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Military uses of laser Technology
in space

DEFENCE

The U.S. Strategic Defence Initiative

PART 1: Dec 1979

(A) UC SDI Architecture Studies Volumes I & II

PART 5: OCT 1987

Attached folder (B) Implications of the UK Strategic Defences

Referred to	Date	Referred to	Date	Referred to	Date	Referred to	Date
2-10-87							
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Ministry of Defence (MOD) documents

Reference: United Kingdom DSI Architecture Study
Description: Phase Four Report – Volume 1, Executive Summary
Date: 1988

Reference: United Kingdom DSI Architecture Study
Description: Phase Four Report – Volume 2, Overview
Date: 1988

Reference: CDS 40/88
Description: The Implications for the United Kingdom of Strategic Defences
Date: 8 November 1988

The above documents, which were enclosed on this file have been removed and destroyed.

Such documents are the responsibility of the Ministry of Defence (MOD). When released they will be available in the appropriate MOD Classes.

Signed

J. Gray

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LONDON SW1A 2AA

From the Private Secretary

16 January 1989

STRATEGIC DEFENCE INITIATIVE

The Prime Minister held a meeting this afternoon to consider the joint minute by Foreign and Defence Secretaries dated 11 November 1988, on the Implications for the United Kingdom of Strategic Defences, together with the accompanying paper by the Chiefs of Staff. There were present the Foreign Secretary, the Defence Secretary, Sir Percy Cradock and the Chief of the Defence Staff.

The Prime Minister said that she disagreed strongly with the advice in the minute that we should register reservations about strategic defence with President-Elect Bush and the new Administration. She had deliberately not done so when she had met Mr. Bush in November. It was clear from his campaign speeches that he was committed to deploying a strategic defence system as soon as feasible. It was not for us to tell him what to do or try to dissuade him. It was in our interests that the West should remain ahead in technology. The SDI had already shown its value as a means of diplomatic leverage on the Soviet Union in arms control negotiations. Moreover there were good arguments for eventual deployment of strategic defences. A strategic defence system could contribute to deterrence by complicating greatly the calculations of anyone contemplating an attack. The number of missiles which would have to be launched to be certain of saturating a strategic defence system and striking their targets would make the decision to attack even harder to contemplate. There was also the consideration that a strategic defence system for the United States of the sort now being considered would automatically provide a measure of protection for Europe as well. Deployment of strategic defences would inevitably pose a threat to Trident's effectiveness. But that could not be avoided simply by lobbying the United States against deploying. It was the Soviet Union which had the longest running programme, had upgraded its defences around Moscow, and seemed to be building the radars needed for a nationwide ballistic missile defence system. There was no sign of any reduction in the modernisation of the Soviet Union's forces and weaponry. The West had a bounden duty to take necessary defensive measures, including the ability to deploy strategic defences. For our part, we should step up work on perfecting penetration aids

and other improvements to Trident to cope with inevitable improvements in Soviet defensive systems. We might also in the longer term have to consider changes to our targetting policy. Meanwhile we should positively encourage the Bush Administration to continue research and testing on SDI, recognising that President-Elect Bush was committed to deployment in due course.

The Defence Secretary agreed that we should support SDI research, to establish whether a strategic defence system was viable. But before giving our backing to the deployment of even a partial strategic defence system we needed to think through very carefully the consequences for Trident. There was scope for improvements to Trident and we were already working with the Americans on additional penetration aids. It would in theory be possible to procure additional submarines. But to commit ourselves to a major upgrading of Trident would be very expensive and pre-empt funds required for other defence purposes. There might be problems with maintaining public support for this level of expenditure on our nuclear deterrent. For these reasons we should weigh carefully the advantages of persuading both the United States and the Soviet Union to continue to keep their SDI activities with the ABM Treaty.

The Foreign Secretary said that the United Kingdom's present stance on SDI, as set out in the Camp David Four Points, was a good one. We supported research and testing to the point of establishing the feasibility of a system. But deployment was a matter for negotiation. The argument that availability led automatically to deployment should be resisted. The key was to keep the framework of the ABM Treaty in place. Both the Americans and the Russians had so far contained their activities within the Treaty and we should urge them to continue to do so. The worst outcome would be unconstrained deployment of strategic defences. This would be destabilising and would undermine the effectiveness of Trident. We would be safer if the Soviet Union continued to observe the ABM Treaty. An Accidental Launch Protection System against third countries did not make much sense. The nuclear threat from them was unlikely to take the form of ballistic missile attacks. We should keep our eye on the main threat from the Soviet Union and continue to base our policy on deterrence supported by the ABM Treaty.

In further discussion the following points were made:

- the ABM Treaty could not be regarded as eternal. The Treaty itself contained a provision for withdrawal in the case of extraordinary events.
- moreover it was a bilateral US/Soviet Treaty and neither party was likely to be greatly moved by the views of others. Indeed both were already negotiating on the hypothesis of continued observance of the Treaty for a limited period only, after which either side would be free to deploy a strategic defence system.

- there was a risk that the Soviet Union would abide by the Treaty only so long as convenient and would then go ahead with deployment of a strategic defence system at the moment which it considered most advantageous. The risk of this would be more acute if Mr. Gorbachev were to leave the scene.
- attempting to dissuade the United States from going ahead with deployment of a system would only serve the Soviet aim of dividing Europe from the United States.
- on the other hand, there was wide support in Congress and within NATO for continued observance of the ABM Treaty, which would act as a constraint on the United States Administration.
- pressure on the United States defence budget was likely to delay the date when discussions on the possible deployment of a system would become feasible.

Concluding the discussion, the Prime Minister said that we should encourage the Bush Administration to continue research, development and testing of a strategic defence system, to ensure that the West kept the technological edge. Our position remained that deployment would require negotiation under the ABM Treaty, which remained in force. Our attitude to deployment would have to be decided in the light of circumstances at the time. Any decisions were probably some years away, and we should not take up a position now. Meanwhile we should continue work on perfecting penetration aids for Trident to ensure its long-term effectiveness against Soviet targets.

I enclose the excerpt from President-elect Bush's campaign speech which the Prime Minister quoted at the meeting.

I am copying this letter to Stephen Wall (Foreign and Commonwealth Office) and to Trevor Woolley (Cabinet Office).

(CHARLES POWELL)

Brian Hawtin, Esq.,
Ministry of Defence.

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EXCERPT FROM PRESIDENT-ELECT BUSH'S SPEECH TO THE
MID-AMERICAN COMMITTEE IN CHICAGO ON 2 AUGUST

My policy will be to develop a viable strategic defense system, an outgrowth of the SDI research program, to protect our people from ballistic missile attack. The fact is, that this city, Chicago, just like every other city in the United States, has absolutely no defense against an attack. Even if only one missile were launched against us, the President would have no choice but to stand by as destruction hurtled toward millions of Americans - helpless to defend them.

Already, the first phase of a space-based SDI technology is ready to come out of the lab and begin demonstration. The technology isn't the problem, that's progressing faster than its most ardent supporters ever imagined - it's the Democrats in Congress that are dragging their feet, for instance, cutting the space-based interceptor appropriations from over 300 million to 85 million and boasting they've "taken the stars out of star wars".

I am confident we can find a better way than mutual assured destruction, with all its admitted shortcomings. I am committed to deployment of SDI, as soon as feasible, and will determine the exact architecture of the system in my first term, as the technologies are tested and proven. As President, I will not leave America defenseless against ballistic missiles.



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MR POWELL

cc Sir Robin Butler
Sir Percy Cradock

Prime Minister's Meeting on SDI

You told me that a handling brief for the Prime Minister's meeting on 16 January was unnecessary, and I have accordingly not submitted one. Looking over recent papers and having in mind some of the points made by General Abrahamson during his calls on Departments earlier this week, I venture to flag one or two questions which you may think relevant to Monday's discussion.

Is there an imminent threat to UK Trident?

2. General Abrahamson has said that the American SDS Phase I, if it goes ahead at the current pace, will require full scale engineering development decisions by FY 92, proposals for which will be sent by the Administration to Congress around January 1992; and that this will raise the question of deployment, since Congress will not commit funds for full scale engineering development of a system which it is not prepared to deploy. The Administration will therefore need answers by then about how it proposes to negotiate its way round the ABM Treaty, so as to permit both sides to deploy. The first UK Trident boat is due to become operational in 1994. If the Soviet Union were to go for even a crude expansion of BMD beyond the current ABM Treaty (e.g. doubling ABM launchers round Moscow), the UK Trident system on current criteria could begin to look very sick. HMG needs a defence against Parliamentary or public criticism that UK policy on Trident could soon be out of kilter with US policy on SDS Phase I.

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3. On the other hand, progress on both sides may turn out to be significantly slower than the Chiefs of Staff paper allows. General Abrahamson's current presentation reveals a preoccupation with cost cutting, no doubt reflecting a realistic appraisal of the Congressional mood. Cost estimates for SDS Phase I have been reduced from \$115m. to \$69m. since last October. The General now speaks of squeezing this to around \$55m.; or even on one hypothesis to as little as \$25m. - less than some conventional US programmes. Budgetary pressure will carry with it a natural tendency to stretch the timescales, as is already happening. On the Soviet side a major BMD effort going beyond current levels of research would be hard to reconcile with Gorbachev's imperatives for the civil economy. The paper already states that the Russians could probably not achieve a fully integrated and functioning SDI for some 30 to 40 years. On that basis UK Trident would appear to be safe throughout its life, provided the current ABM Treaty regime remains in place.

European ATBM

3. General Abrahamson has emphasised the extent to which SDS Phase I could help cope with the Soviet IRBM threat to Europe as well as the ICBM and SLCM threat to the US. But he clearly implied that the SDS Phase I would only be maximised for this purpose if in return the US obtained the 25 per cent enhanced radar warning of Soviet missile attack that deployment of a European ATBM system could provide. Now that SS20s are banned, it is arguable whether pursuit of a European ATBM system is likely to be practical politics within the Alliance for the next few years, given likely



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resource implications, defence budget profiles and opportunity costs. The state of the art is not that advanced particularly in Europe. Even for advanced anti-air area defences for warships and airfields collaborative programmes are still at an early stage of planning. Defences against ballistic missiles would be far more technically challenging, and press reports that Sea Wolf and Starstreak could do the job are moonshine. Moreover the current UK European architecture study has as its objective only the protection of NATO's theatre nuclear forces against pre-emptive attack, an important but rather limited objective in terms of selling Europe-wide such a major initiative.

How to preserve stability

4. A recent 80-page IISS analysis on "NATO Strategy and Ballistic Missile Defence" comes to a conclusion analogous to that (paragraph 61) in the Chiefs of Staff paper which the Secretaries of State for Defence and Foreign Affairs support. The IISS report states: "NATO should be prepared to respond to a Warsaw Pact decision to deploy a BMD system but it should not precipitate such a decision by moving toward significant defence deployment itself. NATO, particularly the United States, should therefore maintain a robust research programme...[but]... would be best served by strict limitations on BMD development, testing and deployment for the indefinite future." The challenge to Western policy is how to keep this robust prophylactic programme on the boil without fuelling a perception by the other side that deployment is a foregone conclusion. Some early new US/Soviet understanding defining the rules of the game for the next 5 to 10 years seems essential if this

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aim is to be achieved. Insofar as such an understanding would need to look beyond pure research, concentration on an Accidental Launch Protection System (as apparently favoured by some in Congress) might appear less destabilising in East-West and Alliance terms than more ambitious versions of SDI or than the other alternatives listed in paragraph 23 of the Chiefs' paper. But as the Chiefs' paper points out, even that would be a very expensive form of insurance premium, in relation to a threat which is not yet very clearly defined.

A handwritten signature in blue ink, appearing to read 'P J Weston'.

P J Weston

13 January 1989



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~~Prime Minister~~

You may like to
glance at the
passages I have
underlined.

I understand the
Foreign Secretary places
great weight on this
article and may refer
to it this afternoon.

CDD

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Robert C. McFarlane

EFFECTIVE STRATEGIC POLICY

The past eight years have been a time of enormous flux in those strategic factors that affect stability among the great powers in Europe, Asia and North America. Some of the changes offer the possibility of reduced tensions in East-West relations; others, involving differences among allies or within the U.S. government, are deeply worrisome. This period of change is not over. Within the next year, decisions must be made regarding virtually every important area of American defense policy, from nuclear doctrine to the conventional balance in Europe.

Moreover, the Soviet Union is in the throes of generational change in its leadership. Self-interest alone would have led General Secretary Mikhail Gorbachev to attempt reforms that are essential to any hope of the Soviet Union's achieving sustainable increases in productivity and output. We cannot know whether he will succeed in carrying out fundamental reform of the party's control over the economy. But whether or not he succeeds, for the West the question is: What changes, if any, are in store in Soviet foreign policy?

In the short term (five to ten years), we can probably look forward to a period of gradual improvement in U.S.-Soviet relations. Gorbachev needs to focus on the resolution of internal problems, and he wants access to Western help. He can best achieve this through "good behavior"; hence his self-interested desire for a period of calm.

I am skeptical about the probability of any fundamental reorientation in Soviet global purposes before the turn of the century, if then. But because we cannot divine the future, U.S. strategic policy ought to be guided by a realistic evaluation of Soviet military capabilities—which remain formidable in every area: strategic offensive, defensive and conventional.

Some analysts believe that we can expect a cutback in the level of resources the Soviets will direct to their defense estab-

Robert C. McFarlane was National Security Adviser to President Reagan (1983-85); he is currently a Counselor at the Center for Strategic and International Studies in Washington, D.C. Copyright © 1988 by Robert C. McFarlane.

ishment. This may be small cause for comfort, however, because the motive for any cutback in military investment—if there is a cutback—seems likely to be to assure future military competitiveness, not a retrenchment in expansionist goals or a diminution of the power of the military in the state. How, then, should we proceed?

II

The goal of our nuclear strategy has been to convince the Soviet leaders that it would never make sense for them to initiate a strategic nuclear conflict, because of the survivability and retaliatory capacity of U.S. forces. In designing this capacity for our forces we have had to keep in mind that the Soviet Union might well discover an effective means to neutralize a particular system or technology, e.g., our land-based intercontinental ballistic missiles (ICBMs). Consequently, the United States has been careful not to put all its eggs into a single basket; instead it has followed a policy of maintaining a triad of forces comprised of ballistic missiles deployed both on land and at sea, and bomber aircraft, some armed with cruise missiles.

Our reliance through the years on the ability to threaten a credible, devastating offensive counterattack—the concept of deterrence, as opposed to defending against an incoming missile attack—has been the subject of periodic debate. The 1972 agreements of the Strategic Arms Limitation Talks (SALT) capped this debate for a time. In those agreements, the two sides decided to limit strategic offensive missile launchers and, in the Anti-Ballistic Missile (ABM) Treaty, to forgo the significant defense of those forces or of populations. At the time, America's readiness to accept this decision reflected our hope that the Soviet Union would adopt as doctrine the principle that an approximate balance of forces and mutual vulnerability could provide for stable mutual deterrence. It also reflected the practical reality that the state of the art in defensive technologies made effective defense infeasible.

There were important but unstated American qualifications concerning what constituted "balance." Specifically, our post-war military strategy rested not only on nuclear deterrence, but on collective security as well, through the maintenance of strong alliances. In Europe our strategy—called flexible response—sought to compensate for a conventional military imbalance favoring the Soviet Union by committing, in advance,

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American nuclear forces to be used to check and then reverse any potentially decisive Soviet conventional breakthrough in Western Europe.

For as long as the United States held an indisputable superiority in nuclear arms vis-à-vis the Soviet Union, the credibility of our stated willingness to use it was largely moot: we were unlikely to be challenged. But starting in the mid-1970s, with the advent of rough nuclear parity between the two sides, inevitable doubts began to emerge on both sides of the Atlantic as to the credibility of America's willingness to risk its own nuclear devastation over a conflict in Europe.

These doubts led to U.S. efforts to lend credibility to our pledges of nuclear intervention. One such measure was to move away from reliance, in our targeting doctrine, on the threat to destroy Soviet cities, and instead to make clear our capability and intention to maintain survivable, highly accurate systems that could attack Soviet military targets in Europe and elsewhere. We also modified our strategy to include plans for the possible execution of "limited nuclear options"—for attacking Warsaw Pact and other military targets discretely—while maintaining better control over the pace and character of escalation.

In addition, faced in the late 1970s with the Soviet deployment in the western U.S.S.R. of SS-20 intermediate-range missiles armed with multiple independently targeted reentry vehicles (MIRVs) that could target all of Western Europe, NATO decided in December 1979 to deploy its own corresponding capability, although in much smaller measure. It was to consist of 108 U.S.-built Pershing 2 ballistic missiles and 464 ground-launched cruise missiles (GLCMs) stationed in Western Europe.

These missiles, which were to be targeted on the Soviet Union, were ostensibly meant to deter the Soviet SS-20 force. But the more plausible NATO motive was to link any European conflict more concretely to U.S. strategic nuclear weapons. It was assumed that if we had already crossed the nuclear threshold by using Pershings and/or GLCMs in Europe—an act that Europeans assumed would be easier for us than launching ICBMs from North Dakota were the Soviets to cross the East-West frontier—then the decision to launch central strategic systems against targets deep inside the Soviet Union would be less anguishing. If the Soviets appreciated such calculation, deterrence would be enhanced.

These several actions—the revision of our nuclear doctrine, the development of limited nuclear options and the deployment

of intermediate-range nuclear forces in Europe—were designed to strengthen American credibility at both the nuclear and conventional levels.

The doctrine was fine. But it was dogged by our inability to maintain survivable, responsive and effective nuclear forces to back it up. In a nutshell, our 550 Minuteman III ICBMs, each armed with three warheads, were our only responsive missiles with sufficient accuracy and high enough nuclear yield to threaten hardened Soviet missile silos and most other military targets. But the Minuteman III force was too small to hold at risk a significant percentage of the Soviet target base. And it was deployed in fixed silos that were becoming ever more vulnerable to a Soviet attack.

In the mid-1970s, the Soviets took two actions that made matters worse. First, they built a very large force of new ICBMs (the SS-18 and SS-19 missiles, carrying ten and six warheads respectively) that were capable of destroying our silos and hardened military targets. Second, the Soviets hardened their own missile silos so as to reduce their vulnerability to attack. By the end of the decade, the Soviet Union had raised an alarm in the United States: Would the U.S.S.R.'s advantage tempt it, during a crisis, to destroy most of our counterforce systems in a preemptive strike, leaving us with no options other than surrender or a suicidal attack on Soviet cities? There was also concern that the Soviet Union was carrying out active research and development in defensive technologies.

In sum, within ten years after the SALT I agreements were signed, questions arose regarding the two axioms on which they were based—our hope that the Soviets would come to accept our concept of balance and mutual vulnerability, and our assumption that cost-effective strategic defenses were infeasible.

The United States responded in the mid-1970s by proposing to modernize its ICBM force. We sought to deal with the problems of imbalance and vulnerability by designing a new, highly accurate missile with up to ten warheads, the MX, which we planned to deploy in a basing arrangement that would ensure its survivability. The latter effort focused upon several variations of deceptive or mobile basing. (It should be noted that the Russians have since moved to mobile missiles, the multiple-warhead SS-24 and the single-warhead SS-25, which are currently being deployed.) But in the United States, a considerable popular backlash emerged, as antinuclear senti-

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ment combined with partisan political opportunism and legitimate military criticism to roll back President Carter's plan for a multiple protective shelter deployment mode. This same combination of sentiments subsequently killed a series of basing schemes proposed by President Reagan.

At that juncture in late 1982, with the charged political climate promising continued paralysis, President Reagan appointed the Bipartisan Commission on Strategic Forces (known as the Scowcroft Commission) in an effort to establish a political consensus on the modernization of our strategic nuclear arsenal, especially our ICBM forces. In its report, submitted in April 1983, the commission reconfirmed the conceptual soundness, military effectiveness and technical feasibility of deterrence. It stated clearly that, considering all military, political and economic factors, our best course from now until some time in the early 21st century was to seek to deter a Soviet attack by maintaining a balanced triad of modern, survivable, offensive forces. Its program recommendations emphasized the importance of assuring the survivability of all our forces, and especially of moving away from high-value (MIRved), vulnerable (silo-based) systems in the land-based leg of the triad. The commission proposed instead the development of a small single-warhead missile to be deployed in a mobile configuration (the Midgetman).

III

Two weeks before this report appeared, a major new factor was introduced by President Reagan's Strategic Defense Initiative (SDI). It is now clear that, even before he was elected, the president held the conviction that it was irresponsible to leave Americans exposed to the risk of nuclear devastation, and that scientific discovery could provide the means for effective protection against such a threat. As a corollary, he believed that such a discovery, by devaluing the threat of nuclear attack, could render nuclear weapons "impotent and obsolete." He believed that, ultimately, nuclear weapons could be eliminated from the face of the earth. And at a time when he saw nuclear weapons threatening to proliferate into dozens of countries, he thought an attempt should be made to stem the tide.

The president's SDI proposal of March 23, 1983, raised two threshold questions and a host of subsidiary ones. First, had the state of the art in defensive technologies advanced to the point where it would be feasible in the foreseeable future to

defend the entire population, and at tolerable cost? If so, how should that prospect affect our strategy and force planning? Second, could effective defenses make the elimination of offensive nuclear weapons feasible and likely?

The president's speech provoked a firestorm of debate, and the five years since then have been marked by bitter, passionate advocacy and criticism. Concurrently, however, the scientific community has been evaluating the potential of several remarkable discoveries that might be applied to the problem of defeating tens of thousands of incoming objects (warheads and decoys). Initially, these efforts were polarized by, on the one hand, the romantic and manipulative hyperbole of the Administration and, on the other, by the flatly dismissive rhetoric of scientists who should have known better. Since this initial conflict, however, a more sober climate has emerged that makes possible a more objective evaluation of the proper role that defensive technologies might play in the years ahead.

It is useful to enumerate the basic criticisms of defensive concepts: 1) they would only provoke offsetting countermeasures, including expanded and more modern offenses; 2) they would present the appearance to Soviet leaders that we might be aspiring to a first-strike capability—a destabilizing impression that could provoke Soviet preemption; and 3) to the extent that development and testing—not to mention deployment—could involve violation of the ABM treaty, the utility of arms control would be undermined.

Truly impressive gains have been made in the technologies associated with ballistic missile defense since the late 1960s. The most dramatic has been in the technology of battle management—specifically in the speed and problem-solving capacity of computers. With regard to weapons applications, substantial improvements have been made in efficient missile propellants and in guidance systems that make possible high-speed, non-nuclear, ground-based interceptors of greater reliability. Separately, the technology of kinetic-kill systems has advanced considerably and holds a high probability of being adaptable to ground- or space-based platforms within ten years. As for the more exotic technologies—directed-energy and particle-beam systems—much of the information about U.S. programs is classified. But it is fair to say that truly remarkable strides are being made, particularly in the free-electron laser.

Yet there is no basis for saying that any of these systems will be adaptable as effective weapons systems before the turn of

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the century, except for two traditional ground-based interceptors (called the exoatmospheric reentry vehicle interceptor system, or ERIS, and the high endoatmospheric defense interceptor, or HEDI) and a relatively primitive space-based kinetic-kill system. In short, the answer to the first threshold question—can defensive technologies provide the means to defend us against ballistic missile attack?—is that we do not know and cannot know for the next ten to 15 years.

A critical military weakness of space-based systems is vulnerability to Soviet countermeasures. Ground-based systems such as ERIS and HEDI are susceptible to being easily overwhelmed by Soviet missile warheads, which can be produced relatively cheaply. Systems operating from low earth orbit in space, moreover, are vulnerable to a family of countermeasures, both ground- and space-based, at costs that also favor the Soviet Union. Pentagon planners believe that the vulnerability of space-based systems can be overcome by building into each platform a maneuvering capability and other protective measures, but it is not clear that these measures could be adopted at a cost approaching that of the Soviet countermeasures. As a separate matter, there remains the difficult problem of how to enable a U.S. interceptor to distinguish between a real nuclear warhead and thousands of decoys.

The central reason for opposing exclusive reliance upon defensive systems for protection against nuclear attack is that to do so is to misrepresent the character of the threat, and, more cynically, to mislead our own people concerning feasible and sensible options for dealing with it.

It is irresponsible to assert either that, once developed, an instrument of mass destruction can be eradicated or that it portends inevitable catastrophe. To suggest that the Soviet Union, or any other nuclear power facing a nuclear threat, would voluntarily do away with all its own nuclear weapons is to assert that the differences that divide great powers are unimportant matters, of no consequence; that Soviet leaders are not serious about their international ambitions or the defense of their homeland and therefore will not see it as imperative to maintain the most modern weaponry for promoting and defending their national interests. Nuclear weapons cannot be disinvented. The technology essential to the construction of these weapons has spread throughout the world.

The Soviet Union has been deterred from the use of nuclear

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weapons, and a strong basis exists for believing it will remain deterred if faced with the enduring impossibility of any rational concept of gain. Because there is no current basis for confidence that a survivable defensive shield is within reach, and in view of the very substantial problems of political, economic and military stability attendant to making a commitment to such a shield, the adoption of a defensive doctrine, even as a goal, would be imprudent.

At the same time, a vigorous strategic defense program is very sound policy. A properly structured program is essential to our national security. In the event that an arms control agreement providing for deep reductions in strategic weapons is reached with the Soviet Union, the diminution of the threat measured in terms of Soviet ballistic missile warheads will affect the scale of any strategic defense program designed to deal with it. If we are no longer dealing with many tens of thousands of incoming warheads, but, say, only 5,000 to 10,000, the program requirements for strategic defense should be much more modest.

In this context, it is clear that a review of the SDI program is appropriate. As such a review is undertaken, the concept of strategic defense should be broadened to encompass how to preserve the survivability of each leg of the triad—not just ICBMs—against the putative threat before us.

While there is much to criticize in the misleading simplicity of the Administration's announcement of the SDI program and the way in which it exploited popular antinuclear aspirations, one cannot ignore the positive practical consequences. In truth, the analysis behind the original concept was oriented toward dealing with an intractable military problem—a worsening counterforce imbalance which we appeared unable to check.

While we can argue whether SDI could conceivably deal with this problem and whether, even if it could, other solutions would not be preferable, it must be said that, in retrospect, SDI—as evaluated by the Soviets—seems to have played an important role in leading the U.S.S.R. to engage seriously in an effort to meet our concerns over the counterforce imbalance. In addition, the prospect of SDI may have been an important influence in encouraging Kremlin leaders to reassess their economic system's fundamental ability to compete, in leading them to the ultimate conclusion that it could not, and in bringing about their acceptance of the need for perestroika.

For those of us involved in shaping the original SDI proposal,

two conclusions for the United States to re-evaluate its strategic defense systems.

First, the terms of the arms control agreement should be more advantageous to the United States. The problem was that we could not get a commitment to a program of strategic defense that would be a net gain for the United States. The problem was that we could not get a commitment to a program of strategic defense that would be a net gain for the United States.

Second, the Strategic Defense Initiative (SDI) investment should be more advantageous to the United States. The Soviets' military investment in strategic defense is only a claim to more construction. The Soviets' military investment in strategic defense is only a claim to more construction. The Soviets' military investment in strategic defense is only a claim to more construction.

If a reorientation of the SDI program is imprudent at this time, how otherwise can we enhance our strategic defense forces? This is best answered by a survivable, highly mobile, and within easy reach of our strategic defense forces.

