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POLICY INTRODUCTION: SDI TECHNICAL PAMPHLET

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Since President Reagan first announced the Strategic Defense Initiative, we have made considerable technical progress toward determining the feasibility of effective defenses against ballistic missiles. We plan to make an informed decision about development and deployment of such defenses in the early 1990s. The SDI program already has yielded impressive dividends on our initial investment. Indeed, we have made considerable progress, meeting and exceeding our technical expectations in many program areas. This program is a testimony to the skill of our scientists and to the dedication that characterizes the program. The details of this progress are outlined for you in this technical report.

As you read this report, it is important to remember that the SDI at this point is not a weapons development program. We have no preconceived notions of what systems would make up a militarily effective and survivable defensive system against ballistic missiles. A number of different concepts involving a wide range of technologies are, therefore, being examined. No single concept or technology has, as yet, been identified as the best or most appropriate.

The scientists and engineers, both inside and outside the Government, involved in SDI research have an obligation to hold their professions and their work to the highest standards; that is, scientific objectivity should rise above partisan political debate. While we are finding a healthy diversity of opinion on how to resolve key technical issues, there is considerable agreement on the most fundamental features of ballistic missile

defense architecture. One of our top research priorities has been to examine multilayer defense architectures and to define major factors affecting technology decisions. The importance of the results of these studies cannot be overstated., A major point that has emerged from our studies is that the most robust architectures probably would combine both space- and ground-based elements. The large number of opportunities to engage the threat with this architecture leads to an expectation of achieving very low levels of defense leakage even if the enemy were to proliferate his offensive forces in response to our defense.

We understand that as our research progresses, some research areas will not bear fruit, others will yield unforeseen dividends. We also are aware that during this process the widespread and lengthy debate about strategic defenses will continue, and we will continue to hear concerns that deployment of strategic defenses will undermine crisis stability and spur an overwhelming proliferation of offensive arms by the Soviets.

Our answer to these concerns remains the strict criteria we established for ourselves at the outset of the SDI program.

First, advanced defenses must be adequately survivable. They must not only maintain a sufficient degree of effectiveness to fulfill their mission even in the face of determined attacks on the defense, but also maintain stability by discouraging such attacks.

The second requirement is military effectiveness. A defense against ballistic missiles must be able to destroy a sufficient portion of an aggressor's attacking forces to deny him confidence

that he can achieve his objectives. In doing so, the defense should have the potential to deny that aggressor the ability to destroy a militarily significant portion of the target base he wishes to attack.

Third, like most major military systems, to be deemed effective, a deployable strategic defense system must be "cost-effective". That is to say, it must be possible for the United States to maintain, and if necessary to strengthen, its system in such a way that the Soviet Union would find it too costly economically, too difficult technically, or too unattractive militarily to try to counter or overwhelm the system with countermeasures or additional ballistic missiles.

The importance of these criteria cannot be overemphasized. Their continuing application throughout our research program will enable us to make the necessary informed judgments about the possibility for effective strategic defenses.

The primary goal of the SDI is to reduce and ultimately to eliminate the threat of ballistic missile attack. A fundamental tenet of our pursuit of this goal is that we are working toward a safer, more stable basis of deterrence. Since the SALT I agreements were ratified in 1972, the Soviet strategic threat to Western security has increased as a result of Soviet offensive and defensive force improvements, research and development on advanced defenses, and non-compliance with treaty obligations. The SDI program, by taking steps now to determine future options for ensuring deterrence and stability over the long term through the introduction of effective strategic defenses, is part of an

essential three-pronged effort to answer these threats. The other aspects of this response are: near-term improvements in our offensive nuclear retaliatory forces and efforts to negotiate radical reductions in existing and planned offensive nuclear arms. We repeat, our aim in these efforts is stability, not superiority.

These three elements are complementary. A noteworthy example of the fruits that this strategy has borne already is the fact that the SDI program was a key element in bringing the Soviets back to the Geneva negotiations where we now are discussing nuclear arms reductions for the first time. Our desire to move forward in a stable way also is reflected by our commitment -- if our research yields appropriate results -- to consult and negotiate, as appropriate, with the Soviet Union on how deterrence might be strengthened through the phased introduction of defensive systems into the force structures of both sides. At Geneva we already have begun the process of bilateral discussion needed to lay the foundation for this process.

As we have pledged from the outset, the SDI research program is being conducted in full compliance with the 1972 Anti-Ballistic Missile Treaty. Over the past year we determined that our understanding of the limitations of the ABM Treaty needed greater precision. As a result, we reexamined the Treaty as it relates to future systems based on "other physical principles". This review led to the judgment by the President that a reading of the ABM Treaty that would allow the development and testing of such

systems based on other physical principles, regardless of basing mode, is fully justified.

However, the SDI program was originally structured in a manner that was designed to permit it to achieve critical research objectives while remaining consistent with a more narrow interpretation of the ABM Treaty. This being the case, in October of 1985 the President -- while reserving the right to conduct the SDI program under the broad interpretation at some future time -- determined it was unnecessary to restructure the SDI program towards the boundaries of the ABM Treaty which the U.S. could observe. Consistent with that determination, we continue to apply the more restrictive treaty interpretation as a matter of policy, although we are not legally required to do so, in evaluating the experiments in the SDI program.

Over the past year we have made considerable progress toward achieving our goal of securing the widest possible allied involvement in SDI research. Ever since the President announced the SDI program on March 23, 1983, a fundamental tenet of SDI policy has been that U.S. and allied security are indivisible. We have committed ourselves to consult with our allies, and we will continue to work closely with them to ensure that, as our research progresses, their views are considered carefully.

Moreover, in March of 1985 Secretary Weinberger invited our allies to participate in SDI research because of our belief that the SDI program and western security as a whole will be strengthened by taking advantage of allied excellence in many SDI research areas. We have made it clear that each allied government must

decide whether or not to be directly involved in allied research. We have no specific timetable for such decisions nor have we attempted to establish a set pattern for participation.

As a result of Secretary Weinberger's invitation, we now have concluded agreements in the form of bilateral Memoranda of Understanding with three of our allies -- the United Kingdom, West Germany and Israel -- and may begin negotiations soon with others. Other Governments who have decided not to negotiate such agreements will permit participation in SDI research by their private sector. Overall we expect allied research institutions to make important contributions to the SDI program.

Since its initiation, the Strategic Defense Initiative has been the subject of much discussion within the United States and in allied countries. Such exchanges are essential in our free societies and can only help ensure that the vision behind the research program can be achieved. The publication that follows is designed to contribute to those exchanges by explaining the technical SDI program and updating you on the technical progress we have made so far.

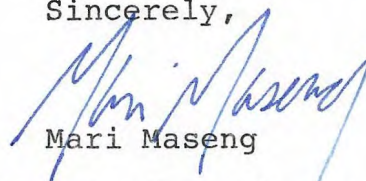
THE WHITE HOUSE
WASHINGTON

August 1, 1986

Dear Friend:

The White House briefing on the Strategic Defense Initiative program originally scheduled for Friday August 8 at 9:45 a.m. has been changed to Wednesday August 6 at 12:15 p.m. Please be at the Pennsylvania Avenue entrance to the Old Executive Office Building at 11:45 a.m. on Wednesday for clearance into the building. All RSVPs should be phoned into (202) 456-6411 by 12:00 p.m. on Tuesday August 5. We apologize for the inconvenience.

Sincerely,



Mari Maseng

Deputy Assistant to the President
and Director, Office of Public Liaison

Spoke for me

Body @ 6:10

END 12005

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Space Policy

Intentions based on defense, sciences, commerce

US Space expectations

by Caspar W. Weinberger

New Group Of Scientists, Engineers Endorses SDI

Declaring that President Reagan's Strategic Defense Initiative (SDI) "is worth pursuing and deserves the full support of the scientific community, Congress and the American people," a new group of scientists and engineers announced its formation recently in Washington, DC.

The group is called the Science and Engineering Committee for a Secure World. Its founding members include about 80 scientists and engineers from around the US. Dr. Martin Hoffert, chairman of the Department of Applied Sciences at New York University, presented the group's policy statement supporting SDI at a recent US Senate Defense Appropriations Committee hearing.

He said: "We are confident that there are thousands of scientists and engineers across America and elsewhere who agree with us that it is unscientific and unwise to hastily oppose the promising SDI proposal at this early stage of its research and development, and who believe that the concept of developing a defensive system to protect our people from a nuclear attack makes good common and moral sense."

Among the committee's members are Dr. Alvin Weinberg, former director of Oak Ridge National Laboratory; Dr. Eugene Wigner, Nobel Laureate in Physics; former astronaut Walter Cunningham; Dr. Dixy Lee Ray, former Democratic governor of Washington; Dr. Edward Lozansky, Director of the Andrei Sakharov Institute; Dr. Robert Jastrow, founder and for 20 years Director of NASA's Goddard Space Institute; Prof. Harry Gatos, Material Science and Engineering Department, Massachusetts Institute of Technology; Dr. Hans Mark, Chancellor of the University of Texas; and Dr. Edward Teller. The acting chairman is Dr. Fred Seitz, former President of the National Academy of Sciences and president emeritus of Rockefeller University.

The complete text of the committee's statement follows.

"At present the American people, by past government policy and to some extent by previous limitations of science and technology, have essentially no defense whatsoever against a nuclear missile attack or even a single accidental launch. The US can only respond to an approaching Soviet first strike by killing millions of Soviet citizens in revenge, or by doing nothing.

"Not only America, but the whole world lives with the fear and insecurity caused by the unstable balance of nuclear terror. This 'balance' rests on the premise that both the US and the Soviet Union follow the controversial doctrine of Mutually Assured Destruction—a doctrine rendered increasingly obsolete by powerful new Soviet missiles and technological advances on both sides.

"The genius of American scientific and engineering professionals helped, however well meaning, create this world of nuclear terror. But, today scientists and engineers from America and around the world

The theme of last year's US Space Foundation Symposium in Colorado Springs, CO, "Space Expectations," struck me as especially appropriate. It raised an important question: just what is it that we expect to achieve in space? This is not a new question, but it is a question that has too frequently been left unanswered.

The variety of subjects covered in any discussion of space provide a clue to the answer: defense, defense/industry issues, research and development, science and commercial space concerns.

America's intentions in space are diverse. We have a variety of goals based on our desires to move forward in defense, the sciences and commerce. We have long said, "Space is a place, not a mission."

It's a place for defense, offering the ultimate high ground for military missions. It is a unique location for research and development, providing an environment that cannot be achieved in any terrestrial institution. It is a laboratory for scientific investigation, furnishing an unobstructed view of the galaxy and the Earth. And it is a site for industry, yielding opportunities for new manufacturing processes and techniques and for advanced telecommunications.

Space is also a place for alliances, offering opportunities for stronger mutual defense and the benefits of international cooperation in scientific investigation. Space is a place of high expectations and great potential. And it is a place where our objectives always seem to grow.

We have been in space for more than

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The Secretary of Defense's article was derived from a speech he gave at last November's US Space Foundation Symposium.

NEW GROUP...from Pg. 9

have the opportunity to play a positive and critically important part in reducing and perhaps eventually eliminating the threat of nuclear war by means of America's SDI program.

"As professionals trained in scientific methodology, we believe that the feasibility of a promising scientific or technical proposal should not be judged in advance of proper research, experimentation and testing. Therefore, we believe that the SDI should not be hastily, unscientifically or ideologically rejected without this necessary thorough evaluation to determine its feasibility, its effectiveness and its practicality—which is the very purpose of the SDI program.

"Indeed, we ask our fellow scientists and engineers: is it not our responsibility as professionals and as concerned human beings to utilize our talents and energies now to see if we can render the nuclear threat militarily ineffective and therefore obsolete?

"New technological breakthroughs have significantly increased the prospect that the US can successfully devise effective systems which will destroy attacking Soviet nuclear missiles long before they can come close to their targets in America, Europe or elsewhere. Included are such things as electronic miniaturization, super computers, infrared sensors, 'rubber mirrors,' greatly enhanced laser beam power, the scramjet concept and optical synthetic aperture imaging. These and other recent scientific and engineering achievements are providing the world with the possibility that the nuclear superpowers can move away from reliance on the threat of using nuclear weapons designed for the mass destruction of humanity in order to maintain security, and instead to reliance on defensive weapons designed to increase stability in periods of crisis, to protect countries from attack, and to save lives.

"The SDI undertaken by President Reagan and the Congress seeks to utilize such new technological means to turn America's strategic military policy away from the unreliable, outdated MAD doctrine and its death-dealing nuclear missiles to a Mutually Assured Survival policy based on new, life-protecting defensive systems. As such, SDI embodies a strategy surely ethically superior to the MAD policy, as well as a concept of strategic deterrence that is likely more sound from a military standpoint.

"By developing the defensive means to shoot down Soviet (or other) nuclear missiles or warheads in space or the atmosphere before they explode on Earth, SDI is intended to significantly increase America's deterrence to a Soviet nuclear attack, as well as to eliminate the danger from an accidental launch. Even a less than perfect defense system could nonetheless render an attack militarily ineffective, and therefore greatly reduce the probability that an attack would ever be launched in the first place. In the quite unlikely event that an attack did occur, strategic defenses would tremendously reduce the loss of life and damage that would otherwise result without any such defense system in place. In addition, the technology being developed by the SDI could also readily be utilized to help provide successful defenses against bombers and cruise missiles, as well as shorter range nuclear missiles.

"SDI is not designed to cause a war in the heavens, as some charge, but to prevent nuclear war on Earth. It would not lead to the militarization of space, which was already militarized by the first *Sputnik* satellite and the first ICBM. Instead, SDI is intended to render space and the atmosphere militarily useless for nuclear missiles—to stop nuclear weapons in space so they cannot hit the Earth.

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25 years. Throughout those 25 years, our horizons have continued to expand. We have seen the seemingly unbelievable predictions of scientists, science fiction writers and futurists turn into simple reality. These are the things we now take for granted. We have seen this nation lead the world, from shortly after Lord Kelvin's flat prediction 90 years ago that "heavier-than-air flying machines are impossible," to the realities of landing on the moon and almost routine Space Shuttle flights.

