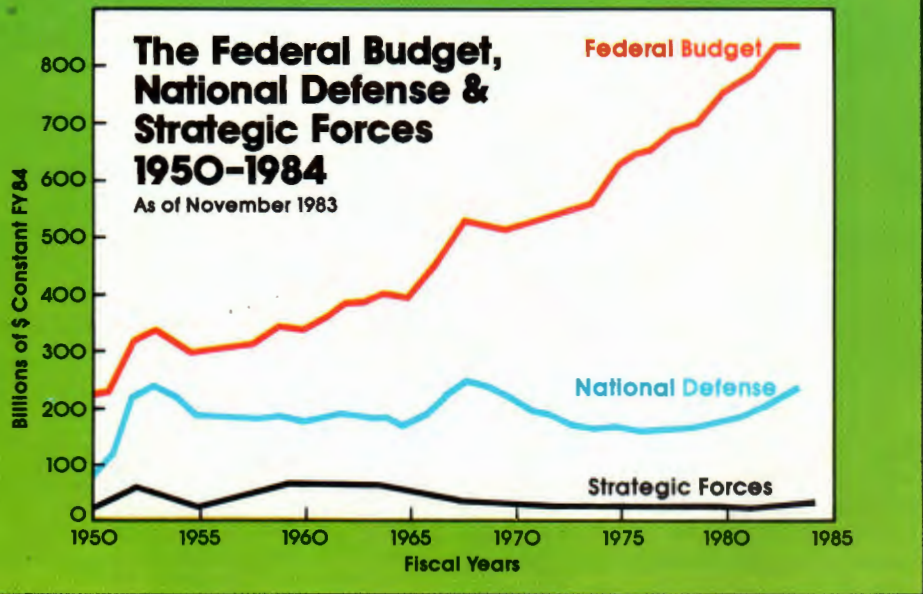
To make the Strategic Defense Initiative and its objectives accessible and understandable, we plan strong central management. We will appoint a single Strategic Defense Initiative Program Manager reporting directly to the Secretary of Defense. This manager will have central control of budget planning and execution, including the ability to reprogram resources from less promising to more promising technologies. This centralized control, with decentralized execution through government research organizations, will provide a visible and accessible focal point for this initiative.

To summarize, I would like to place the president's Strategic Defense Initiative in its proper perspective as one of the most important technological programs the nation has ever embarked on. It is a great hope for the future, but it does not represent a deployment decision, nor is it a substitute for current strategic and conventional force modernization or for arms control. Rather, it will provide, through its technological demonstrations, the knowledge upon which sound deployment decisions can be based in the future. The Strategic Defense Initiative needs industry, its creativity, and its ingenuity to lessen the awesome threat of nuclear weapons. I have every confidence that we can persevere together to make the president's goal a reality and give our children a safer world. ☐



James P. Wade, Jr.

Prior to assuming his present position, Dr. Wade served as the Assistant to the Secretary of Defense (Atomic Energy) and Chairman of the Military Liaison Committee to the Department of Energy. He is a former Director of DoD's SALT Task Force and Deputy Assistant Secretary of Defense, International Security Affairs (Policy Plans and National Security Council Affairs). Dr. Wade is a graduate of the US Military Academy and has received both MS and PhD degrees in Physics from the University of Virginia.



gross national product. For 1983, it was about 6.5 percent, and 6.8 percent for 1984. Compare that to 8-9 percent in the 1950s and 1960s. The Soviets, by contrast, have steadily increased their defense spending since the early 1960s and presently spend about 15 percent of their gross national product for defense.

The impact of the discrepancy in spending is particularly notable in strategic nuclear hardware. For example:

- In intercontinental ballistic missiles. We deployed our last Minuteman III—our newest intercontinental ballistic missile—in 1975. Since about that same time—1974—the Soviets have added over 4,500

warheads to their intercontinental ballistic missile force—highly accurate warheads on the SS-17, SS-18, and SS-19 housed in super-hardened silos. They are currently flight testing two new solid propellant intercontinental ballistic missiles, and preparations to test two additional intercontinental ballistic missiles, probably based on the SS-18 and SS-19, may be under way.

- In submarine-launched ballistic missiles. When we launched our first Trident submarine in 1982, it was our first new ballistic missile firing submarine in 15 years. In those same 15 years, the Soviets have deployed about 60 ballistic missile firing submarines—more than are in our entire fleet. They are still producing the two newest types of nuclear-powered ballistic missile submarines—the Typhoon and Delta III classes—and several types of submarine-launched ballistic missiles.

- In bombers. We produced our last heavy bomber—the B-52—more than 20 years ago. The Soviets began building the modern Backfire bomber in the early 1970s. They have now deployed more than 230 of them and are building more. The Backfire can be equipped with in-flight refueling probes, which would give it an intercontinental capability. The Soviets are also flight testing the new Blackjack bomber, which is similar to, but larger than, our B-1B

and will be ready for deployment at about the same time.

As you would guess from all those statistics, the Soviets not only have more of just about everything—what they have is newer as well. That is why we have to preserve the right to modernize; and why the nuclear freeze is such a bad idea. The Soviets have modernized virtually their entire strategic arsenal. Most of our modern systems won't begin deployment until the second half of this decade. Is it any surprise that the Soviets support a freeze? It would be 10 years before they faced the aging problems we have right now. Does anyone believe they would argue for a freeze if the situation were reversed?

Another problem with the system age discrepancy is that it undercuts our bargaining leverage at the Strategic Arms Reduction Talks. The Soviets are well aware of the advantages that discrepancy gives them, and they will not give them up easily. Until they see a firm commitment to strategic modernization that will challenge their advantages—aircraft on the ramps and missiles in the silos—their best strategy is one of delay. They did the same thing in the Antiballistic Missile Treaty negotiations—not getting serious until Congress approved deployment of a United States system. In intermediate nuclear forces in Europe, no real negotiations got under way until the NATO Allies began preparations for the deployment of ground-launched cruise missiles and Pershing IIs. I believe the same thing will happen in strategic negotiations as the B-1B and Peacekeeper receive clear congressional approval and preparations for deployment begin.

When that happens, we will be able to negotiate a truly stabilizing arms reduction agreement, one that reduces substantially the total number of nuclear weapons, but allows each side a credible, modern deterrent force. One that I can support, one that you can support, one that every American can support. ☐

Defense

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The President Is Right to Prefer Real Arms Control

By Kenneth L. Adelman

The writer is director of the U.S. Arms Control and Disarmament Agency.

WASHINGTON — The Armed Services Committee of the U.S. Senate agreed unanimously in 1979 that SALT-2 was not in America's "national security interest." The treaty was never ratified. It never had the force of the law. It never subsequently gained the support needed for ratification. The chief prediction of its critics — that it would permit a vast modernization and expansion of Soviet strategic forces — has come true, in spades. On top of all this, the Soviet Union is violating the central provisions of the agreement.

What could be more clear-cut? Why do the critics of the Reagan administration say that the United States should continue to abide unilaterally by SALT-2?

First, Soviet violations are alleged to be "peripheral."

Mr. Reagan's critics would like to have it both ways. When SALT-2 was up for ratification in 1979, supporters commonly cited three provisions as its main advantages: numerical limits (on warheads-per-launcher and overall launchers); the prohibition on a second new type of land-based intercontinental missile; restraints on encoding test data. The Soviets are completely contravening the provisions on new missiles and encoding and have exceeded the limit on missile launchers. Provisions hailed as central when SALT-2 was being sold cannot be called "peripheral" now that the Soviets are violating them.

Second, Soviet violations are said to be "ambiguous" or unimportant.

The new, SALT-violating SS-25 missile is in no sense marginal. It is one of two powerful new land-based strategic missiles that the Soviets are adding to their arsenal. In short, a major portion of the current Soviet buildup of land-based missiles is occurring in contravention of SALT-2.

The violation is clear since the throw-weight, or payload, of the SS-25 missile is not, as some critics continue to claim, "slightly" greater than its alleged predecessor, the SS-13, but roughly twice that — clearly beyond the 5-percent increase permitted by the treaty. In addition, the Soviets' scrambling of their test signals is seriously impeding verification.

Third, it is sometimes claimed that the Soviets have dismantled 1,000 or more systems to comply with SALT.

This is contradicted by the Soviet claim to have dismantled only 540 weapons under SALT.

More important, what the critics' figures really demonstrate are not the quantitative limits on the Soviet arsenal but the vast qualitative growth of the Soviet arsenal under the treaty.

Fourth, critics claim that without SALT-2 the Soviets will vastly increase the number of their warheads and accelerate their arms buildup.

The basic notion that SALT is significantly constraining the Soviet buildup now, or would do so in the future, is an illusion. It presumes fu-

ture compliance with critical provisions, when we already have seen clear and major violations of key parts of the treaty.

Even while adhering to terms of SALT-2, the Soviets have nearly doubled their strategic warheads, from 5,000 to 9,200. Under SALT-2 the number could rise further to 12,000 by 1990. With or without SALT-2, we envision a 5- to 7-percent growth in Soviet strategic investment every year as far ahead as we can see. With or without SALT, we envision an all-new Soviet land-based missile force in the next decade. If this is constraint, it is hard to envision a lack of constraint. With their defense spending running at 15 to 17 percent of GNP, the Soviets already have their accelerator near or on the floor.

Fifth, it is argued that Mr. Reagan's decision is bad for America's alliances.

Despite extensive consultations with the allies, there have been some allied disagreement and some adverse effects on allied public opinion. We naturally regret this. As the reasoning for the president's decision and the facts become better known, we hope this will change. We hope our allies' concern will be alleviated.

