Assessing the president's vision: The Fletcher, Miller, and Hoffman panels

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Published in *Daedalus*, vol. 114, no. 2, pp. 91-107, spring 1985

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IT WAS A VERY APPEALING VISION that President Reagan invited the public to share in his March 23 speech—"a vision of the future which offers hope," a world free of nuclear dread, where nuclear weapons will be rendered "impotent and obsolete."

The president chose a surprising way to present his vision. In the closing moments of a televised speech arguing for a larger military budget, Reagan abruptly changed topics and announced what was no less than a revolution in American strategic doctrine. At the heart of his vision was a repudiation of deterrence—the bedrock of American strategic nuclear policy for three decades. "I've become more and more deeply convinced," the president remarked,

> that the human spirit must be capable of rising above dealing with other nations and human beings by threatening their existence. . . . If the Soviet Union will join with us in our effort to achieve major arms reductions, we will have succeeded in stabilizing the nuclear balance. Nevertheless, it will still be necessary to rely on the spector of retaliation, on mutual threat. And that's a sad commentary on the human condition. Wouldn't it be better to save lives than to avenge them?

This was not just presidential whimsy. Three years before, when Reagan was stumping in the presidential primaries, he had spoken with the same profound concern and disappointment that our security rested on mutual threats, and with the same diffuse confidence that American technological strength offered an escape.[1] Nor did it seem to be just political posturing, for domestic or foreign

consumption. Reagan has shown rare animation and commitment whenever he discusses his proposal—the marks of a true believer.

It was perhaps this enthusiasm that prompted the president to rush ahead and present his vision to the nation before its implications had been fully considered. He had drafted the closing paragraphs of the speech himself, only five days before it was televised, and they were seen by only a handful of advisers.[2] It was not until ten weeks after the speech that he appointed three panels of experts to assess the feasibility of achieving the goal he had already set out. By October, the three panels had submitted their reports. By January 1984, the administration was fashioning a concrete defense program. In March, Secretary of Defense Weinberger released declassified summaries of two of these panel studies, along with his own overall report. He concluded that "a robust BMD system can be made to work eventually," and sketched out a five-year research program dubbed the Strategic Defense Initiative (SDI).[3]

None of these reports is the stuff of popular reading. The prose is strictly utilitarian, the jargon impenetrable; the general reader would need a glossary to make sense of the glossary. Even a casual reader would notice right away, however, that much of the prose in Weinberger's report was copied directly from the panel summaries, fostering an impression of broad agreement between the president's vision, the advisers' evaluations, and the Defense Department's SDI program.

That impression would be wrong, for Reagan's advisory panels in fact offered contradictory advice. The points of contradiction are vital, for they go to two assumptions at the heart of the president's vision: that an escape from deterrence through retaliation is possible; and that the path of escape is technological, not political. In fundamental ways, the panels' reports are less an endorsement of President Reagan's vision than a reflection of a basic skepticism about its core assumptions.

THE FLETCHER REPORT

Devising a strategic defense so nearly leakproof that it makes *all* nuclear weapons "impotent and obsolete" means confronting not one challenge, but several—specifically, land- and submarine-launched ballistic missiles, bombers, and cruise missiles. And if parts

of our defenses are based in outer space, defending them against anti-satellite (ASAT) weapons poses an additional challenge.

President Reagan did not address all these challenges in his March 23 speech. The only weapons he mentioned specifically were strategic ballistic missiles; the only program he proposed was research and development on ballistic missile defenses (BMD). Days later, Secretary of Defense Weinberger asserted that the president's vision encompassed all nuclear weapons. Yet in June 1983, when the three study teams were appointed to assess the technological prospects and security implications of strategic defenses, their mandate focused only on ballistic missile defenses. When the SDI was announced in March 1984, it too addressed only ballistic missile defenses.[4]

Even working within this narrowed focus, the advisory panels came back with strikingly different evaluations of the path that ought to be followed. The Defensive Technologies Study Team (DTST; known as the Fletcher panel, after its chairman, James C. Fletcher) opened the body of its summary report with a rhetorical question: "What has happened to justify another evaluation of ballistic missile defense as a basis for a major change in strategy?" Perhaps the bluntest answer would have been that the president had already announced his commitment to comprehensive defense, and the panel had been told that, whatever its findings, it was not to embarrass the president. The answer provided in the panel report instead said that new technologies now offer the prospect of reaching out and intercepting ballistic missiles almost from the moment they are launched. To give at least some shape to the president's general goal of comprehensive missile defense as a focus for research, the Fletcher panel sketched out a hypothetical, multi-tiered defense system based on these prospective technologies, with each tier engaging missile warheads at a different phase of flight.