And the most amazing thing about space is that we have just scratched the surface of its potential. Our expectations for space, in the long-term, are almost boundless. In the immediate future, of course, our goals must be tempered by the realities of budget constraints and the pace of technological advancement.

Our expectations, in the Department of Defense, are realistic—and they are tempered. But they remain high as they must in an organization with a single goal of safeguarding the nation's security. Already, space-based systems are vital to our daily operations: to warning capabilities, C³, navigation and weather forecasting. In all things, space-based systems will be of critical importance to battlefield commanders as well as in strategic operations.

In the future, we will do even more in space. Research and development programs are properly aimed at turning the visions of today into the realities of the future.

Examine our Strategic Defense Initiative and how it relates to space technologies. We do not know yet which of the SDI technologies will offer the most potential as defensive systems. So, we cannot be specific about expectations of the SDI beyond the atmosphere. But, at the very least, we know that space research brings us closer to the day

when we can abandon our mutual suicide pact with the Soviet Union, replacing it with the deterrence based on defensive systems.

The existence of our SDI organization, under Gen. James Abraham-WEINBERGER...Pg. 11

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"The fact that the Soviet Union began serious research, development and testing of advanced strategic defense systems some 10 years before the US, and is continuing to expand its offensive nuclear capabilities, makes the SDI more accurately a response to this Soviet effort and buildup.

"Furthermore, even without additional technological advances on its part, growing evidence indicates that the Soviet Union is producing the capability, in violation of the ABM Treaty, to rapidly deploy a non-exotic strategic defense system of anti-ballistic missiles. This defense system could be effective against a ragged US retaliation in response to a Soviet first strike on US nuclear weapons. It is estimated that the Soviet Union could deploy such a system by the early 1990s or sooner, regardless of whether the US proceeds with its SDI. Such a development could significantly enhance the Soviet Union's nuclear blackmail capability and tempt it in very dangerous new ways.

"These developments make the case for America's SDI effort an even more compelling one. Indeed, it can be argued that it is imperative for America's continued security and for world peace that the SDI research and development program proceed with all deliberate speed. At the same time, we believe that in the long run the most realistic and best path toward international stability, better US-Soviet relations, and world peace is likely to be found in the US and the Soviet Union engaging in a mutual transition from offensive strategic weapons to defensive ones, aimed at the flight corridors of potentially approaching nuclear weapons, rather than at human beings. Such a change in policy would vastly increase real security for both countries and therefore considerably reduce fear and mistrust.

"For these reasons, therefore, it is our judgment that the SDI program is worth pursuing and deserves the full support of the scientific community, Congress and the American people. Under the less restrictive interpretation of the ABM Treaty of 1972 which the US government has stated is the correct one, the necessary testing of potential defensive systems can and should be done so that Congress has the required information about the effectiveness of particular systems in order to make a sound decision concerning eventual deployment.

"If strategic defenses prove to be feasible and practical after careful testing and assessment of costs and effectiveness particularly in relation to possible Soviet counteractions, and in light of Soviet SDI programs, we recommend that a new ABM Treaty be negotiated which embraces strategic defenses, and also equitable, verifiable reductions in offensive nuclear weapons. Such a treaty should encourage mutual deployment of defensive systems so that the era of mutually assured survival, instead of destruction, can be ushered in cooperatively.

"In the absence of Soviet agreement to such a new treaty, and in view of the extensive Soviet work on advanced strategic defenses and Soviet violations of the current treaty, US withdrawal from the treaty—in 'the supreme interests' of the American people (as provided for by use of the terms of the treaty itself)—and deployment of its own strategic defenses should be seriously evaluated. Unilateral US compliance with the existing treaty would serve neither America's interests nor the world's.

"In conclusion, as professional scientists and engineers, we want to express our earnest hope that history will record that in our day America's and the world's best scientific and technical minds sought to develop the technology which helped humanity move back from the nuclear precipice, and succeeded. We can do no less." ●

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son, and the emphasis given to research and development activities in the defense budget, also are indicative of our expectations for space. We increased our investment in R&D by 20 percent in the fiscal year 1986 budget request. SDI and space technologies were major portions of that request.

In addition, the variety of R&D programs, including initial research into a follow-on to the Space Shuttle, new space propulsion systems and laser communications, are vital steps in the right direction.

Perhaps our defense expectations of space are best summarized by the simple statement that space increases our ability to keep our peace and our freedom. Space is already essential to national security. It will be more so in the future. Consequently, we have begun organizing the DoD to use the hardware we have and prepare for future systems.

Our preparations for the future are well under way. The activation of the joint US Space Command last year was a major step forward. We also are using the Space Shuttle for defense missions, developing the Consolidated Space Operation Center (CSOC) in Colorado Springs, making major investments in our satellite control and tracking facilities and completing the Vandenberg Launch Complex.

The incredible progress we have made in developing and using hardware obscures another of our space expectations—affording important defense capabilities that otherwise would be too costly or totally impossible. That might seem surprising since space systems are among the most expensive items in the annual budget. But, the fact is—without space systems—we could never afford the communications, warning, navigation or weather forecasting accuracies that we now have.

How much would it cost to provide our forces with worldwide communications that they need using only ground-based systems? Or how

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Aide's access to secrets challenged

By Stephen Kurkjian
and Thomas Palmer
Globe Staff

WASHINGTON — An Arab-American group urged yesterday that the security clearance of a high-ranking Pentagon official be revoked because he allegedly offered secret military information to a group of Israelis in 1978 while working as a congressional aide.

The National Association of Arab Americans also called for a congressional investigation into why the Justice Department had dropped its probe of the case, even though the head of the department's Internal Security section had recommended that it be referred to a federal grand jury for further investigation.

The allegations involve Stephen D. Bryen, a deputy undersecretary in the Defense Department, and a meeting that he had in March 1978 with a group of Israeli officials at a Washington hotel coffee shop. At the time, Bryen was an aide to the Senate Foreign Relations Committee.

Michael Saba, a representative of the Arab Americans Association, said that he was in Washington on business on the day of that meeting and by chance sat at an adjacent table.

In an affidavit, Saba said that Bryen told the Israelis, among other things: "I have the Pentagon document on the bases, which you are welcome to see."

A preliminary Justice Department investigation determined that shortly before the meeting, the Foreign Relations Committee received a document from the Pentagon on Saudi Arabian bases. It is this document that Saba says

Bryen offered to the Israelis.

Although he said he met with the Israeli group as part of his regular duties, Bryen has denied making that statement or ever offering to turn over any documents to the Israelis.

In a statement released yesterday by his office, Bryen said, "Over the past eight years I have been the object of five separate investigations or reviews, all of these the result of false allegations."

"As any fair-minded person reading these documents would conclude, they confirm that there was never a basis for questioning my integrity during my many years of public service."

However, John H. Davitt, former chief of the Internal Security section of the Justice Department's Criminal Division, said yesterday that he was surprised, "given the information that was developed during the course of the FBI's investigation, that he was given a security clearance."

In his present position, Bryen has a top-secret security classification and is responsible for overseeing the Pentagon's efforts to halt the flow of technology to the Soviet Union.

In 1979, Davitt wrote to his boss at the time, Philip B. Heymann, then the head of the Justice Department's criminal division. One part of the letter referred to "some of the unresolved questions thus far, which suggest that Bryen is (a) gathering classified information for the Israelis, (b) acting as their unregistered agent and (c) lying about it."

At its press conference yesterday, the Arab American Associ-

ation criticized Heymann's decision to turn down a recommendation by investigators that the case be referred to a criminal grand jury.

David Saad, head of the Arab Americans Association, said a congressional investigation was needed to determine if Heymann's longtime friendship with Bryen's attorney had played a role in Heymann's decision to end the probe.

Heymann, a professor at the Harvard Law School, acknowledged yesterday that he was a close friend of Nathan Lewin, Bryen's lawyer. But he denied that he had had any substantive conversations with Lewin about the case.

"I made my decision solely on the fact that the evidence that we had developed up to that point did not justify our going to a grand jury," Heymann said.

In his 1979 memorandum to Heymann, Davitt cited:

● Apparent discrepancies in two versions Bryen gave as to how the meeting with the Israelis had come about and who had requested it.

● Bryen's denial that he possessed a document that the FBI concluded that he did indeed have. A spokesman for Bryen said yesterday that the FBI had confused two documents.

● Twelve specific quotations of statements that Saba said Bryen had made to the Israelis, which may have constituted political advice and that therefore violated the federal conflict-of-interest law.

● A request Bryen made to the Defense Department for detailed maps of missile sites in Jordan. The request was refused because it "did not conform to normal pro-

WASHINGTON POST
14 AUGUST 1986

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Navy Explosives Test Delayed in Maryland

United Press International

SOLOMONS ISLAND, Md., Aug. 13—The Navy has agreed to delay testing of 16-pound explosive charges near the mouth of the Patuxent River, Rep. Roy Dyson (D-Md.) said today.

Dyson said protests from Chesapeake Bay watermen, local officials and pressure from members of Congress now considering the Defense Department budget helped persuade the Navy to delay the tests by 10 days.

The announcement of the weapons' tests raised concerns among watermen, who said the underwater explosions could scare away or kill some marine life.

cedures," Davitt wrote.

The House Judiciary subcommittee plans to look into the handling of the case as part of its general investigation into the granting of security clearances, according to an aide to Rep. John Myers (D-Mich.).

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would we verify treaty compliances? The cost is either astronomical or we simply couldn't do it all.

When it comes to space, our defense expectations are great. However, our military space programs—indeed, many vitally needed defense programs—are in danger of being deeply cut by Congress.

In their zeal to cut defense as a means of attacking the federal deficit, too many on Capitol Hill appear to be neglecting the adverse consequences to national security

that deep cuts bring. Inevitably, they will mean a loss of capability in the future. We already have lost \$300 billion of funds we need to use during the next five years. If Congressional leadership reneges on its agreement with the President to return to real growth in the next two defense budgets, as some are urging, then we would risk drastic cuts in planned capabilities.

We must be aware of what this would mean, significant stretch-outs, increased costs and reduced defense. And, it would delay expectations.

Still, our expectations from space are great, and they must remain great. There is no substitute for the defense capabilities we can achieve in space. And, especially with SDI-related research, there is no other means of achieving a new hope for the world free from the specter of nuclear missiles.

Our future is intimately tied to space. In actively and vigorously pursuing our space expectations, we are in league with the future. And the future will be a secure one for us and for all our allies.



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SOVIET STRATEGIC DEFENSE PROGRAMS

Released by the Department of Defense and Department of State, October 1985

SOVIET STRATEGIC DEFENSE PROGRAMS

The United States Government has not recognized the incorporation of Estonia, Latvia, and Lithuania into the Soviet Union. Other boundary representations on the maps are not necessarily authoritative.

The illustrations of Soviet strategic defense facilities and systems included in this publication are derived from various U.S. sources; while not precise in every detail, they are as authentic as possible.

Preface

In March 1983, President Reagan presented a dramatic new vision of a world in which we would no longer have to depend on nuclear weapons to prevent nuclear conflict. He presented that vision, and that challenge, in this way:

What if free people could live secure in the knowledge that their security did not rest upon the threat of instant U.S. retaliation to deter a Soviet attack, that we could intercept and destroy strategic ballistic missiles before they reached our own soil or that of our allies?

The Strategic Defense Initiative (SDI), which the President announced that night, marks the first, essential step toward the realization of his ultimate goal. The SDI is a research program, designed to examine the promise of effective defenses against ballistic missiles based on new and emerging technologies. If such defenses prove feasible, they would provide for a more stable and secure method of preventing war in the future, through the increasing contribution of non-nuclear defenses which threaten no one.

The Strategic Defense Initiative has been the subject of much discussion within the United States and allied countries since its initiation. Such exchanges are essential in our free societies and can only help ensure that the vision behind the research program can be achieved. There has been comparatively little public discussion, however, about the trend in Soviet defensive as well as offensive forces which provides the essential backdrop to the SDI. Indeed, the Soviet Union has intentionally tried to mislead the public about its strategic defense activities.

As this publication documents, Soviet efforts in most phases of strategic defense have long been far more extensive than those of the United States. The USSR has major passive defense programs, designed to protect important assets from attack. It also has extensive active defense systems, which utilize weapons systems to protect national territory, military forces, or key assets. Soviet developments in the area of active defenses fall into three major categories: air defense; ballistic missile defense based on current technologies; and research and development on advanced defenses against ballistic missiles.

Important recent Soviet activities in strategic defenses include:

- Upgrading and expansion of the world's only operational Anti-Ballistic Missile (ABM) system around Moscow;
- Construction of the Krasnoyarsk ballistic missile detection and tracking radar that violates the 1972 ABM Treaty;
- Extensive research into advanced technologies for defense against ballistic missiles including laser weapons, particle beam weapons, and kinetic energy weapons;
- Maintenance of the world's only operational antisatellite (ASAT) system;
- Modernization of their strategic air defense forces; and
- Improvements in their passive defenses by maintaining deep bunkers and blast shelters for key personnel, and enhancing the survivability of some offensive systems through mobility and hardening.

The following pages examine in detail Soviet programs in defenses against ballistic missiles, air defense, and passive defense. A summary of key Soviet offensive

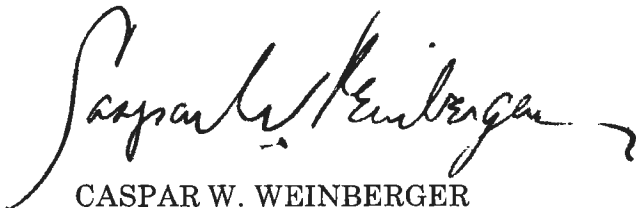
force developments is presented in the annex to this document, since those are critical to an understanding of the impact of Soviet strategic defense programs. Soviet offensive forces are designed to be able to limit severely U.S. and allied capability to retaliate against attack. Soviet defensive systems in turn are designed to prevent those retaliatory forces which did survive an attack from destroying Soviet targets.

Given the long-term trend in Soviet offensive and defensive force developments, the United States must act in three main areas to maintain security and stability both in near term and in the future.