Submarine-launched ballistic missiles (SLBMs) are two qualifications for their targets. They are of such missile capability to enable SLBMs to be successful. They are to enable SLBMs to be successful. They are to enable SLBMs to be successful. They are to enable SLBMs to be successful. They are to enable SLBMs to be successful.

two conclusions stood out regarding the ability of the United States to restore and preserve a stable balance of offensive systems.

First, the United States had been reduced to competing on terms according to which the Soviet Union enjoyed a comparative advantage—that is, in building and deploying ICBMs. The problem was not that we could not build as good a missile, but that we could not fashion a political consensus behind a deployment plan, so divisive were the effects of partisanship, environmentalist opposition, legitimate military misgivings and antinuclear sentiment.

Second, those of us in the White House who proposed the Strategic Defense Initiative believed that a reorientation of our investment strategy to emphasize an area of our comparative advantage—excellence in high technology—could persuade the Soviets that we could outstrip an entire generation of Soviet military investment. If we could do so, we would remove their only claim to superpower status and perhaps lead them to deal more constructively with our concerns about their forces. The Soviets' commitment to a 50-percent reduction in their heavy missile launchers and warheads—a possibility they would not discuss seriously until after SDI was proposed—represents a vindication of that strategy.

IV

If a reorientation of our strategic doctrine is infeasible and imprudent at this time, then we must return to the basic task—how otherwise to address the offensive imbalance in a way that enhances overall stability. The goal for U.S. strategic offensive forces is to deter the Soviet Union from committing aggression. This is best assured by our having strategic forces that are survivable, have a short time of flight, are highly accurate and within easy, reliable reach of communications.

Submarine-launched ballistic missiles (SLBMs) fulfill the first two qualifications very well; they are survivable and can reach their targets quickly. The design criteria for the new generation of such missiles, the D-5, include sufficient accuracy and yield to enable SLBMs to attack hardened Soviet military targets successfully. Unfortunately, however, the difficulties in discrete, dispersed targeting inherent in any multiple-warhead missile, when combined with the problematic communications characteristic of submarines, make this a poor weapon of choice. If the goal is high confidence of assuring rapid initial

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response as well as measured responsiveness through the course of the battle, SLBMs do not fill the bill.

That leaves land-based forces, ICBMs, as the only alternative. They possess the requisite accuracy and short flight time, and communications with them are reliable. Survivability is the problem with ICBMs.

Our goal should be to move both sides in the direction of more survivable forces. This objective is promoted by reducing the ratio of each side's warheads to the number of aim points on the other side that would have to be attacked in a preemptive strike. By definition, the objective of reducing the warhead/aim point ratio can be approached by reducing the numerator—the size of the Soviet counterforce arsenal—through arms control negotiations, by increasing the denominator by adding American aim points, or by a combination of the two.

It is to President Reagan's credit that he has succeeded in getting Soviet commitment to reductions in its ballistic missile forces, and especially in its heavy, silo-based MIRVED ICBMs (SS-18s). If the current Soviet agreement to reduce this force by 50 percent can be translated into a final agreement while the current warhead/aim point ratio is maintained or lowered, this would represent a very substantial gain for the stability of the East-West nuclear balance. If the Soviets do in fact cut their SS-18 force by 50 percent to 1,540 warheads, stability will improve or remain the same, but only as long as we keep 500 or more aim points on our side. The important issue to keep in mind, however, is the ratio, with or without arms control.

But reducing the number of nuclear weapons—decreasing the size of the numerator—is not without its own set of problems. After reductions, we may have no more than 20 ballistic missile submarines in our force and perhaps no more than 12 at sea, instead of as many as 41 boats, with 22 at sea, as in years past. This smaller submarine force would be inherently more vulnerable, simply because the Soviets could concentrate their entire submarine attack force—the size of which is unaffected by the Strategic Arms Reduction Talks (START)—on finding fewer U.S. boats.

Regardless of the outcome of arms control negotiations, the toughest issue remains whether we will make the hard decision today that we have avoided in the past—to make our new ICBMs survivable by adopting a deceptive-basing or mobile-deployment scheme (whereby the number of aim points becomes substantially larger).

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The choice is complex. We seek to maximize the number of our aim points, and thus survivability, with the least disruption of the civil/environmental setting and the least financial cost. We should proceed from the assumption that within the lifetime of the system we are designing, any START agreement reached may expire. Since, therefore, our missile force could face attack from huge numbers of Soviet ICBMs and/or SLBMs, ideally it should be able to survive an attack without warning. It should be a system that, first and foremost, meets our military requirements; if possible, it should also be compatible with the verification desiderata of sensible arms control agreements.

There are several approaches that, to varying degrees, would fulfill these criteria. Those considered have included horizontal multiple protective shelters (MPS) and closely spaced basing (CSB), both of which were turned aside earlier because of different disadvantages.

Horizontal MPS, proposed in the late 1970s, provided for 200 MX missiles to be moved randomly within a matrix of 2,300 horizontal shelters, each separated from the others by a mile and hardened against 200 pounds per square inch of overpressure. It would have taken at least 4,600 Soviet warheads to barrage such a deployment successfully, and the shelters would have cost between \$40 billion and \$50 billion to construct. Horizontal MPS would have occupied an enclosed land area of approximately 4,000 square miles.

CSB was based on a different principle; it called for deploying a given number of MX missiles in a corresponding number of silos spaced near to each other. This system relied upon the probability that, if an attack were launched against it, the first incoming warheads would, upon detonation, create conditions in which successive waves of the attacking force would be destroyed or would be rendered inoperable for a period of several minutes (a phenomenon called fratricide). It would have required a substantial hardening of the silos to avoid damage to more than one from each single blast and was undermined by uncertainty over largely undemonstrated theories of fratricide effects.

The newer approaches are rail garrison, the so-called carry-hard approach and road-mobile basing.

Under rail garrison, up to 100 MX missiles would be deployed on trains based on military reservations. Current Pentagon thinking calls for the trains to operate outside the bases periodically, without nuclear warheads. In time of tension the trains

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would operate constantly, moving to prearranged assembly sites for warhead mating once an alert condition was directed. The chief drawback to this system is that it would require a matter of two to three hours to move to full alert. Such warning time may well be available, but to rely on it would be to subvert our historical resistance to a policy of "launch on warning." Throughout the nuclear age the United States has operated its strategic forces in the expectation that we will not have, and should not plan for, more than a few minutes warning. This is why we have kept ballistic missile submarines on patrol and bombers on alert. There is no reason to alter this planning assumption now, and to do so would be imprudent.

The "carry-hard" MPS plan was designed to deal with a number of criticisms of the horizontal MPS system, notably: the high costs of each shelter due to the need to harden each one; the large land area required; the relative softness of the shelters, even with hardening, due to modifications required to meet verification needs; and persistent doubts over the system's penetrability by Soviet intelligence. The carry-hard version's improvements are achieved by putting each missile in a hardened canister, thus requiring only 100, not 2,300, hardened housings. These hardened canisters (resistant to 10,000 pounds per square inch), with missiles inside, would be moved randomly among over 2,200 shelters, as with the original MPS system, although the shelters would be vertical. As a consequence of the additional hardening, much greater Soviet accuracies would be required, and each shelter could be separated from its nearest neighbor by as little as 1,500 feet (as opposed to a mile between the shelters in the original MPS plan), thus requiring much less land area—250 square miles as opposed to 4,000 square miles. And unlike the original MPS system, civilian observation would be prohibited to a distance of three miles. This system demonstrates an impressive ability to meet the criterion of assuring high survivability, particularly in a strategic climate where warheads are constrained by an arms control agreement. It also withstands higher overpressures and is relatively cheaper.

The road-mobile concept calls for single-warhead Midgetman missiles to be mounted on specially designed trucks and operated from military bases, preferably in the southwestern United States. It provides better survivability than any other system, since its operating area is larger (and therefore the number of Soviet warheads needed to barrage the area would

be far greater for a 500-missile system than for a 500-missile system). It is the most effective case threat in the Soviet decision-making process. The road-mobility criteria.

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be far greater). The 15-year cost would be about \$29 billion for a 500-missile force. Its greatest advantage over the alternative systems is that it would assure survivability against even the most extravagant Soviet threat. If we consider the worst-case threat imaginable—no arms control limitations and a Soviet decision to build to the limit of their capability—only the road-mobile deployment concept would fulfill the survivability criteria.

If, however, a START agreement were to be concluded along the lines of the current U.S. position (but with mobile missiles allowed on both sides), we could improve system survivability under any of these alternative concepts, with the exception of the rail-garrison proposal. The lengthy alert time required by rail garrison would still make it less desirable than the others.

Turning to the modernization of missiles themselves: the basic wisdom of the Scowcroft Commission's proposal, that a new small single-warhead missile be developed, remains sound. It is also clear, however, that new techniques for updating current systems, and the fiscal realities before us, warrant consideration of alternatives. These include modification of the Minuteman II and/or Minuteman III systems. The Air Force has analyzed the military effectiveness and cost of refurbishing each of these systems. The Minuteman II, which is currently a single-warhead missile, could be modernized by refitting it with new propellant grains and a new third stage, as well as the single warhead and guidance system from the Minuteman III, at a cost of approximately \$8.1 billion for 500 missiles. The Minuteman III missile could be modified by downloading two of its warheads at an even smaller cost.

If either alternative were selected, however, we would have a new problem: we would have to declare a system with the demonstrated capacity to deliver three warheads—the Minuteman III system or the upgraded former Minuteman II—to be considered henceforth a single-warhead system; this would lead to inevitable Soviet insistence on reciprocal treatment for their MIRVed systems. Unfortunately, even if agreed, the larger throw-weight of Soviet missiles would give them an enormous breakout advantage, were they to cheat by reverting to multiple warheads. For this reason there is a strong argument for choosing the Midgetman, which is designed at the outset to carry only one warhead. In addition, considerable research and development work has already been done on the Midgetman toward meeting the demanding conditions of road mobility; a

converted Minuteman system would likely prove less reliable in this area.

The foregoing analysis might best be summarized by presenting the most desirable approach to meeting the most demanding requirements, and then proceeding by regression to less demanding levels.

—If there is no arms control regime and we must deal with an unconstrained Soviet threat, leaving aside fiscal limitations, our best course would be 1) to proceed with the MX, to be deployed in a carry-hard configuration at a force level of at least 100 missiles, and 2) to plan for the deployment of a large Midgetman force—at least 600 missiles—in a road-mobile configuration. Such a deterrent would present an extremely demanding challenge to any Soviet attack, because of the enormous proliferation of aim points to be attacked.

—If, however, an arms agreement is concluded at or about the currently proposed warhead levels, and we continue to assume no fiscal constraints, then the 50-missile MX program in silos, augmented by at least a 500-missile Midgetman program in a road-mobile configuration would fulfill our needs.

—Proceeding further, however, if fiscal realities and our political process foreclose the expense of proceeding to a \$29-billion Midgetman deployment at this time, then the same 50-missile MX program (in silos), paired with a program calling for 500 Midgetman missiles in a carry-hard configuration, is the next best choice.

In my judgment, the overall economics argue for going directly to a mobile deployment mode for the Midgetman system. I believe that such a course is affordable without undue damage to other major procurement programs. At the same time, there is certainly room for argument. Putting a Midgetman or upgraded Minuteman force of 500–600 missiles in existing silos on an interim basis (assuming a START agreement along currently agreed numerical lines) would represent an improvement upon the current situation in terms of stability. Consideration should be given to this course.

V

To sum up: deterrence, through maintenance within a triad of forces of survivable retaliatory capability to inflict prompt, intolerable damage on Soviet military and related targets, remains the most cost-effective, stable and militarily sensible

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In the future it may be necessary for the United States to adopt some form of strategic defense to maintain the credibility of its nuclear strategy. There are foreseeable circumstances in which an accidental or unauthorized launch might endanger military and/or civilian targets. And there are other reasons for a serious program of research and technological development applicable to defense against ballistic missiles and air-breathing systems (aircraft and cruise missiles). These include:

- assessment of the cost-exchange ratios for defending various targets to various levels of survival in the face of responsive threats, including countermeasures, to determine the vulnerability of the defenses to direct attack and to analyze the stability of configurations of defensive and offensive deployments.

- deterrence of, and if necessary response to, a Soviet ABM breakout.

- preservation of possible options for the active defense of selected retaliatory forces and strategic command, control, communication and intelligence against certain small attacks, such as accidental, unauthorized or third-country launches.

Among the political decisions the United States should make are: to abide by the restrictive interpretation of the ABM treaty; to protect fully, in any negotiations, the ability of the United States to do research under the treaty; and to continue to evaluate SDI by the criteria of cost-exchange ratios at the margin, degree of vulnerability to direct attack, effect on stability, and impact on the strategic balance. The cost and value of SDI must also be weighed against other critical military programs for both strategic and general-purpose forces.

The SDI research program should avoid "spectaculars" carried out for their own sake. It should explore ground-based terminal defense of mobile or fixed hard points, ground-based and space-based sensors and advanced directed-energy weapons (such as ground-based free-electron lasers and space-based chemical lasers). Insofar as space-based kinetic-energy weapons appear to be vulnerable to straightforward countermeasures, that approach should be de-emphasized.

This general program should also proceed at a measured technological pace, with annual funding increasing from the fiscal year 1988 level (\$3.7 billion over the next two or three years) at a rate consistent with efficient progress—on the order of ten percent per year.

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Some of the funds thus made available should be diverted to high-technology conventional force initiatives, in order to reduce the risk that the rapid increase in SDI research and development funding may starve U.S. conventional forces of the technological edge they need to offset the Soviet numerical advantage in conventional forces. Any decision on full-scale engineering development of a multi-tier SDI system should be delayed at least until the early 1990s.

With regard to arms control, our purpose should be to seek agreements which contribute to the establishment of balance and stability, as described in this article. In that context, I believe that the current U.S. proposal in the START negotiations is generally sound, but only if our strategic modernization program is guided by the need to reduce or at least preserve warhead/target ratios. It is particularly noteworthy that the Soviets have agreed to reduce their SS-18 force by 50 percent. Presumably, the United States will drop its demand that mobile missiles be banned, although as a stratagem to underscore the importance of assuring adequate verification, this demand has not yet served its purpose.

The past five years have been a time of enormous change. We entered those years with public support for a more assertive U.S. international role. Much of that enthusiasm has been usefully channeled into sensible national security programs, but some of it has been wasted, in part as a consequence of our ambivalence in regard to strategic concepts.

The next five years promise to be equally tumultuous as a result of fiscal pressures, technological progress and the normal, disarming swing of the political pendulum in the West back toward the romantic side of the arc. This latter trend is most unsettling. For unlike times past when, as these swings occurred, our superior strength afforded us a margin of error to experiment with various concepts for securing our interests, we no longer have that luxury. It has become much more important that we be guided by a concrete understanding of the threat before us and the path that, historically, has been the best way to deal with it.

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The second element is arms reduction and control, a process relating primarily to U.S.-Soviet relations -- yet given new realities -- increasingly extending to other quarters as well.

Here our experience with intermediate-range missiles is instructive. I worked closely with NATO leaders in 1983 when the allies bit the bullet -- in the face of all the power the freeze movement could muster -- and stuck to our planned deployment despite unprecedented Soviet pressure. Then we stood together again, successfully, when Mr. Gorbachev finally took up Ronald Reagan's offer to scrap all these missiles.

The lesson is clear: real arms reduction, real improvements in East-West relations, and real security can only be achieved through strength and consistency. We can pursue negotiations tenaciously while proceeding with the military measures to guarantee our security. To halt the modernization of our strategic deterrent is to disarm unilaterally -- rendering the United States increasingly vulnerable and reducing incentives for serious negotiations by the Soviets -- who incidentally continue a fast modernization program of their own.

My policy will be continued modernization as we pursue a verifiable and stabilizing agreement to reduce each strategic arsenal by 50 percent, mindful that a reduction in arms must also mean a reduction in danger. The ratio of forces must leave us more, not less, stable.

My policy will recognize that despite the drama of nuclear weapons, the imbalance in conventional weapons is a basic source of instability in Europe. For over 40 years, the Soviet Union has maintained a huge forward-deployed land army. If the change in the Soviet attitude is genuine, the Soviet Union should accept the forthcoming NATO proposal to reduce both NATO and Warsaw Pact forces to lower balanced levels of tanks and artillery in Europe, from the Atlantic to the Urals -- these are the weapons that make an attack thinkable. Let's reduce them in a way that lessens the danger of war, strengthens deterrence and secures the peace.

My policy will be to develop a viable strategic defense system, an outgrowth of the SDI research program, to protect our people from ballistic missile attack. The fact is, that this city, Chicago, just like every other city in the United States, has absolutely no defense against an attack. Even if only one missile were launched against us, the President would have no choice but to stand by as destruction hurtled toward millions of Americans -- helpless to defend them.

Already, the first phase of a space-based SDI technology is ready to come out of the lab and begin demonstration. The technology isn't the problem, that's progressing faster than its most ardent supporters ever imagined -- it's the Democrats in

Congress that are dragging their feet, for instance, cutting the space-based interceptor appropriations from over 300 million to 85 million and boasting they've "taken the stars out of star wars."

I am confident we can find a better way than mutual assured destruction, with all its admitted shortcomings. I am committed to deployment of SDI, as soon as feasible, and will determine the exact architecture of the system in my first term, as the technologies are tested and proven. As President, I will not leave America defenseless against ballistic missiles.

Precisely because of the spread of dangerous military technologies, we must also extend the arms control process beyond the narrow confines of the superpowers. States like Iran, Syria, Iraq, and Libya are working to develop the capacity to produce chemical arms, and to acquire -- in some cases produce -- the ballistic missiles to deliver them. The danger is real and we have to get active now if we are to avert disaster.

We must start by giving new life to multi-national programs to limit these modern plagues.

My program includes a drive to ban the production of chemical weapons and create an intrusive verification system to guard against violations. Anyone who has seen the pictures from the Gulf War -- of women and children killed by chemical poisons -- knows that we must put this terrible genie back in the bottle.

We must also intensify our drive to halt the spread of nuclear weapons. I will work to secure universal adherence to the nuclear non-proliferation treaty, and to strengthen the International Atomic Energy Agency.

But that's not enough. We must also stop the spread of ballistic missiles and ballistic missile technology. There are few developments more frightening than that of unstable, sometimes irrational, Third World regimes being able to press a button and deliver weapons of terror across great distances.

I will work to revitalize the missile technology control regime -- the mechanism created to stop the transfer of missile technology -- get it moving and make it effective. Those who refuse to join it or who violate its principles must know that they will pay a price for doing so.

New circumstances necessitate new direction. I will put one senior official in charge of the ballistic missile problem and give him the responsibility to integrate the intelligence, military, technical, diplomatic, and economic resources needed to respond. But we must also cope with the reality that ballistic missiles have already spread too far -- that, for instance, Israel is already threatened by them. That is why I

PRIME MINISTER

STRATEGIC DEFENCE INITIATIVE

You have a meeting on Monday afternoon to consider our policy on the Strategic Defence Initiative. If there is time, the meeting might also look at some issues of conventional arms control. The Foreign Secretary, the Defence Secretary and the CDS will be present.

SDI

The origin of the meeting lies in your justified dissatisfaction with the Chiefs of Staff paper on SDI, which the Foreign and Defence Secretaries sent to you shortly before your visit to Washington in November last year. They then urged that you should tell Vice-President Bush:

- that even a cooperative deployment of strategic defences would not enhance strategic stability.
- that a unilateral deployment would lead to a competitive and unpredictable proliferation of both offensive and defensive weapons.
- that a Strategic Defence System would have serious consequences for Trident.
- we should therefore in effect discourage the new US Administration from moving towards any deployment of SDS (while continuing research).

You declined to speak in these terms and quite rightly so, since Bush made clear on several occasions in his election campaign that he intends to continue with SDI.

Since then there have been two further significant developments:

- General Abrahamson's briefing has shown the extent of further technical advances with SDI.
- you have seen the so-called European Architecture Study, which describes how in the long-term Europe could receive some protection from an SDS system.

Points Against the MOD Paper

There are a number of weighty points to be made against the MOD paper and joint MOD/FCO views, set out in my note attached.

Conclusions of the Meeting

But you will not want to rest with demolishing the paper. There are a number of more positive conclusions from the meeting for which you might aim:

- we should positively encourage the Bush Administration to continue research, development and testing of SDI so that the West keeps the technological edge.
- the need to work with the Americans on perfecting penetration aids and other improvements to the design of our nuclear warheads for Trident, to ensure that we can cope with the (inevitable) improvements in Soviet defensive systems.
- the importance of taking seriously the case for an eventual European defence against ballistic missiles. Although the European Architecture Study has been done for the Americans, we should begin to think seriously about the implications for us.

Conventional Arms Control

You have seen the papers on this (summary attached). The main question is how to deal with the Germans, getting them to

agree to modernisation of NATO's nuclear weapons without selling the pass on SNF negotiations. There is a tendency in Whitehall to argue that we are going to have to concede SNF negotiations of some sort if we are to get the Germans aboard for modernisation, and that we should therefore be planning options. This cannot be right: it will lead inexorably to a third zero. Rather we should be resolute in opposing negotiations with the Russians on SNF, while being ready to make further unilateral reductions in nuclear artillery. Indeed one could argue that it would be better to get rid of all NATO's nuclear artillery unilaterally - it is hard to see circumstances in which we would ever use it - than get hooked on negotiations with the Russians on SNF.

Points to discuss at the meeting are:

- what we want to achieve. In essence it's the points above: no weakening on SNF arms control, while securing specific decisions on modernisation. The signs are mixed. Chancellor Kohl told you he would agree to modernisation and the German Defence Minister has recently made a strong and positive statement in favour. Genscher and the FDI continue to drag their feet. You will want to give the meeting a strong steer against getting involved with the Germans in discussion of possible SNF arms control options (the Americans have already complained about the FCO's activities with the Germans).
- how best to influence the Germans bilaterally on the question of modernisation. You will be seeing Kohl at the Anglo-German Summit in February, but this may be too late: he told you they hoped to reach an agreed position in January. The Foreign and Defence Secretaries will no doubt be seeing their opposite numbers. I am seeing Teltschik on 20 January and can find out Kohl's latest thinking. We shall also need to talk to the new US Administration as soon as possible.

- the question of a NATO Summit. Do we join the Germans in pushing for one before mid-May? Or do we reckon it's impractical before July, at the time of the Economic Summit? Do we positively want it to be in London? Or would we prefer it to be held in Brussels?

C.D.P.

CHARLES POWELL
13 January 1989

EL3DGD

NOTE FOR THE RECORD*SUBJECT CC MASTER*

cc Sir Percy Cradock

STRATEGIC DEFENCE INITIATIVE

The Prime Minister had a meeting yesterday evening with General Abrahamson, to discuss progress with the SDI. General Monahan - who will take over from General Abrahamson as Head of the SDI Project on 1 February - and the American Ambassador were also present.

General Abrahamson said that the US would shortly put a new early warning satellite into orbit. This might be represented by some as the first step in deployment of SDS. In fact it was simply an upgrading of an existing system and did not represent a decision to go ahead with SDS. No such decision was likely before 1992/3.

General Abrahamson gave a detailed account of progress with the concept of 'brilliant pebbles' (thousands of very small missiles, which would loiter in space). This had been a major factor in bringing down the estimated cost of an SDS system. He predicted testing of the 'brilliant pebbles' in space within two years.

On testing generally, General Abrahamson thought that adequate progress could be made for now within the restrictive interpretation of the ABM Treaty, but not indefinitely.

General Abrahamson thought that problems over launch capability had been resolved so far as the current needs of the SDI programme were concerned. But the Soviet Union still had a big lead in heavy lift capability.

In reply to the Prime Minister's question, General Abrahamson said that the area of Soviet work on space defence-related technology which caused him most concern was that on X-ray lasers. They were devoting considerable effort to this. While the United States was doing some work too, its purpose was to reach a better understanding of the threat which would be presented by Soviet weapons based on this technology.

General Abrahamson welcomed the joint tests which were being conducted by the US and the UK in certain areas. Much of this work was relevant to the long-term effectiveness of Trident, particularly in relation to penetration aids. The Prime Minister said that she assumed that the Americans would increasingly use stealth technology both for their missiles and re-entry vehicles as well as in the components of the SDS. She would like to see the United States and the United Kingdom work closely together in this area.

The Prime Minister congratulated General Abrahamson on the progress of SDI. She was much more optimistic than she had been that an effective system, which would greatly complicate the calculations of anyone planning an attack, could be achieved. She hoped that the Bush Administration would press on with work on SDS. She also intended to see that proper consideration was given to the possibility of a system to provide coverage for Europe, despite the considerable command and control problems to which this would give rise. General Abrahamson said that the way the US space-based system was shaping would automatically provide a considerable degree of cover for Europe. Similarly, radars and sensors associated with a ground-based system could considerably reinforce the capability of the US system.

The Prime Minister concluded by thanking General Abrahamson for the many special briefings she had received. She hoped that General Monahan would continue the practice.

C.D.P.

C. D. POWELL

12 January 1989

DASASH

PRIME MINISTER

MEETING WITH GENERAL ABRAHAMSON

You are to see General Abrahamson next Tuesday. It will be his farewell call. He will be accompanied by his successor, General Monhahan. Charlie Price is coming too.

General Abrahamson will present you with a shield. Do you want to give him anything?

You will want to thank General Abrahamson for all his help and advice over the past four years. His briefings have enabled you to keep closely in touch with developments and give support to the SDI research programme. You hope that General Monhahan will keep you similarly informed.

You will want to ask General Abrahamson for an account of technical progress over the twelve months since your last briefing. You saw the recent article from Aviation and Space Weekly on 'brilliant pebbles'. Other areas you might ask about are:

- advances in computer technology;
- progress in restoring US launch capability;
- his current estimate of the feasible date for a Phase I deployment;
- whether he is satisfied with the joint US/UK interception/discrimination experiment.

Since your last meeting, our participation in SDI experimental trials has been considerably stepped up to our benefit. This is very helpful in the context of ensuring Trident's effectiveness.

Secondly, you will want to ask how he assesses Soviet developments over the past year.

SECRET

- 2 -

Thirdly, you might ask what attitude he expects the new US Administration to take towards the SDI programme, and whether there are particular areas he expects them to emphasise.

Fourthly, you might ask about the participation of British firms in the SDI, which has been very disappointing in financial terms. You have recently seen the summary of the European Architecture Study. You might ask General Abrahamson's views on the study and the feasibility of the system it proposes.

I enclose in the folder:

- a background note by MoD;
- my note of your last meeting with General Abrahamson;
- a critique of current FCO/MoD views on SDI.

C.D.P.

(C. D. POWELL)

6 January 1989

SECRET

UK PARTICIPATION IN SDI RESEARCH

Contents of Brief

- A. - UK participation in SDI research.
- B. - SDI programme status.
- C. - Future of the SDI programme.

Objectives

(1) To achieve an up-to-date understanding of the potential of SDI research and of the feasible early development opportunities and associated policy intentions - e.g in the field of space-based sensors.

(2) To leave Abrahamson's successor, Lt Gen Monhahan, in no doubt that the UK supports SDI research and that there remains a widespread desire in the technological community here to contribute their expertise to the programme.

BRIEF A

UK PARTICIPATION IN SDI RESEARCH

Summary

1. The value of US SDI awards to UK companies and other organisations, at about \$61 million, is disappointing. Funding cuts in the US have largely offset the value of new business won by the UK. The number of signed contracts and sub-contracts stands at 81.
2. The technical information exchange programme continues to mutual advantage.
3. Joint UK/US programmes, especially experimental trials, agreed or in prospect have become a significant and potentially fruitful aspect of SDI participation.