But short-term popularity cannot be the criterion by which we judge the wisdom of policy. The overriding concern must remain long-term strategic safety and genuine arms con-

trol. Continued adherence to an ineffective and unratified treaty that our adversary is seriously violating is not cost- or risk-free. As Mr. Reagan has said, what is needed are real reductions. Only this will ultimately provide a solid basis for mutual restraint.

Sixth, it is alleged that the administration wants an "all-out arms race."

This is simply false. Anyone who reads Mr. Reagan's decision against SALT-2 and listens to what he is saying will see that he has provided a clear new formula for restraint that will be more effective than SALT.

He pledged, for example, that the United States will not increase launchers of ballistic missile warheads above Soviet levels. This is a serious pledge, one that creates real costs for a Soviet buildup and provides real rewards for Soviet reductions and restraint — just as genuine arms control should do. It is verifiable and do-able. In contrast, continued unilateral observance of SALT-2 in the absence of Soviet compliance would merely reinforce the dangerous idea that Soviet violations can easily be tolerated. It would also likely encourage further violations and convince the Soviets to continue their drive for military superiority.

As Mr. Reagan has repeatedly made clear, what we want above all are serious negotiations in Geneva leading to agreements with which the Soviets will comply — to equitable and verifiable reductions in American and Soviet nuclear arsenals.

The New York Times.



Soviet Noncompliance



UNITED STATES ARMS CONTROL AND DISARMAMENT AGENCY

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Soviet Noncompliance



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Foreword

Today, many people harbor a deep concern over the Soviet Union's cheating on the arms control commitments it has willfully undertaken. Soviet violations and probable violations — as elaborated in this report — endanger the future viability of the arms control process, since compliance cannot be unilateral. For one side (the United States) to adhere and for the other side (the Soviet Union) not to adhere does not constitute real arms control at all. Rather it constitutes a dangerous form of unilateral disarmament in the guise of bilateral arms control.

This state of affairs is not long sustainable. If arms control is to have meaning — if it is truly to contribute to national security and to global and regional stability — all parties must fully comply with the agreements they make. While we are scrupulously complying with all our obligations, we must also be forthright where the Soviets do not comply. To be serious about arms control is to be serious about compliance.

The United States Government has concluded¹ that the USSR has violated its legal obligation under or political commitment to:

- the SALT I ABM Treaty and Interim Agreement;
- the SALT II Treaty;
- the Geneva Protocol on Chemical Weapons as it reflects the rules of customary international law;
- the Biological and Toxin Weapons Convention;
- the Limited Test Ban Treaty; and
- the Helsinki Final Act.

In addition, the United States Government has concluded that it is likely that the USSR has violated the Threshold Test Ban Treaty. Furthermore, the United States Government is concerned about the Soviet Union's ABM and ABM-related actions which suggest that the USSR may be preparing an ABM defense of its national territory.

While we remain concerned about Soviet violations of Basket I of the Helsinki Final Act and the Limited Test Ban Treaty, there is no unambiguous evidence of new 1985 Soviet violations of these two

treaties. With regard to the Biological and Toxin Weapons Convention, or the Geneva Protocol on Chemical Weapons, there also is no clear evidence of new 1985 Soviet lethal attacks that meets our strict standards of evidence. However, the Soviets clearly remain in violation of the Biological and Toxin Weapons Convention.

The apparent removal of SS-16 equipment from Plesetsk during 1985 changes the status of the SS-16 which had previously been judged to have been probably deployed at Plesetsk in probable violation of the Soviet Union's legal obligation and political commitment.

Nevertheless, the President's Report to the Congress on Soviet Noncompliance With Arms Control Agreements, December 23, 1985, states:

The Soviet Union has thus far not provided explanations sufficient to alleviate our concerns on these issues, nor has the Soviet Union taken actions needed to correct existing violations. Instead, they have continued to assert that they are in complete compliance with their arms control obligations and commitments.

The U.S. Government has determined that the Soviets have violated their commitments in nine cases and probably violated them in others. The following is an abbreviated summary of the findings. Specific and precise findings on each issue, with explanations, are contained in the report text.

Issue	Finding
ABM Treaty	
1. Krasnoyarsk Radar	Violation
2. Mobility of ABM System Components	Potential violation
3. Concurrent Testing of ABM and Air Defense Components	Probable violation
4. ABM Capabilities of Modern SAM Systems	Evidence insufficient to assess/ambiguous
5. Rapid Reload of ABM Launchers	Ambiguous/serious concern

¹The President's Report to the Congress on Soviet Non-compliance with Arms Control Agreements, January 23, 1984, The President's Unclassified Report to the Congress on Soviet Noncompliance with Arms Control Agreements, February 1, 1985, and The President's Unclassified Report to the Congress on Soviet Noncompliance with Arms Control Agreements, December 23, 1985.

Issue	Finding
6. ABM Territorial Defense	May be preparing prohibited defense
SALT II Treaty	
1. SS-25 ICBM	Violation
2. Strategic Nuclear Delivery Vehicle Limits	Violation
3. SS-16 ICBM Deployment	Probable violation/indications of removal
4. BACKFIRE Bomber Intercontinental Operating Capability	Inconsistent with political commitment
5. BACKFIRE Bomber Production Rate	Ambiguous/Slightly above 30 until 1984/decreased to slightly below 30 since then
6. Encryption of Ballistic Missile Telemetry	Violation
7. Concealment of the Association Between an ICBM and Its Launcher	Violation
SALT I Interim Agreement: Use of "Remaining Facilities" at Former SS-7 Sites	Violation
Biological and Toxin Weapons Convention and 1925 Geneva Protocol: Chemical, Biological and Toxin Weapons	Violation
Limited Test Ban Treaty: Underground Nuclear Test Venting	Violation
Threshold Test Ban Treaty: Nuclear Testing and the 150 Kiloton Limit	Likely violation
Helsinki Final Act: Notification of Military Exercises	Violation

While these violations constitute a most disturbing pattern of Soviet behavior;² the Soviets have adhered to many if not most provisions of the treaties to which they are a Party. However, selective compliance is not enough. Parties to agreements are required to honor all obligations and commitments.

Many Soviet violations can still be remedied. We hope they are. Over the past several years, however, the Soviet Union has neither provided satisfactory explanations nor undertaken corrective actions which would bring them into full compliance with their solemn arms control obligations.

The United States will continue diplomatic efforts to have the Soviet Union correct these problems. We have vigorously pressed, and will continue to press, compliance issues with the Soviets. This is done in the Standing Consultative Commission, the Nuclear and Space Talks, and through other diplomatic channels.

We will continue to try to negotiate new agreements with the Soviet Union, even if they are violating existing ones, for several reasons:

First, we are continuing to press the Soviet Union for clarifications, explanations and corrective action, and have made clear that we will consider proportionate and appropriate action in response to Soviet noncompliance.

Second, the U.S. believes that equitable arms reduction agreements with provisions that are effectively verifiable will, if complied with, enhance stability and security. New arms control agreements, if soundly formulated and adhered to, can serve U.S. interests. We should not abandon efforts to achieve agreements that can increase U.S. and Allied security and reduce the risk of war; provided that such agreements are effective and verifiable.

Third, negotiating with the Soviets does not in any way condone or ignore past Soviet behavior. Continuing to negotiate can give us leverage and is another way to try to get the Soviets to abide by existing agreements.

Compliance is an issue of widespread concern throughout the U.S. Government, in the legislative as well as executive branches and among those of all political persuasions. It is a truly bipartisan issue. A group of leading Democratic Congressmen has, for example, written the Soviet leader of its concerns

²Soviet practices were also studied in a report to the President by the General Advisory Committee on Arms Control, an independent Presidential advisory committee. That study also concluded that the Soviets had violated many arms control obligations. (Report to the President by the General Advisory Committee on Arms Control, "A Quarter Century of Soviet Compliance Practices Under Arms Control Commitments: 1950-83 (Summary)," October 1984.)

over Soviet violations.³ They stated “that adherence to existing treaties is a necessity in order for future agreements to be possible.”

Given the importance of the compliance issue and the technical nature of much of the material which has been written about it, the Arms Control and Disarmament Agency has prepared this unclassified report. It spells out the obligations and actions of the Soviet Union on its major arms control commitments, and where and how the U.S. Government has determined that the USSR is in violation. In some cases where concerns have been raised over Soviet adherence to specific provisions we studied the issue and have not found the Soviets in violation, as had been feared.

Of course, since this report is unclassified, much of the evidence presented in the extensive classified Presidential reports to the Congress cannot be presented here. We have tried to minimize the possible distortions and gaps in the evidence that result from the restrictions of classification and the need to protect the sources and methods of our verification capabilities. Moreover, the report makes clear that not all Soviet violations and probable violations are of equal severity, clarity, or impact. Indeed, while some of the individual violations have serious military significance others do not. Nonetheless, a continuing pattern of Soviet violations cannot help but have a long-term impact upon our national security.

In addition, any violation inherently carries se-

³ Letter by Cong. Aspin, Cong. Solarz, et al, to Mikhail Gorbachev, General Secretary, USSR, dated March 20, 1985.

rious implications for arms control. The integrity of the system and sanctity of a nation’s commitments are critical. So we dare not ignore even small Soviet violations much less large ones. Regardless of their particular military significance, violations jeopardize the process and framework, particularly where there is a pattern of behavior: Failure to respond appropriately might lead the Soviets to think that they can violate their commitments with impunity.