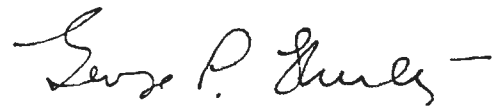
First, we must modernize our offensive nuclear forces in order to ensure the essential military balance in the near term, and to provide the incentives necessary for the Soviet Union to join us in negotiating significant, equitable, and verifiable nuclear arms reductions.

Second, we must act now to start constructing a more reliable strategic order for the long term by examining the potential for future effective defenses against ballistic missiles. The Strategic Defense Initiative is a prudent and necessary response to the ongoing extensive Soviet anti-ballistic missile effort, including the existing Soviet deployments permitted under the ABM Treaty. The SDI provides a necessary and powerful deterrent to any near-term Soviet decision to expand rapidly its ABM capability beyond that permitted by the ABM Treaty. The overriding importance of the Strategic Defense Initiative, however, is the promise it offers of moving to a better, more stable basis for deterrence in the future and of providing new and compelling incentives to the Soviet Union to agree to progressively deeper negotiated reduction in offensive nuclear arms.

The third approach is one of negotiation and diplomacy. We are even now looking forward to a transition to a more stable world, with greatly reduced levels of nuclear arms and enhanced ability to deter war based upon the increasing contribution of non-nuclear defenses against offensive nuclear arms. Toward those ends, we are endeavoring at the negotiations in Geneva to achieve significant, equitable, and verifiable reductions in existing nuclear arsenals and to discuss with the Soviets the relationship between offensive and defensive forces and the possibility of a future transition to a more defense-reliant deterrence.



CASPAR W. WEINBERGER
Secretary of Defense



GEORGE P. SHULTZ
Secretary of State

Introduction

In the late 1960s, given the state of defensive technology at the time, the United States came to believe that deterrence could best be assured if each side were able to maintain the ability to threaten retaliation against any attack and thereby impose on an aggressor costs that were clearly beyond any potential gains. That concept called for a reduction by both the Soviet Union and the United States in their strategic defensive forces, the maintenance of a balance between the two sides' offensive nuclear forces, and negotiated nuclear arms reductions which would maintain the balance at progressively lower levels.

In accordance with those principles, the United States exercised great restraint in offensive nuclear arms and at the same time dramatically lowered its defensive forces. Thus, we removed most of our defenses against Soviet bombers; decided to maintain a severely limited civil defense program; ratified the 1972 Anti-Ballistic Missile (ABM) Treaty, which placed strict limits on U.S. and Soviet defenses against ballistic missiles; and then deactivated the one ABM site which we were allowed under that Treaty. The basic idea that stability and deterrence would be maintained if each side had roughly equal capability to retaliate against attack also served as the foundation for the U.S. approach to the Strategic Arms Limitation Talks (SALT) process of the 1970s.

The Soviet Union, however, failed to show the type of restraint, in both strategic offensive and defensive forces, that the United States hoped for when the SALT process began. The

USSR has consistently refused to accept meaningful and verifiable negotiated reductions in offensive nuclear arsenals. Since the late 1960s, the Soviets have greatly expanded and modernized their offensive nuclear forces and invested an approximately equal sum in strategic defenses. The USSR has an extensive, multifaceted operational strategic defensive network which dwarfs that of the United States as well as an active research and development program in both traditional and advanced defenses against ballistic missiles. Soviet non-compliance with arms control agreements in both the offensive and defensive areas, including the ABM Treaty, is a cause of very serious concern. The aggregate of current Soviet ABM and ABM-related activities suggest that the USSR may be preparing an ABM defense of its national territory — precisely what the ABM Treaty was designed to prevent.

Soviet offensive and defensive force developments pose a serious challenge to the West. If left unchecked and unanswered, they would undermine our ability to retaliate effectively in case of Soviet attack. The situation would be even more severe if the Soviet Union were to have a monopoly on advanced defenses against ballistic missiles in addition to its sizable offensive and defensive forces. In that case, the USSR might come to believe that it could launch a nuclear attack against the United States or our allies without fear of effective retaliation. At the very least, it might see a realistic chance of successful nuclear blackmail.

Soviet Strategic Defense Programs

The Soviet Approach

The Soviet emphasis on strategic defense is firmly grounded in Soviet military doctrine and strategy, which call for the following actions in the event of nuclear war:

- destruction and disruption of the West's nuclear-associated command, control, and communications;
- destruction or neutralization of as many of the West's nuclear weapons as possible on the ground or at sea before they could be launched;
- interception and destruction of surviving weapons — aircraft and missiles — before they reached their targets; and
- protection of the Party, the State, military forces, industrial infrastructure, and the essential working population against those weapons that survived attacks by Soviet offensive forces.

In pursuit of these goals the USSR puts considerable stress on a need for effective strategic defenses as well as offensive forces. In the Soviet view, the USSR could best achieve its aims in any nuclear war if it attacked first, destroying much of the U.S. and allied capability for retaliation. Defensive measures, both active and passive, would in turn prevent those enemy forces that survived a Soviet first-strike from destroying targets in the USSR.

Marshall V. D. Sokolovskiy, in *Military Strategy* — the basic Soviet strategic treatise, originally published in 1962 — defined the aim of Soviet strategic defenses in this way: "They have the task of creating an invincible system for the defense of the entire country. ... While, in the last war, it was sufficient to destroy 15-20 percent of the attacking air operation, now it is necessary to assure, essentially, 100 percent destruction of all attacking airplanes and missiles."

Soviet offensive and defensive force developments over the past 25 years demonstrate that the strategy articulated by Sokolovskiy still applies. The following pages present a detailed description of the actions undertaken by the Soviets in the area of strategic defenses. In order to explain the totality of the Soviet strategic military effort, a description of offensive force developments is provided in the annex to this document.

Defensive Forces

Over the last 25 years the Soviets have increased their active and passive defenses in a clear and determined attempt to blunt the effect of U.S. and allied retaliation to any Soviet attack. Passive defenses are non-weapons measures — such as civil defense and hardening — which protect important assets against attack. Active defenses utilize weapon systems to protect national territory, military forces, or key assets.

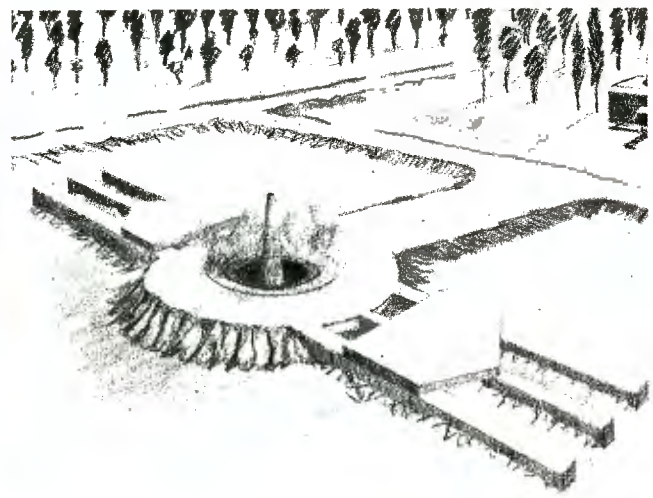
Evidence of the importance the Soviets attach to defensive damage-limitation can be traced back to the beginning of the nuclear age. National Air Defense became an independent service in the late 1950s and since 1959 has generally ranked third in precedence within the Soviet Armed Forces, following the Strategic Rocket Forces and the Ground Forces.

By the mid-1960s, two new mission areas — antisatellite defense and anti-missile defense — were added to the National Air Defense mission. As a result, the Soviet Union has the world's only operational anti-satellite (ASAT) system, which has an effective capability to seek and destroy critical U.S. satellites in low-earth orbit. In addition, Soviet efforts to attain a viable strategic defense against ballistic missiles have resulted in the world's only operational ABM system and a large and expanding research and development program.

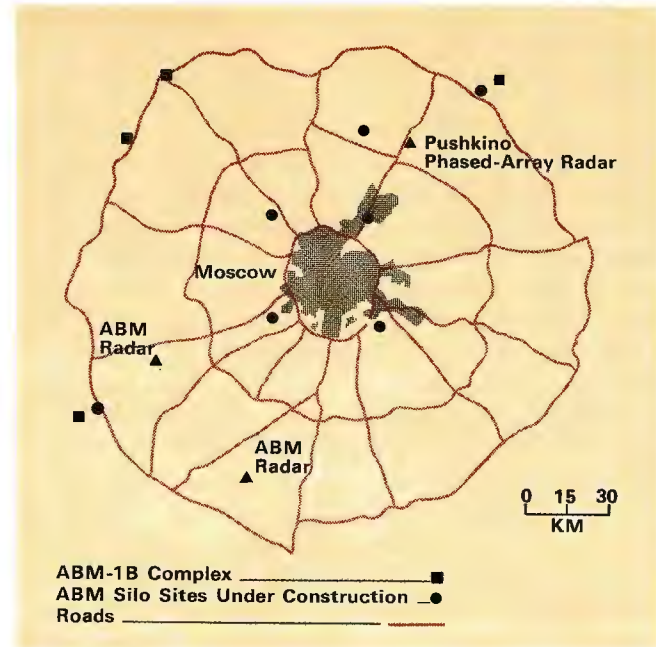
The Soviet emphasis on the necessity of research into defenses against ballistic missiles was demonstrated by then-Minister of Defense Grechko shortly after the signing of the ABM Treaty in 1972, when he told the Soviet Presidium that the Treaty "places no limitations whatsoever on the conducting of research and experimental work directed towards solving the problem of defending the country from nuclear missile strikes."

Ballistic Missile Defense

The Soviets maintain the world's only operational ABM system around Moscow. In 1980, they began to upgrade and expand that system to the limit allowed by the 1972 ABM Treaty. The original single-layer Moscow ABM system included 64 reloadable above-ground launchers at four complexes and DOG HOUSE and CAT HOUSE battle management radars south of



Moscow Ballistic Missile Defense



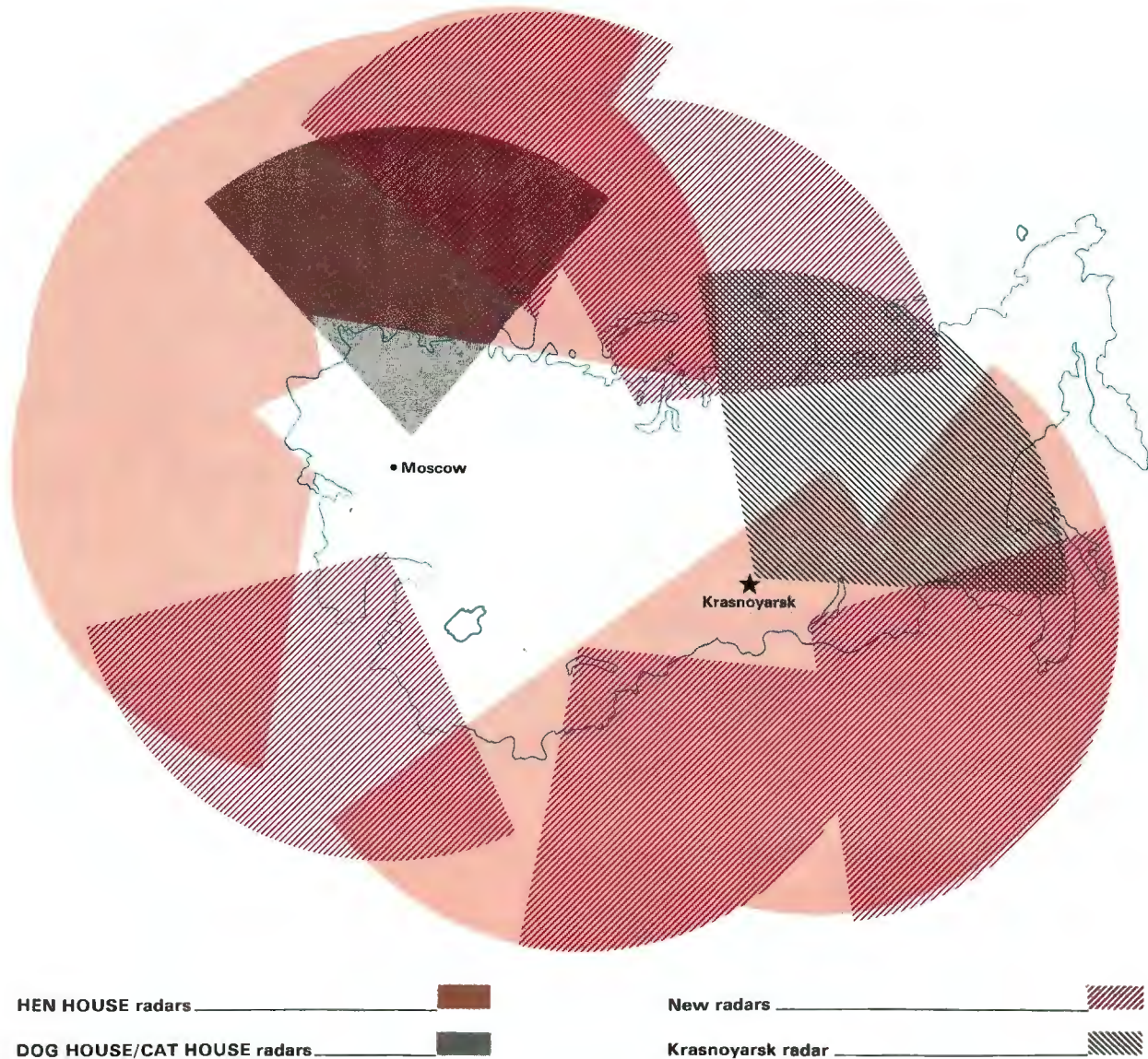
The Moscow ballistic missile defenses identified in map at right include the Pushkino ABM radar, above, GALOSH anti-ballistic missile interceptors, top left, and new silo-based high-acceleration interceptors, top right.

Moscow. Each complex consisted of TRY ADD tracking and guidance radars and GALOSH interceptors (nuclear-armed, ground-based missiles designed to intercept warheads in space shortly before they reenter the Earth's atmosphere).