US-Funded Work

4. A full list of contracts and sub-contracts signed is attached. Table A shows the awards which have gone direct to industry or other organisations (70 awards, value \$35M). Table B shows those which have come through the MOD (11 awards, value \$26M). Not included are some awards known to have been agreed but awaiting contract signature.
5. The following are some current points of interest about these awards:
 - a. Serial 55. US National Test Bed. The sub-contract award from Martin Marietta to Ferranti was originally believed by Ferranti to be worth a little over \$20M (of which \$12M was included in the published totals for SDI participation). It subsequently transpired that Ferranti's award amounted almost wholly to a series of options outside the core elements of Martins' programme likely to attract funding, leaving

Ferranti with next to nothing. The SDI Participation Office has obtained assurances that a further \$500K will be made available for Ferranti, and the company is now being assisted with the preparation of a relevant proposal.

b. Serial 56. Invite, Show, and Test: Starstreak. This award is a small-scale one involving technology demonstration, and is not the 'fairly large contract' anticipated by Lt Gen Abrahamson when he briefed the Prime Minister in February 1988. Nothing has come of the latter prospect because Shorts have submitted no proposal, despite repeated promptings at senior level.

c. Serial 69. Continuous Wave Deuterium Demonstrator. Culham Laboratory have a major share of this ground-based neutral particle beam programme, worth an estimated \$14M if the programme is carried forward to completion. Phase 1 is in progress. (The funding for the entire neutral particle beam programme was removed at one stage in mid-1988. It was restored following a concerted lobbying effort).

d. (Asterisked items). Innovative Science & Technology. The UK has been relatively very successful, especially the universities and polytechnics, in this part of the SDI programme. But there has been a sharp cutback in the funds allocated for FY 89. Contracts have been cancelled. Lt Gen Abrahamson has agreed to review the position as it affects UK investigators.

e. Table B, last item. Extended Air Defence Test Bed. This Government-to-Government award, potentially worth \$8M, is the first clear example of a joint UK/US programme in which an existing or planned UK programme (in this case the Air Defence Test Bed at the Royal Signals & Radar Establishment, Malvern) is augmented with US funds. Three further related proposals, all of smaller value, have been received favourably by the US; and others are in preparation.

COMMERCIAL IN CONFIDENCE

6. Two other specific points are worth noting. Firstly, Rolls Royce Associates/UKAEA are well advanced with their design study work with Boeing, even though the \$480K sub-contract has not been signed, on space-based nuclear power systems. Bids for the next phase of work will be requested soon; and, although the programme has caused no comment in the UK so far, it may be necessary to give fuller consideration to presentational aspects of UK involvement in this programme if a bid for Phase 2 work succeeds. Secondly, Cossor's promising bid, again with Boeing, for funds for the development of an optical computing solution to one of a genus of major signal processing problems facing the SDI programme, ran into difficulties last August. It has proved hard to keep this proposal alive, although Abrahamson has at least commissioned an internal review of SDI-funded optical processing efforts (there may be management concerns here, if not more general worries).

7. Looked at as a whole, UK achievements in securing SDI business are extremely modest in value terms but nonetheless richly varied in terms of the technologies concerned. The value result is a product of pressures on the SDI budget and to some extent of administrative inertia on the US side, coupled with an often poorly directed and managed and drearily presented approach to bidding in much of UK industry. The variety of the awards reflects the innovative versatility to be found in the UK, virtually across-the-board.

8. In the prevailing budgetary climate in the US, slow growth at best can be expected for funded SDI work. Necessary conditions for improvement in these circumstances are, on the UK side, a more far-sighted and professional approach on the part of industry (at the same time making better use of the established inter-governmental relationships); and, on the US side, more fully effective implementation of the SDI MoU provisions in the area of the timely admission of non-US companies to the bidding process and the closely related document export licensing process. The last mentioned is the most tangible problem susceptible, but only in principle, to a sustained programme of administrative action.

COMMERCIAL IN CONFIDENCE

In practice it is the professionalism of British companies which will count most.

Information Exchange

9. UK/US SDI technical information exchange continues. Conceived originally as an exchange at Governmental level, the process increasingly brings in industry on both sides of the Atlantic. The many companies concerned clearly value their involvement here and are keen to see it continue. Information exchange of the detailed kind involved is now proving its worth in helping both Government and industry to identify bidding opportunities for funded and cooperative work.

10. Some relatively minor changes will be made in how the information exchange is organised, to reflect the redistribution of management responsibilities within the US SDI Organisation.

Joint Programmes

11. In addition to efforts of the kind described in paragraph 5e. above, where a commonality in UK and US technical programme requirements can be established as a basis for enhancing UK programmes, several possibilities have opened up in the area of joint experimental trials. A note on these is attached. In part, the developments here reflect Lt Gen Abrahamson's desire as expressed to the Prime Minister in February 1988 to involve the UK more closely in sensitive parts of the SDI programme. Work is at an early stage in developing additional proposals, and these will need to be handled carefully with the US given their approach to questions with a security sensitivity.

Brief prepared by
SDI Participation Office
6 January 1989

SDIPO

'LIST OF KNOWN CONTRACT AWARDS TO UNITED KINGDOM'

A. CONTRACTS DIRECT TO INDUSTRY/ACADEMIC INSTITUTIONS

ENCL NO.
13

Company	Equipment/Task	Date	Value US \$M	Agency
1 EEV	Thyratrons	1985/ 1986	0.5	Boeing, DOE
2 GEC/Marconi	Silicon-on-Sapphire Radiation-Hard ICs	1985/ 1986	2.0	Various US Companies
3 Tesla Ltd	Supply of Quadrupolar Magnets	Conti- nuous from late 1985	1.0	Boeing AC
4 Plessey	Fluidic Control	Oct 85	0.02	Boeing AC
5 Ferranti	Meteorological Environmental Test Support	Dec 85	0.219	
6* Ferranti	Optical Computing	Jan 86	0.099	Dayton Univ
7* Heriot-Watt	Optical Computing	Jan 86	0.159	Dayton Univ
8 Culham Lab	Particle Beams for Defence	Jun 86	8.937	AFQ SR
9 Logica	Theatre Defence Study DEW with NY Poly	Jan 87	0.125	Polytechnic Institute NYC
10 Ferranti	Mirror Systems	Aug 86	0.375	Aeromet
11 Culham Lab	Hardware for RFQ from Los Alamos	Aug 86	0.3	DOE
12* Strathclyde U Newcastle U Aston U London U Kent U Swansea U	Study on Interactive Space Technologies (Consortium)	Oct 86 Sep 88	0.884 0.077	Auburn Uni
13 Barr & Stroud	Coatings on CdTe	Nov 86	0.01	MIT Lincoln Lab
			14.705	

Company	Equipment/Task	Date	Value US \$M	Agency
14 OCLI	Coatings on CdTe	Nov 86	0.05	MIT Lincoln Lab
15 Eight UK Comapnies	Theatre Ballistic Missile Defence Architecture Study	Dec 86	2.205	USASDC Huntsville
16 * Heriot-Watt & Plessey	Optical Computing Second Phase	Dec 86	1.850	Office of Naval Re- search
17 Mullard	CMT Linear Arrays Lockheed ERIS	Jan 87	0.02	Lockheed Missile & Space Co
18 Logica	Pointing & Tracking Sub for Martin Marietta	Mar 87	0.05	Martin- Marietta
19 ML Aviation	Components for ERIS Sub to Lockheed	Apr 87	0.011	LMSC
20 Ferranti	Development of a model for advanced computer architecture research	Jun 87	0.250	
21 Culham Lab	Accelerator Studies	Jul 87	1.25	US Army
22 *Southampton U	Electrochemical Van De Graaf Generators	Jul 87	0.27	ONR
23 National Centre of Tribology	Tribological Coatings for Space	Jul 87	0.480	AFWAL/ML
24 ICI	Space-Tailored Thermo- plastics	Jul 87	0.068	AFWAL/ML Thr Oakridge
25 Westlands	Thermoplastic Tubes & Joints	Jul 87	0.060	AFWAL/ML Th Oakridge
			21.269	

Company	Equipment/Task	Date	Value US \$M	Agency
26 Cray Advanced Materials	Metal-Matrix Integral Tubes	Jul 87	0.040	AFWAL/ML Thru EOARD
27 Courtaulds	Woven Reinforced Thermoplastic Panels	Jul 87	0.050	AFWAL/ML Thru EOARD
28 GEC Engi- neering Research	Ceramic Tubes	Jul 87	0.025	AFWAL/ML Thru EOARD
29 Specmat	Thermoplastic Tubes	Jul 87	0.010	AFWAL/ML Th. Oakridge
30* Cambridge U	Breaking Planetary Waves in the Stratosphere	Aug 87	0.175	ONR
31* Hatfield Poly	Development of Algo- rithms for highly parallel architectures	Sep 87	0.09	AOR
32* Queens Univ Belfast	Calculation of Photo- Ionisation Cross Sections of Ions	Sep 87	0.120	ONR
33* STL Harlow	Novel Pulsed Plasma Process	Sep 87	1.034	ONR
34* Ferranti Computer Systems	Transform Array Processor	Sep 87	0.35	ONR
35* UKAEA Harwell	Pulsed Discharge Characteristics of Solid-State Batteries	Sep 87	0.421	ONR
36* Brunel Univ	WSI Processor for High- Speed Image Processing	Sep 87	0.480	ONR
			24.064	

Company	Equipment/Task	Date	Value US \$M	Agency
37 *Warwick Univ	Signal Processing	Oct 87	0.238	ONR
38 Advanced System Architectures	Data Fusion	Oct 87	0.425	SDIO
39 BAe EASAMS Ferranti	TMDAS Phase-2	Sep 87	0.823 0.850 0.662	USASDC Huntsville
40 Plessey	Diverter Valves	Oct 87	0.633	SDIO
41 * U Manchester (3 Contracts)	Macromolecular- Electronics	Oct 87	0.392	AFOSR
42 * U Coll, London	Ditto	Oct 87	0.134	AFOSR
43 * U Lough- borough	Ditto	Oct 87	0.083	AFOSR
44 * Vuman Ltd, U Manchester Science Park	Ditto	Oct 87	0.265	AFOSR
45 * Gel-Tech(UK)	Ditto	Oct 87	0.106	AFOSR
46 * U Leeds Ind Services Ltd	Multifunctional- Macromolecules	Late 87	0.218	AFOSR
47 * U Cambridge	Ditto	Late 87	0.171	AFOSR
48 * GEC Research	Ditto	Late 87	0.420	AFOSR
49 * UC Wales Aberystwyth	Functional Polymers	Ditto	0.150	AFOSR
			29.634	

Company	Equipment/Task	Date	Value US \$M	Agency
50 * U Southampton	Functional Polymers	Late 87	0.150	AFOSR
51 * U Oxford	Nonlinear Inorganic Optical Materials	Late 87	0.040	AFOSR
52 * U Reading	IR Transmitting Ceramics	Late 87	0.050	AFOSR
53 Mullard/ Magnavox	Demonstrate CMT Array for Lockheed ERIS	Late 87	0.100	LMSC
54 EASAMS	TMD Survivability Sub to BOOZ Allen	Jan 88	0.205	USASDC Huntsville
55 Ferranti	National Test-Bed Sub to Martin-M	Feb 88	.0.276	AFESD Hanscomb
56 Shorts	IS&T Starstreak	Apr 88	0.223	USASDC Huntsville
57 BAe	IS&T Proposal Sea Wolf Modelling	Apr 88	0.470	USASDC Huntsville
58 Plessey Radar	IS&T Mesar	Apr 88	0.500	USASDC Huntsville
59 BAe	FEL Tech Support Sub from TRW	Mar 88	0.111	USASDC Huntsville
60 *Queen's Univ Belfast	Ultra short wavelength lasers - preparation of computer codes	Mar 88	0.050	NRL
61 ASA, Plessey, GTS, Hunting PA Defence	"Super-Seta" sub from Riverside Research	Apr 88	-	SDIO
62 Westland	Thermoplastics	May 88	0.127	ORNL
63 Courtaulds	Thermoplastics	May 88	0.125	ORNL
			32.061	

B. LETTERS OF OFFER & ACCEPTANCE (LOAs)

Company	Equipment/Task	Date	Value US \$M	Agency
MOD	Architecture Study	Jun 88	12.737	SDC
RSRE	BMC3	Nov 86	3.289	SDC
RARDE	EM Gun LOA	Dec 86	3.0	SDIO
RAE	Countermeasures	Dec 86 Term Feb 88	0.8	SDIO
MOD	Lethality Hardening	Dec 86 Term Apr 88	0.7	DNA
RSRE	European Test-Bed	Dec 86	0.3	SDIO
RSRE	Catalysts for long-range CO ₂ Laser System	Sep 87	1.95	SDIO
RSRE	Advanced Sensor Hardening Concepts for space platforms	Sep 87	1.3	SDIO
RSRE	Higher-Operating Temperatures for IR Detectors	Feb 88	0.593	SDIO
RSRE	Programmable Delay-Lines at 10 μm	Mar 88	0.195	Naval Contracting Office Eastcote
RSRE	Extended Air Defense Testbed (EADTB)	Sep 88	1.45	SDC
SUBTOTAL LOA CONTRACTS			26.314	
GRANDTOTAL ALL AWARD			61.180	

Prepared by: SDIPO Policy
11 November 1988.

SDI PARTICIPATION - JOINT EXPERIMENTAL TRIALSProject GOLLUM

1. GOLLUM (known in the US as Royal Shield) is a joint trials series involving the firing of short range ballistic missiles and the observation of the resulting phenomena at optical wavelengths. GOLLUM 1 took place in November 1987 when there were practice firings of Lance missiles on the Hebrides Range at Benbecula. The observations were made from a US aircraft (ARGUS) carrying a range of US visible wavelength optical sensors and RSRE's Dual Waveband Imaging Radiometer (DUWIR), an infra-red sensor. Lt Gen Abrahamson subsequently wrote to VCDS saying that '... we discovered very interesting and crucial physical phenomenon that had never before been observed'.

2. Trial TALK 1. In the margins of Gollum 1, advantage was taken of a US offer to make use of their aircraft while it was in the UK to observe RAF aircraft at night using the DUWIR sensor. Very remarkable and significant results were obtained.

3. A second round of GOLLUM will take place in February 1989, this time involving an attempted interception of Lance by Sea-Dart fired from Type 42 destroyers. Up to 6 missiles of each type will be used. There will be two US airborne sensor platforms and the DUWIR sensor will again be deployed. Trial TALK 2 will also take place; and there will be an additional trials activity (Trial LISTEN) to evaluate the capability of airborne optical sensors to collect signature data on surface warships.

Project ZODIAC BEAUCHAMP (ZB)

4. Project ZB offers a timely and cost-effective first flight trial opportunity in a wider programme of research into penetration

aids in the Trident era. As such, Ministers gave their approval shortly before Christmas to UK involvement in ZB. The project involves the launching, at US expense, of a missile payload on their Pacific test range and the monitoring of payload behaviour. One part of the payload will be a UK-manufactured Thrusted Replica (TREP) designed to match the observable flight characteristics (above the atmosphere and on re-entry) of the other part which will be a US-manufactured dummy warhead. The cost to the UK is estimated at £6M (extramural) plus £3.3M (intramural).

Discrimination Experiment

5. This is a proposal, approved by Ministers in October 1987 on an ad referendum basis, for a full and joint UK/US experimental trial of a suite of advanced penetration aids. Detailed US/UK technical discussions on the possible shape of a mutually acceptable programme have taken place. These will require further detailed consideration before advice can be submitted to Ministers.

JANUS

6. The UK was invited in April 1988 to participate in a further three SDI trials. One of these requests could not be picked up. Another has since been re-presented in a different context (see below, on Delta Star).

7. Participation in JANUS, the remaining item, was agreed. This will involve the UK in negligible expense and provide access to data of value both in intelligence terms and in support of research programmes underpinning the effectiveness of Trident. The work on JANUS is now planned to take place in February 1989.

Delta Star

8. Delta Star follows on from the SDI experiments Delta 180 and Delta 181. The UK's access to the latter two experiments has been limited, but much better on 181 than on 180. This is because we have played a Tiger Team role: taken on the job of

a (pseudo) hostile intelligence agency. The US have been startled by the output from this arrangement.

9. Following on from the briefing given to the Prime Minister by Lt Gen Abrahamson on 7 February 1988, an offer has now been made for the closest possible UK involvement in Delta Star. This is a 'Black Programme' in US parlance, and it is quite unusual for non-US participation to be invited. A member of staff from the MOD SDI Participation Office has been coopted to the US planning body for Delta Star.

1930

BRIEF BSDI PROGRAMME STATUSSummary

1. Some changes have been made to the configuration of a Phase 1 US Strategic Defense System (SDS). Phase 1 cost estimates have fallen from \$115 billion to \$69 billion; and the US aim to reduce this further to \$50-55 billion. Advanced space-based sensors may be developed and deployed independently of and earlier than any complete Phase 1 system.
2. The SDI budget for FY 89 is \$4.1 billion (including the Department of Energy element), little more than for FY 88. Steady if unspectacular progress is still being made in a wide range of technologies. But budgetary pressures are making it increasingly difficult to maintain a balance between technology development for follow-on SDS phases and the Phase 1 work itself.

Phase 1 SDS

3. In mid-1987, the US Defense Acquisition Board (DAB) gave Milestone 1 approval of work directed towards Phase 1 SDS development and deployment, coupled with endorsement of programme efforts directed to subsequent SDS phases. Some of the uncertainties over the mix of sensors for Phase 1 SDS have since been resolved. There have been two further DAB reviews of Phase 1, most recently in October 1988 when a major change in the planned numbers of ground- and space-based interceptors was adopted, and substantial reductions in estimated Phase 1 costs (from \$115 billion to \$69 billion) were announced.
4. The criteria laid down by the US Joint Chiefs of Staff for the characteristics and performance to be achieved in Phase 1 of SDS deployment are that:
 - a. It should meet the Congressional requirement for man-in-

the-loop control;

b. There should be a high degree of effectiveness against limited scope attacks;

c. Against a full-scale attack (at pre-START levels of offensive weapons), the system should be capable of destroying 50% of the first wave of SS 18s and 30% of other systems;

d. The overall aim should be to enhance deterrence by ensuring that the structure of a full-scale attack could be disrupted.

These criteria have not been changed in the later reviews.

5. These requirements led to a Phase 1 SDS architecture comprising two defensive layers, as depicted in the attached chart: a boost/post-boost phase layer, and a late mid-course layer. The principal features of the system are as follows:

a. Boost/Post-boost Phase. Missile boosters would be attacked above the atmosphere before their payload had separated, or the payload would be attacked shortly afterwards and before full deployment of warhead/decoy packages. This element of Phase 1 SDS would comprise 6-8 Boost Surveillance and Tracking System (BSTS) satellites in geosynchronous orbits to provide warning of missile launches and course tracking data. The Space Based Interceptor (SBI) sub-system would be a constellation of satellites in low earth orbit (500-700 Kms) each satellite 'garage' having 10 interceptors on board. Seven rings each of 22 satellites would be depoloyed. This compares with 15 rings of 20 in the original plan, a cut of roughly 50%. There would no longer be a sensor system on board the SBI satellites. Instead, BSTS tracking data would be refined by a second suite of space-based sensors, the Space Surveillance and Tracking System (SSTS) in medium earth orbit (2000-4000 Kms) which earlier were expected to support only the ground-based intercept layer. The

space-based interceptors themselves would be hit-to-kill devices with a homing manoeuvre capability supported by an on-board sensor.

b. Late Mid-Course Phase. Warheads would be attacked in the later stages of flight, before re-entry into the atmosphere, by ground-based interceptors. 1700 of these are now planned, compared with 1000 in the original plan. The interceptors, as with the SBI, would have a homing manoeuvre capability and an on-board sensor. The supporting target acquisition and tracking system, whose configuration had not been fully defined in the original plan, now comprises SSTS (already mentioned), ground-based rocket-launched sensor probes, and ground-based radars.

6. Although the configuration of Phase 1 SDS has now been more tightly defined, options remain for varying the sub-system mix in terms both of types and of numbers. Future changes can be expected to reflect both the technological output from the SDI programme itself and any developments in the assessment of Soviet offensive force characteristics.

7. The present planning timetable for the initiation of Phase 1 SDS deployments is unclear, but is likely to have slipped 2-3 years from the previous target date of 1996. Substantial and early increases in funding would be required even to meet such a later timetable. But there is the possibility, of which there has been talk in Washington, of proceeding in advance of any SDS deployment decision with the deployment of its space-based sensor elements, especially BSTS, for wider US defence purposes. Some substantial upgrading of the US early warning satellite network certainly seems likely.

8. The current cost estimates for Phase 1 SDS are summarised in the attached table. These estimates need to be viewed sceptically at this stage when sub-system development has yet to be initiated. It is believed also, despite the fact that further reductions are being sought to some \$50-55 billion, that

the current estimates anticipate cost reduction techniques and potential which have yet to be validated.

9. A major contract for Phase 1 System Engineering and Integration (SE&I) was awarded to General Electric in mid-1988.

Technical Progress

10. SDI Participation Office staff during regular visits to US Government and contractor facilities have seen impressive examples of hardware being produced for technology development and demonstrator programmes. Substantial advances are undoubtedly being made in such fields as large scale optics, electro-optics, lasers, and miniaturisation of missile and other components. Naturally major technical and system challenges remain to be overcome. But the progress so far made is certain to strengthen US industry's capabilities in the longer term.

Programme Balance

11. The US have been conscious all along that a balance needs to be maintained in the SDI programme between efforts which may mature into a system suitable for a first phase SDS deployment and those which would be required to support subsequent deployment phases. [This need can be seen from the schematic diagram in Chart 1]. After a few years at its peak capability, Phase 1 SDS would become progressively less effective in the face of Soviet countermeasures. Upgraded systems would be required merely to maintain capability, let alone improve it.

12. Work on Phase 1 SDS is bound to call for a substantial increase in funding allocations to the relevant parts of the SDI programme. The SDI budget has neither grown in the way the US Administration would have wished, nor is there any sign that additional funds will be made available to support Phase 1 SDS work on an adequate scale. The maintenance of an appropriate balance between Phase 1 and follow-on efforts is becoming increasingly difficult. Timescales will inevitably slip and the

number of alternative approaches to particular technical problems may have to be narrowed down.

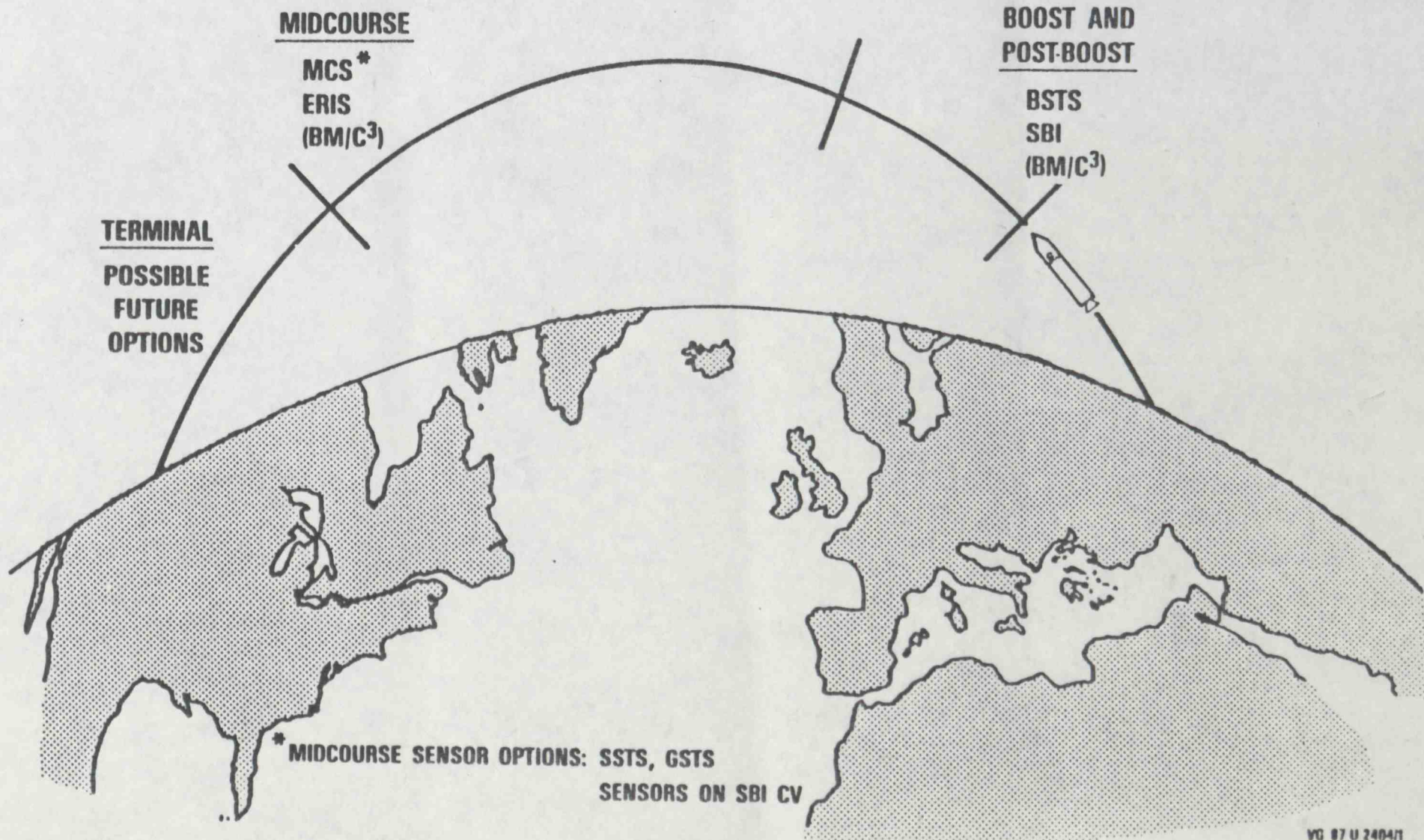
13. In addition to the internal management question of resolving priorities within the programme, the SDI programme has faced persistent attempts on the part of Congress to legislate on the scale of the programme's elements and thus on its balance and direction. The SDI has been a particular target which the Congress can be expected to revisit.

Brief prepared by
SDI Participation Office
6 January 1989



UNCLASSIFIED

SDS PHASE I CONCEPT



UNCLASSIFIED

VG 87 U 2404/1
24 AUG 87



ACQUISITION COSTS (FY88 \$ B)

(As of October 4, 1988)

ELEMENT	JUN DAB	SERVICE BRIEFS (Sep 88)	\$ REDUCTION	% REDUCTION
BSTS - Boost Surveillance and Tracking System	9.0	8.0	(1.0)	(11%)
SSTS - Spaced-based Surveillance and Tracking System	12.6	9.2	(3.4)	(27%)
GSTS - Ground-based Surveillance and Tracking Systems	3.6	3.3	(.3)	(8%)
SBI - Space-based Interceptor	52.0	17.7	(34.3)	(66%)
ERIS - Exoatmospheric Reentry Vehicle Interceptor System	4.8	5.8	+1.0	+21%
BM/C3 - Battle Management/Command, Control and Communication System	14.6	7.3*	(7.3)	(50%)
GBR - Ground Based Radar	2.7	3.1	+4	+15%
SE & I - System Engineering and Intergration	7.8	5.0*	(2.8)	(36%)
LAUNCH	8.3	8.6*	+3	+4%
Cost Reserves (Imbedded) Performance Reserves		[7.6] 1.1	{ DVMT = 10.4% PRDN = 14.4% } +1.1	-
TOTAL	115.4	\$69.1	(46.3)	(40%)

* SDIO ESTIMATES

[] NON ADD

BRIEF CFUTURE OF THE SDI PROGRAMMESummary

Nov
corrected

1. Nothing specific has yet emerged to indicate what policy approach the Bush Administration will adopt towards SDI. The programme will continue in some form.