Compliance is everybody’s business. The universal importance of full compliance was recently recognized by the United Nations. On December 12, 1985, the General Assembly passed by a vote of 131-0 (with 16 abstentions) a resolution on arms control compliance which:

- urges all parties to arms limitation and disarmament agreements to comply with their provisions;

- calls upon those parties to consider the implications of noncompliance for international security and stability and for the prospects for further progress in the field of disarmament; and

- appeals to all U.N. members to support efforts to resolve noncompliance questions “with a view toward encouraging strict observance of the provisions subscribed to and maintaining or restoring the integrity of arms limitation or disarmament agreements.”

It is in this light that we offer our report to the American people, and to foreign audiences as well, as a useful guide while we seek to make progress in resolving compliance issues and in moving ahead on arms control in the future.



Kenneth L. Adelman, *Director*
U.S. Arms Control and Disarmament Agency

ABM Treaty

The Treaty Between the U.S. and the USSR on the Limitation of Anti-Ballistic Missile Systems (ABM Treaty) entered into force in 1972. The Protocol to the ABM Treaty entered into force in 1976. The ABM Treaty is of unlimited duration and subject to review by the Parties at 5-year intervals.

The ABM Treaty and its Protocol ban deployment of ABM systems except that each Party is permitted to deploy one ABM system around the national capital area or, alternatively, at a single ICBM deployment area. However, the Treaty explicitly recognizes the existence of ABM test ranges for the development and testing of ABM systems or components for modernization and replacement.

1. The Krasnoyarsk Radar

Limitations on large phased-array radars are one of the core priorities of the ABM Treaty. Large phased-array radars constitute the most critical and the longest-lead time components needed for a prohibited territorial ABM system. The ABM Treaty permits the deployment of new large phased-array radars (LPARs) as:

- a. ABM radars within the ABM deployment area;
- b. ABM radars at one of the current or additionally agreed ABM test ranges;
- c. radars for early warning of strategic ballistic missile attack provided that they are located along the periphery of the deploying Party's national territory and are oriented outward;
- d. radars used for the purpose of tracking objects in outer space; and
- e. radars used as national technical means (NTM) of verification.

"Deploy" as used in Article VI of the ABM Treaty means to site or locate at a particular location. Initiation of the construction of a prohibited radar would constitute a violation of the Treaty.

The United States has detected construction of a large phased-array radar in the interior of the USSR near Krasnoyarsk. It is not located within

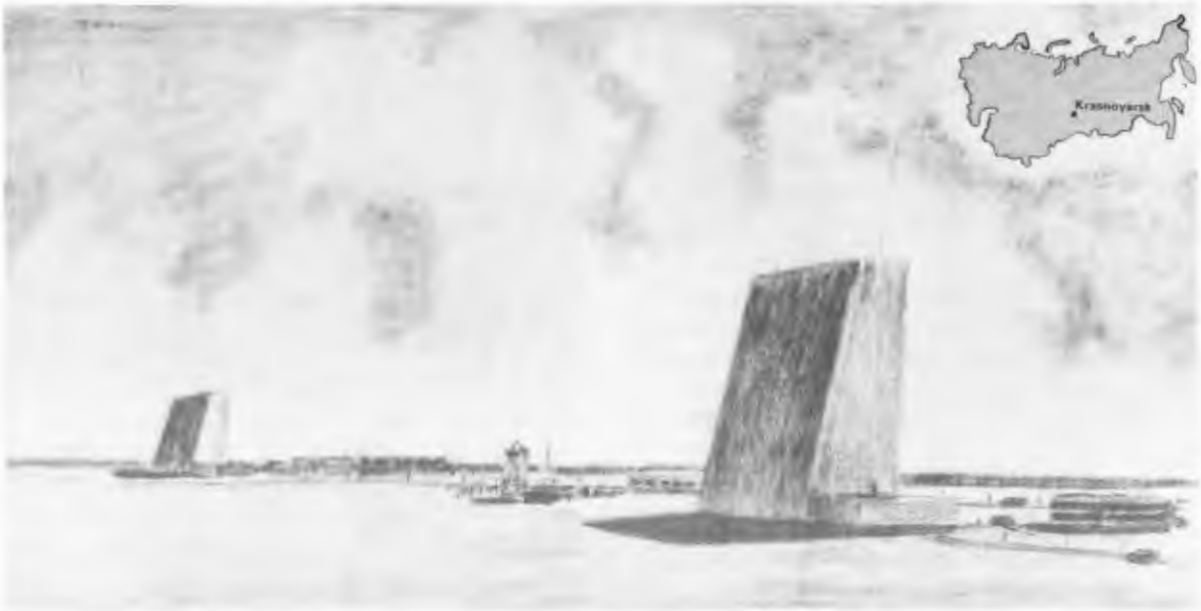
the permitted ABM deployment area, and it is not located at an agreed ABM test range. The radar is over 700 kilometers from the USSR's nearest border — the border with Mongolia. The Krasnoyarsk radar is not directed outward toward the Mongolian border but, rather, looks inward toward the Soviet Union's northeast border — 4,600 kilometers away. It thus overlooks a large portion of the Soviet Union and from there toward Alaska and beyond. The radar is of a type previously characterized by the Soviet government as a radar for the early warning of missile attacks.

The Soviets claim that the Krasnoyarsk radar is for space tracking and NTM. The claim is not credible. To place that claim in perspective requires comparing the Krasnoyarsk radar's capabilities with the requirements for those missions and with existing Soviet capabilities.

There are two fundamental tasks a radar designed for tracking of space objects should perform: (1) early satellite detection; and (2) accurate satellite tracking.

If the role of the Krasnoyarsk radar were primarily satellite tracking, it should be appropriately designed and oriented to improve the accuracy of the existing system of Soviet satellite tracking radars. It is not so designed or oriented. Its contribution to tracking was analyzed for many different cases of possible U.S. and Soviet satellite launches and orbits. In no case that we have analyzed did the radar at Krasnoyarsk contribute significantly to the satellite tracking accuracy that was already available from existing Soviet radars. Indeed, in most cases it contributes very little or nothing to existing Soviet space tracking capabilities.

The Krasnoyarsk radar's orientation is far from that optimal for space tracking; it cannot be used to track current Soviet spacecraft during their initial ("insertion") portion of flight. Its most useful area of space coverage is already largely within the view of other more appropriately designed radars. In sum, it is not plausible that the Krasnoyarsk radar is for space tracking. In fact, we think the Soviets would



Krasnoyarsk Radar: The Soviets claim that its role is space tracking.



Pechora Radar: The Soviets claim that its role is ballistic missile early warning.

certainly not build an expensive and ineffectively designed radar for this purpose to gain only a marginal increase in space-track capability.

To perform in an NTM role a radar should have the capability to monitor testing or deployment of U.S. systems limited by treaty. The capabilities, location and orientation of the Krasnoyarsk radar preclude this function.

The radar under construction near Krasnoyarsk in Siberia is disturbing for both political and military reasons. Politically, the radar demonstrates that the Soviets are capable of violating arms control obligations and commitments even when they are negotiating with the United States or when they know we will detect a violation. The 1972 ABM Treaty prohibits the Soviets from siting an ABM radar, or siting and orienting a ballistic missile detection and tracking radar, as the Krasnoyarsk radar is sited and oriented.

Militarily, the Krasnoyarsk radar violation goes to the heart of the ABM Treaty. Large phased-array radars (LPARs) like that under construction near Krasnoyarsk were recognized during the ABM Treaty negotiations as the critical, long leadtime element of a nationwide ABM defense.

The Krasnoyarsk radar is well located for ballistic missile warning, attack assessment and ABM target acquisition and tracking. Its location provides better impact prediction data for much of the central USSR (for example, for ICBM sites) than locations along the northeastern coast. It could have major significance if it is part of a large scale future Soviet ABM deployment. This new radar closes the final gap in the combined HEN HOUSE and new large phased-array radar warning and tracking network. Together, this radar and the five others like it form an arc of coverage from the Kola Peninsula in the northwest, around Siberia, to the