When completed, the modernized Moscow ABM system will be a two-layer defense com-

posed of: silo-based, long-range, modified GALOSH interceptors; silo-based, high-acceleration interceptors designed to engage targets within the atmosphere; associated engagement and guidance radars; and a new large radar at Pushkino designed to control ABM engagements. The silo-based launchers may be reloadable. The new system will have the 100 ABM

Ballistic Missile Early Warning, Target-Tracking, and Battle Management



launchers permitted by the ABM Treaty and could be fully operational by 1987.

The Soviet system for detection and tracking of ballistic missile attack consists of a launch-detection satellite network, over-the-horizon radars, and a series of large phased-array radars.

The current launch-detection satellite network can provide about 30 minutes warning of any U.S. ICBM launch and determine the general origin of the missile. Two over-the-horizon

radars directed at the U.S. ICBM fields also could give 30 minutes warning.

The next operational layer of ballistic missile detection consists of 11 large HEN HOUSE ballistic missile early warning radars at six locations on the periphery of the USSR. These radars can distinguish the size of an attack, confirm the warning from the satellite and over-the-horizon radar systems, and provide target-tracking data in support of anti-ballistic missile forces.



The 11 large HEN HOUSE ballistic missile early warning radars, at left, at six locations on the periphery of the USSR provide warning and target-tracking data in support of the Soviet ABM system. The DOG HOUSE radar, at right, provides battle management for the anti-ballistic missile interceptors around Moscow.

The Soviets are now constructing a network of six new large phased-array radars that can track more ballistic missiles with greater accuracy than the existing HEN HOUSE network. Five of these radars duplicate or supplement the coverage of the HEN HOUSE network, but with greatly enhanced capability. The sixth, under construction near Krasnoyarsk in Siberia, closes the final gap in the Soviet early warning radar coverage against ballistic missile attack. Together, the six new large phased-array radars form an arc of coverage from the Kola Peninsula in the northwest Soviet Union, around Siberia, to the Caucasus in the southwest.

The United States is now constructing new ballistic missile early warning radars, known as PAVE PAWS, that are located on the periphery of our territory and oriented outward. Both the U.S. and the USSR, in signing the ABM Treaty, recognized the need for ballistic missile early warning radars. At the same time, they recognized that ballistic missile early warning radars can detect and track warheads at great distances and therefore have a significant anti-ballistic missile potential. Such an ABM capability would play an important role in a nationwide ABM defense, which the Treaty was designed to prevent. As a result, the

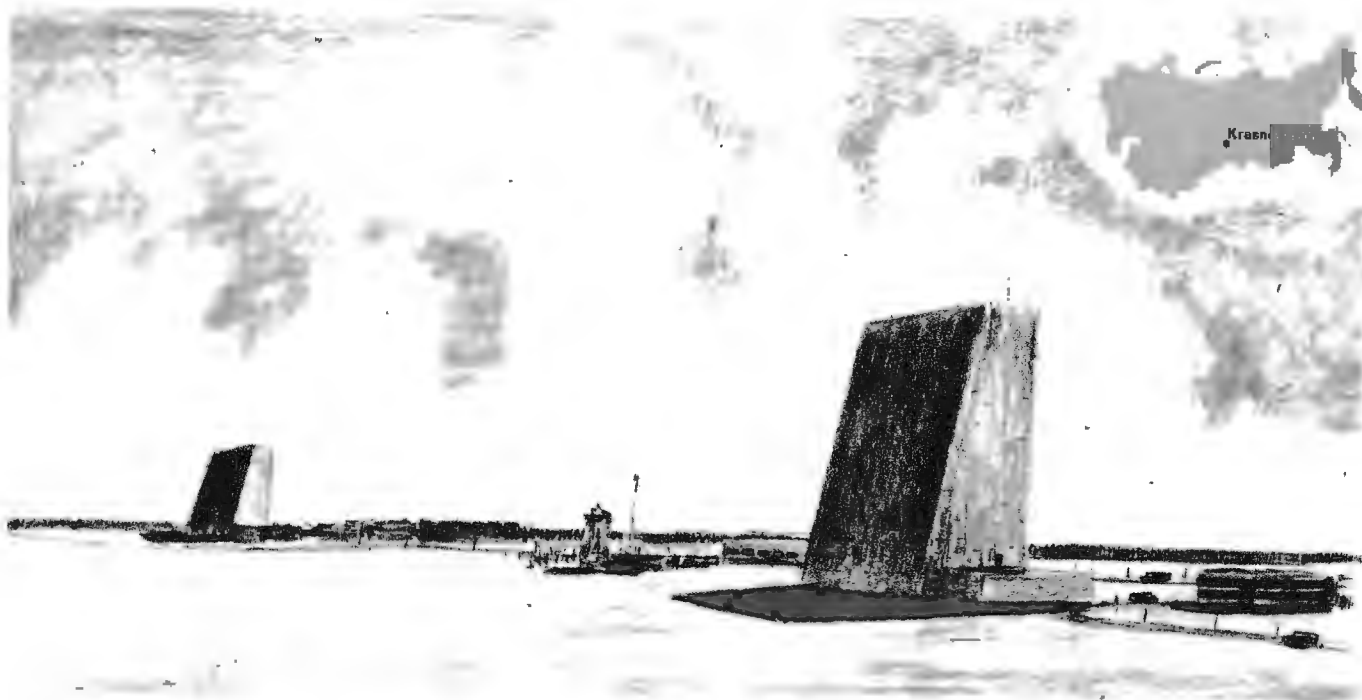
U.S. and the Soviet Union agreed that future ballistic missile early warning radars must be located on a nation's periphery and oriented outward. In that way, the desirable and legitimate goal of early warning could be advanced while minimizing the danger that an effective nationwide battle management network could result.

The Krasnoyarsk radar is designed for ballistic missile detection and tracking, including ballistic missile early warning, and violates the 1972 ABM Treaty. It is not located within a 150-kilometer radius of the national capital (Moscow) as required of ABM radars, nor is it located on the periphery of the Soviet Union and pointed outward as required for early warning radars. It is 3,700 kilometers from Moscow and is situated some 750 kilometers from the nearest border — Mongolia. Moreover, it is oriented not toward that border, but across approximately 4,000 kilometers of Soviet territory to the northeast.

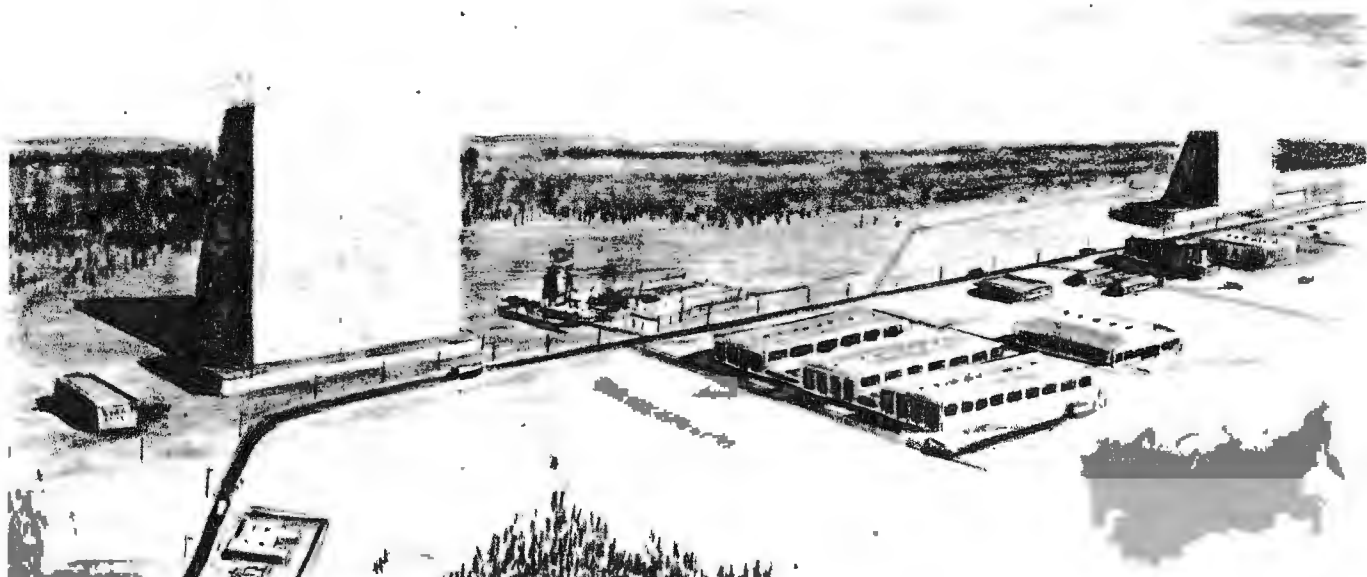
The Soviet Union has claimed that the Krasnoyarsk radar is designed for space tracking, rather than ballistic missile early warning, and therefore does not violate the ABM Treaty. Its design, however, is not optimized for a space-tracking role, and the radar would, in any event, contribute little to the existing Soviet

space tracking network. Indeed, the design of the Krasnoyarsk radar is essentially identical to that of other radars that are known —

and acknowledged by the Soviets — to be for ballistic missile detection and tracking, including ballistic missile early warning. Finally, it



The Soviet Union is violating the ABM Treaty through the siting, orientation and capability of the large phased-array, ballistic missile detection and tracking radar at Krasnoyarsk.



The receiver and transmitter of the large phased-array, ballistic missile detection and tracking radar at Pechora. The design of the Krasnoyarsk radar is essentially identical to that of the Pechora radar. Unlike the Pechora radar, however, the Krasnoyarsk radar does not meet the ABM Treaty requirement that early warning radars be located on the periphery of the Soviet Union and be oriented outward.

closes the last remaining gap in Soviet ballistic missile detection coverage. The Krasnoyarsk radar, therefore, is being constructed in direct violation of the ABM Treaty.

The growing Soviet network of large phased-array ballistic missile detection and tracking radars, of which the Krasnoyarsk radar is a part, is of particular concern when linked with other Soviet ABM efforts. Such radars take years to construct; their existence might allow the Soviet Union to move rather quickly to construct a nationwide ABM defense if it chooses to do so. The Soviets are also developing components of a new ABM system which apparently are designed to allow them to construct individual ABM sites in a matter of months, rather than the years that are required for more traditional ABM systems. Soviet activities in this regard potentially violate the ABM Treaty's prohibition on the development of a mobile land-based ABM system or components. We estimate that by using these components, the Soviets could undertake rapidly-paced ABM deployments to strengthen the defenses of Moscow and defend key targets in the western USSR and east of the Urals by the early 1990s.

In addition, the Soviets have probably violated the prohibition on testing surface-to-air missile (SAM) components in an ABM mode by conducting tests involving the use of SAM air-defense radars in ABM-related testing activi-

ties. Moreover, the SA-10 and SA-X-12 SAM systems may have the potential to intercept some types of strategic ballistic missiles.

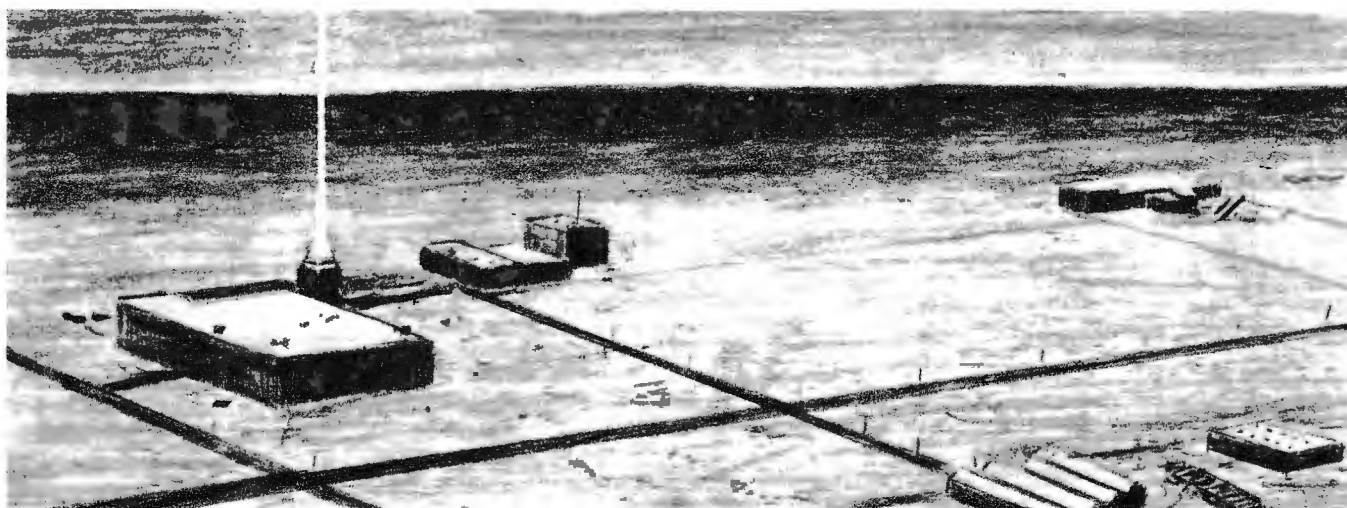
Taken together, all of the Soviet Union's ABM and ABM-related activities are more significant — and more ominous — than any one considered individually. Cumulatively, they suggest that the USSR may be preparing an ABM defense of its national territory.

Advanced Technologies for Defense Against Ballistic Missiles

In the late 1960s, in line with its long-standing emphasis on strategic defense, the Soviet Union initiated a substantial research program into advanced technologies for defense against ballistic missiles. That program covers many of the same technologies involved in the U.S. Strategic Defense Initiative, but represents a far greater investment of plant space, capital, and manpower.

Laser Weapons

The USSR's laser program is much larger than U.S. efforts and involves over 10,000 scientists and engineers and more than a half dozen major research and development facilities and test ranges. Much of this research takes place at the Sary Shagan Missile Test Center where the Soviets also conduct traditional ABM research. Facilities there are estimated to include several air defense lasers, a laser that



The directed-energy R&D site at Sary Shagan proving ground includes ground-based lasers that could be used in an antisatellite role today and possibly a ballistic missile defense role in the future.

may be capable of damaging some components of satellites in orbit, and a laser that could be used in feasibility testing for ballistic missile defense applications. A laser weapon program of the magnitude of the Soviet effort would cost roughly \$1 billion per year in the U.S.