2. Abrahamson's successor, Lt Gen Monahan, is a manager of a more conventional kind who is unlikely to follow Abrahamson's high profile approach to carrying the programme forward.

Bush Administration Policy

3. Bush has announced a review of security from which will emerge his Administration's policy on SDI as well as on other major defence issues. Until the review is complete and decisions have been taken, there will be relatively little to go on. SDI can be expected to remain in place as a programme. But, if for example Scowcroft's views prevail (and they are not believed to diverge from those of Bush himself), a more limited programme is likely to emerge. There is likely to be much less push towards early decisions on development and deployment. If so, the budget for SDI can be expected to take a share of the cuts in prospect for the US defence programme. In any event, it would be difficult to shield SDI from programme cuts, let alone increase the budget to provide for a full-scale development programme.

4. In the longer term, the Administration may face opposition from the Congress to spending reduced but still sizeable amounts on SDI research if no end result is in sight.

SDI Programme Management

5. Lt Gen George Monahan takes over from Abrahamson on 1 February. A biographical note is attached. In the '70s he took

over from Abrahamson the job of running the F16 programme, which gave him experience of working with Allies. By nature and temperament he is a much more conventional type of man than Abrahamson. He is unlikely to adopt the same high profile tactics. On the other hand, he may bring a firmer managerial hand to running the programme.

Brief prepared by
SDI Participation office
6 January 1989



Biography

United States Air Force

Secretary of the Air Force, Office of Public Affairs, Washington, D.C. 20330-1000

LIEUTENANT GENERAL GEORGE L. MONAHAN JR.

Lieutenant General George L. Monahan Jr. is principal deputy assistant secretary of the Air Force for acquisition, Washington, D.C.

General Monahan was born Nov. 21, 1933, in Minneapolis and graduated from St. Thomas Academy, St. Paul, Minn., in 1951. He earned a bachelor of science degree from the U.S. Military Academy in 1955 and a master of science degree in electrical engineering from the University of New Hampshire in 1963. He completed Army Command and General Staff College in 1967 and the Air War College in 1972.

Upon graduation from the Military Academy he was commissioned as a second lieutenant in the Air Force and in August 1955 reported to Moore Air Force Base, Texas, for primary pilot training. He received his pilot wings in August 1956 after completing basic pilot training at Greenville Air Force Base, Miss.

The general graduated from All-Weather Fighter-Interceptor School at Perrin Air Force Base, Texas, in February 1957 and was assigned to the 94th Fighter-Interceptor Squadron, 1st Fighter Wing, Selfridge Air Force Base, Mich., flying F-86s. In October 1958 he began serving as an air-electronics maintenance officer and functional check-flight pilot, first with the 1st Consolidated Aircraft Maintenance Squadron and later with the 1st Armament and Electronics Maintenance Squadron at Selfridge. In March 1960 he was assigned to the 59th Fighter-Interceptor Squadron, Goose Air Base, Labrador, where he performed similar duties.

After completing his master's degree through an Air Force Institute of Technology program at the University of New Hampshire, he was assigned to the 6555th Aerospace Test Wing, Patrick Air Force Base, Fla., in October 1963. While there General Monahan served as radio guidance and flight control officer on the Gemini launch crew at Cape Canaveral Air Force Station, and was responsible for preflight installation and checkout of the radio guidance and flight control system of the Gemini launch vehicle. In March 1965 he returned to flying duties as a pilot, performing missions in support of the space and missile testing at Patrick's Air Force Eastern Test Range.

Upon graduation from Army Command and General Staff College in July 1967, he was assigned to the 63rd Tactical Reconnaissance Wing, Shaw Air Force Base, S.C., where he completed RF-101 combat crew training. From January to March 1968 he attended Forward Air Controller School and O-1 combat crew training at Hurlburt Field, Fla.

General Monahan was assigned to the 20th Tactical Air Support Squadron, Da Nang Air Base, Republic of Vietnam, in April 1968 as a forward air controller in O-2A's and completed 75 missions over North Vietnam. In October 1968 he transferred to the Directorate of Combat Tactics, Headquarters 7th Air Force, Tan Son Nhut Air Base, Republic of Vietnam, where he served as a forward air control tactics officer, flying combat missions in O-1s, O-2A's and OV-10s throughout Southeast Asia.

He returned to the United States in April 1969 and was assigned as an operations staff officer in the Directorate of Operations, Tactical Control Division, Headquarters U.S. Air Force, Washington, D.C. There



(Current as of December 1987)

OVER

he was responsible for developing and implementing plans for enhanced night combat capability for forward air controllers in Vietnam, and managing their worldwide deployment. After graduating from the Air War College in June 1972, he was assigned to Aeronautical Systems Division, Wright-Patterson Air Force Base, Ohio, as chief of the Projects Division AGM-86A Subsonic Cruise Armed Decoy Program.

General Monahan then contributed to the development of the Air Force's newest fighter aircraft, the F-16. Under the deputy for prototypes, Aeronautical Systems Division, from June 1973 to August 1974, he managed the lightweight fighter (YF-16/YF-17) project, which culminated in successful prototype flights. He then served as the air combat fighter program assistant director, and in February 1975 he became the assistant deputy for F-16. The general became the first chief of the F-16 European Systems Program Office, Brussels, Belgium, in September 1975, establishing a European co-production management organization. He assumed command of the F-16 Contract Administration and Support Europe in August 1976 and was responsible for the establishment of the F-16 manufacturing and contracting organization for the United States, Belgium, Denmark, Netherlands and Norway.

In July 1978 the general was assigned as assistant deputy chief of staff for systems, Air Force Systems Command, Andrews Air Force Base, Md. He returned to the Aeronautical Systems Division, Wright-Patterson Air Force Base, in August 1980 as the system program director for the F-16 multinational fighter program. During this tour of duty he directed development, testing and procurement of F-16s for the U.S. Air Force and nine allied nations' air forces.

The general was assigned as director of development and production, Office of the Deputy Chief of Staff for Research, Development and Acquisition, Air Force headquarters, from August 1983 to July 1986. He then served as vice commander, Air Force Systems Command, Andrews Air Force Base. He assumed his present position in July 1987.

General Monahan is a command pilot with more than 3,500 hours flying time and 122 combat missions in Southeast Asia. His military decorations and awards include the Distinguished Service Medal, Legion of Merit with one oak leaf cluster, Distinguished Flying Cross, Bronze Star Medal, Meritorious Service Medal, Air Medal with nine oak leaf clusters, and Air Force Commendation Medal.

He was promoted to lieutenant general July 1, 1986, with same date of rank.

General Monahan is married to the former Mary Rockwell of Minneapolis. They have five children: Cathy, George, Joe, Brian and Andy.

CC PC
Bp



MINISTRY OF DEFENCE
MAIN BUILDING WHITEHALL LONDON SW1A 2HB

Telephone 01-218 2111/3

MO 30/1E

6 January 1989

Dear Charles,

CBYi

VISIT OF LT GEN ABRAHAMSON

I attach the main section of our brief for next week's visit of Lt Gen Abrahamson and his successor. Sections B and C of the brief will follow as soon as possible, later today.

Gen Abrahamson's staff have alerted officials here to two points on the visit. Firstly, he will be giving a Press Conference at the US Embassy before lunch on 11th January. It seems likely that he will be questioned about the European Architecture Study, following this week's Press comment. Secondly, General Abrahamson intends to present a gift to the Prime Minister. Our officials have been told that no reciprocity is expected. No clue has been given as to the nature of the gift.

I am copying this letter, and attachments, to Stephen Wall (FCO) and to Trevor Woolley (Cabinet Office).

Your sincerely
B R HAWTIN

(B R HAWTIN)
Private Secretary

Charles Powell Esq
No 10 Downing Street



MINISTRY OF DEFENCE
MAIN BUILDING WHITEHALL LONDON SW1A 2HB
Telephone 01-218 2111/3

MO 30/LL

6th January 1989

Dear Charles,

VISIT OF LIEUTENANT GENERAL ABRAHAMSON

As promised in my earlier letter, I attach sections B and C of the brief.

I am copying this letter and attachments to Stephen Wall (Foreign and Commonwealth Office) and Trevor Woolley (Cabinet Office).

Yours sincerely,
B R Hawtin

(B R HAWTIN)
Private Secretary

Charles Powell Esq
10 Downing Street

SECRET



10 DOWNING STREET
LONDON SW1A 2AA

From the Private Secretary

4 January 1989

SDI: EUROPEAN ARCHITECTURE STUDY

Thank you for your letter of 3 January covering the SDI European Architecture Study. I have shown this to the Prime Minister, who has read with interest the Executive Summary. She has however commented that the summaries of our policy in paragraph 3 are not accurate. She will wish to discuss this point at the meeting already set up to consider SDI later this month.

I am copying this letter to Stephen Wall (Foreign and Commonwealth Office) and to Trevor Woolley (Cabinet Office).

C. D. POWELL

Steve McCarthy, Esq.,
Ministry of Defence

SECRET



MINISTRY OF DEFENCE
MAIN BUILDING WHITEHALL LONDON SW1A 2HB

Telephone 01-218 2111/3

MO 30/1L

Rita Austin 3rd January 1989

Dear Charles

*You may be interested
to see this.*

SDI - EUROPEAN ARCHITECTURE STUDY

CBP 3/i

You asked on the telephone this morning about the SDI European Architecture Study report referred to in the article in today's 'Times'. I attach copies of the Executive Summary and Overview volumes for your information.

*IN ATTACHED
FOUR*

This study was commissioned by the US and was undertaken in four phases from August 1986 to May 1988 as part of the UK's involvement in the US SDI programme. The study was led from the SDI Participation Office here, although the bulk of the work was carried out in industry; it cost \$10 million, fully-funded by the US. A fifth and sixth phase of the work are now in hand, to a cost of a further \$3 million, with the purpose of taking into account the changed threat which will follow implementation of the INF Treaty.

The article which appears in today's 'Times' is based largely on an unattributable briefing given by the Director General of our SDI Participation Office to Michael Evans before Christmas. Evans has contrived, however, to give a much more positive account of the broad findings of the study than is warranted. In response to the several enquiries we have had from the Press and Media, we are emphasising that the study is a purely theoretical exercise and that the Government has no plans to develop a ballistic missile defence system for deployment in Europe. (Amongst other things, Evans has misunderstood the extent to which existing weapons systems are potentially capable, without substantial further development, of contributing to any ballistic missile defence system. On costs, he is on the right track to put the figure at 'several billions of pounds': the study's estimate is £48 billion over a 25-year period for the development, deployment and operation of a defence throughout the European part of the NATO area).

I am copying this letter, without its attachments, to Stephen Wall (FCO) and to Trevor Woolley (Cabinet Office).

Your sincerely
S. McCarthy
(S McCARTHY)
Private Secretary

C D Powell Esq
10 Downing Street

MINISTRY OF DEFENCE
MAIN BUILDING WHITEHALL LONDON SW1A 2HS

Telephone 7533 0111



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PRIME MINISTER

STRATEGIC DEFENCE INITIATIVE

You will recall that the FCO and MoD have produced a further paper on the implications for the United Kingdom of the Strategic Defence Initiative. You were not able to read it in full at the time of your visit to Washington in November. But you noted that you disagreed strongly with its conclusions. We have set up a meeting in mid-January for a discussion. You may like to read the paper during the Christmas/New Year period. You will also be seeing General Abrahamson early in January and can discuss some of the issues with him.

The paper re-opens the arguments which we had in 1984 - and which you won then - about the desirability of SDI. It is an attempt to take advantage of the transition to a new President, thought to be less passionately committed to SDI, to shift our own policy to one of active discouragement of SDI. The paper argues that research should go on, but we should oppose any plan to deploy an SDI system, because it would threaten the effectiveness of Trident. In short, it is an attempt to resuscitate the reasoning in the Foreign Secretary's RUSI speech.

You will want to read the paper in full and reach your own judgment. It seems to me to have several crucial weaknesses:

- you cannot just go on doing research indefinitely without eventually needing to test the results of that research and reach decisions about partial or large-scale deployment. The study of the concept of strategic defence must at some stage move from theory and the laboratory to practical application. It is simply not realistic to expect the Americans to write off the very substantial sums which they have invested in research;

- moreover, it is quite clear that the Russians are moving from the theoretical stage to practical application. The

✓ defences round Moscow are being upgraded, not yet to full strategic defence status but certainly to give them a ground-based capability to intercept incoming missiles in the final stages of their flight. There are also reports of new radar stations being built - quite apart from Krasnoyarsk - which seem capable of being developed as part of a BMD system;

- some of the results of American research are quite promising. You will have seen, for instance, the material which I sent you on Brilliant Pebbles. General Abrahamson's claim that research would produce smaller, cheaper and effective interceptors is being borne out in practice;

- meanwhile the dire consequences for US/Soviet and US/European relations predicted in the 1984 paper have not materialised. Indeed SDI has been beneficial in US/Soviet relations. By bringing home the superiority of American technology and the immense costs of competition in this area, it has played a crucial part in bringing the Russians to recognise that, if they want to achieve Gorbachev's domestic objectives for the Soviet Union, they need to wind down East/West confrontation. In short SDI has already paid off handsomely in political terms;

- the argument that even partial deployment of SDI would complicate the calculations of an attacker and therefore add to deterrence looks stronger now than it did four years ago. And with fears about likely nuclear proliferation over the next decade, so does the argument that a limited SDI system could be vital as a hedge against nuclear attack by some maverick power such as Libya or North Korea;

① - above all, the FCO/MoD paper is based on two fundamental misconceptions. First, it seems to assume that provided the US give up the option of deploying SDI, there will be no problem. This ignores the fact that it is the Soviet Union which has the longest-running programme. It certainly does not follow that US back-tracking on SDI will avoid the dangers to Trident posed by Soviet defences;

(2) - second, the argument has a Canute-like quality. We worry that a BMD system will undermine the effectiveness of our deterrent. So let's stop the United States and the Soviet Union from pressing ahead with their BMD programmes, and our deterrent will be safe. The reality is that the Americans and Soviet programmes are driven by their calculations of their own interests in which the role of our deterrent is relatively marginal. It is no good just holding up a hand and saying stop SDI: the march of technology will simply engulf us;

- of course a deployed BMD system would have consequences for our deterrent, there is no point in denying that. But the right approach is to start looking at how we can adapt our deterrent to various levels of Soviet BMD, for instance by developing penetration aids, so that we can extend its effectiveness: and by examining the prospect of developing partial BMD cover for Europe, as an adjunct to an American strategic defence system, so that we too have some partial defence against a maverick attack, while complicating the offensive calculations of the Soviet Union.

C. D. P.

(C. D. POWELL)

23 December 1988



10 DOWNING STREET

Prime Minister

Papers below this point
are for reading in slower
time over the Christmas &
New Year period.

Have re-read.

CDP

23/12

Need to discuss
with Pugh -
and produce
photocopies

11(a-c)

PRIME MINISTER

STRATEGIC DEFENCE INITIATIVE

You will recall that the FCO and MoD have produced a further paper on the implications for the United Kingdom of the Strategic Defence Initiative. You were not able to read it in full at the time of your visit to Washington in November. But you noted that you disagreed strongly with its conclusions. We have set up a meeting in mid-January for a discussion. You may like to read the paper during the Christmas/New Year period. You will also be seeing General Abrahamson early in January and can discuss some of the issues with him.

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- moreover, it is quite clear that the Russians are moving from the theoretical stage to practical application. The

defences round Moscow are being upgraded, not yet to full strategic defence status but certainly to give them a ground-based capability to intercept incoming missiles in the final stages of their flight. There are also reports of new radar stations being built - quite apart from Krasnoyarsk - which seem capable of being developed as part of a BMD system;

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- second, the argument has a Canute-like quality. We worry that a BMD system will undermine the effectiveness of our deterrent. So let's stop the United States and the Soviet Union from pressing ahead with their BMD programmes, and our deterrent will be safe. The reality is that the Americans and Soviet programmes are driven by their calculations of their own interests in which the role of our deterrent is relatively marginal. It is no good just holding up a hand and saying stop SDI: the march of technology will simply engulf us;

- of course a deployed BMD system would have consequences for our deterrent, there is no point in denying that. But the right approach is to start looking at how we can adapt our deterrent to various levels of Soviet BMD, for instance by developing penetration aids, so that we can extend its effectiveness: and by examining the prospect of developing partial BMD cover for Europe, as an adjunct to an American strategic defence system, so that we too have some partial defence against a maverick attack, while complicating the offensive calculations of the Soviet Union.

C. D. P.

(C. D. POWELL)

23 December 1988

PRIME MINISTER

COMPREHENSIVE CONCEPT

You asked to see some background papers on the Comprehensive Concept of arms control. The attached folder contains:

- a short explanatory note by the Cabinet Office;
- the first draft of a Comprehensive Concept put forward by the United Kingdom;
- the current NATO draft (which is a dog's breakfast and scarcely worth your reading);
- a paper on options for Short-range Nuclear Forces (SNF) arms control, which we recently put to the Germans to show how difficult it is to devise any acceptable option; and
- a letter on the same subject from Michael Alexander.

It all boils down to a simple question: can the Germans be brought to take firm and specific decisions on the modernisation of NATO's SNF without a commitment by the Alliance to negotiate with the Russians on further reductions in SNF? You have of course discussed the subject with Chancellor Kohl.

It is clear from the attached papers that Sir Michael Alexander and others are deep into examining possible options for SNF negotiations, either because they believe this is the best way to head off the Germans by demonstrating the damage which would be done to NATO's capabilities; or because (in Michael's case) they think that we are going to have to give in to the Germans on this and may as well start now. The problem is that it gives the wrong signal to the Germans. Once we concede it is a subject which can be discussed, there is no going back.

In the end it's a matter of judgment whether we can get the Germans to the right conclusion on modernisation without

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- 2 -

selling the pass on SNF negotiations. We did it - or just about - on the INF Agreement although it was a painful process. It will be even more difficult this time. My own view is that, rather than make concessions to them on SNF negotiations, we should look for some unilateral action by NATO, for instance linking modernisation of SNF with a unilateral decision to reduce SNF munitions and particularly nuclear shells (for which we have no real use).

This may be an issue which you will want to discuss with the Defence and Foreign Secretaries at one of the two meetings on defence matters we already have planned for January, namely Chemical Weapons and SDI. Agree?

But who do I discuss it with Jack? John Stanley used to be tough but he is no longer there.

C.D.P.

mt

CHARLES POWELL
22 December 1988

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EAMAKT

The Alliance's Comprehensive Concept of
Arms Control and Disarmament

"We have directed the North Atlantic Council in Permanent Session, working in conjunction with the appropriate military authorities, to consider the further development of a comprehensive concept of arms control and disarmament. The arms control problems faced by the Alliance raise complex and interrelated issues which must be evaluated together, bearing in mind overall progress in the arms control negotiations enumerated above as well as the requirements of Alliance security and of its strategy of deterrence." (Reykjavik Communique)

This project, which is the responsibility of the NATO Ambassadors meeting as the North Atlantic Council in permanent session, was launched by Foreign Ministers at Reykjavik in June 1987. The NATO Foreign Ministers in Brussels this December directed that the work on the concept should be completed by June 1989, when NATO Foreign Ministers next hold a scheduled meeting in London. A NATO Summit earlier in 1989 would shorten the deadline further.

2. The so-called comprehensive concept is largely a procedural fig leaf to cover NATO's confusion about how to deal with short range nuclear forces (SNF) both in defence programme and in arms control terms. After the INF agreement the Germans took fright at the prospect that NATO's arms control agenda (START, conventional forces, chemical weapons) made no clear provision for further arms control on SNF. This phobia is encapsulated in their slogan: "The shorter the range, the deader the Germans". The dilemma over SNF was papered over with a formula to the effect that SNF reductions should be sought "in conjunction with the establishment of a conventional balance and the global elimination of chemical weapons". But there is no

agreement about whether this means a simultaneous or a sequential process. Moreover, the Germans argued that decisions on the necessary modernisation of SNF could not be taken piecemeal and needed to be related to the overall picture of how NATO's security needs are met and the place of arms control in this. The current difficulties in advancing the drafting of the comprehensive concept derive principally from this underlying problem, which has been accentuated by Gorbachev's adroit diplomacy.

3. For nine months after the Reykjavik directive to draw up a comprehensive concept virtually no progress was made. The Americans and the Germans both dragged their feet on the exercise, hoping thereby to stymie SNF arms control and modernisation respectively. In March 1988 the United Kingdom therefore circulated a full national draft of the comprehensive concept (Annex A) in an attempt to move things forward. We also tried to engage the Americans and the Germans behind the scenes in a trilateral effort to crack the problem. This offer was not taken up and we have therefore had to work on each of them separately. Meanwhile the NATO drafting exercise has stagnated, as the impoverished NATO draft of December 1988 (Annex B) shows. The nub of the drafting revolves around three points: - How is arms control?



a. Is arms control the handmaiden of defence policy, or are they full and equal partners?

Defence policy is of course predominant

b. How much if at all does Gorbachev's new thinking alter the equation?

Not at all

c. How to reconcile SNF arms control and modernisation.

The way we have agreed all along - no further nuclear reductions in the Conventions. Symmetry is allowed, and chemical weapons zero is agreed.

4. If there is to be agreement on the comprehensive concept in the first half of 1989, it is increasingly the view of our Ambassadors in Bonn and NATO that a bargain must be struck which says something for German ears about the prospect of negotiations at some stage in relation to SNF, in return for some fairly precise guidelines on SNF modernisation (sufficient for United States Congressional purposes), accompanied by a decision on downward adjustment of NATO's existing stockpile of SNF warheads (especially of nuclear artillery shells). It is hard to devise an SNF arms control negotiating position as such which would meet NATO's security requirements; the purpose of the working paper we recently put to the Germans (Annex C) was to rub their noses in this truth. But it is perhaps not wholly impossible to define a position which would give the Germans enough to meet their political needs while maintaining strong pressure on the Soviet Union to reduce its SNF preponderance and simultaneously presenting TASM and the Lance replacement as logical ways of restructuring the NATO stockpile in the direction of fewer SNF holdings overall. For this aim to be attainable during 1989, it will be essential to galvanise the Bush Administration quickly to address the whole subject with greater imagination than the Americans have so far shown. Without some break-through on this key issue between ourselves, Washington and Bonn, the comprehensive concept will continue to be little more than second order skirmishing.

Cabinet Office
19 December 1988



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bc PC

10 DOWNING STREET

LONDON SW1A 2AA

From the Private Secretary

MR JOHN WESTON
CABINET OFFICE

SDI BRIEFING

I have shown your note about General Abrahamson's visit to the Prime Minister. She recalls that the arrangement for General Abrahamson to brief her personally was agreed between her and President Reagan on the clear understanding that the briefing was for her alone. She wishes to preserve that and does not wish anyone else to attend the briefing. Nor does she think it would be appropriate for others to inveigle General Abrahamson into giving exactly the same briefing to them: in the past, matters have been raised in this briefing which were for the Prime Minister's information only.

My understanding is that General Abrahamson normally makes calls at the Ministry of Defence and elsewhere during his visit to London. I do not think the Prime Minister would wish to change that arrangement.

I am copying this minute to Trevor Woolley (Cabinet Office).

C.D.P.

CHARLES POWELL
19 December 1988

EAMAKE

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PRIME MINISTER

There is a story to this.

Senior officials want to get in on your meeting with General Abrahamson. I have resisted: these briefings were arranged personally for you alone, with access to information not given to others.

No
The proposal now is that officials should ask for a separate briefing from General Abrahamson so that they are on an equal footing with you, when there is a discussion of SDI in January.

I can see no objection to a ^{separate} briefing, although it will not be the same level as yours: but you will want to be aware of the background.

C.P.P.
Charles Powell

16 December 1988



10 DOWNING STREET

THE PRIME MINISTER

No — we will continue
as before. Percy Cradock can
come, but no one
else.

Raymond Strelitz

17th Dec 1988

9F



From: B L Crowe
Date: 17 November, 1988
Copies to: PS
Mr Tebbit

PS/No. 10 *OK 10/11*

CATHOLIC STATEMENT OF SDI

--- 1. Allen Wallis has faxed to me the attached note to Sir Antony Acland which is self-explanatory. I undertook to get it to the Prime Minister's party.

B L Crowe

UNDER SECRETARY OF STATE
FOR ECONOMIC AFFAIRS
WASHINGTON

16 Nov 88

Dear Tony-

When I saw Nigel Wicks on Tuesday he happened to mention that the P.M. was interested in a response by some eminent Catholic laymen to a statement on SDI by bishops. It was not clear whether the P.M. had seen the actual statement. Since Ed Rowley, one of the signers, attends the Secretary's senior staff meeting each morning I got a copy from him. Here it is, in case you wish to pass it along to the P.M.

Sincerely,

Allen

HIGH FRONTIER

Lt. Gen. Daniel O. Graham, USA (Ret.)
Director

August 19, 1988

Dear Bishop/Archbishop/Cardinal _____:

We, the undersigned, must respectfully object to the recently adopted report of the National Conference of Catholic Bishops which gives conditional blessing to nuclear offensive weapons but questions the morality of deploying non-nuclear defenses against such weapons.

We applaud the bishops for avoiding the outright pacifist position so fervently pressed by some, but we must deplore the acceptance of a report which implies that leaders of our Church in America are vaguely tolerant of weapons of mass destruction and intolerant of defensive weapons.

We deplore our bishops' endorsing a position on SDI dovetailing so precisely with the view of the Soviet Communist Party leadership and of the Left wing of U.S. politics.

We are distressed to see the moral force of our bishops and of our Church squandered in an attack on SDI, a program heavily supported by the American people.

We are saddened to see our bishops endorse positions that are so easily attacked on both moral and mundane logical grounds. Are U.S. Catholics really supposed to believe that we should spend billions on an offensive nuclear deterrent, but destroy its value by letting the Soviets know we consider it immoral to use that deterrent force? Are U.S. Catholics to believe that their bishops find spending billions on research of the defensive technologies of SDI a good idea, but the use of any of the technology developed by that research to actually defend ourselves sinful? This seems to us to be neither moral sense nor common sense.

We also deplore the implied gratuitous insult to the nation itself contained in the report. That is the notion that SDI should be resisted on the grounds that it would encourage U.S. nuclear offensive actions. The drafters of this report have chosen to ignore the fact that a Soviet SDI exists today--a huge strategic defense system in being plus a massive research program to improve it. Yet this report suggests that it is the United States which is not to be trusted with a capability to defend itself, but that the Soviet Union can be so trusted.

We cannot know whether you personally agreed or disagreed, en toto or in part with the report we criticize.

We understand the justifiable reticence of the vast majority of our bishops to take positions on highly technical subjects.

We believe that most American bishops could readily endorse this statement on the morality of SDI:

"The moral implications of the current all-offense nuclear deterrent is troubling to us because it must threaten massive destruction of human life to be effective. It has been proposed that the basis of U.S. deterrence of nuclear war be changed from vengeance to protection, from total reliance on offensive weapons to an emphasis on defensive weapons.