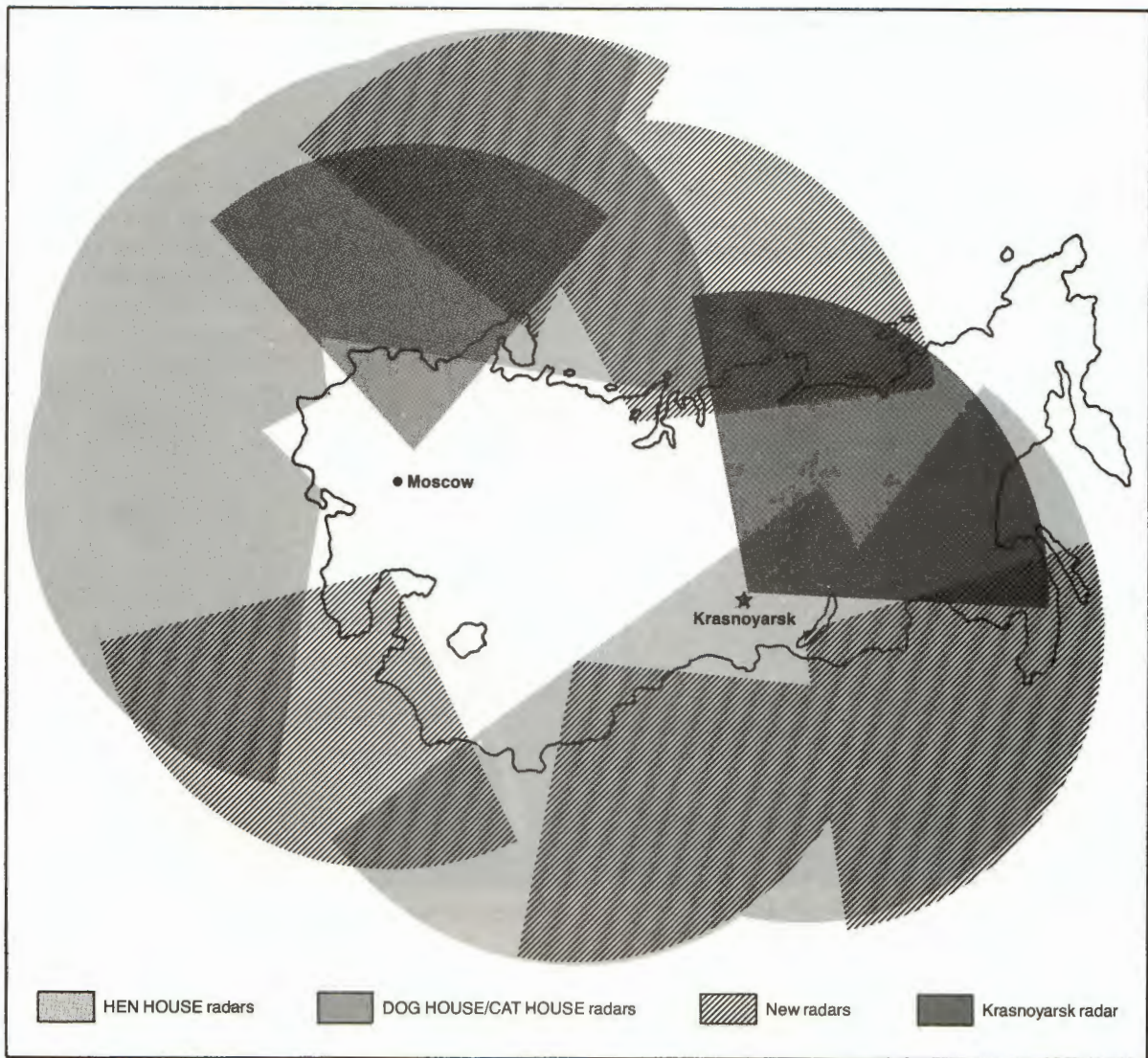


HEN HOUSE ballistic missile early warning radar

Caucasus in the Southwest. Its orientation and function indicate it is for ballistic missile detection and tracking — not space object tracking and NTM as claimed by the Soviets.

Finding

The U.S. Government judges that the new large phased-array radar under construction at Krasnoyarsk constitutes a violation of legal obligations under the Anti-Ballistic Missile Treaty of 1972 in that in its associated siting, orientation, and capability, it is prohibited by this Treaty. Continuing construction and the absence of credible alternative explanations have reinforced our assessment of its purposes. Despite U.S. requests, no corrective action has been taken. This and other ABM-related activities suggest that the USSR may be preparing an ABM defense of its national territory.



Soviet ballistic missile early warning, target-tracking, and battle management radar coverage.

2. Mobility of ABM System Components

The ABM Treaty explicitly prohibits the development, testing, or deployment of mobile land-based ABM systems or components, including ABM interceptor missiles, ABM launchers, and ABM radars. The term "mobile" used in the Treaty describes components which can be readily transported from one place to another as well as components designed to be moved frequently during their service life, even if these components are not mobile in the sense of having wheels or being self-propelled. If readily transportable components were developed, it was feared that they could be used to deploy rapidly a

nationwide-ABM system which is prohibited by the Treaty.

In evaluating whether an ABM component is "mobile" the ability of that component to be easily moved is more important than how many times a party has in fact moved it. Whether or not a component is mobile depends on how much time is necessary to relocate it and reestablish a fully operational capability. Judgments of the mobility of Soviet ABM components can be made without the component ever in fact being moved.

The testing or deployment of even a single mobile land-based ABM component would constitute a violation of the ABM Treaty.

The Soviet ABM program includes development and testing of interceptor missiles, the launchers for those missiles and associated radars. The Soviets have tested ABM components that are apparently designed so that they could be relocated in months rather than in terms of the years required to deploy fixed land-based systems.

The concern is that by using mobile components the Soviets could deploy a large number of ABM launchers by the early 1990s, if they make such a decision soon. Such deployments could have significant adverse impacts on the military balance.

Finding

The U.S. Government judges that evidence of Soviet actions with respect to ABM component mobility is ambiguous, but that the USSR's development and testing of components of an ABM system, which apparently are designed to be deployable at sites requiring relatively limited site preparation, represents a potential violation of its legal obligation under the ABM Treaty. This and other ABM-related Soviet actions suggest that the USSR may be preparing an ABM defense of its national territory.

3. Concurrent Testing of ABM and Air Defense Components

Under the ABM Treaty, the United States and the Soviet Union agreed that they would not give missiles, launchers, or radars, that were developed for other purposes, e.g., for air defense, the capability to counter strategic ballistic missiles or their elements in flight trajectory nor to test them in an ABM mode.

Subsequent to the 1972 signing of the ABM Treaty, the U.S. obtained data indicating that the Soviet Union might be developing an ABM capability with non-ABM components by conducting tests involving the concurrent operation of non-ABM and ABM components. The U.S. then expressed its concern about these tests to the Soviet Union and the tests of that kind appeared to stop. However, after another relatively brief period, the U.S. again obtained data that raised concern. Following renewed detailed discussion with the Soviets, the United States and the Soviet Union agreed in the 1970s to prohibit concurrent testing of air defense components and ABM system components at the same test range. However, even after this agreement, concurrent operations appeared to resume.

Both the U.S. and the USSR understood that air defense radars, when operated for air defense purposes or to ensure the safety of the range or as instrumentation radars for permitted purposes,

would not be in violation of a prohibition on concurrent testing.

The many occasions when Soviet ABM and SAM radars were operating at about the same time, as well as the fact that these activities have persisted over the past decade, are themselves a basis for concern. This concern is heightened by the unsatisfactory response of the Soviets to U.S. requests for explanations and corrective actions. For these activities not to be violations one must accept that on each and every occasion SAM radar operation was for defense or safety of the range or as instrumentation equipment for permitted purposes. We have strong circumstantial evidence of improper Soviet concurrent testing of SAM and ABM radars.

Finding

The U.S. Government judges that the evidence of Soviet actions with respect to concurrent operations is insufficient fully to assess compliance with Soviet obligations under the ABM Treaty. However, the Soviet Union has conducted tests that have involved air defense radars in ABM-related activities. The large number and consistency over time, of incidents of concurrent operation of ABM and SAM components, plus Soviet failure to accommodate fully U.S. concerns, indicate the USSR probably has violated the prohibition on testing SAM components in an ABM mode. In several cases this may be highly probable. This and other such Soviet activities suggest the USSR may be preparing an ABM defense of its national territory.

4. ABM Capabilities of Modern Surface-to-air Missile (SAM) Systems

The ABM Treaty sets forth two separate prohibitions on SAM systems — not to give such systems capabilities to counter strategic ballistic missiles and not to test such systems in an ABM mode.

When the ABM Treaty was negotiated, the potential ABM capability of air defense systems was a major concern. Clearly, the phrase "capabilities to counter" as used in the ABM Treaty was intended to have the ordinary meaning of "blocking" or "stopping" a reentry vehicle. In the context of the ABM Treaty giving a SAM system "capabilities to counter strategic ballistic missiles" meant giving them actual ABM capabilities.

Since virtually any air defense missile system has some level of ABM capability, the Treaty was not intended to preclude an incidental or insignificant ABM capability, but rather a meaningful or significant capability. Such a determination must ultimately be a factual determination taking into



The surface-to-air missiles of the SA-X-12 air defense system are designed to counter high performance aircraft and will also have a capability against tactical ballistic missiles.

account the military significance of whatever ABM capability is present.

The U.S. believes that a SAM would be tested in an ABM mode if, for example, while guided by a radar, it was flight tested against a target vehicle which has a flight trajectory with characteristics of a strategic ballistic missile flight trajectory.

The key Soviet SAM system of concern is the SA-X-12, although concerns have existed about other Soviet air-defense systems. The SA-X-12 can engage tactical ballistic missiles in flight. Such a system with Anti-Tactical Ballistic Missile (ATBM) capabilities could have many of the features one would expect to see designed into an ABM system, possibly giving it capabilities to intercept some types of strategic ballistic missile RVs. The SA-X-12 system is also mobile, further increasing our concerns.

Finding

The U.S. Government judges that the evidence of Soviet actions with respect to SAM upgrade is

insufficient to assess compliance with the Soviet Union's obligations under the ABM Treaty. However, this and other ABM-related activities suggest that the USSR may be preparing an ABM defense of its national territory.

5. Rapid Reload of ABM Launchers

The ABM Treaty limits the number of deployed ABM interceptor launchers and deployed ABM missiles, but does not limit the number of interceptor missiles that both sides can build and stockpile. The capability of the 100 deployed ABM launchers permitted by the Treaty could therefore be increased by stocking more than one interceptor missile per launcher and providing each launcher with a reload capability. The Treaty prohibits the development, testing or deployment of "automatic or semi-automatic or other similar systems for rapid reload" of the permitted launchers.

The two categories of Soviet actions relevant here are discussed on the following page.

Reload and Refire Activity: Galosh

The test launchers for the Galosh ABM interceptor missiles, which are deployed around Moscow, are at the Sary Shagan Missile Test Range. Galosh interceptor missiles are loaded into above-ground launchers apparently using conventional equipment.

The Soviets demonstrated a reload and refire time for the Galosh of much less than a day.

Reload Activity: A Different ABM Interceptor at Sary Shagan

The only known test launchers for the high acceleration interceptor missile, similar to the U.S. Sprint missile developed for the inactive Safeguard ABM system, are at Sary Shagan.