The Soviets are conducting research in three types of gas lasers considered promising for weapons applications: the gas-dynamic laser; the electric discharge laser; and the chemical laser. Soviet achievements in this area, in terms of output power, have been impressive. The Soviets are also aware of the military potential of visible and very short wave-length lasers. They are investigating excimer, free-electron, and x-ray lasers, and have been developing argon-ion lasers for over a decade.

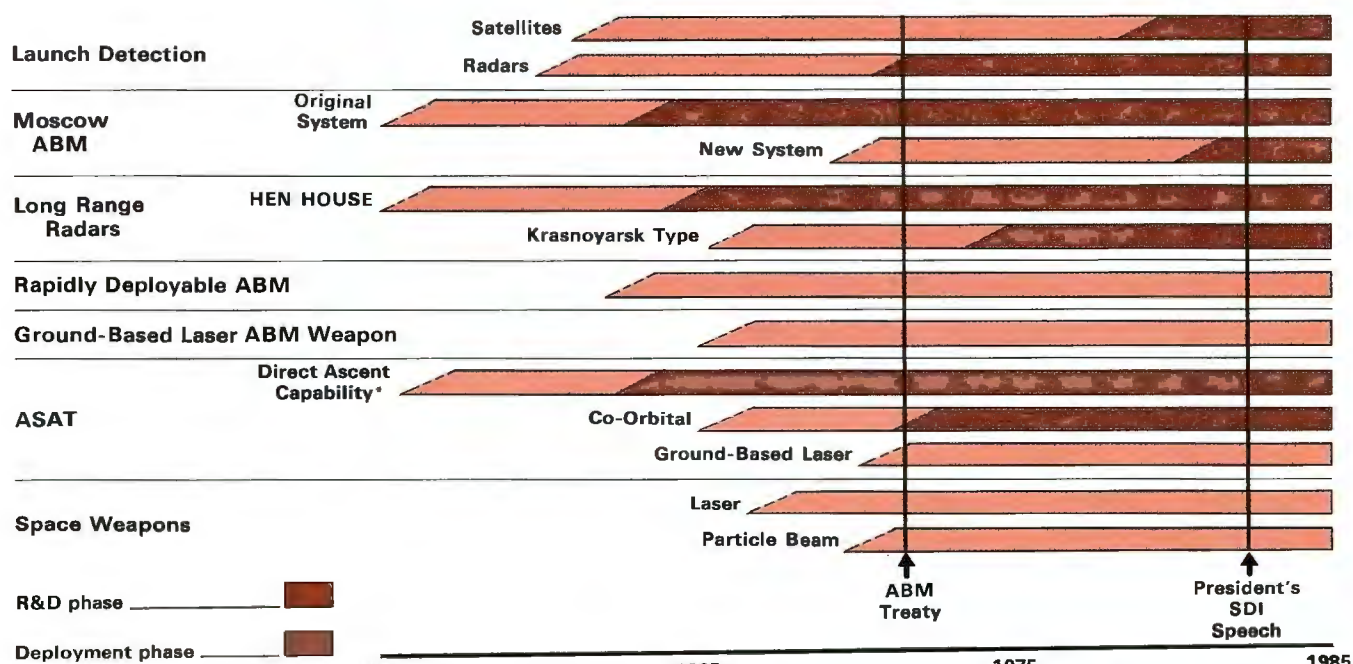
The Soviets appear generally capable of supplying the prime power, energy storage, and auxiliary components needed for most laser and other directed-energy weapons. They have developed a rocket-driven magnetohydrodynamic generator which produces over 15

megawatts of electrical power — a device that has no counterpart in the West. The Soviets may also have the capability to develop the optical systems necessary for laser weapons to track and attack their targets. Thus, they produced a 1.2-meter segmented mirror for an astrophysical telescope in 1978 and claimed that this was a prototype for a 25-meter mirror that would be constructed in the future. A large mirror is considered necessary for a space-based laser weapon.

Unlike the U.S., the USSR has now progressed in some cases beyond technology research. It already has ground-based lasers that could be used to interfere with U.S. satellites, and could have prototype space-based antisatellite laser weapons by the end of the decade. The Soviets could have prototypes for ground-based lasers for defense against ballistic missiles by the late 1980s, and could begin testing components for a large-scale deployment system in the early 1990s.

The remaining difficulties in fielding an oper-

Soviet ABM/Space Defense Programs



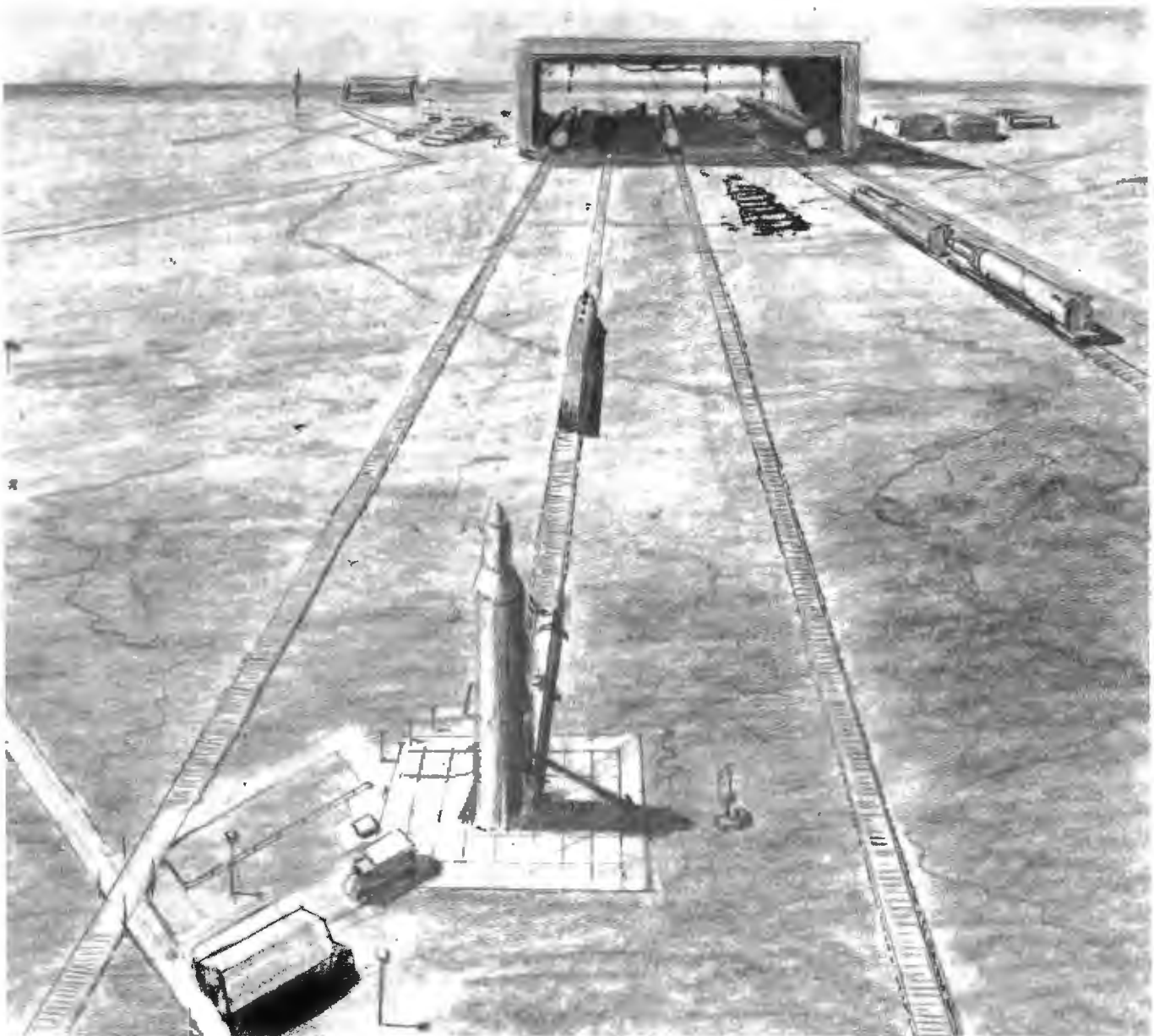
Soviet programs for ABM and Space Defense, which include advanced technologies and space based weapons, were in place prior to the 1972 ABM Treaty and have continued to expand in scope and size. During the same time period, U.S. ABM/Space Defense research has been limited in scope as well as the level of effort in terms of resources invested.

*Potential capability of the Moscow ABM system.

ational system will require still more development time. An operational ground-based laser for defense against ballistic missiles probably could not be deployed until the late 1990s, or after the year 2000. If technology developments prove successful, the Soviets may deploy operational space-based antisatellite lasers in the 1990s, and might be able to deploy space-based laser systems for defense against ballistic missiles after the year 2000.

Particle Beam Weapons

Since the late 1960s, the Soviets have been involved in research to explore the feasibility of space-based weapons that would use particle beams. We estimate that they may be able to test a prototype particle beam weapon intended to disrupt the electronics of satellites in the 1990s. A weapon designed to destroy satellites could follow later. A weapon capable of physically destroying missile boosters or



The USSR's operational antisatellite interceptor is launched from the Tyuratam Space Complex, where two launch pads and storage for additional interceptors and launch vehicles are available.



The Soviet orbital antisatellite (ASAT) weapon is operational and designed to destroy space targets with a multi-pellet blast.

warheads probably would require several additional years of research and development.

It is still uncertain whether ground-based charged particle-beam weapons are feasible — that is, whether the beam will propagate in the atmosphere. A space-based neutral particle beam weapon, however, would not be affected by the atmosphere or by the earth's magnetic field.

Soviet efforts in particle beams, and particularly on ion sources and radio frequency quadrupole accelerators for particle beams, are very impressive. In fact, much of the U.S. understanding as to how particle beams could be made into practical defensive weapons is based

on Soviet work conducted in the late 1960s and early 1970s.

Radio Frequency Weapons

The USSR has conducted research in the use of strong radio frequency signals that have the potential to interfere with or destroy critical electronic components of ballistic missile warheads. The Soviets could test a ground-based radio frequency weapon capable of damaging satellites in the 1990s.

Kinetic Energy Weapons

The Soviets also have a variety of research programs underway in the area of kinetic en-

ergy weapons, using the high-speed collision of a small mass with the target as the kill mechanism. In the 1960s, the USSR developed an experimental "gun" that could shoot streams of particles of a heavy metal such as tungsten or molybdenum at speeds of nearly 25 kilometers per second in air and over 60 kilometers per second in a vacuum.

Long-range, space-based kinetic-energy systems for defense against ballistic missiles probably could not be developed until the mid-1990s or even later. The USSR could, however, deploy in the near-term a short-range, space-based system useful for satellite or space station defense or for close-in attack by a maneuvering satellite. Soviet capabilities in guidance and control systems probably are adequate for effective kinetic energy weapons for use against some objects in space.

Computer and Sensor Technology

Advanced weapons programs — including potential advanced defenses against ballistic missiles — are also dependent on remote sensor and computer technologies which are currently more highly developed in the West than in the Soviet Union. The Soviets are therefore devoting considerable resources to improving their abilities and expertise in these technologies. An important part of that effort involves an increasing exploitation of open and clandestine access to Western technology. For example, the Soviets have long been engaged in a well-funded effort to purchase U.S. high-technology computers, test and calibration equipment, and sensors illegally through third parties.

Antisatellite Developments

The USSR has had for more than a dozen years the world's only operational antisatellite system, a co-orbital device which enters into the same orbit as its target satellite and, when it gets close enough, destroys the satellite by exploding a conventional warhead. In addition, the nuclear-armed GALOSH ABM interceptor deployed around Moscow may have ASAT capability, and Soviet ground-based lasers could possibly damage some sensors on some U.S. satellites.

Furthermore, as noted earlier, the Soviets are engaged in research and, in some cases development, of weapons which ultimately may

serve as ballistic missile defense systems, but probably will first provide antisatellite capabilities.

Air Defense

Although the United States began dismantling most of its defenses against Soviet bombers in the 1960s, the Soviet Union has continued to invest enormous resources in a wide array of strategic air defense weapon systems. Taken together, the Soviet strategic air defense network is a potent and increasingly capable force which would attempt to limit the retaliatory capability of our strategic bombers and cruise missiles.

The Soviets have deployed numerous strategic air defense systems with excellent capabilities against aircraft flying at medium and high altitudes. They are now in the midst of a major program to improve their capabilities against aircraft and cruise missiles that fly at low altitudes. That effort includes partial integration of strategic and tactical air defenses, the upgrading of early warning and surveillance capabilities, the deployment of more efficient data transmission systems, and the development and initial deployment of new aircraft, associated air-to-air missiles, surface-to-air missiles, and airborne warning and control system (AWACS) aircraft.