What security burden could such a system bear? Could it really liberate us from deterrence, as President Reagan hopes? On this, the report was politely evasive. "Meaningful levels of defense" might be feasible in the 1990s, it said, if we deployed terminal and mid-course layers of defense. Constructing an "effective defense," however, would be "strongly dependent" upon engaging thousands of Soviet missiles during their boost phase, before they could release thousands of warheads and perhaps hundreds of thousands of decoys. Boost-phase intercept requires stationing part of all of our missile defenses

in outer space, where they can get a clear shot at Soviet missiles in the first minutes of flight. For this task to be within reach, the panel report continued, a list of "critical technologies" would have to be tackled, "technologies whose feasibility would determine whether an effective defense is indeed possible."

Three things are notable about this list. One is that deficiencies are to be found in every defensive tier. Even in mid-course and terminal BMD technologies, on which the United States has already lavished decades of effort and billions of dollars, current performance was judged by the panel as inadequate for a comprehensive missile defense. A second notable point is the panel's estimate that R&D programs lasting ten to twenty years might be necessary before we are able to solve critical technological problems and begin deployments. Such time scales are very different from our past experience. In 1941, two years after crucial scientific work by Szilard and Fermi suggested an atomic bomb might be feasible, the Manhattan Project began its task with promise from the project advocates that a workable nuclear weapon could be ready within two years. It took four. In May 1961, President Kennedy committed the United States to landing men on the moon within nine years. It took eight. Ten-year system acquisition cycles for advanced weapons are not uncommon now, and the Defense Department has experience with them. A ten- to twenty-year development cycle for exotic SDI technologies, however, would be quite a novel case, and the Fletcher panel openly acknowledged the great uncertainties involved.[5]

Most notable was the panel's silence on how effective it expected this "effective defense" to be. In touting the virtues of a multi-tiered defense, the report noted that if each layer in a three-tiered system allowed even 10 percent of its targets to leak through, the overall leakage rate for the whole defense system would be only 0.1 percent. But read carefully in context, this 99.9 percent effectiveness figure proves to be only an illustration, not a prediction. It has been reported that the panel's classified report rejects its own illustration, and asserts instead that "it is not technically credible to provide a ballistic missile defense that is 99.9 percent leakproof."[6] In practice, whether each layer could handle the leakage from the previous tier would depend very much on the devices deployed and on how self-sufficient the layers were. If several layers relied on common components (for instance, common sensor satellites, a central com-

puter, or identical software programs), then they would not be genuinely independent tiers. A catastrophic failure of one tier or component might so overwhelm the next tiers that they too would fail just as catastrophically. The extent to which multiple tiers could raise the nation's confidence in defense performance, then, would depend upon technology and design choices that the Fletcher panel said could not be made for years or even decades.

While the Fletcher panel's summary report does not dwell on such problems, neither does it ignore or deny them. In its own muted fashion, the report is a rather candid document from experts who made every effort not to embarrass the president, and yet who knew from their own technical experience that they could not promise that his ultimate goal was within reach. The summary report hints of the conflicting pressures that existed on and within the panel. On the one hand, the tone of the closing paragraphs in the declassified version is upbeat, reportedly more upbeat than the panel's twelve supporting volumes of classified technical studies might warrant: "The members of the Defensive Technologies Study Team finished their work with a sense of optimism. The technological challenges of a strategic defense initiative are great but not insurmountable." On the other hand, when he presented the report to the Senate, panel chairman James Fletcher stated not that the panel *reached* an optimistic conclusion, but rather that "by *taking* an optimistic view . . . we concluded that a robust BMD system can be made to work eventually"[7] (emphasis added). Moreover, the report speaks with cold candor of technological challenges that would give any reader pause. For instance:

> Developing [computer] hardware will not be as difficult as developing appropriate software. Very large (order of 10 million lines of code) software that operates reliably, safely, and predictably will have to be deployed. *It must be maintenance-free for 10 years* . . . .[8] (emphasis added)

Even some of the panel's optimism is startling:

> Analyses . . . suggest that a properly constructed shield [to protect space-based components] could provide effective armor against small kinetic energy weapons and most directed-energy threats. . . . Such a shield could reach 100 or more metric tons . . . For the quantities of material required, two other sources are feasible. Material from the lunar surface or from nearby asteroids can be brought to the vicinity of the Earth . . . .[9]

Throughout, the report reiterates in a soft but firm voice that the technical feasibility of even one aspect of the president's vision—defense against ballistic missiles—is far from certain.