"The program underway to achieve this change of doctrine and strategic military posture is the Strategic Defense Initiative or SDI.

"We can certainly support the change of doctrine. Undoubtedly, it would be better to protect the innocent than to threaten their annihilation. We therefore can endorse the superior morality of SDI, with one condition:

"That the increase in non-nuclear defensive capabilities of the United States be accompanied by a decrease in offensive nuclear capabilities.

The drafters of the Report did not provide you an opportunity to endorse a sensible "yes, but..." answer. They provided instead an illogical "no, but..." position (no defenses, but continue research anyway).

We the undersigned beseech you to endorse the above statement. If you cannot, please tell us if there are any moral grounds which should deter a Catholic, clerical or lay, from endorsing it in good faith. We beseech you further not to ignore this request for your opinion. It has been mailed to all American Catholic Bishops.

Sincerely,

Eleanor Schlafly
National Director
Cardinal Mindzenty Foundation

Daniel O. Graham
Lt. Gen., USA (Ret.)
Director, High Frontier, Inc.

Concurring:

William F. Buckley Jr.
Robert Dornan
J. Peter Grace
Edward Rowny
Phyllis Schlafly
William E. Simon



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PC

10 DOWNING STREET

LONDON SW1A 2AA

From the Private Secretary

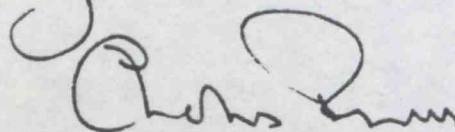
13 November 1988

Dear Stefan,

The Prime Minister has considered the joint minute by the Foreign Secretary and the Defence Secretary on the Implications for the United Kingdom of Strategic Defences, together with the accompanying paper. She does not agree with several of the judgements reached, nor would she wish to raise the SDI with Vice-President Bush in the terms suggested in the minute. This means that officials must be equally constrained from speaking to their American counterparts.

We shall clearly need a meeting on this and we shall try to fit one in as soon as possible (although it may be a few weeks).

I am copying this letter to Brian Hawtin (Ministry of Defence) and to Sir Robin Butler.

Yours sincerely,


(C.D. POWELL)

Stephen Wall, Esq.,
 Foreign and Commonwealth Office.



9
(a)

PRIME MINISTER

THE IMPLICATIONS FOR THE UNITED KINGDOM OF STRATEGIC DEFENCES

The attached paper by FCO/MOD has hit us just before your departure for Washington, with barely time to read it let alone discuss it.

It is an important paper because it re-opens the arguments which we had in 1984 about the desirability of SDI (you will recall the Foreign Secretary's RUSI speech). Its undeclared purpose is to take advantage of the transition from President Reagan to Mr. Bush (who is thought to be less committed to SDI) to shift our own policy to one of active discouragement of SDI. It is suggested that you tell Vice-President Bush next week that

No

- we hope the new Administration will endorse the Camp David Four Points.

3

- we would be opposed to either cooperative or unilateral deployment of an SDI system.

Authority is sought for officials to speak in these terms even if you decide not to raise the matter with Vice-President Bush.

No

My own view is that it would be unwise to make this a major issue at your first meeting with Vice-President Bush. There are matters of higher priority to discuss: it is unlikely that he has worked out a policy: and we have not had time to talk through our own views. Any indication of the sort of view he is likely to take towards SDI will be of interest, but you should not press him.

Meanwhile - and before officials speak to the Americans - you might like to have a discussion of the paper at the meeting of MISC 7 already scheduled for December. Agree?

No - we need a different

C.D.P. paper

There is no question of trying to influence George Bush in this way.

CHARLES POWELL

11 November 1988



PRIME MINISTER

THE IMPLICATIONS FOR THE UNITED KINGDOM OF STRATEGIC DEVELOPMENTS

The following is a summary of the main points raised in the report...

The report is divided into three main sections: the first deals with the general situation, the second with the specific implications for the United Kingdom, and the third with the recommendations for action.

The first section deals with the general situation. It points out that the world is undergoing a period of rapid change, and that the United Kingdom must be prepared to meet the challenges of this new world.

The second section deals with the specific implications for the United Kingdom. It points out that the United Kingdom is facing a number of serious problems, and that these problems are being made more acute by the changes in the world.

The third section deals with the recommendations for action. It suggests that the United Kingdom should take a number of steps to meet the challenges of the new world, and that these steps should be based on a number of key principles.



SECRET UK EYES A

PM/88/055

PRIME MINISTER

The implications for the United Kingdom of
Strategic Defences

- in attached folder*
1. We attach a paper prepared jointly by our Departments which examines the potential consequences for the United Kingdom of the deployment of strategic defences in numbers greater than those permitted under the ABM Treaty. It has been endorsed by the Chiefs of Staff. The paper updates an earlier one on the subject which was produced in 1984, shortly after the Strategic Defence Initiative was announced by President Reagan.
 2. The main points which emerge from the paper are that:
 - (a) it is desirable that the United States should continue research into ballistic missile defence technologies;

SECRET UK EYES A



SECRET UK EYES A

(b) nonetheless, on the basis of the likely capabilities of these technologies in the foreseeable future, it is unlikely that strategic stability would be improved by any move towards greater reliance on defensive systems. Indeed, a unilateral deployment of such systems by either the US or the Soviet Union would be likely to lead to an uncontrolled, competitive proliferation which could have damaging consequences for Western security;

*Who says
and on what
basis, what
evidence*

(c) the viability of the UK's national strategic deterrent might not be impaired by some limited additional deployment of defensive systems. But any widespread improvement in the Soviet Union's current capability, such as an increase in the number of launchers allowed around Moscow, would call into question our ability to fulfil the current deterrence criteria with the planned Trident force. And the emergence at some point in the future of a comprehensive Soviet anti-ballistic missile system would render the UK strategic deterrent unviable;

*This is
already
happening*

(d) the preservation of the ABM Treaty is therefore in our interest. We should continue to say so. Some agreement on the future of the ABM Treaty is a pre-condition to START;

✓



C

SECRET UK EYES A

- (e) we should seek endorsement by the next US Administration of the Four Points which you agreed with President Reagan in December 1984;
- (f) we should discuss these issues in greater detail with the next US Administration in order to ensure that they understand our concerns.

3. We recognise that this will require careful handling. There is no question of our launching an assault upon a programme which is so close to the present Administration's heart. But we should register our reservations with Mr Bush from the outset to ensure that the new Administration takes our views into account before its detailed policy on strategic defence becomes fixed. To put the message across at a less senior level would not have the same effect. There is now a much more realistic appreciation in Washington of the technical capabilities, and limitations, of the SDI systems currently under study; and Mr Bush is likely to take a more practical and less visionary approach to the issue.

4. We hope, therefore, that an opportunity will arise for you to speak to Mr Bush on this subject. A brief line was suggested in the FCO Private Secretary's letter of 9 November. If there is time for further discussion you might wish to say that:



d

SECRET UK EYES A

- (a) our Government has been the staunchest of US allies in supporting the SDI research programme; we were the first to sign a Memorandum of Understanding with the US on participation in SDI research. We will continue to state publicly the need for research into strategic defences; the Russians are conducting a major research programme which the West must match;
- (b) we have greatly valued the Camp David Four Points which you agreed with President Reagan in December 1984. They have been of immense help in reassuring public opinion that the SDI research programme does not pose a threat to the established strategic balance. We hope that the new Administration will also endorse these Four Points;
- (c) nevertheless, in our view even a co-operative deployment of strategic defences would not necessarily enhance strategic stability;
- (d) and any unilateral deployment would seem likely only to lead to a competitive and unpredictable proliferation of both offensive and defensive weapons;

e



SECRET UK EYES A

(e) we also have a national interest: improvements in, or extension of, the Soviet anti-ballistic missile system, which would become feasible if the ABM Treaty were rescinded or substantially amended, could have damaging consequences for the viability of the UK's strategic deterrent;

(f) we therefore hope that we will be able to discuss these points with officials in the new Administration in an effort to understand better how the US aims to handle the difficulties we foresee.

No
ms

5. If, upon reflection, you decide not to raise this matter during your visit to Washington, we would welcome your assent for us, or senior officials, to speak on these lines. This would open the door for us to engage the new Administration in talks on this subject early next year. In the light of those talks we might discuss the matter further in MISC 7.

6. We are copying this minute to Sir Robin Butler.

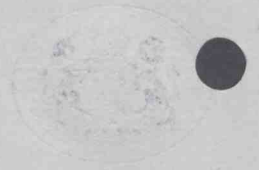
G.Y.

(GEORGE YOUNGER)
Ministry of Defence

(GEOFFREY HOWE)
Foreign & Commonwealth
Office

11 November 1988

D6F6N16 : SPI PTS



oro

②
cc JK



MINISTRY OF DEFENCE
MAIN BUILDING WHITEHALL LONDON SW1A 2HB
Telephone 01-218 2111/3

MO 30/1V

30th September 1988

John Colston

cc JK

Dear Charles,

LIEUTENANT GENERAL JAMES ABRAHAMSON

The Prime Minister might wish to be aware that Lieutenant General James Abrahamson is to vacate the office of the Director of the Strategic Defence Initiative Office at the end of January next year on his retirement from the US Air Force. His successor will be Lieutenant General George Monahan USAF. Abrahamson's retirement reflects his view that the programme will best be served under the next Administration by allowing a change of leadership at the head of the SDIO.

Yours sincerely,

John Colston

(J P COLSTON)
Private Secretary

Charles Powell Esq
10 Downing Street

MINISTRY OF DEFENCE
ATTN: BUILDING WHITEHALL LONDON SW1A 2JR



CONFIDENTIAL

AMBA
103 X

CCPE.



MO 30/1

MINISTRY OF DEFENCE
MAIN BUILDING WHITEHALL LONDON SW1
Telephone 01-930 7022

2 March 1988

Dear Charles,

Prime Minister
CDP 3/3
mt

SDI

Thank you for your letter of 16th February.

As you asked, arrangements have been made to follow up General Abrahamson's offer to the Prime Minister to extend US/UK co-operation on countermeasures. Discreet enquiries already made of the General's own staff have yielded something, in the area of optical discrimination. But it is not clear that this, potentially fruitful though it might be, fully characterises what General Abrahamson had in mind. Accordingly, Dr Stanley Orman, Director General of the SDI Participation Office here, who will be seeing Abrahamson himself on 17th March, will pursue the matter in detail. I will report again after that meeting.

Work is in hand as well to arrange a briefing for the Prime Minister on this and related matters. Obviously it would not make sense to lay on such a briefing until we have a much closer feel for what it is the US are proposing. So we have in mind mid-April as the earliest appropriate time, subject as well and, of course, to the Prime Minister's other commitments.

Yours sincerely,
Brian Hawtin

(B R HAWTIN)
Private Secretary

C D Powell Esq
10 Downing Street

DEFENCE : SOI PTS



MINISTRY OF DEFENCE
MAIN BUILDING WHITEHALL LONDON SW1

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London SW1

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celc

slw

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10 DOWNING STREET
LONDON SW1A 2AA

From the Private Secretary

16 February 1988

SDI

I wrote to you on 7 February with an account of the Prime Minister's talk with General Abrahamson.

The Prime Minister is very keen to see us take up General Abrahamson's offer to extend existing US/UK cooperation on counter-measures into even more sensitive areas. I should be grateful if you could arrange for this point to be followed up, perhaps initially with General Abrahamson himself, and keep me posted of progress made.

The Prime Minister would also, at some point, welcome a briefing from the SD10 on the work which we are doing in this area, both on our own and in cooperation with the Americans. I should be grateful if you could give some thought to this.

(C. D. POWELL)

Brian Hawtin, Esq.,
Ministry of Defence.

A Start on Star Wars

Ronald Reagan's dream of a leakproof nuclear shield gives way to a concept for a limited missile-defense system deployable in less than a decade

It is sometime in the late 1990s. Soviet-American relations have deteriorated steadily since the U.S. decision to deploy the first phase of a space-based missile-defense system—the Star Wars program announced more than a decade before by Ronald Reagan. Now the Soviets decide to gamble on a nuclear showdown. The following scenario ensues:

The first indications of a surprise attack are the white-hot plumes of the Soviets' SS-18 missiles as they begin climbing through the atmosphere. Locked in geosynchronous orbit 22,000 miles above the Soviet Union is the first line of the Star Wars defense, the Boost Surveillance and Tracking System (BSTS). Its sensors detect the missiles by their plumes, and within 60 to 70 seconds relay target information to a series of Space-Based Interceptors, orbiting armories with 10 tiny rockets apiece. Each SBI selects up to 10 targets and fires within 15 seconds more. The BSTS battle station monitors all strikes and relays new data to any interceptors with unfired rockets.

Five minutes after liftoff, the Soviet boosters will have burned out, and the defenders must find targets without the help of the giveaway plumes. At that point a new series of sensors comes into play aboard a constellation of satellites known as Space-Based Surveillance and Tracking Systems (SSTS). Those satellites, in turn, pass the information back to the battle stations which relay the data to new SBI's as their orbits bring them over the horizon with a full load of mini-rockets.

A third and desperate phase of the battle begins within 14 minutes after liftoff. The surviving SS-18s deploy their multiple warheads, and suddenly the number of targets is multiplied by 10. The SSTS satellites can no longer cope; the Soviet warheads are too small and

cold for them to detect against the vastness of space. During the early stages of the battle, however, ground-based technicians have been furiously at work freezing yet another set of sensors to close to the temperature of liquid nitrogen. At that temperature, their long-wave infrared sensors are able to detect even the small, cold warheads. Upon the command of the battle station, the sensors are launched into space where, within three minutes, they provide indirect guidance to yet another set of orbiting SBI's.

The final picket is a fleet of 1,000 ground-based ERIS missiles. Their sensors, too, have been cooling while the battle raged over the Soviet Union and the Arctic; now they are launched to smash into the surviv-

ing warheads as they race toward U.S. soil. Within 30 minutes the battle is over. Facing up to 308 SS-20s carrying 10 warheads apiece, the space shield has destroyed just over half the attacking force. That is the military scenario. But if Star Wars fails to deter a Soviet attack in the first place, its larger mission will have failed.

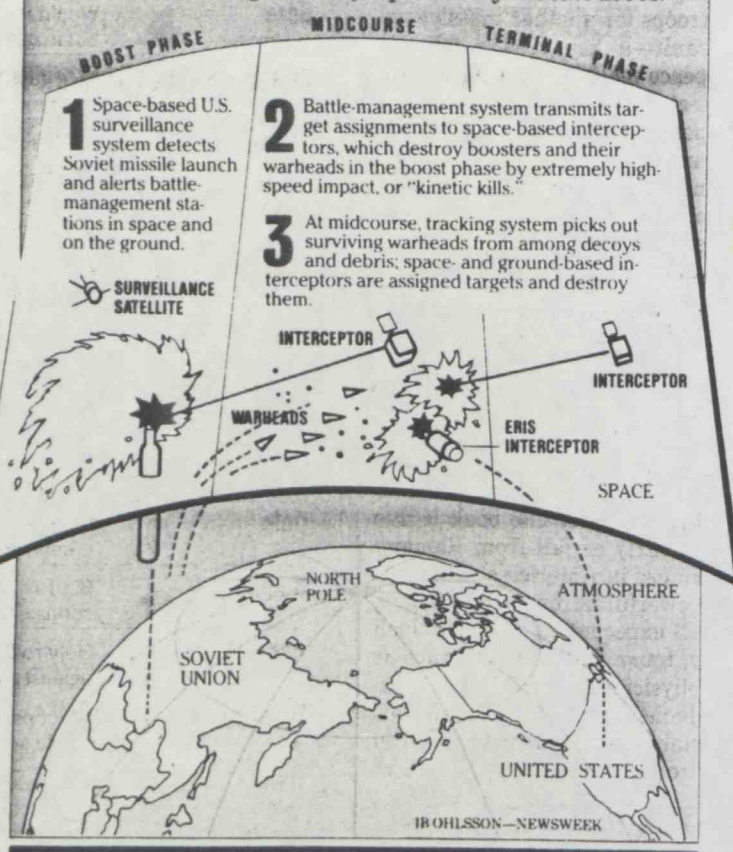
Sometime very soon—NASA won't say just when—a 116-foot Delta rocket will rise from Cape Canaveral with a package of military machinery atop the second stage. Delta-181's goal: to measure U.S. capability to track and target incoming Soviet missiles. In effect, the Delta-181 is the first crude test of the proposed BSTS—and may rekindle the debate on Reagan's Strategic

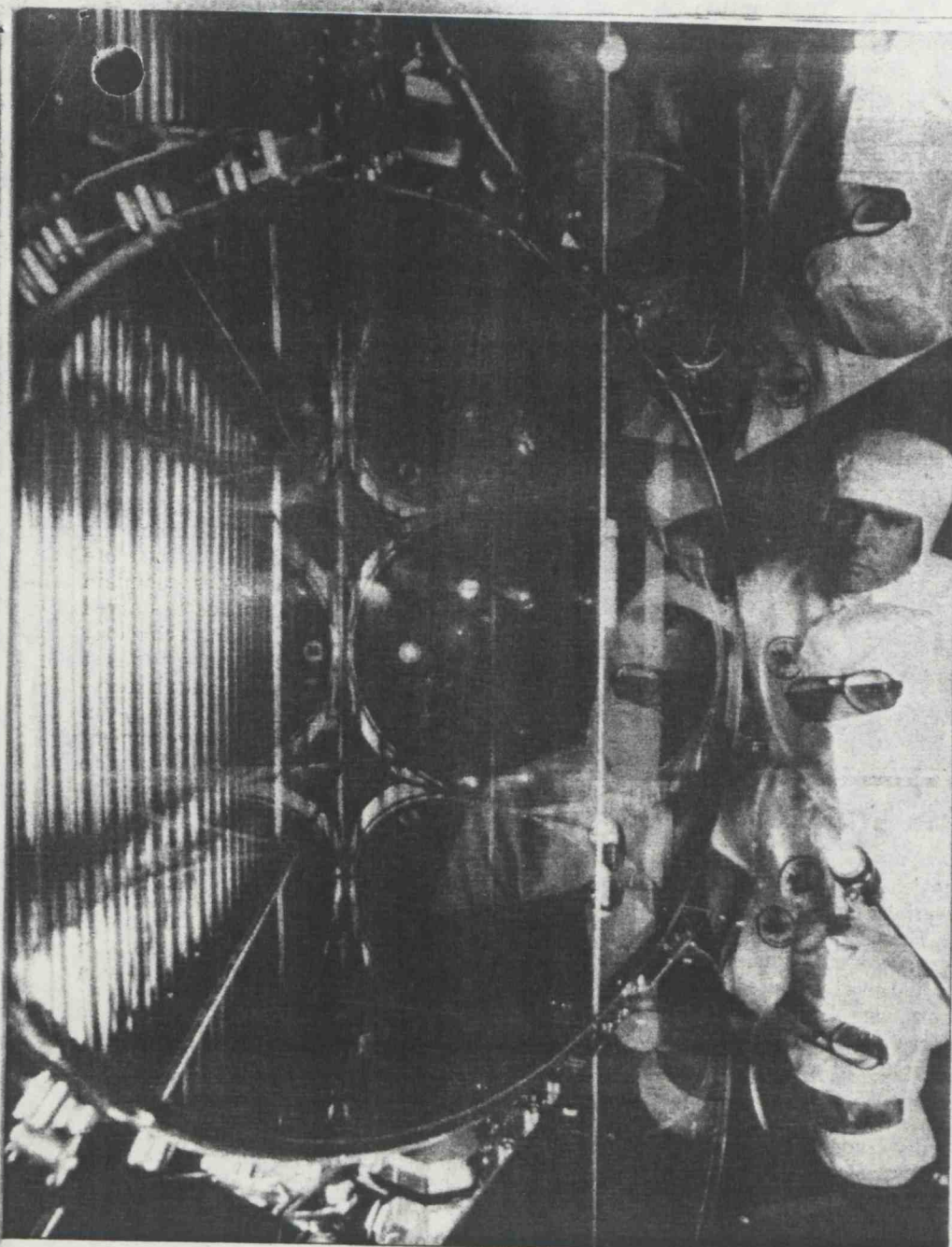
Defense Initiative (SDI). According to recent polls, a majority of Americans are ambivalent about the president's vision of "a shield that could protect us from nuclear missiles just as a roof protects a family from the rain." But if Star Wars is losing political momentum, it is gaining technological speed. A "Phase One" missile-defense system is closer to potential deployment than even SDI supporters originally dreamed.

Last summer the Pentagon concluded that it was possible that the United States could deploy, by the late 1990s, a space-based battle system that could kill 50 percent of an incoming SS-18 strike force. The decision was not automatic: the brass were especially aware that SDI funding would cut deeply into the budgets of their respective services. SDI planners acknowledge that formidable engineering problems remain—and that Americans may well refuse to spend the hundreds of billions of dollars that even a first-phase deployment would cost. But most of Phase One's basic technology is already available, a fact that even SDI's

Battleground in the Sky

'Phase One' of a space-based missile defense, able to stop half of all incoming missiles, is possible by the late 1990s.





ROGER RESSMEYER—STARLIGHT

Only a temporary high-tech edge: Laser amplifier at Lawrence Livermore Laboratory

best-informed critics reluctantly concede.

If the previous question was whether SDI was feasible, Americans must now ask if it is desirable. Is there any point in a space umbrella that lets even 10 percent of enemy missiles slip through? The SDI backers' answer is that deployment would enhance deterrence. According to U.S. intelligence estimates, the first task of a Soviet first strike would be to destroy American intercontinental ballistic missiles in their superhardened silos. Currently only Soviet SS-18s can do the job. Pentagon planners now believe that a Phase One SDI system would destroy enough of the incoming missiles to leave a substantial portion of the U.S. retaliatory ability intact. If so, the theory says, the other side cannot risk launching in the first place.

But larger problems loom in the future. Phase One technologies would provide only a temporary shield. The initial stages of space defense could be overwhelmed by de-

coy warheads and faster-burning missiles, systems that the Soviets could have in place in only a matter of years. American science will probably be able to harness new technologies to augment later phases of SDI; what is far more questionable is whether the nation would be able to afford them even if they became available. Even Phase One deployment is more a question of politics than strategy. With the Soviets offering large reductions in nuclear weaponry, an already lukewarm public may demand that the next president trade away SDI.

The Delta-181 is intended to demonstrate SDI's Phase One potential. The spacecraft will unload a variety of objects into space, most of them designed to mimic characteristics of an SS-18 as it prepares to launch a cluster of warheads and decoys. Sensors aboard the spacecraft will observe and track small rockets, measuring what happens to their plumes in space



BRUCE HOERTEL

'Not some new science': Abrahamson

and attempting to distinguish between the plume and the rocket. As the sensors follow their targets against the sharply contrasting backgrounds of earth, atmosphere and space, on-board computers will amalgamate the images to construct a unified picture of each test object, compute their trajectories and maneuver the spacecraft in space to enable the sensors to concentrate first on one target and then another.

Technical challenges: Critics tend to focus on the complexity: so furious a battle would be impossible to manage, they say. While acknowledging the difficulty, Navy Capt. Jack Donegan, director of Phase One development, argues that existing computer technology is already capable of processing an extraordinary flow of information. Prior to joining SDI, Donegan was one of the chief architects of AEGIS, the shipborne air-defense system that, while untested in full-scale battle, is believed to be the most sophisticated in the world. Based on that experience, he believes that "the command network in the Gulf right now, tying all the vessels and aircraft and shore facilities together, is probably at about the same level of complexity as we have to deal with [in Phase One]." As for the difficulty of tracking hundreds of Soviet missiles and warheads, Donegan insists that it is on the same order of magnitude as defending a carrier battle group against a concerted air attack. "We're not inventing some new science," says Lt. Gen. James Abrahamson, the director of the SDI program. "The job is fundamental-

ly one of advanced applied engineering."

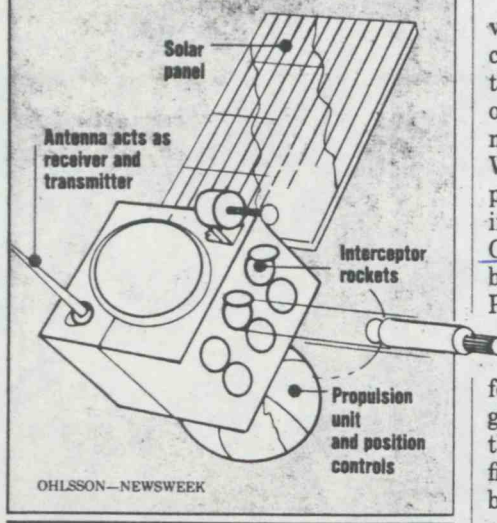
Some of the engineering problems remain daunting. "Discrimination [of warheads] in midcourse is the toughest technical challenge we face in Phase One," says Louis Marquet, who until recently was the SDI program's deputy director for technology. "Interceptors to destroy the warheads are not the problem. We know we can build those. The key is sensors." Donegan adds that the "toughest problem" is to distinguish between functional warheads and the debris of shattered missiles that continues to barrel through zero-gravity space. "I have to get as many sensors as possible into the [satellites]," he says. "That's first a technology problem: miniaturizing the sensor design. Then it's a manufacturing problem: perfecting a process to make [sensors] in enormous quantity and cheaply enough. Then it's a computer problem: sorting out all the data from those sensors."

Battle management: Donegan plans to handle some of the complexity through duplication. A fully deployed Phase One system would involve some 300 SBI satellites in 12 constellations orbiting the earth. Each SBI will select its own targets, meaning that some Soviet missiles will be attacked repeatedly while others may escape any attack at all. The system is wasteful, but it avoids the nearly insuperable problems of central battle management. "A general doesn't need to tell each infantryman every detail of the battle," says Donegan. "The infantryman does his job if he kills the enemy in front of him."

The Soviets can be counted upon to make SDI's job still tougher. Among their first responses would be to equip their SS-18s with decoy warheads that, while reducing each missile's active payload, could divert enough defensive fire to allow more real bombs to reach their targets. U.S. officials have concluded that the Soviets could install sophisticated decoys after the turn of the century. Given significant delay in SDI deployment, Phase One could be obsolete before it even leaves the ground.

Of even greater concern is the possibility that the Soviets might build a new first-strike force with faster-burning boosters. Presently, an SDI defense force would have approximately five minutes to complete its easiest mission: striking the lumbering SS-18s during their white-hot launch phase. The SS-18's apparent successor—the rail-mobile SS-24—has a burn time of only 180 seconds, and while the missile is still too inaccurate to be targeted against U.S. silos, it is only a matter of time before its aim improves. What U.S. officials fear most, however, is that SDI deployment might spur the Soviets to develop a missile that would burn for as little as 80 seconds. Besides being immune to a Phase One attack during the launch phase, such missiles would actually enhance the Soviets' ability

Space-Based Interceptor



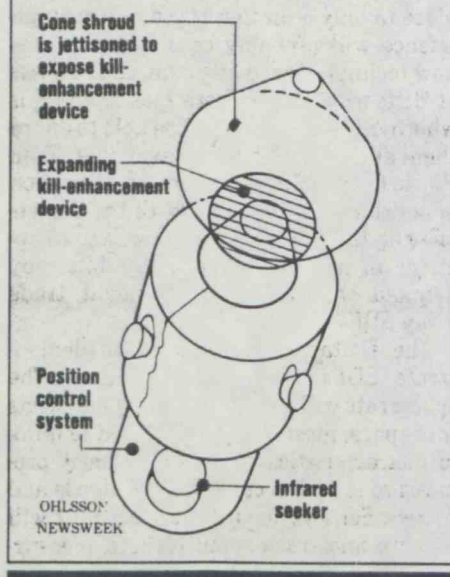
An army in orbit: Firing the rockets

to deliver a first strike by deploying their warheads more quickly.