Soviet Territorial Air Defense



Currently, the Soviets have nearly 12,000 SAM launchers at over 1,200 sites, 10,000 air defense radars, and more than 1,200 interceptor aircraft dedicated to strategic defense. An

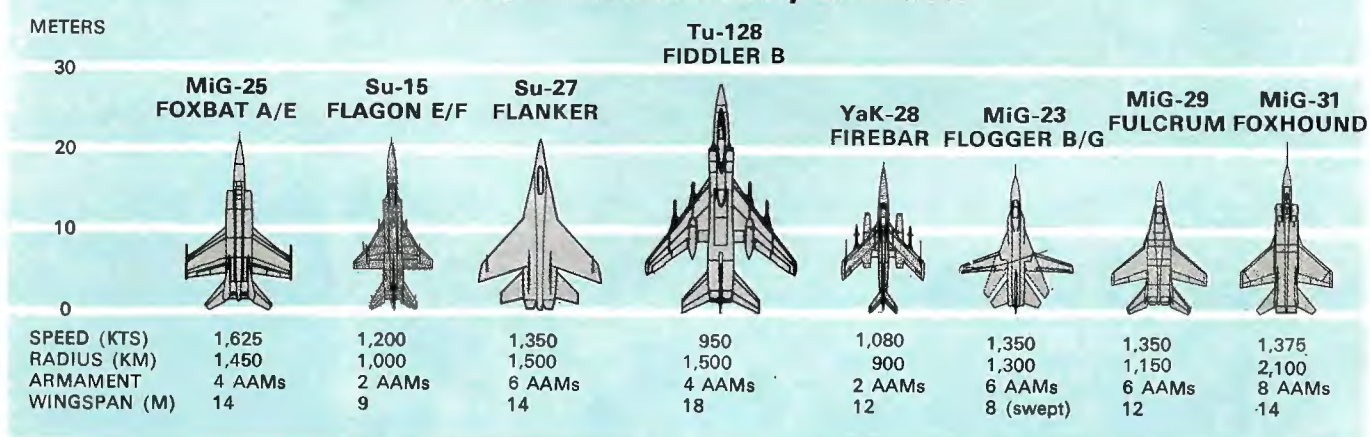


The new II-76/MAINSTAY aircraft is illustrated as configured for its Airborne Warning and Control Systems mission.

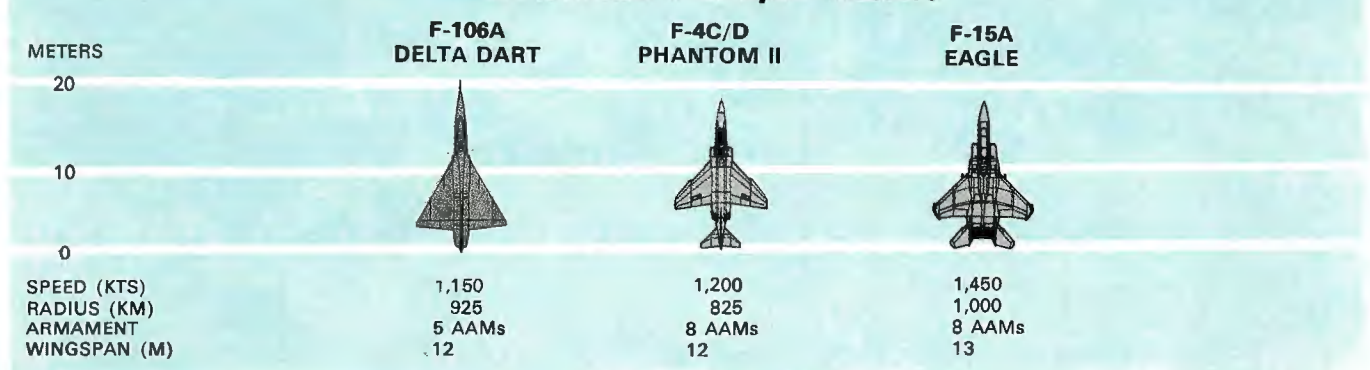
additional 2,800 interceptors assigned to Soviet Air Forces (SAF) could also be employed in strategic defense missions. In contrast, the U.S. has approximately 300 interceptor aircraft based in the U.S. dedicated to strategic defense, 118 strategic air defense warning radars, and no operational strategic surface-to-air missile launchers. These figures do not include tactical air defenses deployed by NATO and the Warsaw Pact in Europe.

The newest Soviet air defense interceptor aircraft, the MiG-31/FOXHOUND, has a look-down/shoot-down and multiple-target engagement capability. More than 85 FOXHOUNDS are now operationally deployed at several locations from the Arkhangelsk area in the northwestern USSR to the Far East Military District. Two new fighter interceptors, the Su-27/FLANKER and the MiG-29/FULCRUM, also have look-down/shoot-down capabilities and are designed to be highly maneuverable

USSR Air Defense Interceptor Aircraft

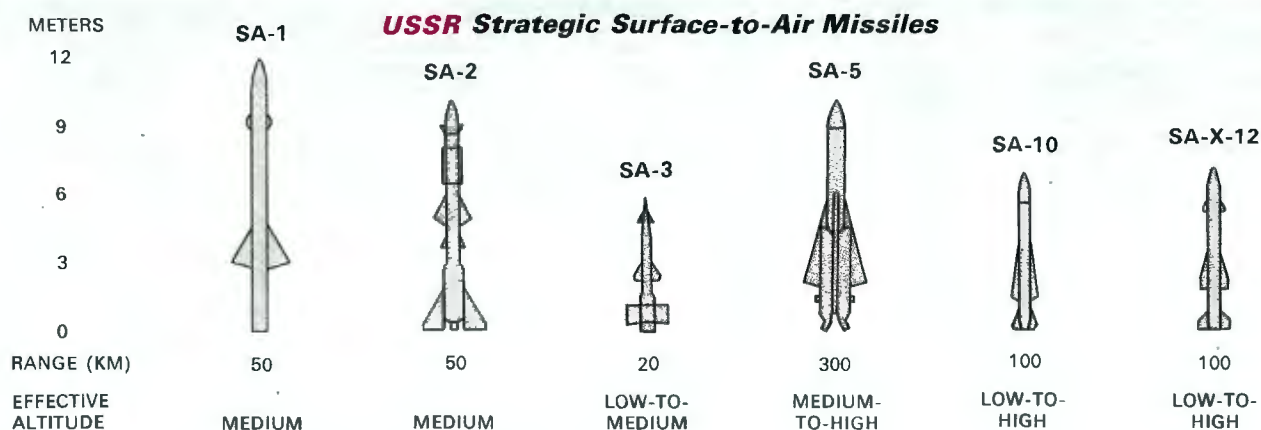


US Air Defense Interceptor Aircraft





The MiG-29/FULCRUM all-weather, air superiority fighter-interceptor reflects the USSR's continuing drive to produce new generations of tactical and strategic aircraft. The FULCRUM is fitted with AA-10 missiles and the USSR's most modern look-down-shoot-down radar.



in air-to-air combat. These three aircraft are equipped with two new air-to-air missiles — the long-range AA-9 (for the FOXHOUND) and the medium-range AA-10 (for the FULCRUM and FLANKER) — that can be used against low-flying targets.

The USSR is also deploying the MAINSTAY airborne warning and control system (AWACS) aircraft, which will improve substantially its capabilities for early warning and air combat command and control, especially against low-flying aircraft and cruise missiles.

The Soviets maintain the world's most extensive early warning system for air defense, composed of a widespread network of ground-based radars linked operationally with those of their Warsaw Pact allies. As previously noted, more than 10,000 air surveillance radars of various types provide virtually complete coverage at medium to high altitudes over the USSR, and in some areas well beyond the Soviet Union's borders. Three over-the-horizon radars for ballistic missile warning could provide additional warning of the approach of high-flying aircraft.

The USSR also has an active research and development program to improve its air surveillance network. In 1983, it began to deploy two new types of air surveillance radars which will enhance Soviet capabilities for air defense, electronic warfare and early warning of cruise missile and bomber attacks. The Soviets are

also continuing to deploy improved air surveillance data systems that can rapidly pass data from outlying radars through the air surveillance network to ground-controlled intercept sites and SAM command posts.

Soviet strategic surface-to-air missiles provide low-to-high-altitude barrier, area, and terminal defenses under all weather conditions. Five systems are now operational: the SA-1, SA-2, and SA-3, and the more capable SA-5 and SA-10. The recent Soviet air defense reorganization permits efficient integration of strategic and tactical SAM systems. While most tactical SAMs have a shorter range than their strategic counterparts, many have better capabilities against targets flying at low altitude.

Over the years the Soviets have continued to deploy the long-range SA-5 and have repeatedly modified the system. Further deployment



The mobile version of the SA-10 SAM will soon be operational.



The surface-to-air missiles of the SA-X-12 air defense system are designed to counter high-performance aircraft, will also have a capability against tactical ballistic missiles, and may have a potential against some strategic ballistic missiles as well.

and upgrading of the SA-5 to enhance its capability to work in conjunction with low-altitude systems like the SA-10 are probable.

The SA-10 can defend against low-altitude targets with small radar cross-sections, like cruise missiles. The first SA-10 site was operational in 1980. Over 60 sites are now operational and work is progressing on at least another 30. More than half these sites are located near Moscow; this emphasis on Moscow and the patterns noted for the other SA-10 sites suggest a first priority on terminal defense of command and control, military, and key industrial complexes.

In keeping with their drive toward mobility as a means of weapons survival, the Soviets are

developing a mobile version of the SA-10 which could become operational late this year. This mobile version could be used to support Soviet theater forces and to permit periodic changes in the location of SA-10 sites within the USSR so as to counter U.S. retaliatory forces more effectively.

The Soviets are also flight-testing another important mobile SAM system, the SA-X-12, which is able to intercept aircraft at all altitudes, cruise missiles, and short-range ballistic missiles. The SA-10 and SA-X-12 may have the potential to intercept some types of strategic ballistic missiles as well. This is a serious development because these systems are expected to be deployed widely through-

out the Soviet Union in the 1980s. They could, if properly supported, add a significant point-target defense coverage to a nationwide Soviet ABM deployment.

Passive Defenses

Soviet military doctrine calls for passive defenses to act in conjunction with active forces to ensure the wartime survival and continuity of Soviet nuclear forces, leadership, military command and control units, war-related industrial production and services, the essential work force, and as much of the general population as possible. The U.S. passive defense effort is far smaller and more limited; it is no way comparable to the comprehensive Soviet program.

Physical hardening of military assets to make them more resistant to attack is an important passive defense technique. The USSR has hardened its ICBM silos, launch facilities, and key command and control centers to an unprecedented degree. Much of today's U.S. retaliatory force would be ineffective against those hardened targets. To maintain effective deterrence, the United States must be able credibly to threaten prompt retaliation against the full spectrum of Soviet targets, including those which have been greatly hardened.

Soviet leaders and managers at all levels of the government and Communist Party are provided hardened alternate command posts located well away from urban centers — in addition to many deep bunkers and blast shelters in Soviet cities. This comprehensive and redundant system, patterned after a similar system for the Soviet Armed Forces, provides hardened alternate facilities for more than 175,000 key party and government personnel throughout the USSR.

Elaborate plans have also been made for the full mobilization of the national economy in support of a war effort. Reserves of vital materials are maintained, many in hardened underground structures. Redundant industrial facilities are in active production. Industrial and other economic facilities have been equipped with blast shelters for the work force, and detailed procedures have been developed for the relocation of selected plants and equipment. By planning for the survival of the essential work force, the Soviets hope to reconstitute

vital production programs using those industrial components that could be redirected or salvaged after an attack.

In addition, the USSR has greatly emphasized mobility as a means of enhancing the survivability of military assets. The SS-20 and SS-25, for example, are mobile. Rail-mobile deployment of the SS-X-24 is expected before the end of the decade. The Soviets are also developing an extensive network of mobile command, control, and communications facilities.

Soviet Statements on the U.S. Strategic Defense Initiative

These extensive Soviet activities in strategic defense, combined with the large Soviet buildup in offensive forces over the past two decades, have been eroding the retaliatory capabilities of U.S. strategic forces on which deterrence has long rested. If the USSR in the future were unilaterally to add an effective advanced defense against ballistic missiles to its offensive and other defensive forces, it would pose a very serious new threat to U.S. and allied security.

The U.S. Strategic Defense Initiative is designed to counter the trend in the Soviets' favor. It is thus not unexpected that Soviet reactions to the U.S. Strategic Defense Initiative have been strongly negative. Through an intensive, worldwide propaganda campaign, the USSR evidently hopes that it can dissuade the United States from pursuing this research program, thereby preserving the possibility of a Soviet monopoly in effective defenses against ballistic missiles — a monopoly that could give the USSR the uncontested damage-limiting first-strike capability that it has long sought.

Thus, Soviet statements on the SDI must be seen in light of the extensive, long-term growth in Soviet offensive and defensive forces and of their major research effort to develop advanced weapons for defense against ballistic missiles. They should also be viewed in light of comparable Soviet propaganda campaigns on other issues. The USSR engaged in a major propaganda effort in the late 1970s and early 1980s to preserve its monopoly in longer-range intermediate-range nuclear forces, and has adopted many of the same tactics to prevent the United States from acquiring an operational ASAT system to balance its own.

On April 22, 1983, a month after the President's announcement of the Strategic Defense Initiative, a published letter signed by more than 200 senior Soviet scientists denouncing the initiative appeared in the New York Times. It is interesting and instructive to note that a number of the signatories have been instrumental in the development of both traditional and advanced ballistic missile defensive systems: Petr D. Grushin, Vladimir S. Semnikhin, Fedor V. Bunkin, Yevgeniy P. Velikhov, Vsevolod S. Avduyevskiy, Aleksandr M. Prokhorov, and Nikolay G. Basov. Velikhov, for example, was for several years the director of the Institute of Atomic Energy laboratories at Troitsk,



Dr. Y.P. Velikhov has been a central figure in the development of the USSR's high energy laser weapons. As Chairman of the committee of Soviet Scientists in Defense of Peace and Against Nuclear War, Dr. Velikhov is also the leading Soviet scientific spokesman against the U.S. Strategic Defense Initiative.

where lasers for strategic and tactical applications are being developed. Avduyevskiy has long been involved with strategic weapons research and now has responsibility for a number of projects concerned with the military use of space, including a space-based laser weapon. Other signatories have spent their careers developing strategic offensive weapons and other military systems: Vladimir N. Chelomey, Valentin P. Glushko, Aleksandr D. Nadiradze, and Viktor P. Makeyev in ICBMs and SLBMs; Oleg K. Antonov and Aleksandr S. Yakovlev in military aircraft; Nikolay Isanin in nuclear submarines; Yuliy B. Khariton in the Soviet military nuclear energy program; and Martin I. Kabachnik in chemical warfare.