THE MILLER REPORT

The Fletcher panel was only one of three groups advising the president. The other two panels examined the policy import of new defense technologies for U.S. strategic objectives, and the effect this defense might have on our relationships with allies and the Soviets. Unfortunately, the report of one of these policy groups, an interagency group known as the Miller panel (after its chairman, Franklin C. Miller, director of Strategic Forces Policy in the Pentagon), has not been publicly released. Potentially, it could tell us the most about the future of the SDI, for even when done after a policy is announced, more as an analytic prop than a foundation for the policy, such interagency studies are revealing in the way they crystalize the distribution of opinion and influence within the bureaucracy. They have a subtle influence on public policy by indicating to all agencies where the meridian of opinion lies and by establishing a vocabulary of discourse. Time and again, as decisions must be made, the bureaucracy uses such studies as its compass and plagiarizes their phrases. The Fletcher and Hoffman panels, after all, were disbanded at the end of the summer, 1983; the members of the Miller panel returned to their desks within the bureaucracy, to begin implementing the president's strategic defense program.

THE HOFFMAN REPORT

The other policy group, the Future Security Strategy Study team (known as the Hoffman panel, after its chairman, Fred S. Hoffman), did issue a declassified summary of its study.

There are striking contrasts between the Hoffman and Fletcher reports. The first is simply the discrepancy in length. The Hoffman panel's unclassified summary is barely twelve pages long, almost identical, we are told, to the full classified version. If this indeed represents all that the panel felt need be said about the policy impact of President Reagan's proposal, it is a remarkably terse statement.

What is more striking about the Hoffman panel report is that after an exceedingly brief, even perfunctory, endorsement of Reagan's long-term goal of a nearly perfect defense, the report turns to quite a different concern: buttressing retaliatory deterrence by deploying "partial [missile defense] systems, or systems with more modest technical goals" as soon as this is feasible. Such an approach, the panel members argued, would offer "a hedge against the possibility that nearly leakproof defenses may take a very long time, or may prove to be unattainable in a practical sense against a Soviet effort to counter the defense."[10]

What the Hoffman panel proposed were progressive stages of defense deployments, starting most immediately with anti-tactical ballistic missile (ATBM) defenses for Europe, based upon available technologies for terminal defense. The next stage of defense buildup would come as soon as more advanced terminal and mid-course technologies were available; these defenses could be deployed to protect critical military targets in the United States. The third stage would be reached with the availability of exotic boost-phase defenses; these would be deployed to exert "leverage" on the Soviets, "even if they prove unable to meet fully sophisticated Soviet responses," that is, even if they fell short of the president's goal.

It is difficult to interpret the Hoffman report as anything but a skeptical dismissal of President Reagan's proposed comprehensive defense for the American people. The panel had little or nothing to say about what strategy and security might look like in a world of nearly perfect defenses. Their silence on this point was perhaps unavoidable, given their views of the Soviet Union's strategic goals and tactics. They described the Soviets' primary strategic objective as "domination of the Eurasian periphery"; the "preferred mode in exploiting their military power is to apply it to deter, influence, coerce—in short, to control—other states." Following this view to its logical extension, the panel concluded that the Soviets would make vigorous efforts to defeat any U.S. defenses.