That is the real dilemma of SDI. However successful, Phase One technologies would give the United States only a temporary edge. Louis Marquet sketches a defense profile that resembles the Rock of Gibraltar. The effectiveness of the system rises sharply as SDI is deployed. It gradually declines as the Soviets respond with initially crude and then more sophisticated decoys. Several years later the effectiveness drops off the cliff when the Soviets

The last line of defense: Incoming missiles

The ERIS Interceptor



develop faster boosters. At that point, says Marquet, "we'd better have something to put in place of Phase One, or we could be worse off than when we started."

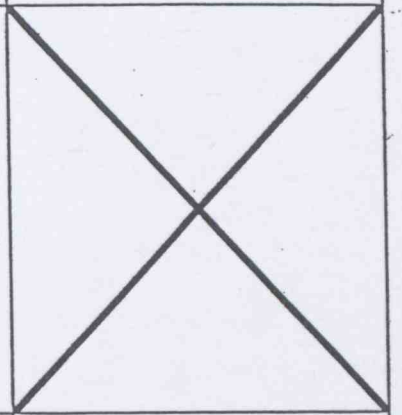
The solution, say SDI planners, is to develop laser and other beam weapons that can strike incoming missiles at or close to the speed of light. But strategists must rely on the development of unproven and tremendously expensive new technologies. While the science seems promising, the problem is that Phase Two research is being impoverished by the very success of Phase One. Fully half of SDI's \$3.9 billion annual budget is devoted to the more promising Phase One work; researchers on the more exotic future technologies complain that they are in danger of being starved for cash. Mindful of the looming technology gap, Pentagon officials continue to insist that the Phase Two program must be certified as practical before Phase One can even begin full-scale engineering development around 1992. The alternative might be 10 to 15 years of relative protection followed by an indefinite period in which the United States is more vulnerable than ever to a preemptive nuclear attack.

Beside the point: The argument, however, may be beside the point. Barring an unforeseen breakthrough in technology, SDI is in danger of quietly fading away. The erosion is particularly apparent now that Washington and Moscow are seriously discussing large reductions in strategic arms. According to a poll taken by the Roper Organization well before last December's Reagan-Gorbachev summit, Americans prefer arms control to Star Wars by a margin of more than 2 to 1. A year earlier they were more evenly divided between arms reductions and strategic defense.

Meanwhile, U.S. arms negotiators are pressing ahead with the START talks in Geneva as if Reagan were not committed to his defensive dream. Rather than concentrating on budging the Soviets from their opposition to SDI, the American delegation is resigned to the notion that Star Wars is, in fact, a domestic political issue that may well be settled during this year's presidential campaign. Anticipating that debate, some influential Democrats are already trying to stake out a cautious middle ground. Charging that the president had "consistently substituted slogans for objective and technically sound analysis," Sam Nunn, the Senate's leading Democratic expert on the military, proposed two weeks ago that SDI be transformed into a "Sensible Defense Initiative," an extremely limited defense against an accidental missile launch. It is possible that future presidents may continue to lean toward SDI. Until then, supporters can only hope that the research stays alive long enough to keep Star Wars from drifting into political outer space.

HARRY ANDERSON and JOHN BARRY

A The National Archives

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PRIME MINISTER

MEETING WITH GENERAL ABRAHAMSON

You are to see General Abrahamson at Chequers on Sunday, together with a representative from the Defence Intelligence Agency. The purpose is bring you up to date on the progress of the SDI research programme and on intelligence about Soviet activities. Ambassador Price will also be present. The briefing is from 1100 to 1245 (I suggest in the Long Gallery) followed by lunch.

I attach some background briefing from the MOD, a recent article from Newsweek and the note of your last meeting with General Abrahamson.

There has been some refinement of SDI concepts since your last meeting. In particular:

- it is now recognised that deployment of a Strategic Defence System would be incremental, spread over as much as 30 years;
- work is concentrating on a first phase system, designed to intercept incoming missiles and re-entry vehicles in the boost/post-boost phase and the late mid-course phase of their flight (i.e. before they re-enter the atmosphere) but not during the mid-course phase;
- in the boost/post-boost phase interception would be achieved by a satellite-mounted Boost Surveillance and Tracking System (BSTS) depending on sensors able to detect missile plumes. Orbiting space-based interceptor rockets would be used to destroy the missiles. For the late mid-course phase, there would be a sensor system combining space-based electro-optical satellites (SSTS) and ground-based radars, backed by ground-based ERIS rockets;

- this system is now moving to the stage of project definition, although engineering development is unlikely to start for at least five years (and would itself take four or five years);
- at the same time, work is going on in parallel on more advanced concepts for subsequent deployment phases. But budget cutbacks mean that it is difficult to fund both the Phase 1 work and the more exotic projects. Some of the latter e.g. neutral particle beam experiments and the free electron laser programme have been dropped
- the lack of space launch capability remains a major constraint. Even a Phase 1 system will need 300 satellites;
- the prospects for SDI under a new Administration are uncertain. It would almost certainly go on in some form. But it might revert to being a more 'normal' research programme, keeping the technology alive but not moving towards early deployment;
- finally, the British share of work in the SDI so far has been disappointing (\$68 million). The MOD put this down to lack of enterprise and initiative on the part of our large electronics companies (although small firms and the universities have done well).

Against this background, the points on which you might concentrate with General Abrahamson are:

- his assessment of technical progress in the various areas, in particular the ability to discriminate between warheads and decoys in the mid-course phase;
- his views on how the technical problems of battle management and coordination can be overcome;

- his assessment of when the necessary launch capability will become available;
- his current view on the need for tests which can only be conducted under the broad interpretation of the ABM Treaty. (He is said to be in conflict with Carlucci about this);
- his judgement of the degree to which the SDI research programme is likely to be constrained as a result of arms control negotiations with the Russians;
- his response to the claim that the effectiveness of an SDI system can constantly be put in jeopardy by crude but cheap Soviet counter-measures (i.e. faster boosters with a much shorter burn-time, decoys and simply overwhelming numbers);
- his judgement of the political climate in Washington on SDI, in particular the growing support for a very limited defence against accidental missile launches;
- his advice on how British firms can be more effective in winning additional SDI business.

C.D.P.

CHARLES POWELL

4 February 1988

CCP
CCBkup

4



MINISTRY OF DEFENCE
MAIN BUILDING WHITEHALL LONDON SW1
Telephone 01-930-7022 ~~XXXXXX~~ 01-218 2111/3

MO 14/2V

4 February 1988

CCP
4/2

Dear Charles,

BRIEFING FOR PRIME MINISTER'S MEETING WITH LT GEN ABRAHAMSON

I attach a number of briefs prepared by the Director General of the SDI Participation Office in the Ministry of Defence for the Prime Minister's meeting with General Abrahamson at Chequers on Sunday. The briefs, of which a summary is attached, cover the current status of the SDI programme, its future beyond next year's Presidential election and against the background of the 1972 ABM Treaty, and the extent of UK participation in SDI work.

I am sending a copy of this letter, and of the attachments, to Trevor Woolley in the Cabinet Office.

[Handwritten signature]
(I C F ANDREWS)
Private Secretary

Charles Powell Esq
10 Downing Street

VISIT OF LT GEN ABRAHAMSON

1. There are three briefing notes attached which address the following subjects:

a. SDI Programme Status. The SDI programme went through a formal review in July 1987. As a result, a plan was approved for proceeding to a "demonstration/validation" stage of work on the principal elements of the first phase of Strategic Defense System (SDS) deployment. There is a concomitant intention to maintain a balance between the work required to implement this plan and the rest of the SDI programme. The "rest" includes both alternative Phase 1 elements and technologically more demanding items relevant to later phases of SDS deployment.

None of the selected Phase 1 SDS sub-systems has been shown to be feasible. There has been a belated recognition of the need for a systems integration contractor: the trouble is that the task is next to impossible, in a management and bureaucratic sense; and is open only to US prime contractors (GD and GE) who have failed to win a substantial slice of the sub-system business. Whilst the concepts for Phase 1 SDS deployment and subsequent incremental deployments appear to have been well thought out, in a theoretical sense, the funding likely to be available will not support both the Phase 1 SDS work approved and a balanced effort for upgraded deployments.

b. Future of the SDI Programme. Much of the SDI programme will survive the 1988 Presidential election. But the programme's form could well change, as could its pace. Meanwhile preparations for the FY 89 budget are well-advanced. The budget is not likely to be larger than the \$3.9 billion authorised for FY 88. There is reported to be an argument between Carlucci and Abrahamson over the need to provide for a test under the broad interpretation of the 1972 ABM Treaty.

c. UK Participation in SDI Research. The total stands at \$68M, of which \$20M is a recent award to Ferranti. UKAEA (Culham Lab) are well-placed to get \$10-20M in March. Other smaller awards are in the pipeline. The UK achievement is generally disappointing, particularly in industry. The higher academic sector, by contrast, has shown enterprise; and has reaped the rewards.

The technical information exchange on SDI is now properly established.

Opportunities have arisen to carry out joint UK/US trials. One has taken place with unexpected but interesting results; and it appears to have opened doors previously closed.

Brief prepared by:
SDI Participation Office

BRIEF ASDI PROGRAMME STATUSBackground

1. The SDI Programme brought together in 1984 a series of ongoing technical programmes formerly under the separate control of the US Services. Funding levels were increased from \$1.6B in FY 85 to \$3.9B in FY 88 (including the US Department of Energy element).

2. The now familiar objective of the SDI programme overshadows the longstanding requirement to conduct research into ballistic missile defence as a hedge against Soviet breakout from the 1972 ABM Treaty.

3. As the programme has moved forward, ideas on the architecture or configuration of a Strategic Defence System (SDS) have begun to crystallise. Belatedly it is now recognised that a full-scale SDS could only be deployed over an extended period, in the region of 30 years from the initiation of deployment. From this it follows that the path to full-scale deployment would have to go through stages (Chart 1, attached), with intermediate levels of capability.

4. The US Administration have been working for the past year to obtain a widespread recognition and acceptance of the concept of phased SDS deployment. In parallel with this political activity, the SDI programme itself has been brought within Department of Defense (DOD) control procedures with a major internal review by the Defense Acquisition Board (DAB) conducted in mid-1987. This led to DAB Milestone 1 approval of work directed towards Phase 1 SDS development and deployment coupled with endorsement of programme efforts directed to subsequent SDS phases.

Phase 1 SDS

5. The criteria laid down by the US Joint Chiefs of Staff for the characteristics and performance to be achieved in Phase 1 of

SDS deployment are that:

- a. It should meet the Congressional requirement for man-in-the-loop control;
 - b. There should be a high degree of effectiveness against limited scope attacks;
 - c. Against a full-scale attack (at pre-START levels of offensive weapons), the system should be capable of destroying 50% of the first wave of SS 18s and 30% of other systems;
 - d. The overall aim should be to enhance deterrence by ensuring that the structure of a full-scale attack could be disrupted.
6. These requirements led to a Phase 1 SDS architecture comprising two defensive layers, as depicted in Chart 2 (attached): a boost/post-phase layer, and a late-midcourse layer. The components of these layers would be as follows:

Boost/Post-Boost

A constellation of space-based interceptor (SDI) satellites, supported by electro-optical sensor satellites (BSTS) in near geosynchronous orbit.

Late-Midcourse

A network of ground based interceptors (ERIS) for exoatmospheric interception, supported by a sensor system now expected to comprise space-based electro-optical satellites (SSTS) and ground-based radars.

Chart 3 (attached) gives further summary details.

7. The decision announced by the then US Defense Secretary in September 1987 was that the major sub-systems of a Phase 1 SDS would

move past DAB Milestone 1 into the demonstration/validation stage of work. Dem/val in US parlance corresponds to Project Definition and the early stages of development in the UK, but it should not be assumed that the sub-systems have reached the UK definition of Feasibility. In most instances they have not. After four years, now more likely to be at least five, a submission would be made for DAB Milestone 2 on moving ahead to full-scale engineering development of Phase 1 SDS sub-systems. This next stage of work would take a minimum of a further four years.

8. The SDI Organisation has put in place the top-level structure required to manage work on Phase 1 SDS. Additional staff are being recruited on contract. Most importantly, the SDIO are moving towards the appointment of a Systems Engineering and Integration (SEI) contractor in June 1988 with responsibility for ensuring that Phase 1 SDS sub-system efforts are controlled and brought together in a coherent way. This is the largest and most complex undertaking of its kind ever attempted. Perversely the requirement to avoid conflicts of interests means that only contractors who have been unsuccessful in bidding for major sub-systems are now eligible to become the SEI Prime.

9. As an adjunct both to Phase 1 SDS development and to the derivation of architectures for subsequent SDS phases, a contract has recently been awarded to Martin Marietta worth about \$500M for a US National Test Bed, a gigantic simulation facility to be centred in Colorado Springs with nodes at several other US locations.

Technical Challenge

10. Charts 4 and 5 (attached) summarise the key system issues which the SDIO themselves have identified as relevant to Phase 1 SDS as a whole. (There are also the usual range of development issues peculiar to the individual sub-systems). The list adds up to a formidable array of fundamental problems to which adequate solutions will have to be found if Phase 1 SDS as a whole is to be credible. This confirms our belief regarding major unresolved questions over feasibility, particularly but not exclusively at

system level, which will need to be tackled in parallel.

Programme Balance

11. The US have been conscious all along that a balance needs to be maintained in the SDI programme between efforts which may mature into a system suitable for a first phase SDS deployment and those which would be required to support subsequent deployment phases. This need can be seen from the schematic diagram in Chart 1: after a few years at its peak capability, Phase 1 SDS would become progressively less effective in the face of Soviet counter-measures. Upgraded systems would be required merely to maintain capability, let alone improve it.

12. Work on Phase 1 SDS is bound to call for a substantial increase in funding allocations to the relevant parts of the SDI programme. The SDI budget has neither grown in the way the US Administration would have wished, nor is there any sign that additional funds will be made available to support Phase 1 SDS work on an adequate scale. There is thus already pressure on other parts of the programme, manifested in the recent cancellation of a major (\$500M) space-based neutral particle beam experiment and significant (\$100M) cutbacks in the free electron laser programme (decisions which are fully justified on technical/risk grounds, but that is another story); and in signs of a funding squeeze across a range of smaller work packages where the potential lies in the longer term.

13. It will prove extremely difficult to satisfy the twin aims of maintaining a balanced programme and of moving purposefully towards Phase 1 SDS development and deployment, within a level budget.

Summary

14. Phase 1 SDS will be a massive undertaking. The technical problems are likely to take longer to solve than the US are willing to admit, even privately. Cost and the US space launch capability remain areas of particular uncertainty.

15. Technical issues apart, there is a conflict between the funding requirements of Phase 1 SDS and the need to maintain a balanced programme of research on the one hand; and the SDI budget on the other. Some restructuring of the FY 88 programme has already taken place, to make more room for Phase 1 demonstration/validation work.

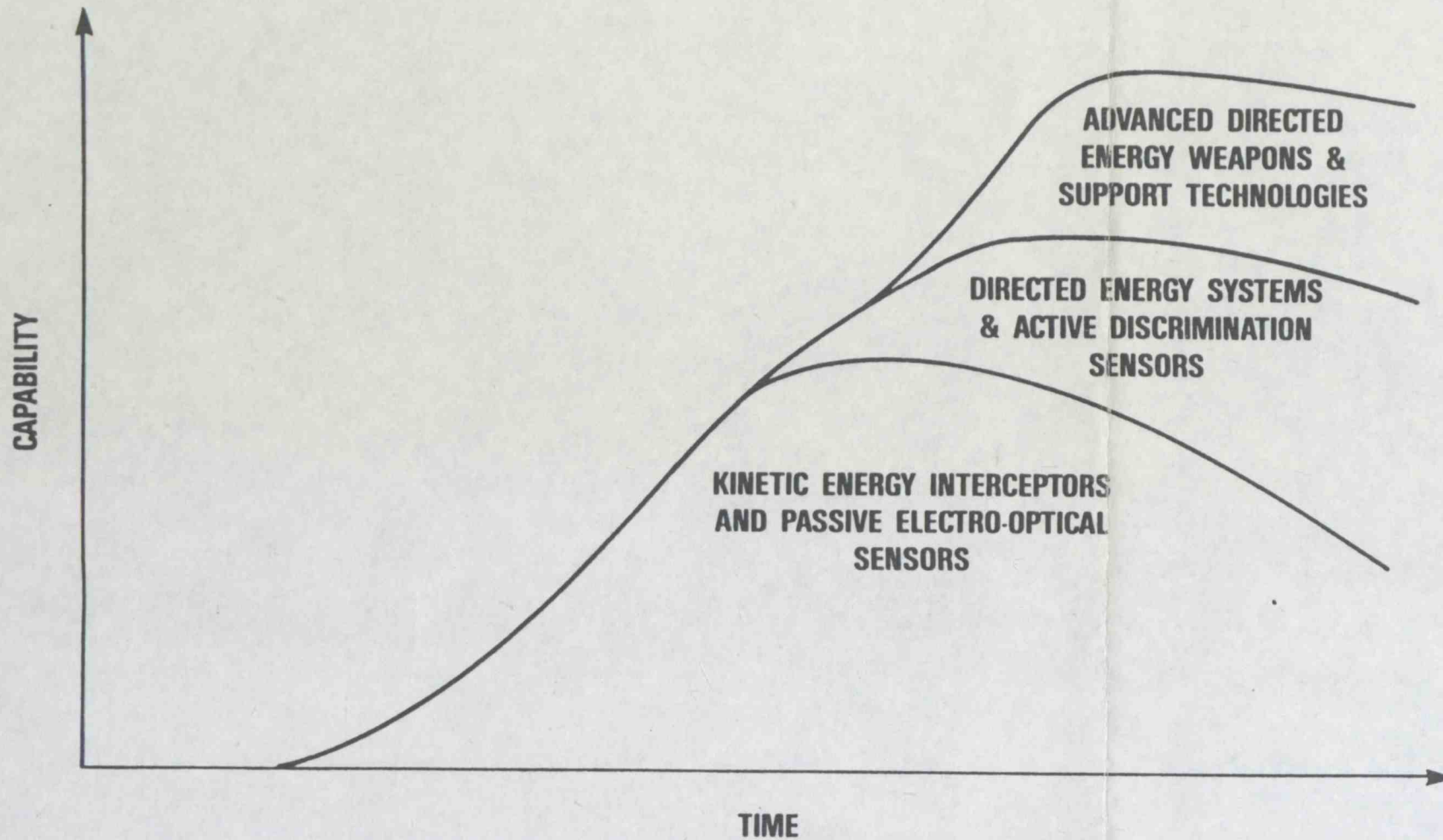
Brief prepared by:
SDI Participation Office



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THE PATH TO "THOROUGHLY RELIABLE" DEFENSES

CHART 1



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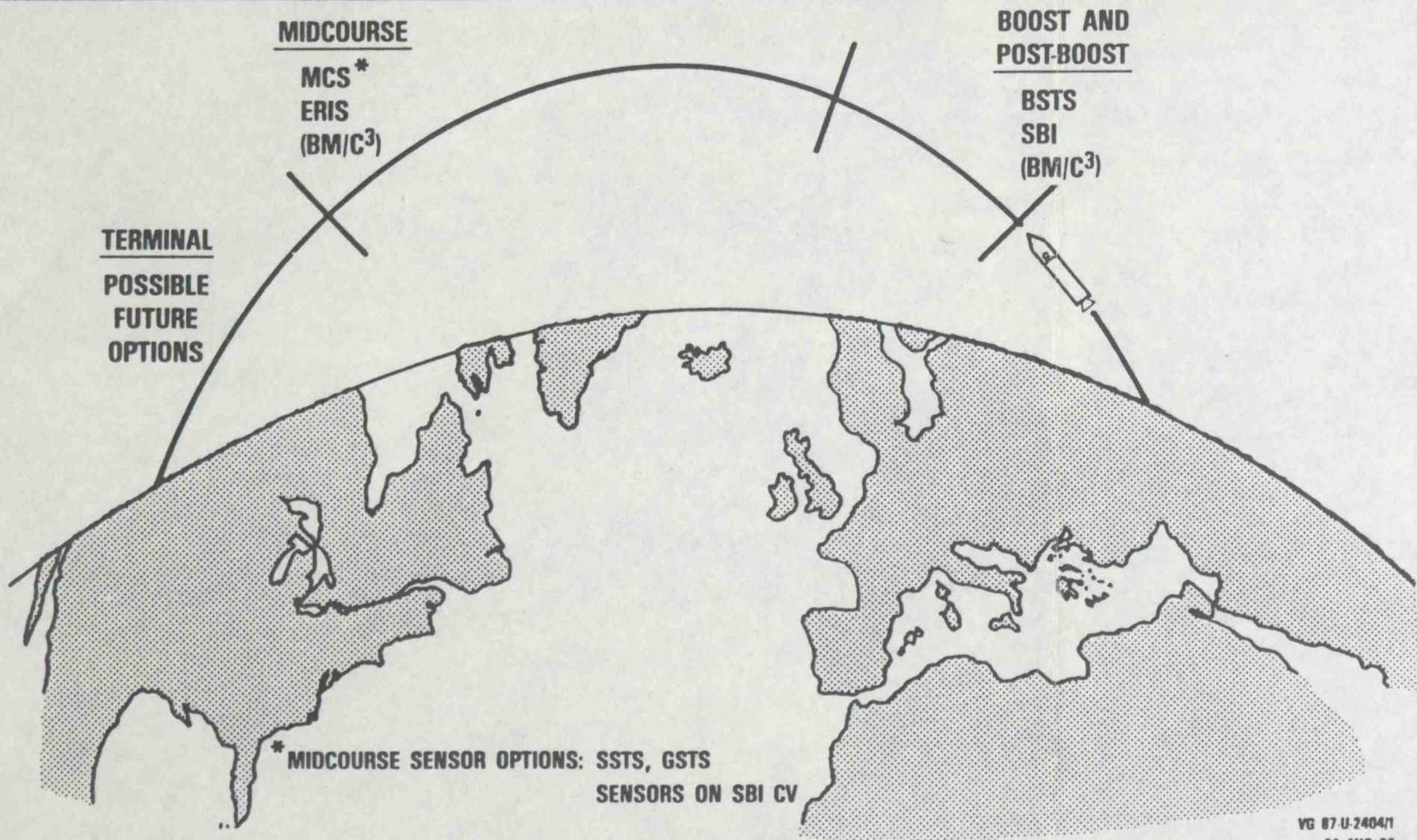
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CHART 2

SDS PHASE I CONCEPT



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24 AUG 87

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CHART 3

PHASE I ARCHITECTURE ELEMENTS (U)

ELEMENT	DEPLOYMENT BASELINE
BM/C ³	CENTRAL COMMAND INSTALLATION ALTERNATE COMMAND POSTS BUILT INTO SEVERAL ELEMENTS
BSTS	5-6 IN NEAR GEO-SYNCHRONOUS ORBITS
SBI	3000 IN 300 CARRIER VEHICLES 500 TO 700 KM ORBITS ~ 15 RINGS
MCS	OPT. 18 SSTS SATELLITES; 2000-4000 KM ORBITS ADD SENSOR SUITE TO ~ 25% OF CV's
ERIS	OPT. 36-100 GBTS PROBES
ERIS	1000 MISSILES ON MOBILE AND FIXED INSTALLATIONS IN ALASKA AND CONUS

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11 JUL 87

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KEY SDS SYSTEM ISSUES (U)

CHART 4

ISSUE	IMPACT ON ARCHITECTURE
SURVIVABILITY	
– SPACE ELEMENTS – GROUND ELEMENTS	– FULL SUITE OF SURVIVABILITY ENHANCING FEATURES – MOBILITY OR HARDENED/DISPERSED FIXED BASING
DISCRIMINATION	EXPLOITATION OF EXTENSIVE MIDCOURSE BATTLESPACE AND COST EFFECTIVE INTERCEPTORS REQUIRE GOOD, EVOLVABLE, COST-EFFECTIVE DISCRIMINATION CAPABILITY
COST	FUNDAMENTAL CONSTRAINT ON BOTH INITIAL AND SUBSEQUENT DEPLOYMENTS
LAUNCH CAPACITY	DICTATES CONSTRAINT ON CAPABILITY OF SPACE ELEMENTS. DRIVES SPACE/GROUND BALANCE AND/OR LIFT VEHICLE FORCE LEVEL AND COMPOSITION.

WO 87-860
9 JUL 87

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KEY SDS SYSTEM ISSUES (CONT'D) (U)

CHART 5

ISSUE	IMPACT ON ARCHITECTURE
BM/C ³ FEASIBILITY	KEY INTEGRATING ELEMENT. GENERATES REQUIREMENTS FOR OPEN ARCHITECTURES, GRACEFUL DEGRADATION AND PARTITIONING
TREATY COMPLIANCE	MAINTENANCE OF CONSISTENCY WITH TREATY INTERPRETATION
BRANCH/BLOCK STRATEGY	MULTIPLE, CAREFULLY EVALUATED FORCE UPGRADES WITH TIMELY INTRODUCTION POTENTIAL
DEPLOYMENT/TRANSITION/ CO-OCCUPANCY STRATEGY	IMPACTS ORDER OF DEPLOYMENT, STRUCTURE OF INITIAL BATTLE GROUPS, EXTRAORDINARY SURVIVABILITY MEASURES
SECURITY	DEMANDS UTILIZATION OF ADVANCED TECHNOLOGIES IN SECURE HARDWARE, VERIFIABLE SOFTWARE AND COMMUNICATIONS TRANSMISSION
NUCLEAR ENVIRONMENTS	HIGH UNCERTAINTY IN CHARACTERIZATION OF ENVIRONMENTS FORCES STRINGENT REQUIREMENTS ON INDIVIDUAL SENSORS OR PROLIFERATION OF PLATFORMS WITH MORE MODEST CAPABILITY
TECHNOLOGY	ACHIEVABILITY OF CRITICAL COMPONENTS AND SUBSYSTEMS

WD 87 857
9 JUL 87

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BRIEF B

FUTURE OF THE SDI PROGRAMME

1. There is, quite naturally, a great deal of speculation at the moment as to what will happen to the SDI Programme after the US Presidential election later this year. Nobody is taking bets.

2. The general assumption is that SDI will lose the high profile support of President Reagan under a new Administration. Whether or not the programme will continue in anything like its present form is open to conjecture. On the whole it does not seem likely that the present, somewhat contrived impetus which has been generated in the direction of Phase 1 SDS development and deployment (see Brief A) will survive the election.

3. What there does seem to be general agreement upon is the need for an active programme of research work into ABM system and sub-system technologies. At bottom, what this could amount to is a reversion to the sort of background activity, pursued on a Service basis, from which the SDI Programme grew in 1984. The cost would be not less than \$2B a year - about half the current cost of the SDI Programme. If major planned demonstrator experiments are to go ahead, the cost would approach the current level of about \$4B a year. And if a new Administration were to proceed with Phase 1 SDS development, substantially higher sums would be required.