The U.S. Strategic Defense Initiative

The U.S. Strategic Defense Initiative offers the possibility of a better, more stable deterrence based increasingly on defenses that are survivable, militarily effective, and cost-effective relative to offensive forces. If our research shows that such defenses against ballistic missiles are feasible, they would allow us to move from deterrence based solely on the threat of nuclear retaliation, toward enhanced deterrence characterized by greater reliance on defensive capabilities that threaten no one. The Strategic Defense Initiative is also a prudent and necessary response to the very active Soviet efforts in offensive and defensive forces. It responds directly to the ongoing and extensive Soviet anti-ballistic missile effort, including the existing Soviet deployments permitted under the ABM Treaty. The SDI research program provides a necessary and powerful deterrent to any near-term Soviet decision to expand rapidly its ABM capability beyond that contemplated by the ABM Treaty. It also provides insurance against an eventual Soviet attempt to deploy an effective advanced system for defense against ballistic missiles unilaterally.

SDI research complements our efforts to achieve significant, equitable, and verifiable reductions in nuclear forces. In the near term, we are seeking reductions of strategic and intermediate-range nuclear forces, and discussing defensive and space arms, in the U.S.-Soviet negotiations which opened in Geneva in March 1985. The United States and the Soviet Union have agreed that there is a fundamental relationship between offensive and defensive systems and that neither can be considered in isolation.

In the longer term, if we were to deploy advanced defenses against ballistic missiles, such defenses could increase significantly the incentives for further negotiated deep reductions in offensive nuclear forces because they could reduce or eliminate the military utility of ballistic missiles. Such significant reductions would, in turn, serve to increase the effectiveness of defensive systems.

The SDI research program emphasizes advanced non-nuclear defensive technologies. It will provide to a future President and Congress, possibly in the early 1990s, the technical knowledge required for a decision on whether

to develop and later deploy advanced defensive systems. Extensive discussions with our allies would take place prior to any future decision to move beyond research to development and deployment.

Any future deployment would also be a matter for discussion and negotiation as appropriate with the Soviet Union, as provided in the ABM Treaty. Even now we are seeking to engage the Soviets at Geneva in a discussion of the relationship of offensive and defensive forces and of a possible future transition to greater reliance on defensive systems.

While we could not allow a Soviet veto over a decision which would have such a major impact on U.S. and allied security, it is our intention and hope that — if new defensive technologies prove feasible — we and the Soviets would be able both to move to a more defense-reliant balance. What we envision is thus just the opposite of an arms race or a search for military superiority. We seek instead an approach that would serve the security interests of the United States, our allies, the Soviet Union, and the world as a whole.

Annex

Offensive Forces

Soviet military doctrine and strategy call for superior offensive forces capable of executing a successful first strike. The Soviet buildup in offensive forces over the last two decades has been designed to move in that direction.

Soviet strategic offensive forces introduced since 1971 include:

- four new types of intercontinental ballistic missiles (ICBMs) — the SS-17, 18, 19, and 25. In addition, the USSR probably has deployed the SS-16 in violation of the SALT II Treaty;
- five new types of ballistic missile-carrying submarines;
- four new types of submarine-launched ballistic missiles (SLBMs);
- five improved versions of existing SLBMs;
- long-range cruise missiles; and
- a new variant of the BEAR bomber carrying strategic air-launched cruise missiles.

That buildup is all the more striking when compared to the relative restraint exercised by the U.S. in its acquisition of nuclear weapons systems during the same period. The number of strategic and tactical nuclear warheads in the U.S. stockpile peaked in 1967. We had one-third more nuclear weapons then than we have now. Moreover, the total explosive power (measured in megatonnage) of our nuclear weapons was four times greater in 1960 than it is today.

Our latest B-52 bomber was built in 1962. Although we modernized the missiles our submarines carried with the POSEIDON C-3 in 1971 and TRIDENT I C-4 in 1979, we did not introduce a single new ballistic missile-carrying submarine from 1966 until 1981, when we began deploying the TRIDENT submarine at the rate of about one a year. In fact, our ballistic missile submarine force declined by one-fourth between 1966 and 1981, from 41 boats to 31. During the time we were decreasing the number of our SSBNs, the Soviet Union deployed 62 new ballistic missile-carrying submarines.

Similarly, the U.S. began deploying its newest ICBM, the MINUTEMAN III, fifteen years ago; today, we have fewer ICBMs than we did in 1967. By contrast, the Soviet Union has added about 800 ICBMs to its arsenal since that year. Of greatest concern for strategic stability has been the development and deploy-

ment of the SS-18 and SS-19 ICBMs. Since the late 1970s, the USSR has deployed more than 300 SS-18s, each twice as large as the U.S. PEACEKEEPER/MX and carrying ten warheads, and 360 SS-19s, each approximately the size of the PEACEKEEPER/MX and carrying six warheads. The Soviets already have enough hard-target-capable ICBM warheads today to attack all U.S. ICBM silos and launch control centers and will have a larger number of hard-target capable warheads in the future. (A weapon with hard-target capability has sufficient accuracy and yield to destroy targets that have been hardened to withstand the effects of a nuclear detonation.)

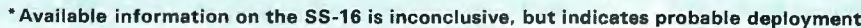
In addition to the rapid growth in its ICBM force, the Soviet Union is engaged in a major modernization and expansion of its strategic bomber and submarine forces. The bulk of Soviet strategic offensive nuclear warheads has traditionally been on ICBMs, while the U.S. has maintained a balanced force, with fewer than one-quarter of our strategic weapons on ICBMs. The growth in modern Soviet strategic offensive forces of all types is thus not only exacerbating the imbalance between U.S. and Soviet ICBMs, but also steadily eroding the traditional countervailing U.S. advantage in SLBMs and strategic bomber systems.

When the SALT I Interim Agreement on Offensive Arms was signed in 1972, the USSR had roughly 2,300 strategic ballistic missile warheads, and the throw-weight of its ballistic missile force was about 3 million kilograms. (Throw-weight is a basic measure of ballistic missile destructive capability and potential.) By the time the SALT II agreement was signed in 1979, the Soviet strategic arsenal had more than doubled to roughly 5,500 strategic ballistic missile warheads with a ballistic missile throw-weight of about 4 million kilograms. Today, the Soviet Union has over 8,000 strategic ballistic missile warheads and a ballistic missile throw-weight of about 12 million kilograms.

Perhaps even more troubling is the fact that the USSR's offensive nuclear force buildup continues unabated, with a large number of new systems at or nearing deployment. For example, the Soviets are:

- continuing production of the BEAR H bombers which carry the AS-15 long-range

USSR



tiated offensive force reductions which would enable us to maintain the balance at far lower levels of armaments.

The Soviet Union has also greatly expanded its nuclear forces of less-than-intercontinental range, which primarily threaten our friends and allies. The USSR has developed an entirely new generation of nuclear short-range ballistic missiles. Of gravest concern has been the creation and subsequent rapid expansion of the SS-20 longer-range intermediate-range missile force, which threatens our friends and allies in Europe and Asia. NATO had no equiv-

alent systems when the USSR began to field this modern, mobile, highly accurate, triple-warhead missile. As of September 1985, the Soviets had deployed 441 SS-20s, with over 1,200 warheads. Not only is the SS-20 force continuing to grow, but the Soviets are also testing a modified version of the SS-20 which is expected to be even more accurate. In contrast, NATO plans to deploy 572 single-warhead PERSHING II and ground-launched cruise missiles and stands ready to reduce or reverse those deployments if we can reach an equitable, verifiable arms reduction agreement with the USSR.

Begin to Deploy Incremental SDI Where Possible

By DAN QUAYLE

The Strategic Defense Initiative faces a number of threats. The Soviets want to negotiate it out of existence. The Hill wants to slash its budget, and the President wants to bargain with it in the coming Soviet Summit.

None of these threats, though, even begins to compare to the problems created by the popular assumption that a total attack is what SDI is supposed to counter. As long as a total attack (whether it be against cities or silos) is SDI's first or sole objective, SDI will always appear to be too expensive, too controversial, and militarily of too little value to bother with.

Changes in our approach will have to take place. If we are serious about promoting SDI, we must not only ask that it be deployed in the near-term, but also demand that it be focused on significant threats other than total attacks.

In specific, SDI should be directed to focus on the shorter range Soviet tactical ballistic missile threat now posed against our allies and troops abroad, the threat of a limited Soviet strike against our national command authority or some other valuable military asset, the Soviet anti-satellite weapon (ASAT) threat, and the Soviet threat to jam or confuse our surveillance and communications systems in Europe or Asia.

Each of these threats is technically less stressful than any all-out attack against our military or population but militarily critical if our country is to remain safe. Each would require the deployment of SDI components critical to the working of a

more complete defense scheme but none would necessarily violate the ABM Treaty. All of them should raise bipartisan concern.

First, the Soviets have deployed accurate tactical ballistic missiles (SS-21s, 22s and 23s) that pose a serious threat against our allies and troops abroad. Although these missiles can carry either nuclear or conventional warheads, they are expected to become accurate enough by the late 1980s to knock out nearly all of NATO's key military assets with conventional warheads alone.

To answer this threat, development of an anti-tactical ballistic missile system is necessary. This system would not violate the ABM Treaty because it could not destroy strategic missiles aimed against either the U.S. or the Soviet Union. But it could teach us a considerable amount about the interceptors, radars and other sensor systems that defenses against strategic missiles would require.

Second, we need defenses now to defend against an accidental launch or a limited intentional strike designed to disrupt our national command authority. An attack against our national command authority is especially frightening since this could be done without physically harming a single American citizen. All that would be required to make our generals deaf, dumb and blind would be the detonation of only a handful of submarine-launched weapons at very high altitude over the U.S. A defense against such a limited attack could be begun with mid-course and terminal interceptors deployments under the ABM Treaty's 100-launcher limit. The third threat is Soviet ASATs. The Soviets can already threaten most of our key military satellites in low-earth orbit. By only upgrading their ASATs, the Soviets could soon threaten our satellites in higher orbits. These satellites are critical to our military, providing strategic and tactical warning, surveillance, communication, weather information, and the most sensi-

tive military intelligence.

Yet, against Soviet ASATs we still lack the satellite surveillance and tracking capabilities necessary just to track a possible attack. Two key systems designated to provide such surveillance from space are being developed as the critical eyes for SDI—the Boost Surveillance and Tracking System and the Space Surveillance and Tracking System. If we are at all serious about arms control in space or defending against ASATs, these efforts should be accelerated.

The last threat is the Soviet effort to defeat the conventional, deep-strike "smart" weapons we are developing for the emerging automated battlefield by denying us our ability to find and track targets on the battlefield and by jamming or disrupting our command and communications systems. To counter this, we don't need smarter weapons, but rather more sensitive, survivable and powerful communications, surveillance and tracking systems to ensure these weapons arrive on target and on time. These technologies include new, powerful SDI heat-seeking sensors, high resolution radars based on inexpensive satellites, new powerful battle management computer systems, non-jammable communication satellites and the like.

None of these threats, of course, is as dramatic as countering an all-out attack against our missile fields or cities but if they are not addressed, they can limit our ability to deter or prevail in either strategic or conventional war. More importantly, this approach to SDI is incremental. Certainly, if SDI cannot meet these threats, it is highly unlikely that it can counter more stressing total strategic attacks. On the other hand, if SDI can, it will be able to sustain popular support both in the near and long term.

Sen. Quayle (R., Ind.) is a member of the Armed Services subcommittee on strategic and theater nuclear forces.

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lot of savvy to handle situations like this," he said, noting that cases often involved detailed interviews of Cabinet-level officials.

Several White House officials and the Director of Central Intelligence, William J. Casey, have long called for tougher action to punish those who disclose Government secrets.

Threats of Prosecution

Earlier this year, Mr. Casey threatened to prosecute The Washington Post, The New York Times and other news organizations that he asserted had disclosed American communications secrets. No prosecution was undertaken, however.

Last month Mr. Casey said the Administration was expanding its efforts to control unauthorized disclosures and would prosecute if needed.

"We are putting into place mechanisms to aggressively investigate apparent cases of leaking within the Government and to take punitive and legal action against Government employees who betray the trust placed in them,"

he said.

The decision to refer a case to the Justice Department for possible investigation is often made on a political basis. Sometimes disclosure of classified information is made or authorized by officials at the highest levels as a means of explaining or justifying Administration policy. Investigations by the Bureau ensue when the news media disclose information that one or more agencies did not want released.

While the Government has investigated hundreds of unauthorized disclosures over past decades, only one inquiry has led to a criminal conviction. In that case, a Navy analyst, Samuel Loring Morison, was convicted of espionage last year for providing a classified photograph to a magazine.

Inquiries in 2 Cases

The F.B.I. would not disclose what news reports had prompted recent investigations. But law-enforcement officials confirmed that agents were trying to find the source of articles by Seymour M. Hersh in The New York Times last summer about Gen. Manuel Antonio Noriega, the army com-

mander of Panama, and his purported involvement in drug activities and the illicit concealment of the sources of money, assertions that the general denied.

A Government official knowledgeable about intelligence said another investigation involved an article in The Los Angeles Times earlier this year that described a secret Administration report on the Government's mishandling of the case of Edward Lee Howard, a former Central Intelligence Agency officer accused of espionage. The bureau and the Central Intelligence Agency were specifically assailed in the report for their handling of Mr. Howard, who escaped while under surveillance by F.B.I. agents.

The bureau said the team, made of up two agents who specialize in counterintelligence and two from the criminal division, was part of a larger squad that handled cases of domestic terrorism, such as bombings.

The four agents currently spend most of their time investigating disclosures, officials said.

Bill Baker, the chief F.B.I. spokes-

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Shultz Says Soviet Fails to Stem Gulf Arms Flow

By BERNARD GWERTZMAN

Special to The New York Times

UNITED NATIONS, N.Y., Oct. 1 — Secretary of State George P. Shultz said today that in his recent talks with the Soviet Foreign Minister the two men had agreed to seek an end to the Iran-Iraq war.

But in a closed-door speech to Arab foreign ministers, Mr. Shultz criticized the Soviet Union for failing to act as forcefully as the United States in blocking the shipment of arms to Iran from countries "with which they have influence."

Later, a senior State Department official said that although the Soviet Union professed to be interested in stopping arms shipments to Iran, it had in fact done little to stop sales from Eastern European countries, particularly Czechoslovakia and North Korea, which have provided large amounts of Iran's arms.