Like the Galosh, the Soviets have demonstrated that a launcher for this missile can be reloaded in much less than a day.

Finding

The U.S. Government judges, on the basis of the evidence available, that the USSR's actions with respect to the rapid reload of ABM launchers constitute an ambiguous situation as concerns its legal obligations under the ABM Treaty not to develop systems for rapid reload. The Soviet Union's reload capabilities are a serious concern. These and other ABM-related Soviet activities suggest the USSR may be preparing an ABM defense of its national territory.

6. ABM Territorial Defense

The ABM Treaty includes the obligation ". . . not to deploy ABM systems for a defense of the territory of its country and not to provide a base for such a defense . . ." The prohibition on the defense of "the territory of its country" means a ban on the ABM defense of the Party's national territory, which is the central purpose of the Treaty, as distinct from defending a specifically allowed region, such as Moscow. While the size of the territory that must be defended to constitute a territorial defense was not defined, this is considered to mean a defense of all or a large portion of the country.

The Soviet Union has conducted a number of ABM activities, or activities that can be characterized as ABM-related. The totality of these activities has created concerns within the U.S. about Soviet deployment of a territorial ABM defense. These include:

- the construction of several large phased-array radars, including the radar at Krasnoyarsk, which might constitute deployment of the major long lead-time components of a nationwide-ABM defense;

- the apparent testing and development of components required for an ABM system which could

be deployed to a site in months rather than years;

- the numerous incidents of concurrent operations of air defense components and ABM components that indicate the probable testing of air defense components in an ABM mode;

- the development of a modern air defense system, the SA-X-12, which may have some ABM capabilities; and

- the demonstration of an ability to reload ABM launchers and to refire the interceptor missile in a period of time shorter than previously noted.

Soviet construction of new large phased-array radars (LPARs), which could support an ABM system by providing detection and tracking, and the illegal appearance of one of these radars — at Krasnoyarsk deep in the interior of the Soviet Union — increases concern about the Soviet Union's capability for ABM "break-out." Such large phased-array radars could constitute the production and deployment of long lead-time components of a nationwide defense. These Soviet LPARs are far more powerful and capable than U.S. ballistic missile early warning LPARs.

The apparent testing and development of the components required for an ABM system which could be deployed to a site in months rather than years could also contribute to ABM "breakout." In addition, the probable testing of air defense components in an ABM mode and the potential ABM capability of a modern surface-to-air missile system raises further concerns that the Soviet Union may be preparing an ABM defense of its national territory. If Soviet air defense components were given ABM capabilities as a result of these activities, then such a development would provide another route for ABM "break-out." Soviet air defense components are rapidly deployable and their effectiveness could be enhanced by the inherent capabilities of LPARs.

Soviet deployment of an ABM territorial defense contrary to the ABM Treaty would have profound implications for Western security and the vital East-West strategic balance. A unilateral Soviet territorial ABM capability acquired in violation of the ABM Treaty could erode our deterrent and leave doubts about its credibility. Such capability might encourage the Soviets to take increased risks in crises, thus degrading crisis stability.

Finding

The U.S. Government judges that the aggregate of the Soviet Union's ABM and ABM-related actions (e.g., radar construction, concurrent testing, SAM upgrade, ABM rapid reload and ABM mobility) suggests that the USSR may be preparing an ABM defense of its national territory.

The primary goal of the SALT II Agreement of 1979 was to replace the 1972 Interim Agreement with a long-term comprehensive treaty providing broad limits on strategic offensive weapons systems. The principal U.S. objectives were to provide for equal numbers of strategic nuclear delivery vehicles for the sides, to begin the process of reduction of these delivery vehicles, and to impose restraints on qualitative developments which could threaten future stability.

SALT II was signed in June 1979, but was withdrawn from Senate consideration following the Soviet invasion of Afghanistan and has not been ratified. In 1981, the United States made clear to the Soviet Union its intention not to ratify the SALT II Treaty. Prior to the formal clarification of the U.S. position in 1981, both nations were obligated under customary international law not to take actions which would defeat the object and purpose of the signed, but unratified, Treaty. Any such Soviet actions prior to 1981 are violations of legal obligations. Since 1981, the United States has observed a political commitment to refrain from actions that undercut the SALT II Treaty so long as the Soviet Union shows equal restraint. In 1982 the Soviets told us they would abide by the SALT II Treaty. Soviet actions inconsistent with this commitment are violations of their political commitment with respect to the SALT II Treaty.

Seven SALT II issues are included in this unclassified report: the testing and deployment of the SS-25 ICBM, strategic nuclear delivery vehicle limits, the deployment of the SS-16 ICBM, BACKFIRE bomber intercontinental operating capability, BACKFIRE bomber production rate, the encryption of telemetry, and the concealment of the association between an ICBM and its launcher.

1. SS-25 ICBM

In an attempt to constrain the modernization and proliferation of new, more capable types of ICBMs, the provisions of SALT II permit each side to "flight test and deploy" just one new type of "light" ICBM. A new type is defined as one that differs from an existing type by more than 5 percent in length, largest diameter, launch-weight, throw-weight, or differs in number of stages or propellant type (i.e., liquid or solid).

In addition, it was agreed that no ICBM of an existing type with a post-boost vehicle and a single

reentry vehicle (RV) would be flight-tested or deployed whose reentry vehicle is less than 50 percent of the throw-weight of that ICBM. This provision was designed to limit the capability to break out of Treaty limits rapidly by quickly converting missiles with a single RV to missiles with multiple independently-targeted reentry vehicles (MIRV).

The SALT II Treaty permits each Party to use various methods of transmitting telemetric information during testing, including encryption, but bans deliberate denial of telemetry, such as through encryption, whenever such denial impedes verification.

The SS-25, a clear and irreversible violation of the Soviet Union's SALT II commitment, also has important political and military implications. Testing and deployment of this missile violates a central provision of the SALT II Treaty, which was intended to limit the number of new ICBMs.

The Soviets have declared the SS-X-24, a large MIRVed solid propellant ICBM approximately the size of the U.S. MX ICBM, to be their allowed one "new type" ICBM. The Soviets have, in addition, flight tested and started to deploy the SS-25 ICBM, a small, solid propellant three-stage ICBM approximately the size of the U.S. Minuteman ICBM. At least 45 mobile SS-25 have now been deployed.

The Soviets have falsely asserted that the SS-25 is an allowed modification of the SS-13 ICBM. The SS-25 has the same number of stages (three) and



With testing and deployment of the SS-25 ICBM, the USSR is violating the SALT II provision prohibiting more than one new type of ICBM.

the same propellant type (solid) as the SS-13. However, analysis indicates that the throw-weights of the SS-25 and SS-13 differ by considerably more than the 5 percent allowed for modernized missiles.

This analysis also showed that the weight of the SS-25 RV is definitely less than 50 percent of the missile's throw-weight

The SS-25 is mobile and could be made more lethal by modifying it to carry more than a single warhead. Most worrisome is the technical argument by which the Soviets sought to justify the SS-25, for it might be applied to additional prohibited new types of ICBMs in the future.

Findings

Second New Type — Testing and Deployment

The U.S. Government judges, based on convincing evidence about the SS-25, that the throw-weight of the Soviet SS-25 exceeds by more than 5 percent the throw-weight of the Soviet SS-13 ICBM and cannot therefore be considered a permitted modernization of the SS-13 as the Soviets claim. The SS-25 is a prohibited second "new type" of ICBM and its testing, in addition to the testing of the SS-X-24 ICBM, thereby is a violation of the Soviet Union's political commitment to observe the "new type" provision of the SALT II Treaty. The deployment of this missile during 1985 constitutes a further violation of the SALT II prohibition on a second "new type" of ICBM.

RV-to-Throw-Weight Ratio:

The U.S. Government concludes that if we were to accept the Soviet argument that the SS-25 is not a prohibited "new type" of ICBM, it would be a violation of their political commitment to observe the SALT II provision which prohibits the testing of such an existing ICBM with a single reentry vehicle whose weight is less than 50 percent of the throw-weight of the ICBM.

Encryption:

The U.S. Government judges that telemetry encryption during tests of the SS-25 is illustrative of the deliberate impeding of verification of compliance in violation of the USSR's political commitment.

Despite U.S. requests for explanations and corrective actions with regard to the SS-25 ICBM-related activities, Soviet actions continue unchanged, and the Soviet Union has proceeded to deployment of this missile.

2. Strategic Nuclear Delivery Vehicle Limits

Upon entry into force of the SALT II Treaty each Party was to undertake to limit the number of stra-

tegic nuclear delivery vehicles (SNDVs) — ICBM launchers, SLBM launchers, heavy bombers, and air-to-surface ballistic missiles — to an aggregate number not to exceed 2,400. Thereafter the aggregate was to be further reduced to 2,250 SNDVs. At the time of the signing of the SALT II Treaty the Soviet Union and the United States agreed in a Memorandum of Understanding that as of November 1, 1978 the Soviet Union's aggregate number of SNDVs was 2,504.

Since the Treaty has never entered into force, the Soviets have never been under an obligation to reduce their SNDVs to 2,400 from the 2,504 listed in the Memorandum of Understanding that is a part of SALT II, nor have they ever been obligated to the later reduction to 2,250 also scheduled by the Treaty.

The Soviet commitment to abide by SALT II brought with it a new standard for judging what actions must be undertaken with respect to SALT II. Under this commitment, the Treaty must be adhered to except for certain time-limited or specified provisions.