4. Meanwhile, preparations for the FY 89 SDI budget are well-advanced. The Administration's request will go to Congress in mid-February. The request is expected to be pitched at a slightly lower level than the FY 88 request for \$5.8B. On past form, the Congress will cut the bid down to around the FY 88 level of \$3.9B or a little more. At such a level of funding, it is hard to see how much progress can be made with Phase 1 SDS efforts unless and perhaps even if the balance of the programme is drastically towards near-term efforts.

ABM Treaty Considerations

5. Last year's protracted struggle between the Administration and Congress over the interpretation of the 1972 ABM Treaty resulted in a provision in the FY 88 Defense Authorisation Bill effectively constraining the FY 88 programme of work to what is permitted under the Treaty's restrictive interpretation. There is an exceptions procedure under which, subject to the specific approval of Congress, funds may be made available for procurement in support of tests going beyond the constraints of the restrictive interpretation. Another provision makes it clear that there is no prohibition on planning or design studies for such tests.

6. In the context of the FY 89 budget request, Lt Gen Abrahamson is reported to be pressing for provision for work leading towards a test in 1992/93 under the broad interpretation of the ABM Treaty. This test concerns the Boost Surveillance and Tracking System (BSTS), the sensor satellite supporting the Phase 1 boost phase intercept layer. The case for extending the scope of the test has been expressed in the past in economic terms: with the addition of a battle management module, the satellite would be capable of taking its place in the deployed suite of BSTS satellites, at a saving in cost of around \$1B. The US Defense Secretary is reported to be unpersuaded, and has asked Abrahamson to reconsider, saying that he would look with a 'jaundiced eye' at any FY 89 proposal which called for funds for SDI tests under the broad interpretation. Carlucci's position is expected to prevail.

Brief prepared by
SDI Participation Office

BRIEF CUK PARTICIPATION IN SDI RESEARCH

1. This note covers:
 - a. US-funded work in the UK;
 - b. Technical information exchange;
 - c. Joint US/UK experimental activities.

US-Funded Work

2. Some 65 SDI contracts and sub-contracts had been awarded to UK companies and other organisations by the end of January 1988, worth a total just over \$68M. This total includes a recent \$20M sub-contract award to Ferranti Computer Systems Ltd (under the main contract to Martin Marietta referred to in Brief A). Additional proposals in the final stages of evaluation could bring the total up to \$80-90M by the end of March.

3. The subject matter of these US awards is very broad:
 - a. Systems architecture, BM/C³, and Test Bed specification studies, channelled through the Ministry of Defence (with 85% of the work sub-contracted to British industry).
 - b. A series of specific research efforts, in such areas as electromagnetic gun technology, CO₂ laser catalysts, optical hardening, and higher operating temperature infra-red detectors. Again, these efforts are managed by the Ministry of Defence, with the great bulk of the work being carried out in industry.
 - c. Ion sources for neutral particle beam generation. This is from the UKAEA Culham Laboratory.

d. Advanced materials research, into thermoplastics and metal matrix composites. Multiple awards.

e. Electronics components supply. GEC-Marconi group.

f. Higher academic sector:

(1) optical computing;

(2) space power conditioning;

(3) macromolecular microelectronics.

g. Test beds: the major award to Ferranti (referred to already).

4. In the pipeline are sub-contracts for UKAEA, Culham Laboratory (\$10-20M, depending on which US prime wins) on neutral particle beam sources; for Cossor (\$3M, with prospects of more substantial business downstream) on optical processing; and for Rolls Royce Associates/UKAEA (\$ $\frac{3}{4}$ M with follow-on prospects) for a design study on space-based nuclear power systems.

5. Further ahead, there are potentially very significant prospects in the areas of space-based imaging radar and high resolution imaging infra-red systems. Highly manoeuvrable mini-projectiles using laser information field command guidance have also attracted close attention, as recently has an electronically-steered phased array radar. All these systems exist, at some stage of development - generally as trials tools or demonstrator projects. They have been brought to US attention in the context of SDI, to which they are obviously relevant; but the early in-service applications and the money will arise in the land/air battle context.

6. Although these actual awards and the principal future prospects are of interest and significance in themselves, it has to be noted that the UK has made disappointing progress to date in penetrating the SDI programme. Of the participating Allies, the

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UK is out ahead. But more could have been made of the opportunities, even allowing for the fact that constraints on the SDI budget have meant that the opportunities have been on a much smaller scale than originally expected.

7. Some UK organisations have been successful, notably UKAEA's Culham Laboratory (who have a unique technology to offer), Ferranti Computer Systems (who have relevant experience), and the higher academic sector in general (which has greater intellectual horsepower in the UK, if fewer supporting resources, than in the US). Some small British companies have shown great enterprise in pursuing SDI research awards: Advanced Systems Architectures, for example, received a \$250K SDI contract; subsequently received a £250K sub-contract; and have now been recommended for follow-on funding to the original contract. The major disappointment is in the failure of major and medium-sized British companies to pursue SDI and other advanced technology business opportunities in a professional way and with any sense of what they are trying to achieve for the long-term benefit of their own company. This comment goes much wider than SDI participation, but, to give an SDI-related example, one major UK company responded recently to a questionnaire on SDI participation circulated to UK industry in December, to the effect that the company saw no prospects in SDI participation: in fact, the company has received a sub-contract, is bidding for another, and has had regular contacts with the SDI Participation Office.

8. There is growing, if unspoken agreement that some sectors of British industry, notably the electronics sector, are neglecting their own long-term future. There appear to be no corporate long-term business strategies; generally, a detachment of senior management from what initially are bound to be low value items of business; and an allocation of average to poor quality of staff to the development of these longer term prospects. All this is reflected in the UK's performance in SDI.

Information Exchange

9. The MoU on SDI participation made provision for a technical

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information exchange at Government level, across the spectrum of technologies relevant to SDI. The exchange was to be modelled on the longstanding information exchange under the 1958 Atomic Energy Agreement.

10. The SDI information exchange, which occurs under a series of management Groups known as SCORE Groups, is now well established. There is now an active network of sub-Groups under the SCORE Groups. The essence of effective international technical information exchange is that the teams on both sides should build up good personal relationships. This takes time, but it is happening. The functioning of the information exchange is kept under review at senior official level, both in the UK and in the US.

Joint UK/US Trials

11. An area of activity which was not anticipated in an explicit way when the SDI MoU was signed is participation in joint trials.

12. The first such joint trial took place in November 1987. Golum I involved the use of a US trials aircraft (ARGUS) to collect optical data on Lance missile firings on the Hebrides range. The ARGUS aircraft is equipped with several stabilised camera systems, with automatic tracking facilities, and is used regularly for monitoring missile firings, typically at ranges of 300Km. The US interest in the Hebrides Range firings was in making observations of Lance firings against a northern European background. A UK-developed experimental imaging radiometer was installed on the aircraft, to collect data at infra-red wavelengths.

12. The trial was regarded as successful by the US. It was not. Whilst much visible wavelength data were collected, the pointing and tracking interface with the UK equipment was not set up properly, and there were both navigational shortcomings (understandable with 150Kt crosswinds, but that is not the reason), and operator errors.

13. However, in the periods between the missile firings, ARGUS mounted controlled operations against Tornado aircraft, in darkness

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and at ranges of 3-20Km (Trial TALK). TALK demonstrated the remarkable fidelity of the UK radiometer: at these ranges it is possible to distinguish clearly the aircraft itself and its type, and even the stores on its wing pylons. The US have been so impressed that they have asked to keep the UK equipment on board; this has been agreed; and further trials are in prospect. The ARGUS aircraft costs \$35K per hour to operate, and was in the UK for two weeks.

14. The upshot of the Gollum I trial appears to be the opening up of an area of information exchange, on electro-optical systems and data, which the UK has been trying to get into with the US for 10 years, hitherto unsuccessfully.

15. Separately, discussions have been initiated, as authorised by Ministers, on the possibility of mounting joint experiments involving a package of advanced experimental penetration aids. It has become apparent both that there is a strong US interest in following up this UK proposal; and that the complexity of the proposal is well beyond anything which the US are prepared to contemplate tackling at the moment. It will, therefore, be some months before a substantive report can, as required, be put to Ministers for consideration.

16. Meanwhile, and separately, the US have invited the UK to participate in missile firing trials which would provide the opportunity to test UK-developed thrusted replica re-entry vehicles in flight and on the superbly instrumented Kwajalein range in the Pacific. This project is at an advanced stage of consideration at official level. It will be known as ZODIAC BEAUCHAMP (the first word signifying a US sensitivity of a technical intelligence kind).

Brief prepared by:

SDI Participation Office

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GENEVA NST: DEFENCE AND SPACE
SUMMARY

1. US TABLES IN GENEVA DRAFT DEFENCE AND SPACE TREATY BUILDING ON THE WASHINGTON SUMMIT JOINT STATEMENT. TREATY MAKES CLEAR THAT THE ABM TREATY WOULD REMAIN IN PLACE AFTER THE AGREED PERIOD OF NON-WITHDRAWAL/NO DEPLOYMENT - AN IMPORTANT DEVELOPMENT WHICH REMOVES THE AMBIGUITY THAT HAS SURROUNDED THE US POSITION ON THIS POINT.

DETAIL

2. THE US NEGOTIATING TEAM IN GENEVA TABLED ON 22 JANUARY A DRAFT DEFENCE AND SPACE TREATY. THIS WAS ANNOUNCED IN A STATEMENT BY THE WHITE HOUSE SPOKESMAN (TEXT IN MIFT).

3. OUR CONTACTS SAY THAT THE DRAFT TREATY IS A SHORT DOCUMENT RUNNING TO ONLY FOUR PAGES. AS THE WHITE HOUSE STATEMENT MAKES CLEAR, THE TREATY FLESHES OUT THE DEFENCE AND STATE PASSAGE IN THE US/SOVIET JOINT STATEMENT ISSUED AT THE END OF THE WASHINGTON SUMMIT. WE UNDERSTAND THAT IT PROPOSES A PERIOD OF NON-WITHDRAWAL FROM THE ABM TREATY LASTING UNTIL THE END OF 1994 (THE EXISTING US POSITION). MORE IMPORTANTLY, THE TREATY APPARENTLY MAKES CLEAR THAT THE US ENVISAGE THAT THE ABM TREATY WOULD REMAIN IN PLACE AFTER THE NON-WITHDRAWAL PERIOD. THIS IS AN IMPORTANT CLARIFICATION OF THE US POSITION: THERE HAS BEEN AMBIGUITY SINCE JULY 1986 ABOUT WHETHER OR NOT THE PRESIDENT WAS PROPOSING THAT THE DEFENCE AND SPACE TREATY SHOULD SUPERCEDE THE ABM TREATY, WHICH WOULD THEREFORE FALL AWAY AT THE END OF THE NON-WITHDRAWAL PERIOD. THE DRAFT TREATY NOW TABLED THEREFORE REPRESENTS A DEFEAT FOR THE OSD VIEW ON THIS POINT. BURNS (PRINCIPAL DEPUTY ASSISTANT SECRETARY OF STATE FOR POLITICO/MILITARY AFFAIRS AND DIRECTOR OF ACDA DESIGNATE) HAS CONFIRMED TO US THAT (AS REPORTED IN TODAY'S PRESS) THIS DECISION BY THE PRESIDENT IS LARGELY A RESULT OF PRESSURE FROM THE JCS, WHO HAVE BEEN CONCERNED THAT ANY RIGHT IMMEDIATELY TO DEPLOY ABM DEFENCES AT THE END OF THE NON-WITHDRAWAL PERIOD WITHOUT THE NEED FIRST TO WITHDRAW FROM THE ABM TREATY WOULD FAVOUR THE

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RUSSIANS. THE DECISION IS ALSO IN LINE WITH STATE DEPARTMENT THINKING SINCE IT MAKES CLEAR THAT THE PROPOSED DEFENCE AND SPACE TREATY WOULD NOT REPLACE THE ABM TREATY BUT IS A COMMITMENT BY BOTH SIDES NOT TO WITHDRAW FROM THE ABM TREATY DURING THE AGREED PERIOD FOR THE PURPOSE OF DEPLOYING ABM DEFENCES.

4. ON WHAT SHOULD BE THE RULES OF THE ROAD DURING THE NON-WITHDRAWAL/NO DEPLOYMENT PERIOD, WE UNDERSTAND THAT THE DRAFT TREATY CONTAINS LITTLE OVER AND BEYOND THE LANGUAGE IN THE SUMMIT JOINT STATEMENT IE THAT DEVELOPMENT AND TESTING PERMITTED BY THE ABM TREATY MAY BE CARRIED OUT AS REQUIRED. NO NEW SOLUTION IS THEREFORE PROIGAWMNON THE MATTER OF PRECISELY WHAT TESTING AND DEVELOPMENT WOULD BE PERMITTED. WHETHER AGREEMENT TO DISAGREE ON THIS POINT COULD BE A SATISFACTORY BWRPS FOR A TREATY IS THEREFORE LIKELY TO CONTINUE TO BE THE SUBJECT OF DEBATE HERE. AN IMPORTANT NEW ELEMENT IN THAT DEBATE IS THAT THE JCS ARE NOW ARGUING THAT MORE PRECISION IS REQUIRED.

5. WE UNDERSTAND THAT SOVIET NEGOTIATORS IN GENEVA HAVE, SINCE THE BEGINNING OF THE PRESENT START ROUND ON 14 JANUARY, MAINTAINED THE SOVIET SUMMIT POSITION THAT THE ABMT NON-WITHDRAWAL ISSUE SHOULD BE ADDRESSED IN A PROTOCOL TO THE START TVATY RATHER THAN IN A SEPARATE DEFENCE AND SPACE TREATY. THIS IYTXHNRARLY A DEVICE DESIGNED TO CREATE CLOSE LINKAGE BETWEEN START AND DEFENCE AND SPACE OBLIGATIONS AND TO ENABLE THE RUSSIANS TO MAKE CLEAR THAT ANY BREACH OF THE PROTOCOL WOULD BE A VIOLATION OF THE STRAT TREATY ITSELF AND WOULD THEREFORE RELEASE THE OTHER PARTY FROM ITS OTHER START TREATY OBLIGATIONS.

ACLAND

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PS/MR EGGAR
PS/MR MELLOR
PS/PUS
SIR J FRETWELL
MR BOYD

PAGE 2
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MR. BEARPARK

Tessu
to note.

VISIT OF GENERAL ABRAHAMSON

General Abrahamson has been in touch to say:

- a. he would prefer to revert to a meeting at 11.00 am at Chequers followed by lunch; and ✓ *More informal.*
- b. he does not now need an overhead projector. ✓ *cancelled.*

I said that I saw no difficulty on either point. Could you please alert Chequers to the changed timing. *pas 24/1*

C.D.P.

(C.D. POWELL)

20 January 1988

DCAAGE

Mr. Gaisman 4

~~Please refer~~

~~Append.~~

cc Mrs. Gaisman

~~Ans.~~

MR. POWELL - on return

BF ||

Mr. Sandy Vershbow, Deputy Head of the Political Section at the US Embassy, telephoned me this afternoon about the arrangements for General Abrahamson's visit to Chequers on Sunday 7 February. He said that it would be a great help to General Abrahamson's itinerary if he were able to arrive before lunch and give his briefing after lunch. The suggested timetable was as follows:

Noon	Arrive Northolt
1300	Arrive Chequers for lunch
1430	Begin briefing
1600	Depart Chequers

The departure time was not critical since General Abrahamson would have his own plane waiting at Northolt.

I told Mr. Vershbow that unless he heard from you to the contrary, he should assume that these arrangements were acceptable to the Prime Minister.

N. L. W.

(N.L. WICKS)

4 January 1988

DALABX

file



10 DOWNING STREET
LONDON SW1A 2AA

From the Private Secretary

27 November 1987

Dear Antony,

The Prime Minister would very much like to see General Abrahamson again early next year to be brought up to date on technical progress with the SDI and on the intelligence about Soviet activities. You will recall that she had a private briefing on this shortly before her visit to Moscow. Could you find a way to mention this to him discreetly and establish when he might be able to come over here, for instance in the second half of January or early February. I will try to get the Prime Minister meanwhile to mention it to Frank Carlucci when she sees him on 2 December, so that a further briefing has his blessing.

I am not, for the time being anyway, informing either the Foreign and Commonwealth Office or Ministry of Defence of this.

Yours ever,
C. D. Powell

(C. D. POWELL)

Sir Antony Acland, G.C.M.G., K.C.V.O.



**United States
Information
Service**

Embassy of the United States of America
24, Grosvenor Square
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Tel: (01) 499 9000

C O N T E N T S

REAGAN SPEECH TO MARTIN MARIETTA
EMPLOYEES

WORLDNET NOTICE: DEPUTY SECRETARY
OF STATE JOHN C. WHITEHEAD

WORLDNET NOTICE: UNDER SECRETARY
OF DEFENSE FOR POLICY DR. FRED C.
IKLE & AMBASSADOR AT LARGE FOR
COUNTERTERRORISM L. PAUL BREMER

Wednesday,
November 25, 1987



OFFICIAL TEXT

November 25, 1987

UNITED STATES INFORMATION SERVICE, U.S. EMBASSY, 55/56 UPPER BROOK STREET, LONDON W1A 2LH

SDI OFFERS SECURITY THROUGH PROTECTION, NOT RETALIATION

(Text: Reagan Remarks to Martin Marietta Employees)

Waterton, Colorado -- President Reagan says the Strategic Defense Initiative "offers mankind security through protection rather than retaliation. It is a scientific advance that will be judged a success based not on how many lives it is capable of taking -- which is none -- but on how many it is able to protect."

"Our goal is to strengthen deterrence by moving as soon as we are ready to increasing reliance on defenses to keep the peace," Reagan told employees of Martin Marietta Denver Astronautics November 24.

He said that "what we spend to protect ourselves from nuclear missiles is much lighter than the cost, human and otherwise, if even one nuclear missile is fired, even if by mistake, and we have to suffer the consequences because there is no way to stop it. In the case of SDI, America cannot afford not to do everything necessary to develop this missile defense system and put it into operation."

Reagan said the Soviet government "wages its propaganda campaign against our SDI research, even while they work overtime to develop their own SDI-like system. We must not be lulled into reducing our commitment."

Following is the text of his remarks, as prepared for delivery:

It is an honor for me to be at Martin Marietta with all of you men and women of science and engineering who play such a vital role in this age of technology. I will have to admit I am a bit awed by what I've seen and heard today.

I was born in a small town in the farm country of Illinois. Progress in those days meant indoor plumbing, electric lights, a telephone, and later, perhaps, a radio crystal set. Just in my lifetime, we have gone from a time when many, if not most, people traveled by horse power -- and I mean the kind that eats hay -- to an era of supersonic passenger service. And just possibly before I leave the scene, we will have developed a craft that will take off from runways as planes do today, but once at high altitude, this craft will rocket itself into space and zip to its destination at 18 or 20 times the speed of sound -- from New York to Tokyo in 90 minutes.

The America I was born into was acclaimed for its liberty and opportunity, yet that opportunity for which we were so proud has been expanded today beyond anything the Americans of my youth could possibly have imagined. Affordable worldwide communications and transportation have not just extended, but eliminated horizons. Computer capability, which a short time ago was available only to large corporations, is now being put to use by small business and individual entrepreneurs.

We are in an age when the common man can do and experience what in past times was enjoyed only by royalty, aristocracy, and the elite. Jefferson, Washington, and Madison laid the foundation for liberty and equality; Edison, Einstein, Goddard, and others like them, like many of you, built on that foundation. It has been technology and freedom, together, that have pushed America ever forward and made her the land of abundance and progress we love so dearly.

Arthur Balfour once noted, "Science is the greatest instrument of social change...the most vital of all evolutions which marked the development of modern civilizations." Science and technological-based revolutions in health care, food production, communications, transportation, manufacturing, and others have changed how we live and the quality of our lives. Before joining you, I was given a classified update on one of the key elements of the program you're working on. It is clear that the project is bounding forward and I couldn't be more pleased. After what I have seen today, I believe that mankind is again on the edge of a revolution that will change the basic assumptions upon which we base our decisions and reshape the world in which we live.

Until now, mankind's search for security often focused on expanding the ability to lash out, to kill, to destroy. Technological advances throughout the ages increased man's destructive power, and those nations that did not keep pace soon felt the sting of defeat and the pain of subjugation. But humanity, in almost every case found a defense for every offense, and that is exactly what we are seeking: a defense against mankind's most deadly weapons -- ballistic missiles.

You are laboring to develop a defensive system that will change history. Once you've completed your work, the world will never be the same. I suggest it will be a better and a safer world. And what better legacy can this generation leave than a safer world?

Our Strategic Defense Initiative offers mankind security through protection rather than retaliation. It is a scientific advancement that will be judged a success based not on how many lives it is capable of taking -- which is none -- but on how many it is able to protect. It is a moral as well as scientific endeavor worth every minute and hour you are dedicating to it. Our goal is to strengthen deterrence by moving as soon as we are ready to increasing reliance on defenses to keep the peace.

I realize that being a government project, with all the politics that goes with that reality, your work can be frustrating. Wernher von Braun once said. "We can lick gravity, but sometimes the paperwork is overwhelming."

I appreciate the extraordinary effort each of you is making.

Your mental prowess and creativity, and, yes, your hard work, will make or break the program.

And I want you to know, what you accomplish will be put to good use in protecting your country, the free world, and perhaps all mankind against the threat of nuclear holocaust. You are not working to build a bargaining chip. It will not be traded away.

Yes, there are those who complain about the cost. Benjamin Franklin, himself a man of science and politics, once observed, "the expenses required to prevent a war are much lighter than those that will, if not prevented, be absolutely necessary to maintain it."

Well, mirroring that thought, I'd say that what we spend to protect ourselves from nuclear missiles is much lighter than the cost,

human and otherwise, if even one nuclear missile is fired, even if by mistake, and we have to suffer the consequences because there is no way to stop it.

In the case of SDI, America cannot afford not to do everything necessary to develop this missile defense system and put it into operation.

The Soviet Union, even as they criticize and try to cripple our SDI research effort, has been aggressively moving ahead on its own anti-ballistic missile defense. They have spent roughly 200,000 million dollars in the last 10 years -- and have concentrated the energy and talent of their brightest scientific minds. More than 10,000 skilled scientists and engineers are working on military lasers alone -- with thousands more developing high-tech weapons that use particle beams and kinetic energy.

The Soviet government wages its propaganda campaign against our SDI research, even while they work overtime to develop their own SDI-like system. We must not be lulled into reducing our commitment. Their military program, which includes everything from killer-satellites to the modernized anti-missile system that protects Moscow, dwarfs our SDI program already. Those who would cut or eliminate funds for our effort would grant a clear monopoly in this vital area to our adversary, which would undermine the present basis of deterrence. Because the question is not, will strategic defenses be developed? The question is rather, will the Soviet Union be the only country to possess them? The choice is ours.

Furthermore, the Strategic Defense Initiative is not aimed at protecting us and our allies against the Soviet Union alone. Francis Bacon once wrote, "He that will not apply new remedies must expect new evils; for time is the greatest innovator." Well, in the decades ahead, who knows what governments will obtain ballistic missile technology? Who knows how rational or competent those governments will be. I spoke before a meeting of the American Council of Life Insurance last week and I called SDI an insurance policy. And that's what it is.

SDI is not a weapon of war, but an insurer, a protector, of the peace. It is totally within the limits of the ABM treaty. Let me add, the United States has observed the ABM treaty, but with the construction of the huge phased-array radar at Krasnoyarsk, the Soviets have violated one of the treaty's key provisions. This is but another example of why it's important not to rely on words alone. The Strategic Defense Initiative, you see, underwrites our efforts to achieve offensive arms reduction agreements. With a defensive system in place, the possibility that one side has cheated, and has a few missiles in hiding, is far less threatening. SDI, then, makes further reductions more likely. A system that makes ballistic missiles less effective, makes those missiles more negotiable.

Now there are those who may be pessimistic about the chances of deep reductions in U.S. and Soviet nuclear arsenals, but let us not forget that in 1981, when I first proposed our zero option, it too was all but written off by many commentators. In the time that has followed, we persevered and stuck to our principles. We held firm against the advocates of a so-called nuclear freeze. We followed through on our modernization program and in close cooperation with our allies, installed the Cruise and Pershings in Europe. When at long last it was realized that we in the alliance had the courage to

protect our own long-run interests, progress toward a mutually beneficial treaty ensued.

As you are all aware, General Secretary Gorbachev will be visiting Washington beginning December 7. If the last-minute details can be worked out, we hope to sign an historic treaty that will eliminate a whole class of U.S. and Soviet nuclear-armed intermediate-range missiles from the face of the Earth, the first mutually agreed upon reduction in our nuclear arsenals ever.

And this could well be just a beginning. We hope we can see forward movement on a number of other fronts. The United States, for example, has proposed a 50-percent reduction in U.S.-Soviet offensive strategic forces. Much progress has been made toward a S.T.A.R.T. agreement and more is possible. But let there be no doubt, giving up the Strategic Defense Initiative and the protection it will provide is too high a price for any agreement.

Neither the INF treaty we hope to sign during the upcoming summit, nor any other agreement that follows, will be built on trust. Agreements with the Soviet Union must be based on reciprocity, verification, and realism. And while we want to bolster the peace and do our part to improve relations, no agreement should ever be signed simply for the sake of signing an agreement for the sake of atmospherics. Improving the general tone of relations between our countries, as I have outlined on several occasions, will require much more movement from the other side toward the solution of regional conflicts, a far greater respect for human rights, and progress on a number of bilateral issues between our countries. As I have explained to General Secretary Gorbachev, our countries do not have differences because we are well-armed, we are well-armed because we have differences.

Even with all the talk of openness and glasnost, much change needs to take place before trust, like that we have with democratic governments, can come into play. The Soviet people themselves -- even though there has been some change -- still tell stories and joke about their plight. I heard one about a fellow who went to the KGB to report that he lost his parrot. The KGB asked him why he was bothering them. Why didn't he just report it to the local police. He answered, "I just want you to know, I don't agree with a thing that parrot has to say."

In four months, we will mark the fifth anniversary of the March 23, 1983, speech in which I challenged the scientific community to develop a system that would make ballistic missiles obsolete. General George Patton once said, "Never tell people how to do things. Tell them what to do and they will surprise you with their ingenuity." That statement showed a deep insight into the American character, and it has been proven again in our drive to establish a strategic defense system.

The progress made toward achieving our goals gives us reason for confidence. The critics who claimed it couldn't be done have been proven wrong again -- just has been the case with almost every technological triumph in the past. The scientific research and engineering work you are doing, along with that of others like you in hundreds of locations throughout this great land, is a tribute to the genius of America. This is truly a national effort -- both government and private sector -- involving preeminent individuals in industry, education, and the scientific community. No president could be prouder or more grateful than I am for all you, and your fellow colleagues around the country, are doing.



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WORLDNET TELEVISION NEWS CONFERENCE

JOHN C. WHITEHEAD

DEPUTY SECRETARY OF STATE

John C. Whitehead will feature in a live WORLDNET satellite news conference on Monday, November 30, at 2:00 p.m. Mr. Whitehead recently returned to Washington from visiting Eastern Europe and the Soviet Union. He will discuss the current situation regarding human rights in the Soviet Union. Human rights will be one of the issues addressed at next month's Reagan-Gorbachev summit in Washington.

Journalists wishing to attend this live event, in which London is interactive, are requested to call the Press Office in the American Embassy on 499-5261 or 499-6479 by no later than 11:00 a.m. on Monday, November 30.