Syria and Libya also provide the Iranians with arms bought from the Soviet Union, he said.

Iran Called 'Intransigent'

The United States has banned the sale of arms made in this country either to Iran or Iraq. Mr. Shultz said that because Iran has been "intransigent" in refusing to negotiate a settlement of the six-year-old war, "we have intensified our efforts to discourage our friends from selling arms to Iran with significant, but not complete, success."

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man, said in an interview that the team was formed because the bureau wanted to consolidate and expedite such investigations and assure that they were handled by agents selected for their "maturity and experience."

Full Range of Tools

Bureau officials said the squad would be permitted to make use of a full range of investigative tools, including polygraphs, or lie detectors, and court-approved wiretaps.

Senior law-enforcement officials said they did not believe that the bureau was tapping the telephones of reporters, but the bureau would not rule out taps against reporters in highly sensitive investigations.

Jane Kirtley, a spokesman for the Reporters Committee for Freedom of the Press, said she was not aware of the F.B.I. squad, but she said the committee was concerned about any Government effort that might curtail responsible reporting.

"We've always been troubled by attempts on the part of the Reagan Administration to stifle the free flow of information," she said. "We've always believed that exerting pressure on Government employees is a regrettable thing."

The F.B.I. noted that the new team was answerable only to its Director, William H. Webster, and the Justice Department. "By keeping it under Judge Webster, you retain all of the demands he makes on sensitive investigations," Mr. Baker said.

The senior official noted that China, which does not buy arms from the United States, has become a major supplier to Iran, despite American urging that it stop. And the official noted that there are persistent reports that Israeli arms are finding their way to Iran even though the Israeli Government says it has put a halt to the practice.

Speaking of the recent talks with Foreign Minister Eduard A. Shevardnadze, which preceded the announcement on Tuesday of the meeting in Iceland on Oct. 11 and 12, Mr. Shultz said that "we and Soviet officials agreed that we share a common interest in seeing an end to the Iran-Iraq war."

"However, the Soviets have not acted as forcefully as we in moving to block arms resupplied to Iran from countries with which they have influence," he said. "We wish they would do more."

Regional Issues on Agenda

American officials said that regional issues would be discussed at the Iceland meeting, but without much prospect of success. Mr. Shevardnadze, in his speech to the United Nations General Assembly last week, called for an international conference on the Middle East.

But in discussions with various Arab leaders today Mr. Shultz said he saw no reason for Moscow to take part in such a conference before it restored diplomatic ties with Israel and sharply increased the flow of Jewish emigration.

Mr. Shultz devoted almost his entire day in New York to meeting with various Arab foreign ministers individually, or as a group at lunch, where he addressed the Gulf Cooperation Council, representing the nations on the Arab side of the Persian Gulf.

According to the senior official, the main topic on most Arab minds was the assumption that Iran was about to launch its long-awaited "final offensive." American experts have held to

the view that Iran and Iraq are unable to defeat each other decisively, but the senior official said that there was serious concern about the continued fighting, and the possible "spillover" of the war into other gulf states.

Mr. Shultz said the war showed no sign of ending. He said that "the heightened tempo of the fighting this year and the heightened threat that the conflict will spill over to Gulf Coordinating Council member states pose real risk to the region and the peoples of your countries."

He affirmed again that the United States viewed the area as critical to its interests.

"The United States has made it emphatically clear that an expansion of the war to third parties would constitute a major threat to U.S. interests," he said. "Yet the unpredictable nature of this conflict remains a cause of constant concern and vigilance. Attacks on Gulf shipping have intensified. No one can predict when neutral ships transiting international or G.C.C. territorial waters will be hit again."

Mr. Shultz said Mr. Reagan had affirmed a commitment to insure the free flow of oil through the Strait of Hormuz, the entrance to the Persian Gulf.

"I reiterate that commitment here today," he said.

"We support your individual and collective self-defense and are ready to work with you," he said. The rationale for the large-scale arms sales to Saudi Arabia in recent years has been to enable it to better protect itself and neighboring countries against the possibility of Iranian attack.

Mr. Shultz met separately today with the Foreign Ministers of Syria, Oman, Iraq, Jordan, Egypt and Saudi Arabia.

In his discussion with Foreign Minister Farouk al-Sharaa of Syria, Mr. Shultz called on Damascus to do more to bring about the rescue of the American hostages in Lebanon.

Treaty Expected to Sail Through Senate

By ROBERT F. MORISON

Journal of Commerce Staff

WASHINGTON — The unique military cargo-sharing treaty between the United States and Iceland seems headed for Senate approval in record time.

Last-minute opposition when the treaty is laid before the Senate for debate could slow action, but none is expected at this point.

The treaty, negotiated, signed and given a hearing by the Senate Foreign Relations Committee in less than two weeks, is expected to be favorably voted upon by the Senate sometime this week and certainly before this Congress adjourns.

However, that doesn't mean there won't be further questions raised. The House Merchant Marine and Fisheries Committee, for example, is

none too pleased.

The prospect of a reduction in the scope of the 1904 Cargo Preference Act, which reserves 100% of military shipments for U.S.-flag vessels unless the president finds the freight charges to be excessive, is viewed with some concern in the House committee.

The panel's Merchant Marine Subcommittee planned a further hearing for today on government agencies' compliance with the 1904 act and other cargo preference statutes.

The main witness is expected to be State Department Counselor Edward J. Derwinski, who headed the U.S. team that negotiated the Iceland treaty and testified on it late Tuesday before the Senate Foreign Relations Committee.

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Rocket's Liftoff Is Boost for NASA, Star Wars Effort SDI

By TIM CARRINGTON
And LAURIE MCGINLEY

Staff Reporters of THE WALL STREET JOURNAL

WASHINGTON—The successful launching of a Delta rocket gives the U.S. space program a much-needed boost and eases research delays for the Strategic Defense Initiative program.

The flawless liftoff Friday of the unmanned National Aeronautics and Space Administration rocket from Kennedy Space Center in Florida was the space program's first success following the Challenger shuttle disaster Jan. 28, which killed seven crew members.

In April, an Air Force Titan rocket believed to have been carrying a heavy intelligence satellite exploded shortly after launch from Vandenberg Air Force Base in California. In May, a Delta rocket launched from Kennedy Space Center was destroyed by ground officials after it veered off course. It was carrying a government weather satellite.

"We feel like we're back in the groove," William Russell, Delta project manager, said at a news conference after launch. "My quality of life had already gone to the bottom, and another failure could have been the end of me."

The successful launch also helped put President Reagan's Strategic Defense research program, popularly known as Star Wars, back on track. After months of delay caused by the grounding of the space fleet, the SDI office used the Delta launch to test the ability of an interceptor to home in on a vehicle in orbit.

To conduct the SDI experiment, the Delta rocket carried two separate vehicles. One homed in on the other, and eventually collided with it. In addition, the Pentagon launched a sounding rocket from the White Sands Missile Range in New Mexico as part of the experiment. Pentagon officials said the test provided data on how a rocket can be tracked in space.

NASA has only two complete Deltas left in its inventory. One will be used in November to launch a government weather satellite identical to the one that was destroyed in May. The other will be used to launch an Indonesian weather satellite next spring. A third that is partly completed will be used for another SDI experiment in the fall of 1987.

In addition, the space agency plans to buy two more Deltas to be used for SDI payloads, Mr. Russell said.

In other plans, the Air Force intends to launch an Atlas rocket carrying a low-alti-

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REVIEW & OUTLOOK

SDI: Death of 1,000 Cuts

President Reagan's latest arms-control letter to Chairman Gorbachev means that his strategic defense initiative is now on the table. Whether or not anything comes of this, it was a clear defeat for the Pentagon and other SDI proponents. They set themselves up insisting that nothing worthwhile can be deployed anytime soon.

The letter proposes that the U.S. agree not to deploy SDI for five to seven years, that the Soviets make deep cuts in offensive weapons and that the sides agree that defensive deployments are allowed after the seven years. In some sense, we suppose, this can be read as putting a time limit on our adherence to the ABM treaty limiting defensive deployments. Now, the Russians' only interest in this lies in stopping our technology, and they are not about to change their spots. By now skepticism about their treaty violations is pervasive both in the administration and in the Senate that would have to ratify any agreement. Any official treaty remains remote.

The danger is far more insidious. Our experience has been that, treaty or no, a U.S. negotiating position becomes the planning document for defense research and procurement. If the official line is that SDI eventually will be negotiated away, why should ambitious young officers and scientists hitch their careers to it, or military chieftains devote their budgetary resources to it, or Congress fund it, or even its proponents go to the mat? This kind of death-by-a-thousand-cuts has repeatedly gutted promising weapons systems. Indeed, it is the principal leverage the arms-control process gives the Soviets in curtailing our defense programs.

In its advocacy of SDI, the Reagan administration did not walk but ran into this trap. Its position has been that SDI is only a research program, and will remain only a research program until it solves the problem of building a defense against the possibility that the Soviets might launch their entire missile force against women and children, ignoring military assets that might strike back. We would not deploy anything, the line goes, until our research finds a way to stop every last missile in such an insane contingency.

By taking this preposterous position in the intramural boxing, the pro-SDI forces led with their chins. The pro-arms-control forces have replied: Well, if we're not going to deploy anyway, anything we get out of agreeing not to deploy comes for free. If the Soviets junk some obsolete missiles they were going to junk anyway, we still haven't lost anything. The Soviets are clever enough to frame offers encouraging this line of reasoning, SDI goes on the table and the death-of-a-thousand-cuts begins.

Now, the reason pro-SDI forces have opposed near-term deployment

is not entirely foolish. The easiest technical problem is defending the silos for retaliatory missiles. For our part, we would defend the silos today, tomorrow or back when the ABM treaty was negotiated in 1972. It's far cheaper than any of the cockeyed schemes for basing new MX missiles. Doubtless, though, a silo defense—if you stop with that—is anything but a step away from the policy of mutual assured destruction. And if the silos were safe, still-powerful proponents of MAD would even more strenuously argue against defending cities.

Solidifying MAD is not at all what the administration wants from SDI. Even if a silo defense succeeded against an actual attack, a U.S. president would be left with the sole option of launching a strike to kill Soviet women and children. The driving force behind SDI is the desire to give a president more moral and more usable options; this requires a plausible degree of population defense. The Pentagon leadership has opposed any limited system for fear of getting left with only a silo defense.

In fact, quite a few things can be done in the near term that would be highly useful. The technologies now being discussed have large "footprints," and even if centered on missile fields could protect large sections of the country—at the very least against accidental, third-party or demonstration attacks. Even against a significant attack the defense of the national command authority looks both quite possible and vitally important. Perhaps easiest of all, we could start to deploy a defense against tactical ballistic missiles in Europe. These are easier to intercept because they travel slower than their intercontinental counterparts.

The Pentagon's own Hoffman panel took the common-sense position that while a leak-proof defense is far away, you have to learn to walk before you learn to run. It concluded that the place to start is an anti-tactical ballistic missile (ATBM). The German, British and Israeli defense ministries have expressed an interest in cooperating on the project. Sen. Dan Quayle recently won approval in the Senate Armed Services Committee of an amendment to set aside \$50 million of the SDI budget for ATBM research and development, with matching funds to be provided by allies.

We certainly think the administration has the right goal in population defense, but it will never get there by waiting for a leak-proof system that can be deployed overnight. We'd also like to believe the president's letter didn't sentence SDI to the death-of-a-thousand-cuts. But to insure the momentum of the technological drive, the administration now needs to get going with the steps it can take sooner rather than later.

Grizzlies Aren't The Only Maulers In Yellowstone

The Washington weather is swamplike. Normal people are trying to get out of the city and head for the national parks. Meanwhile, we crazies stick around. Our connection to the parks is to follow this summer's big political controversy over park policy. Here it is: Has the U.S. Park Service fallen into the blind pursuit of any policy labeled "natural"? Has it, as an ironic result, neglected park wildlife?

You may say "yes" if you have just read the new book by Alton Chase, "Playing God in Yellowstone," which has inspired stories, debates, rebuttals. Mr. Chase writes about the environmental extremism—mystical, pantheistic, anti-scientific—that grew in the 1960s. This seeped into the environmentalist movement as a whole—including the Park Service.

The Park Service began a wildlife management policy of "natural regulation." It said humans should not intervene in the parks, but let the ecosystem work out its own problems.

In Yellowstone National Park, says Mr. Chase, the new policy was disastrous. The elk, their natural predators long gone, grew too numerous and threatened the grizzly bears. Then the Service closed the garbage dumps where the bears fed. The bears began starving, ranging wider for food, and mauling visitors in the process.

The Park Service, says Mr. Chase, is anti-science. It runs a cozy revolving door with the environmental groups. It tries to suppress the opinions of its adversaries.

During a recent trip to Washington, Mr. Chase said his book is a target of this attempted censorship.

Of course there are people at Yellowstone and in Washington who want not just to dispute Mr. Chase but to pulverize him.

Amos Eno, Washington-based wildlife director of the National Audubon Society,

Capital Chronicle

By Suzanne Garment

was happy to talk about the book. He contested—in detail, citing authorities—almost every major factual premise. The elk population was not exploding but stabilizing. Elk were not destroying vegetation. Closing the dumps had not led to more mauling grizzlies. They were not starving.

Mr. Eno confirmed a few of the book's claims unapologetically. Yes, when Yellowstone sheep had gotten pinkeye, the Park Service had not given out eyedrops. The disease was "natural" in origin, he explained, and eventually "ran its course." Yes, Park Service policy was based on the doctrine that the parks should be "a reasonable illusion of primitive America." "You have to start somewhere," he said, with at least some idea of your goals.

The Chase book, he said, was "akin to supermarket journalism like that of the Star or the Enquirer."

Denis Galvin is deputy director of the Park Service. In his office in the Interior Department this week he did not look like a commissar in a struggle for the natural regulation idea. Mr. Galvin, in contrast to Mr. Eno, emphasized not how much we know contrary to the book but how much is not known at all.

"Wildlife biology and management," he said, "are not exact sciences." In addition, "The whole area is fraught with hindsight." On grizzly survival, for example