The logic of the U.S. and the USSR's agreement to "abide by" SALT II assumes that some numerical ceiling on SNDVs exists, even though there was no explicit agreement between the U.S. and the USSR on the numerical value of such a ceiling. In order to compensate for the introduction of new SNDVs into its inventory, the Soviet Union could remove existing SNDVs by dismantling or destroying them. They could do so by utilizing the SALT I Interim Agreement Protocol for ICBMs. In the case of heavy bombers, the Soviets may use the agreed portions of the draft SALT II Protocol for Dismantling or Destruction as an ad hoc guide.

The question at issue is whether any increase in SNDVs above 2,504 is consistent with the Soviet Union's political commitment to abide by the SALT II Treaty.

At the time SALT II was signed (June 1979) the Soviet Union had 2,504 SNDVs. When the U.S. informed the Soviets in September 1981 that it would not seek to ratify SALT II, we believe the Soviets had about the number of SNDVs it had in June 1979. Thus their action during this period appears consistent with their obligation. At the time they agreed to "abide by" the Treaty in 1982, the Soviets had a few more SNDVs than in June 1979.

The Soviet Union increased the number of SALT-accountable strategic nuclear delivery vehicles (SNDVs) in its arsenal from the 2,504 that it had as of June 18, 1979, when SALT II was signed, to more than 2,520 by the fall of 1984.

By December 31, 1984, additional SNDVs had become SALT accountable. Also, during the last

several months of 1984 the Soviet Union destroyed a number of launchers of the SS-11 ICBM. We believe these launchers were destroyed to compensate for the deployment of the SS-25 ICBM; the destruction did not compensate for the production of new BEAR H bombers that originally placed the SNDV aggregate over 2,504.

During 1985, the Soviets continued to deploy SS-25s and destroy old SS-11 launchers. In addition, more new BEAR H cruise missile-carrying bombers were deployed and some older heavy bombers were destroyed. The net effect of these Soviet actions was to maintain their SNDV count at a level above the 2,504 allowed. While the SNDV aggregate varied from near 2,504 to approximately 2,540 during the last year, on November 30, 1985 (the cutoff date for this report) the best U.S. estimate of Soviet SNDVs was approximately 2,520.

The Preamble and Article I of the SALT II Treaty make clear that the fundamental objective of the Treaty is to place limits on strategic offensive arms. Article III places such limits on SNDVs and, when the Soviet Union made its political commitment to abide by SALT II, it committed itself not to act inconsistently with the fundamental objective of the Treaty.

Finding

The U.S. Government interprets the Soviet commitment to abide by SALT II as including the existence of a cap on SNDVs — at the level of 2,504 existing at the time SALT II was signed (June 1979). The Soviet Union has deployed SNDVs above the 2,504 cap in violation of its political commitment under SALT II. Such activity is indicative of a Soviet policy inconsistent with this political commitment.

3. SS-16 ICBM Deployment

During the negotiation of the SALT II Treaty, there was concern that land-based launchers for ballistic missiles which were not considered strategic missiles and, therefore, were not limited by the Treaty, could be converted into launchers for the strategic missiles which were limited.

Between 1972 and 1976, the Soviet Union flight-tested the SS-16, a three-stage, solid-propellant, single-RV ICBM from the Plesetsk Missile Test Center in the USSR. The SS-16 missile is closely related to the SS-20, an intermediate range ballistic missile (IRBM). The U.S. was concerned that the SS-20, which was unconstrained by the SALT II Treaty, could be converted from an IRBM to an ICBM with a range of 5,500 KM or more. Distinguishing between SS-16 and SS-20 deployments would thus be very difficult. To preclude this situa-

tion from arising, the U.S., in negotiating the SALT II Treaty, obtained agreement from the Soviets not to produce, test, or deploy ICBMs of the SS-16 type. Further the Soviets agreed not to produce the SS-16's third stage, reentry vehicle or "other appropriate device" (post-boost vehicle) for targeting the missile's single reentry vehicle.

In assessing whether the SS-16 is deployed at Plesetsk, we have focused on the question of whether it can be established that the SS-16 ICBM has been maintained in a functioning state and thus could be made ready for launch in a short period of time. During the 1976-1978 time period, after SS-16 flight tests had been discontinued, modification and expansion of mobile missile facilities at sites historically associated with the SS-16 at Plesetsk were conducted by the Soviet Union. Subsequent to this, we have observed activity at these sites suggesting SS-16 deployment. That activity was extensively analyzed. As a result of this analysis we conclude that the Soviets probably deployed SS-16 missiles at Plesetsk until 1985.

Soviet activity at Plesetsk during 1985 would seem to indicate that SS-16s present there were probably removed. In places previously associated with the SS-16, there is some evidence that equipment associated with a different ICBM has been introduced.

Finding

While the evidence is somewhat ambiguous and we cannot reach a definitive conclusion, the U.S. Government found the activities at Plesetsk to be a probable violation of the USSR's legal obligation and political commitment under SALT II. Soviet activity in the past year seems to indicate the probable removal of SS-16 equipment and introduction of equipment associated with a different ICBM.

4. BACKFIRE Bomber Intercontinental Operating Capability

At the signing of SALT II, the USSR gave the U.S. assurances about the BACKFIRE bomber's intercontinental operating capability. The Soviet statement of June 16, 1979 read, in pertinent part, as follows: "The Soviet side informs the US side that the Soviet "Tu-22M" airplane, called 'BACKFIRE' in the USA, is a medium-range bomber, and that it does not intend to give this airplane the capability of operating at intercontinental distances. In this connection, the Soviet side states that it will not increase the radius of action of this airplane in such a way as to enable it to strike targets on the territory of the USA. Nor does it intend to give it such a capability in any other manner, including by in-

flight refueling. . . .”

This Soviet statement is an integral part of the SALT II agreement and the U.S. considers it to be incorporated in the Soviet Union's political commitment to abide by SALT II.

During the Senate ratification hearings (August 15, 1979) on the Treaty, it was stated that “Similarly, other changes in current BACKFIRE practices such as deployment of a tanker force for the BACKFIRE or regular use of Long-Range Aviation Arctic staging bases, would call into question the Soviet statement on giving the BACKFIRE a capability against the United States.”

Prior to the signing of SALT II, Soviet BACKFIRE bombers deployed to Arctic bases a number of times. In recent years Soviet BACKFIRE aircraft again deployed to military bases in the Arctic. They remained there for several days and later departed.

The U.S. view of the Soviet commitment not to give the BACKFIRE an intercontinental capacity against the U.S. includes Soviet foregoing of the movement of BACKFIRE bombers to Arctic staging bases within range of the U.S. when such staging could be construed as training for operational use of such bases. If so staged, such bombers, under certain conditions, could attack some areas in the U.S. even without aerial refueling.

Finding

The U.S. Government judges that the temporary deployment of BACKFIRES to Arctic bases is cause for concern and continued careful monitoring. By such temporary deployment of BACKFIRES, the Soviet Union acted in a manner inconsistent with its political commitment in the June 1979 BACKFIRE statement not to give BACKFIRE the capability to strike targets on the territory of the United States.



The BACKFIRE Bomber, capable of nuclear strike, conventional attack, anti-shipping, and reconnaissance missions.

5. BACKFIRE Production Rate

The U.S. was willing to exempt the BACKFIRE from SALT II restraints only if the USSR were to agree to place certain restrictions on the production, use and deployment of the BACKFIRE bomber.

The Soviet Union, in a unilateral statement which is appended to the SALT II Treaty, specifically stated "that it will not increase the production rate of this airplane as compared to the present rate." Secretary Vance's June 21, 1979, "Letter of Submittal" to the Senate states further that "President Brezhnev confirmed that the Soviet BACKFIRE production rate would not exceed 30 per year."

These Soviet statements are viewed as binding the Soviets not to increase the production rate of the BACKFIRE compared to the production rate in 1979 and to be a part of the Soviet political commitment to abide by SALT II.

Our estimates of annual production are based on an examination of all data and consideration of the entire BACKFIRE production run, not solely on the information available during any given year.

We believe the data indicate an essentially constant production rate at slightly more than 30 aircraft per year through the end of 1983. Since that time the annual BACKFIRE production rate appears to have decreased to slightly less than 30 aircraft per year.

The compliance question with respect to BACKFIRE production is then, primarily a question of fact, not obligation. Have the Soviets increased the production rate of the BACKFIRE compared to the rate of the time SALT II was signed, and have they produced more than 30 BACKFIREs per year since signing SALT II?

Finding

The U.S. Government judges that the Soviet Union is obligated to produce no more than 30 BACKFIRE bomber aircraft per year. There are ambiguities concerning the data. However, there is evidence that the Soviet BACKFIRE production was constant at slightly more than 30 per year until 1984, and decreased since that time to slightly below 30 per year.

6. Encryption of Ballistic Missile Telemetry

The SALT II Treaty prohibits deliberate concealment measures that impede verification of adherence to the treaty provisions by national technical means. While the Treaty permits each party to use various methods of transmitting tele-

metric information during testing, including encryption, the deliberate denial of telemetric information, whenever such denial impedes verification of compliance with the provisions of the Treaty, is specifically prohibited by the SALT II Treaty.

The Soviets have been heavily encrypting telemetry broadcasts during tests of strategic ballistic missiles, thereby impeding U.S. verification of compliance with the SALT II Treaty.

Since the SALT I agreement in 1972, Soviet encryption and concealment activities have become more extensive and disturbing. These activities, Soviet responses on these issues, and Soviet failure to take the corrective actions which the United States has repeatedly requested, are indicative of a Soviet attitude contrary to the fundamentals of sound arms control agreements. Soviet encryption and concealment activities present special obstacles to maintaining existing arms control agreements, undermine the political confidence necessary for concluding new treaties, and underscore the necessity that any new agreement be effectively verifiable. Soviet noncompliance, as documented in current and past Administration reports and exemplified by the encryption and concealment issues, has made verification and compliance pacing elements of arms control today.