Admission will be via the main entrance in Grosvenor Square and regular press credentials will be required.



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TWO WORLDNET TELEVISION NEWS CONFERENCES

DR. FRED C. IKLE

UNDER SECRETARY OF DEFENSE FOR POLICY

Dr. Ikle will feature in a live WORLDNET satellite news conference on Tuesday, December 1, at 12:00 noon. He will discuss an important new study documenting Soviet space activities oriented towards the militarization of space. He will discuss Soviet goals in space as well as their progress towards achieving military objectives in space. London is interactive.

AMBASSADOR L. PAUL BREMER

AMBASSADOR AT LARGE FOR COUNTERTERRORISM

Ambassador Bremer will feature in a live WORLDNET satellite news conference on Tuesday, December 1, at 2:00 p.m. Ambassador Bremer will discuss the soon-to-be published State Department annual report "Global Patterns of Terrorism". In addition to discussing the report, Ambassador Bremer will review international terrorist activities during 1987. London is interactive.

Journalists wishing to attend either or both of these live events are requested to call the Press Office in the American Embassy on 499-5261 or 499-6479 by no later than 11:00 a.m. on Tuesday, December 1.

Refreshments will be served between the end of the Ikle news conference at 1:00 p.m. and the start of the Bremer news conference at 2:00 p.m.

Admission will be via the main entrance in Grosvenor Square and regular press credentials will be required.

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SDI: REMARKS BY THE PRESIDENT, 24 NOVEMBER

1. IN PREPARED REMARKS TO MARTIN MARIETTA EMPLOYEES IN WATERTON COLORADO ON 24 NOVEMBER, THE PRESIDENT SAID THE FOLLOWING ON SDI: QUOTE

OUR STRATEGIC DEFENSE INITIATIVE OFFERS MANKIND SECURITY THROUGH PROTECTION RATHER THAN RETALIATION. I MUST TELL YOU THAT I HAVE NEVER BEEN ABLE TO SEE THE SAFETY OR FEEL THE SAFETY OF KNOWING THAT IF SOMEONE BLEW US UP, WE'D BE BLOWING THEM UP AT THE SAME TIME. IT IS A SCIENTIFIC ADVANCE THAT WILL BE JUDGED A SUCCESS BASED NOT ON HOW MANY LIVES IT IS CAPABLE OF TAKING - WHICH IS NONE - BUT ON HOW MANY IT IS ABLE TO PROTECT. IT IS A MORAL AS WELL AS SCIENTIFIC ENDEAVOR WORTH EVERY MINUTE AND HOUR THAT YOU ARE DEDICATING TO IT. OUR GOAL IS TO STRENGTHEN DETERRENCE BY MOVING AS SOON AS WE ARE READY TO INCREASING RELIANCE ON DEFENSES TO KEEP THE PEACE ... YOU ARE NOT WORKING TO BUILD A BARGAINING CHIP. IT WILL NOT BE TRADED AWAY ...

THE SOVIET UNION, EVEN AS THEY CRITICIZE AND TRY TO CRIPPLE OUR SDI RESEARCH EFFORT, HAS BEEN AGGRESSIVELY MOVING AHEAD ON ITS OWN ANTI-BALLISTIC MISSILE DEFENSE. THEY HAVE SPENT ROUGHLY DOLLARS 200 BILLION IN THE LAST 10 YEARS - AND HAVE CONCENTRATED THE ENERGY AND TALENT OF THEIR BRIGHTEST SCIENTIFIC MINDS. MORE THAN 10,000 SKILLED SCIENTISTS AND ENGINEERS ARE WORKING ON MILITARY LASERS ALONE - WITH THOUSANDS MORE DEVELOPING HIGH-TECH WEAPONS THAT USE PARTICLE BEAMS AND KINETIC ENERGY. THE SOVIET GOVERNMENT WAGES ITS PROPAGANDA CAMPAIGN AGAINST OUR SDI RESEARCH, EVEN WHILE THEY WORK OVERTIME TO DEVELOP THEIR OWN SDI-LIKE SYSTEM. WELL, WE MUST NOT BE LULLED INTO REDUCING OUR COMMITMENT. THEIR MILITARY PROGRAM, WHICH INCLUDES EVERYTHING FROM KILLER-SATELLITES TO THE MODERNIZED ANTI-MISSILE SYSTEM THAT PROTECTS MOSCOW, DWARFS OUR SDI PROGRAM ALREADY. THOSE WHO WOULD CUT OR ELIMINATE FUNDS FOR OUR EFFORT WOULD GRANT A CLEAR MONOPOLY IN THIS VITAL AREA TO OUR ADVERSARY, WHICH WOULD

PAGE 1
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UNDERMINE THE PRESENT BASIS OF DETERRENCE. BECAUSE THE QUESTION IS NOT, WILL STRATEGIC DEFENSES BE DEVELOPED? THE QUESTION IS RATHER, WILL THE SOVIET UNION BE THE ONLY COUNTRY TO POSSESS THEM? THE CHOICE IS OURS...

SDI IS NOT A WEAPON OF WAR, BUT AN INSURER, A PROTECTOR, OF THE PEACE. IT IS TOTALLY WITHIN THE LIMITS OF THE ABM TREATY. AND LET ME ADD, THE UNITED STATES HAS OBSERVED THE ABM TREATY, BUT WITH THE CONTRUCTION OF THE HUGE PHASED-ARRAY RADAR AT KRASNOYARSK, THE SOVIETS HAVE VIOLATED ONE OF THE TREATY'S KEY PROVISIONS. THIS IS BUT ANOTHER EXAMPLE OF WHY IT'S IMPORTANT NOT TO RELY ON WORDS ALONE. THE STRATEGIC DEFENSE INITIATIVE, YOU SEE, UNDERWRITERS OUR EFFORTS TO ACHIEVE OFFENSIVE ARMS REDUCTION AGREEMENTS. WITH A DEFENSIVE SYSTEM IN PLACE, THE POSSIBILITY THAT ONE SIDE HAS CHEATED AND HAS A FEW MISSILES IN HIDING IS FAR LESS THREATENING. SDI, THEN, MAKES FURTHER REDUCTIONS MORE LIKELY. A SYSTEM THAT MAKES BALLISTIC MISSILES LESS EFFECTIVE, MAKES THOSE MISSILES MORE NEGOTIABLE...

MUCH PROGRESS HAS BEEN MADE TOWARD A START AGREEMENT, AS WE CALL IT, AND MORE IS POSSIBLE. BUT LET THERE BE NO DOUBT. GIVING UP THE STRATEGIC DEFENSE INITIATIVE AND THE PROTECTION IT WILL PROVIDE IS TOO HIGH A PRICE TO PAY FOR ANY AGREEMENT.

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10 DOWNING STREET

Prime Minister

Worth a glance,
if you have time.

CD?
18/xi



OFFICIAL TEXT

17 November, 1987

UNITED STATES INFORMATION SERVICE, U.S. EMBASSY, 55/56 UPPER BROOK STREET, LONDON W1A 2LH

REAGAN SAYS SDI "GOES HAND-IN-HAND WITH ARMS REDUCTIONS"

(Text: American Council of Life Insurance Remarks)

Washington -- President Reagan says the proposed Strategic Defense Initiative (SDI) is "not a bargaining chip" with the Soviet Union in nuclear arms talks but "goes hand-in-hand with arms reductions."

The president told the American Council of Life Insurance meeting in Washington November 16 that "if both sides have defenses, it can be a safer world. But if we leave the Soviets with a monopoly in this vital area, our security will be gravely jeopardized."

Reagan also made these points in his remarks:

-- Volatile exchange rates hurt all trading nations, and it is not U.S. policy to drive down the dollar. But lasting calmness on the currency markets must come from better coordination of economic policies among the major industrial countries.

-- The trade bills now being considered in Congress contain some of the most protectionist provisions seen in the United States since the Smoot-Hawley legislation of the 1930s. Instead of approving it, Congress should adopt the recently concluded U.S.-Canada free trade agreement as a model for trade policy with all nations.

Following is the text of Reagan's remarks:

I've come here today in what I'm sure we would all agree is a time of unusual worry -- and unusual promise. Today, we Americans have it within our power to lead the entire world into a new age of prosperity and peace -- or to return it to the stagnation, drift and uncertainties of the late '70s.

History records few moments when an entire people arrive at a place of turning -- and either choose the right or the wrong path. We Americans have come to such a place. But, as we've seen in the markets these last few weeks, many wonder if we'll take the right course. I believe we will, if we recognize our opportunities.

Now, I know you've heard a lot of whys and wherefores about the volatility in the market these last few weeks -- some of it not all that helpful. After four years of amnesia, our critics -- God bless them -- have all of a sudden remembered the word "Reaganomics." When I hear them talk about stock prices, I can't help thinking of the judge who was questioning a prospective juror. And the judge asked the juror if he had any opinion about the guilt or innocence of the defendant. And the juror said, "No, Your Honor." The Judge asked, "Do you have any reservations in your conscience about the death penalty?" The juror said, "No, sir, not in this case."

Well, trade is one area where we're in danger of doing the wrong thing. Forgive me for saying, but some in Congress have been playing with economic dynamite this year. More than 10 million American jobs are tied to imports, exports, or both. From the day George Washington took office to the present: when international trade has grown, the number of jobs has grown. When trade has dwindled, so have the number of jobs. Yet a bill with some of the most protectionist provisions we've seen since Smoot-Hawley is working its way through Congress. Now, that's just what we don't need right now -- to declare a trade war, to become a casualty ourselves.

I spoke at the beginning of places of turning, and here's one. Congress can either turn toward a protectionist trade bill, or it can enact responsible legislation and ratify the free trade agreement we recently concluded with Canada -- and make that agreement a model for our policy toward all nations. Under this agreement, trade barriers between the world's two largest trading partners will, for the most part, vanish by the year 2000.

In the last seven years, we have used our trade laws as never before to open world markets to American exports. For the first time, an administration has started unfair trade practice cases on its own -- not waiting for industry. Korea recently responded to one of these cases and agreed to end its ban against foreign firms underwriting insurance, including life insurance. This will guarantee American firms access to Korea's insurance market -- and that's good for everyone, Koreans and Americans.

Not long ago, I ran across a startling example of what ending trade restrictions can mean. In January, New York state put an end to a domestic trade barrier. They let in milk from New Jersey. You couldn't buy New Jersey milk in New York before that. The result -- the average price of a gallon of milk on the Lower East Side of New York City dropped by 40 cents. That was just one product traded, not between two nations, but between two states. Put that on a world scale and you see how much protectionism costs America's families. It's just this simple: America needs more trade, not less.

Last week, I emphasized that it was not our policy to drive down the dollar. Exchange rates that whip around with every shift in the wind make business reluctant to sail the seas of international commerce. That hurts all trading nations. But enduring calmness on the currency markets must come from better coordination of economic policies among the major industrial countries. And that's why I was pleased by the recent action taken by Germany and other countries to lower interest rates. Coordination of policies that produce growth, that's good for everyone and something the United States continues to support. Here in Washington, I am working with Congress to take another American step toward less deficit spending. But as in trade, there are right steps and wrong steps, and hiking tax rates is the wrong step. As a front-page story in the New York Times two weeks ago warned, higher tax rates could, as the article said, "chill the economy, reduce personal and business incomes, and thus, lower tax receipts."

Last year, we cut the deficit by 73,000 million dollars, nearly one-third of what it was in 1986. We are determined to achieve at least a 23,000 million dollar reduction this fiscal year and stay on the path to a balanced budget.

I am confident we will get there one way or another, but let me repeat something here I've been saying for some time now. Deficit spending is, in large part, an institutional problem and a comparatively recent one, to boot. In the mid-seventies, Congress, in effect, shoved the president to the side in the budget process. It legislated a major shift in the checks and balances of budget-making power, and the results came immediately. Before that, federal debt with inflation taken out had been steady or falling for a quarter of a century. Since then, it's been in a steep climb.

In my years in the White House, I have seen one member of Congress after another call for lower deficits and less spending, and then go out and vote for more spending. Some, of course, just want more spending, period, but many are sincere. They are prisoners of a dilemma. If nearby districts or states get so many federal dollars, they must bring at least as much home, or look bad.

So they swap increases for increases, and deficit spending goes up. A perfect example is the housing bill being considered in the Senate. Now is not the time to add to the deficit, and this bill could add as much as 7,000 million dollars more in spending than I requested for this year. What's more, it costs at least 3,000 million dollars more than they say it costs, because they mandate things they don't pay for. That's budget gimmickry, pure and simple. Federal housing programs should be designed to help those who cannot help themselves, but under this bill, even though it's a budget-buster, aid to poor and needy Americans could actually be cut. You see, the bill diverts enormous amounts of money to subsidies for those who don't need subsidies at all. That is morally wrong. If this bill arrives at my desk, I will veto it.

What we do need right now is an extension of FHA authorities. That issue has been hanging fire for too long. I call on Congress, by the end of the month, to provide a permanent extension of those authorities.

But not with so much else attached. We can't have it both ways. We can't make speeches calling for cuts in the budget deficit and then vote for bills like this that bust the budget. If Congress is serious about joining with me to cut the budget, they should show it by starting with this housing bill.

The sad fact is, there's only one way once and for all, to stop them before they spend again, to free these prisoners from their dilemma, and that's to restore the role in the budget process of the only elected official who speaks not for local interests but for the interest of the entire nation, the president.

And that's why I've said over and over that it's time for the president to have what 43 governors have, what I had as governor of California, a line-item veto. Saving Congress from itself, and America from Congress' compulsive spending, is also why I've said that we need for the United State something that 32 states have, a balanced budget amendment to the Constitution.

A favorite person of mine, Prime Minister Thatcher, recently said, "Early and decisive action" on cutting U.S. deficit spending is "the most important single thing of all" to restore the world financial markets. Nothing could be more decisive and convincing than these reforms.

Now, I've spoken to you today about our economic future -- and the world's. But that's not the only area in which America will soon make choices for the future. Next month, I will meet here in Washington with General Secretary Gorbachev of the Soviet Union. If all goes well, we'll sign an agreement that will, for the first time in history, eliminate an entire class of U.S. and Soviet nuclear missiles. It's a good bargain. For every nuclear warhead of our own that we remove, they will be giving up four.

Recently, all seven living former secretaries of defense were asked, if they were still in office, would they recommend this agreement to the president. All seven said, "Yes, it's a good agreement." Some details remain to be worked out. The most important is verification. I cherish no illusions about the Soviets. It's said, for them, past arms control treaties were like diets. The second day was always the best, because that's when they broke them.

Any treaty I agree to must provide for effective verification, including on-site inspection of facilities before and during reductions, and short-notice inspections afterwards. The verification regime that we've put forward in Geneva is the most stringent in the history of arms control negotiations. I will not settle for anything less. We are also pressing now for an agreement on reducing our two nations' strategic arsenals by one-half.

Our Geneva negotiators have made progress. The Soviets must, however, stop holding strategic offensive missile reductions hostage to measures that would cripple our investigation of a strategic defense against ballistic missiles, the SDI. From the Krasnoyarsk radar facility, whose very construction violated the 1972 ABM Treaty that the Soviets so vocally claim they want to preserve, to their modernized deployments around Moscow, the world's only ABM defenses, the Soviet Union's own SDI projects have become big news throughout the world in recent months. The Soviets have put billions into their program. They have more than ten thousand scientists working on military lasers alone. We know this, and they know that we know. And we know that they know we know. It's time for them to stop the charade and admit their own deep involvement in strategic defense work.

For us, SDI is a vital insurance policy, a necessary part of any national security strategy that includes deep reductions in strategic weapons. It will help protect our allies, too. In decades to come, it will underwrite all of us against Soviet cheating on both strategic and intermediate-range missile agreements. It goes hand-in-hand with arms reductions. We cannot, we will not, bargain it away to get strategic arms reductions. SDI will also protect us against accidental missile launches and ballistic missile threats, whether with nuclear, conventional or chemical warheads, from outlaw regimes.

In the decades ahead, missile technology will proliferate, just as nuclear weapons technology already has. We can't be sure just who will get it, how competent they will be, or how rational. We must have an insurance policy against that day, as well.

So, no, SDI is not a bargaining chip. It is a cornerstone of our security strategy for the 1990s and beyond. We will research it. We will develop it. And when it's ready, we will deploy it. Remember this: if both sides have defenses, it can be a safer world. But if we leave the Soviets with a monopoly in this vital area, our security will be gravely jeopardized. We must not let that happen.

My talks with General Secretary Gorbachev will cover the full range of U.S.-Soviet relations, including human rights, exchanges between our peoples and Soviet involvement in regional conflicts such as in Afghanistan, Angola, and Nicaragua. I believe that if America remains firm and strong; if we don't give up in squabbles among ourselves, things that should be the subject of negotiations with the Soviets, we can usher in a new age of peace and freedom.

Yes, we live in a time of promise, and a time of worry, of hazard. In the next few months, we can take steps that will lead America and the world toward a new age of prosperity and peace, or, if we take the wrong steps, in just the opposite direction. So I have a very simple appeal to you today. I need your help. I need your hand. Let's work together to make certain that the steps America does take are the right ones.

You know, I have developed a hobby recently, and I'm annoying audiences with it, I'm sure. I can't close without telling you what that hobby is. I have begun collecting jokes that I can prove are told by the Soviet citizens among themselves, which show their great sense of humor, but also a certain cynicism about their system. And I couldn't resist, in the last meeting with the General Secretary, to tell him one of those jokes.

It had to do with an American and a Russian arguing about their two countries. And the American in the story said, "I can walk into the Oval Office, I can pound the president's desk, and I can say, 'Mr. President, I don't like the way you're running our country.'" And the Soviet citizen said, "I can do that." The American said, "You can?" He says, "Yes. I can go into the Kremlin, to the General Secretary's office -- I can pound his desk and say, 'Mr. General Secretary, I don't like the way President Reagan is running his country.'"

Ouch!
As old
as the
hills.



Foreign and Commonwealth Office
London SW1A 2AH

9 October 1987

*ed
10/10*

Dear Charles,

A Proposal for UK Participation in SDI Research

The Foreign Secretary has noted the Defence Secretary's minute of 1 October explaining the case for UK participation in an SDI interception/discrimination experiment.

On the basis outlined in your letter of 5 October to John Howe, the Foreign Secretary agrees that we should proceed with exploratory talks with the US at official level. He believes it important, however, that officials establish a public line for use in the event of a leak.

I am copying this letter to John Howe (MOD) and Trevor Woolley (Cabinet Office).

Howe

L Parker

(L Parker)
Private Secretary

C D Powell Esq
10 Downing Street

2 *copy*

MINISTRY OF DEFENCE
 MAIN BUILDING WHITEHALL LONDON SW1

Telephone ~~01-929 7022~~ 01-218 2111/3

MO 30/1E

86 October 1987

See Charles,

Prime Minister
CDP 107X

A PROPOSAL FOR UK PARTICIPATION IN SDI RESEARCH

Thank you for your letter of ^{11/10} 5th October conveying the Prime Minister's agreement to initial discussions with the United States.

The position is precisely as you have summarised it in your final three points. For the record you might like to note that the penetration aids we intend to test are not ones which used to be employed by us, but are advanced experimental designs as described in your second point. The proposal would not take work as far as an actual full-scale development programme to counter future improvements in Soviet ABM defences: that would be a major undertaking, requiring separate decisions. But it would enable us to keep ahead with countermeasures techniques, and ensure that we are in a position to proceed on a sound footing with a penetration aid development programme for Trident, if one is found to be needed during the long life of the Trident system.

The Defence Secretary will now authorise his officials to enter into discussion with US officials, to start with at a meeting with General Abrahamson on 2nd November in Washington. A meeting had already been arranged for that date to review UK participation in SDI research and this item will now be added to the agenda.

I am copying this letter to the Private Secretaries to the Foreign and Commonwealth Secretary and to Sir Robert Armstrong.

Yours sincerely,
John Howe

(J F HOWE)
 Private Secretary

Charles Powell Esq
 No 10 Downing Street

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From the Private Secretary

5 October 1987

A PROPOSAL FOR UNITED KINGDOM PARTICIPATION IN SDI RESEARCH

The Prime Minister has considered the Defence Secretary's further minute of 1 October dealing with her comments on his proposal for extending United Kingdom participation in the United States' SDI programme. She finds the reasoning rather obscure in places, but deduces that the main points are:

- the penetration system we would offer to the United States for use in tests under the SDI programme is one which is no longer used by us;
- we do not yet have a functioning new system of penetration aids, only a theoretical or a drawing-board version, which would need to be tested in flight;
- it is vital that we keep ahead with penetration techniques, and in particular develop a penetration system for Trident;
- the only way in which we can do this is by gaining access to new information and technology from the United States. Participation in the proposed tests as part of the SDI research programme would offer this.

In the Prime Minister's view, the most crucial consideration is our own need to develop penetration aids for Trident. If the choice is as I have summarised it, then the Prime Minister would be willing to see us go ahead.

I am copying this letter to the Private Secretary to the Foreign and Commonwealth Secretary and to Sir Robert Armstrong.

(C. D. POWELL)

John Howe, Esq.,
Ministry of Defence.

SECRET UK EYES A

CCPC



MINISTRY OF DEFENCE
 MAIN BUILDING WHITEHALL LONDON SW1
 Telephone 01-~~830 7000~~ 218 2111/3

MO 30/1V

2nd October 1987

CDP
of K.

Dear Charles,

SDI PARTICIPATION

The Prime Minister may wish to be aware that MOD and FCO Ministers have given their approval to a proposal, emanating from the US, that joint US/UK sensor trials should be carried out in mid-November during the annual practice firings of UK-owned Lance missiles on the Hebrides range at Benbecula. I attach a copy of the short, self-explanatory internal submission on this matter.

I should emphasise that there is no connection between Project GOLLUM and another proposal for UK participation in SDI research on which Mr Younger minuted further yesterday.

The Prime Minister may also wish to note that a further submission will be made to Ministers if a second round of Project GOLLUM trials involving an interception of Lance from RN ship is proposed (para 6 of the attached note).

It is not planned that any publicity should be given to this year's trials.

I am copying this minute to Tony Galsworthy in the Foreign and Commonwealth Office and to Trevor Woolley in the Cabinet Office.

Yours sincerely,
 John Howe

(J F HOWE)
 Private Secretary

C D Powell Esq
 10 Downing Street

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LOOSE MINUTE

DG/SDIPO/3/3 ; 8/22/1

4 Aug 87

PS/USofS(DP)

Copy to:

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DOR(Sea)
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DDEC
FCO(ACDD)

SDI PARTICIPATION: PROPOSAL FOR A JOINT US/UK SENSOR EXPERIMENT

Summary

1. This submission seeks USofS(DP)'s endorsement of a proposal to mount a trial, jointly with the US SDIO, of airborne sensors on the Hebrides range at Benbecula during the test firings of UK-owned Lance missiles in November this year.

Background

2. The SDI mission is heavily reliant on the ability of various sensor systems to track and discriminate targets against different backgrounds, including those found in NW Europe. The SDI research programme includes trials and experiments with the purpose of collecting a wide variety of target signatures under a range of different conditions.

3. Earlier this year, the SDIPO was approached by the US SDIO for help in identifying targets of opportunity which might have been launched from the UK and observed from space by sensors which would be put into orbit for the next SDI Significant Technical Milestones experiment, Delta 181, planned at the time for November 1987. Routine test firings of the UK-owned Lance missile will be taking place then on the Hebrides range.

4. The Delta 181 launch has slipped to January 1988. Attention has therefore been focussed on the alternative to viewing from space of using an airborne platform to view the Lance firings, using a variety of advanced sensors. The aircraft would be provided by the US, as would many of the sensors. UK sensors, under development at RSRE, Malvern would also be used from the airborne platform. US offi-

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cials have made it clear that the UK would be welcome both to participate in and have oversight of the subsequent data processing and analysis.

5. The advantages of agreeing to cooperate with the US in the trials described above may be summarised as follows:

a. Data collected by the very sophisticated instruments carried on the airborne platform would have immediate application in the area of real time battlefield surveillance;

b. Data would be provided on the in-flight reliability and functioning of the Lance missile;

c. The data could be used for future battlefield counter-measures in the area of launch detection and location.

6. Consideration has also been given to the possibility of broadening the trial to include an interception of Lance from a RN ship, using the Sea Wolf or the Sea Dart missile. It has turned out that this will not be possible during this year's Lance firings, for reasons of ship availability; and there are some quite awkward range safety criteria to be satisfied. But there would be strong attractions in mounting a demonstration of this sort during subsequent Lance test firings, if possible, and work to that end will be continued. A separate submission will be made to Ministers at the appropriate time.

Policy Factors

7. Lance is a short range battlefield nuclear missile system which can also be armed with a conventional warhead (although none of the UK-owned Lance missiles carries a conventional warhead). The proposed trial will contribute to any future programme of theatre missile defences, whether against nuclear or conventionally armed missiles. This being so, it is necessary to maintain a distinction in our minds between technical work of the kind proposed (or still under consideration, as para 6 above) with relevance both to SDI research and to any future ATBM programme, and the SDI deployment and ATBM issues themselves. There is a spectrum of opinion within NATO as to the connection between these two, with the US (notably the Congress) treating them as essentially inseparable, and the FRG and UK seeking to keep SDI in the European theatre and ATBMs apart in a policy sense. These matters were addressed quite extensively when officials gave evidence to the HCDC earlier this year (Second Report, Minutes of Evidence pp 51/2 and pp 54-65), and in the Committee's Report itself (pp xviii-xxvi). The point here is that, if it were to be agreed in the light of current NATO studies that measures should be taken to put in place defences against TBMs in the European theatre, these should not be inhibited by any association with SDI, a much more problematic prospect in defence policy terms. Officials are agreed that the present proposal does not involve difficulties of this kind.

8. No ABM Treaty compliance issues arise from the proposed joint trial.

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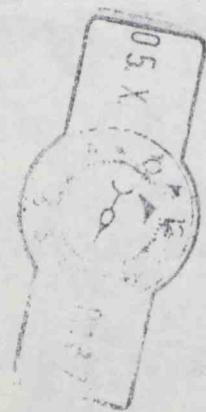
9. Turning now to the funding aspects of the proposal, the intention is that the US and UK should each meet their own costs. In our case, since the missile firings will take place anyway and the UK sensor is funded under existing programmes, the identifiable extra costs to the Defence Budget will be negligible. In these circumstances, and given the value of the trial to background research supporting the UK defence programme, no departure is involved from existing policy that the UK Government is not making a financial contribution to the US SDI research programme. Nevertheless, at least at the stage when there was a prospect of including an interception in the trial, US officials proposed that the US and UK should identify the full value of the resources which we each deployed, with a view to making the information public. The DPG(SDI), under DUS(P)'s chairmanship, concluded on 6 July that this was neither necessary nor desirable: the benefits from the trials do not need to be publicised, and the US motive in seeking publicity can only be to associate the UK Government, incorrectly or at least prematurely, with policies favouring the deployment of defences against ballistic missiles in the European theatre. Although the trial as now proposed is of a much less newsworthy kind, it is proposed that any renewal of US overtures about publicity should be resisted until, if this seems necessary, a further report has been submitted to Ministers.

Conclusion

10. USofS(DP) is invited to agree that the proposed joint US/UK trial should go ahead.

Sturby Ann.

DR S ORMAN
DG SDIPO



PART 5 ends:-

CDP to PM 2-10-87

PART 5 begins:-

MOD to CDP 2-10-87



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