Finding

The U.S. Government concludes that Soviet encryption practices constitute a violation of a legal obligation under SALT II prior to 1981 and a violation of their political commitment since 1982. The nature and extent of such encryption of telemetry on new ballistic missiles, despite U.S. requests for corrective action, continues to be an example of deliberately impeding verification of compliance in violation of this Soviet political commitment.

7. Concealment of Missile/Launcher Association

Article XV of the SALT II Treaty prohibits "deliberate concealment measures which impede verification by national technical means of compliance with the provisions of this Treaty." This obligation is further clarified in a Common Understanding that states that Article XV applies to all provisions of the Treaty and "includes the obligation not to use deliberate concealment measures associated with testing, including those measures aimed at concealing the association between ICBMs and launchers during testing."

The commentary of Secretary of State Cyrus Vance on this provision of the SALT II Treaty provides, as examples of deliberate concealment meas-

ures, "camouflage, decoys, or encryption of telemetry . . ." The Vance analysis states:

Also the Common Understanding notes that the prohibition includes measures intended to conceal the association between ICBMs and their launchers during testing. For example, this would prohibit the kinds of covered facilities employed at a Soviet test range several years ago which impeded our ability to associate the SS-16 ICBM with its launcher.

In order to determine the relationship between ICBMs and their launchers, it is necessary to observe the ICBM or its canister, and its launcher, and to determine whether or not these are "associated" (e.g., whether the launcher can launch and has launched the missile). This is necessary because under the Treaty a launcher becomes accountable as a MIRVed or non-MIRVed launcher based upon the type of missile it has launched. Thus, there is a requirement under the Treaty to distinguish between MIRVed and non-MIRVed ICBM launchers. In order to count launchers it is necessary to iden-

tify them and differentiate them from launchers of missiles that are not limited by the Treaty — IRBM launchers, for example. This again creates a requirement that the launcher be observed during the testing period and that it be verified that that particular type of launcher actually launched a specific ballistic missile.

A statement by the Soviet Government that the SS-25 has a mobile launcher is not sufficient to relieve the Soviet Union of the obligation not to impede the verification of the relationship of an ICBM to its launcher. Soviet actions with respect to the SS-25 clearly have had that effect. They represent deliberate concealment activities, the object of which is to deny association of the missile and its launcher by the denial of the observation of both.

Finding

The U.S. Government judges Soviet activities related to the SS-25 to be a violation of the Soviet Union's political commitment to abide by the SALT II Treaty provision prohibiting concealment of the association between a missile and its launcher during testing.

SALT I Interim Agreement

The SALT I Interim Agreement on the Limitation of Strategic Offensive Arms entered into force between the United States and the Soviet Union in 1972. Dismantling procedures implementing the Interim Agreement were concluded in 1974. The Interim Agreement, by its own terms, was of limited duration and expired as a legally binding document in 1977. The applicability of the Interim Agreement to the actions of both Parties has, however, been extended through a series of mutual political commitments, including the President's May 31, 1982 statement, that the United States would refrain from actions which would undercut existing strategic arms agreements so long as the Soviet Union shows equal restraint. The President stated, in his June 10, 1985 message to Congress "that the United States will continue to refrain from undercutting existing strategic arms agreements to the extent that the Soviet Union exercises comparable restraint and provided that the Soviet Union actively pursues arms reduction agreements in the currently ongoing nuclear and space talks in Geneva." The So-

viets have told us that they would abide by the SALT I Interim Agreement and SALT II. Any actions by the USSR inconsistent with this commitment are violations of its political commitment with respect to the Interim Agreement and its implementing procedures.

Use of "Remaining Facilities" at Former SS-7 Sites

The SALT I Interim Agreement and its procedures prohibit the Parties from using for the storage, support, or launch of ICBMs certain facilities remaining at dismantled or destroyed ICBM sites (such as SS-7 ICBM sites). The prohibitions were devised to prevent the rapid reactivation of such sites.

The Soviets deactivated their SS-7 ICBM sites in the 1970s in compensation for new systems introduced. The launch facilities were destroyed in accordance with the prescribed procedures. However,

a number of missile support facilities were left standing.

Thus, according to the SALT I Interim Agreement and its procedures, there are two major criteria for determining whether the use of the structures remaining at the former SS-7 sites would be a violation. The particular structure must meet the definition of a facility whose use for storage, support, or launch of ICBMs is prohibited.

The use of remaining facilities in violation of its political commitment to abide by the Interim Agreement would save the Soviet Union the cost of building additional facilities of the same or similar type to support the SS-25.

Construction activity during 1984 and 1985 at some of the former SS-7 sites gave cause for concern that the Soviet Union might incorporate re-

maining facilities into the operations area for the new SS-25 ICBM. Evidence obtained during 1985 at some of these sites involving deployment of the SS-25 indicates that remaining facilities are used to support deployment and operation of the new Soviet ICBM, the SS-25, which is itself also a violation of Soviet political commitments.

Finding

The U.S. Government judges that Soviet use of former SS-7 ICBM facilities in support of the deployment and operation of the SS-25 mobile ICBMs is in violation of the SALT I Interim Agreement. Should the Soviets use "remaining facilities" in the future at other former SS-7 sites where the SS-25 is now in the process of being deployed, such use will also constitute Soviet violation of its political commitment under the SALT I Interim Agreement.

Biological and Toxin Weapons Convention and 1925 Geneva Protocol

The 1972 Biological and Toxin Weapons Convention (the BWC) and the 1925 Geneva Protocol are multilateral treaties to which both the United States and the Soviet Union are parties. Soviet actions not in accord with these treaties and customary international law relating to the 1925 Geneva Protocol are violations of legal obligations.

The Biological and Toxin Weapons Convention (BWC) (1972) requires each State Party never to develop, produce, stockpile or otherwise acquire or retain (1) microbial or other biological agents or toxins of types and in quantities that have no justification for prophylactic, protective or other peaceful purposes; or (2) weapons, equipment or means of delivery designed to use such agents or toxins for hostile purposes or in armed conflict. It further obligates each Party not to transfer to any recipient, and not to assist, encourage or induce any State, group of States or international organizations to manufacture or otherwise acquire such agents, toxins, weapons, equipment or means of delivery.

The Geneva Protocol (1925) prohibits "the use in war of asphyxiating, poisonous or other gases, and of all analogous liquids, material or devices . . ." It

also prohibits "the use of bacteriological methods of warfare."

The BWC contains no obligation to declare possession or destruction of prohibited agents and equipment but only to destroy or divert them to peaceful purposes within nine months of entry into force of the Convention. The Soviets never formally acknowledged possession or destruction of prohibited items. They have stated only that they are in compliance with the provisions of the BWC.

The U.S. has formally presented its case regarding Soviet involvement in provision and use of toxin weapons in two unclassified reports to the UN and to the public (Department of State Special Report 98 of March 1982, and Special Report 104 of November 1982). These reports presented a comprehensive summary of the information, evidence, and an analysis of results the U.S. had obtained on the use of toxins and other chemical warfare agents by the Soviets in Afghanistan and by the Lao and Vietnamese, under Soviet supervision, in Laos and Kampuchea.

The evidence included refugee reports and the identification of the toxins in victims' blood and in samples from attack sites but not in control samples from either people or areas not subjected to a toxic

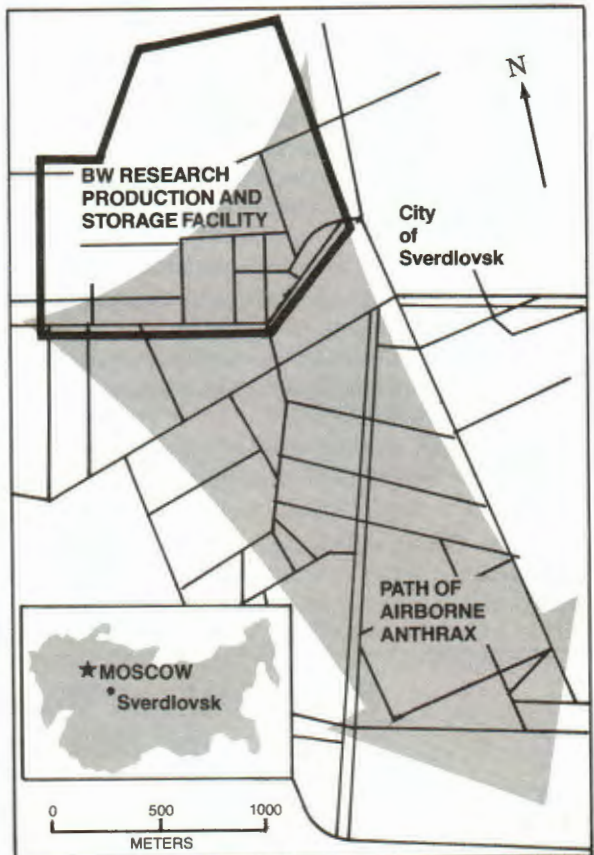
attack. There are also refugee accounts of Soviet technicians supervising the shipment, storage, filling, and loading onto aircraft of the toxin munitions in Southeast Asia. The first physical evidence of direct Soviet use of toxin weapons in Afghanistan resulted from analysis of a contaminated Soviet gas mask acquired from Afghanistan in 1981. In August 1983 the U.S. submitted to the UN further evidence of toxin use as revealed in chemical analysis of blood taken from victims of "yellow rain" attacks. The U.S. submission to the UN in February 1984 summarized preliminary findings for 1983 regarding the use of chemical and toxin agents in Asia.

The Soviets responded with a "scientific paper" presented to the UN, which had undertaken an investigation of the charges of use of lethal chemical and toxins in Southeast Asia and Afghanistan. The Soviets contended that *Fusaria* spores originated from natural contamination of the elephant grass in Vietnam caused by U.S. use of Agent Orange, and that these spores were carried by prevailing winds into Kampuchea and Laos, causing natural contamination of the environment and subsequent illness among alleged victims. This Soviet explanation is not plausible.

Explanations of the presence of toxins in Southeast Asia as natural contamination of pollen-laden bee feces or other naturally occurring phenomena are not supported by the accumulated intelligence data and scientific scrutiny. These alternative hypotheses do not, for example, take into account a large body of other evidence, including eyewitness reports of planes releasing clouds of agents and of artillery bombardment with agent-filled shells that produced trichothecene symptoms, and the findings of toxin in samples not containing pollen. Also, the occurrences of "yellow rain" have been limited to war zones; if natural occurrence theories were correct, other people throughout the region would be affected. No such phenomenon has been observed.

In addition to evidence concerning chemical and toxin weapon use, we have much evidence of the continuation of an aggressive biological weapons production and development program by the Soviet Union. The apparently accidental release of anthrax from a Soviet biological warfare facility in Sverdlovsk in 1979 probably resulting in the deaths of several hundred people is a reminder of the danger of this program. The Soviets have apparently also engaged in research on advanced genetically engineered biological agents.

During 1985, we have been unable to confirm any lethal chemical and toxin attacks in Kampuchea, Laos or Afghanistan according to our established standards of evidence (i.e., two or more corroborating reports from different sources). However, there



Accidental release of Anthrax from Biological Warfare Facility at Sverdlovsk.

were a number of reports, although diminished in number, of chemical attacks. These reported non-lethal agents have not yet been identified.

Chemical, biological and toxin weapons have major military implications. The effect of comparatively primitive chemical weapons was demonstrated as early as World War I, when there were 90,000 deaths and 1,000,000 casualties from chemical weapons.

The Soviet Union has a prohibited offensive biological warfare capability which we do not have and against which we have no defense. This capability may include advanced biological agents about which we have little knowledge. Evidence suggests that the Soviets are expanding their chemical and toxin warfare capabilities in a manner that has no parallel in NATO's retaliatory or defensive program.

Finding

The U.S. Government judges that ongoing Soviet activities confirm and strengthen the conclusion that the Soviet Union has maintained an offensive biological warfare program and capability

in violation of its legal obligation under the Biological and Toxin Weapons Convention of 1972.

Allegations concerning the use of lethal chemicals or toxins in Kampuchea, Laos, or Afghanistan have subsided in 1985. However, prior to this time, the Soviet Union was involved in the production, trans-

fer and use of trichothecene mycotoxins for hostile purposes in Laos, Kampuchea and Afghanistan in violation of its legal obligation under international law as codified in the Geneva Protocol of 1925 and the Biological and Toxin Weapons Convention of 1972.

Limited Test Ban Treaty

The Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water (Limited Test Ban Treaty (LTBT)) is a multilateral treaty that entered into force for the United States and the Soviet Union in 1963. Soviet actions not in accord with this Treaty are violations of a legal obligation.

Underground Nuclear Test Venting

The Limited Test Ban Treaty of 1963 (LTBT) prohibits nuclear weapons tests "or any other nuclear explosion" in the atmosphere, in outer space and under water. While not banning tests underground, the Treaty does prohibit nuclear explosions that cause "radioactive debris to be present outside the territorial limits of the State under whose jurisdiction or control" the explosions were conducted.

During hearings before the Senate Foreign Relations Committee prior to ratification of the Treaty, Dr. Seaborg, then Chairman of the U.S. Atomic Energy Commission (AEC), stated that "the Treaty would prohibit a test which resulted in a quantity of radioactive debris delivered outside of the country's territorial limits in amounts sufficient to establish that such contamination resulted from a recent test within that country."

Since late 1963, many Soviet underground nuclear tests have been detected by the U.S. On numerous occasions the U.S. collected, outside the territorial limits of the USSR, atmospheric samples of radioactive matter unambiguously associated with some of these Soviet nuclear tests.

Soviet test practices are apparently designed to minimize the cost of testing at the price of radioactive release into the atmosphere in many Soviet tests.

There is no unambiguous evidence of instances of venting associated with Soviet nuclear testing in 1985.

Finding

The U.S. Government judges that the Soviet Union's underground nuclear test practices have resulted in the venting of radioactive matter on numerous occasions and caused radioactive matter to be present outside the Soviet Union's territorial limits in violation of its legal obligation to the Limited Test Ban Treaty. The Soviet Union has failed to take the precautions necessary to minimize the contamination of man's environment by radioactive substances despite U.S. demarches and request for corrective action.

Threshold Test Ban Treaty

Nuclear Testing and the 150-Kiloton Limit

The Treaty on the Limitation of Underground Nuclear Weapon Tests, referred to as the Threshold Test Ban Treaty (TTBT) prohibits underground explosions with yields exceeding 150 kilotons (kt). The

intent of the TTBT was to reduce significantly the explosive force of the new nuclear warheads and bombs that could otherwise be tested for weapon systems. The TTBT was signed in July 1974.

The TTBT is a treaty signed by the negotiating

Parties but ratified by neither. However, neither Party has made its intentions clear not to become a Party. As such, both signatories are subject to the obligation to refrain from acts which would defeat the object and purpose of the TTBT. A single test which intentionally exceeded 150 kt could defeat the object and purpose of the TTBT. In 1976 the signatories each separately announced their intention to observe the TTBT limit.

Between 1976 and December 1985, the Soviets conducted about 190 underground nuclear explosions. The seismic data from each of these explosions has been carefully examined. The seismic data from the totality of explosions has been subjected to statistical analysis. Additional information relevant to the assessment of the Soviet nuclear test program has been analyzed. While there remains uncertainty with regard to the actual yields of Soviet nuclear devices tested, the estimated yield has exceeded 150 kt in a number of instances.

The TTBT states that compliance with it will be verified by national technical means. National technical means include but are not limited to seismometers. The Protocol to the Treaty requires, upon ratification by both Parties, an exchange of geological information on the designated nuclear

test areas and explosion calibration information, including yields, for each of these areas. There are no provisions for verifying the accuracy of the data to be provided by each Party. The U.S. has repeatedly proposed discussions on verification improvements that might ultimately lead to effective verification but the Soviet Union has thus far rejected all such U.S. efforts.

Soviet testing at yields above the 150 kiloton limit would allow development of advanced nuclear weapons with proportionately higher yields than the yields of weapons that the U.S. could develop under the Treaty. Such higher-yield weapons would be suitable for Soviet counterforce weapons that are believed to be mounted on Soviet ICBMs.

Finding

The U.S. Government judges that, while ambiguities in the pattern of Soviet testing and verification uncertainties continued in 1985, Soviet nuclear testing activities for a number of tests constitute a likely violation of legal obligations under the Threshold Test Ban Treaty of 1974, which banned underground nuclear tests with yields exceeding 150 kilotons. These Soviet actions continue despite U.S. requests for corrective measures.

Helsinki Final Act

The Final Act of the Conference on Security and Cooperation in Europe was signed in Helsinki in 1975. This document represents a political commitment and was signed by the United States and the Soviet Union, along with many other States. Soviet actions not in accord with that document are violations of their political commitment.

Exercise Notification Provisions of the Helsinki Final Act

The signatories to the Helsinki Final Act of 1975 are required by the Act's "Documents on Confidence-Building Measures (CBMs) and Certain Aspects of Security and Disarmament" to give prior notification to other participating States "of major military maneuvers exceeding a total of 25,000 troops, independently or combined with any possible air or naval components."The notification "will

contain information of the designation, if any, the general purpose of and the States involved in the maneuver, the type or types and numerical strength of the forces engaged, the area and estimated time frame of its conduct. The participating States will also, if possible, provide additional relevant information, particularly that related to the components of the forces engaged and the period of involvement of these forces."The participating States will invite other participating States voluntarily and on a bilateral basis, to send observers to attend military maneuvers.

The Soviet Union's August 14 notification of the September 4-12, 1981 maneuver "ZAPAD-81" did not include the maneuver's designation, nor did it provide the types of forces engaged, and most importantly, it did not include the number of troops taking part. "ZAPAD-81" may have been the largest maneuver conducted by any signatory

State, or group of signatory States, since the Final Act was adopted.

The United States asked the Soviet Union, through diplomatic channels, about its preparations for "ZAPAD-81" prior to the beginning of the maneuver. No further information was given by the Soviet Union until September 5, the second day of the maneuver, when the Soviet news agency TASS reported the name of the maneuver and the fact that approximately 100,000 troops were taking part.

The information in the notifications issued by eastern States has normally been limited to the bare minimum of information required by the Final Act. Little, if any, additional relevant information, relating to the components of the forces engaged and the period of engagement, has been provided. The eastern countries have invited observers to fewer than

half of their major maneuvers and have frequently been unwilling to allow the observers adequate observation of the exercises.

Finding

The U.S. Government judges that the Soviet Union in 1981 violated its political commitment to observe provisions of Basket I of the Helsinki Final Act by not providing notification of exercise "ZAPAD-81." While the USSR has generally taken an approach to the confidence-building measures of the Final Act which minimizes the information it provides, Soviet compliance with the exercise notification provisions was improved in 1983. In 1984, the USSR returned to a minimalist approach providing only the bare information required under the Final Act. The Soviet Union continued this approach during 1985.