But what of the new BMD technologies touted by the Fletcher study? The Hoffman panel could envision a high level of *technical* performance for a multi-tiered defense. After all, it noted, even if each layer intercepted no more than half its targets, a four-tiered defense could still be 94 percent effective overall. The problem was, "such a leakage rate is ... sufficient to create catastrophic damage in an

attack of, say, 5000 reentry vehicles (RVs) aimed at cities. It would mean 300 RVs arriving at targets—sufficient to destroy a very large part of our urban structure and population." (The Fletcher panel, of course, had assumed the future Soviet threat might reach 30,000 warheads, which could mean 300 RVs arriving at targets even with 99 percent defense effectiveness.) Clearly, one could be optimistic about exotic BMD technologies, yet pessimistic about a strategic revolution. As if anticipating that the United States would therefore never reach the ultimate goal of nearly perfect defense, the Hoffman panel's report confined itself to being principally a brief for stabilizing retaliatory deterrence—rather different in scope from the president's call for a security posture that "did not rest upon the threat of instant U.S. retaliation."

The Hoffman panel's proposals for partial defenses, deployed sooner rather than later, are considerably less ambitious than those of the Fletcher group, still less ambitious than the SDI. And yet at the same time, the panel served to broaden the rationale for the SDI by widening the issues beyond simply "Star Wars" technologies, beyond simply "nearly perfect" defenses. Many of the defense tasks proposed in its report do not depend on exotic space weapons, and its arguments for partial defenses are familiar from the ABM debates of the 1960s and 1970s. The debate has been resurrected, however, in a rather different context. Voices of alarm over the future stability of nuclear deterrence have been heard in the United States for more than a decade now, from both the Right and Left; the possibilities of exotic space-based technologies for defense have sparked public imagination; and President Reagan has recast public expectations with his own ambitious vision. In this current context, partial defenses of the sort proposed by the Hoffman panel may well find new life as an achievable compromise, technically and politically, between deploying no defenses and embracing fully Reagan's ambitious and uncertain vision.

DETERRENCE AND THE PRESIDENT'S VISION

Defenses designed to buttress deterrence by protecting military command posts and retaliatory forces certainly sounds like a retreat from the president's goal of living "secure in the knowledge that . . . security did not rest upon the threat of instant U.S. retaliation to deter

a Soviet attack." But are they? The question really cannot be answered without a careful review of what security and strategy would look like in a world of perfect defenses—a review the Hoffman panel was supposed to present but did not.

In principle, deterrence and defense are opposite. Deterrence works to dissuade the Soviets from attacking us or our allies by threatening punishment in retaliation; it works on the Soviets' intention and will. Defense, on the other hand, works by thwarting a Soviet attack when it occurs; it focuses on the Soviets' ability to do us harm, rather than on their intentions.

If either deterrence or defense worked perfectly, would we need the other? A perfect defense would seem to make deterrence irrelevant, make us indifferent to the plans and actions of the Soviets; it would simply shield us from attack. Of course, if the Soviets were convinced they could not penetrate our defenses, they would presumably change their minds and not bother to attack. In this sense, a perfect defense would also "deter." Nonetheless, perfect defense is *not* just another variety of deterrence. President Reagan formulated it correctly: defense saves by protecting, deterrence saves by threatening vengeance. In a world of perfect defenses, then, the United States would be liberating itself, as the president said, from the specter of retaliation, from mutual threat.

Or would it?

Even if a defense worked perfectly and stopped all incoming warheads, invoking the defense against an attack would use up valuable equipment and would leave us vulnerable to other attackers until our defenses were replenished. So we would still have an interest in dissuading others—by threat of retaliation—from taking "free shots" at us or from coercing us while our defenses were being restored. In addition, there might be occasions when we would wish to project force, rather than simply to defend ourselves. Offensive nuclear weapons are rather blunt instruments for diplomacy or military action, but they might prove necessary in protecting an ally from nuclear coercion in a distant place to which our own defenses did not extend perfectly.

Even in a world of perfect defenses, it appears, we could not give up offensive nuclear forces or retaliatory deterrence. And the further our defenses fell from perfection, the more our security would depend

on offensive forces, either for deterrence or for damage limitation through a preemptive attack on Soviet forces.

Yet another reason to keep offensive forces stems from the crucial role of boost-phase interception in any comprehensive defense system. Boost-phase intercept systems can work only if the defense weapons and their sensors are based in space or popped up into space at the moment of attack. Any space-based missile defense technology, however, will be very capable of destroying other objects in space—including other space-based defenses—long before it is ready for use as an effective BMD system. The side willing to shoot first with its BMD-turned-ASAT, and to follow up with an offensive strike, would have a great advantage—unless the other side maintained formidable retaliatory forces.

One way the United States could try to liberate itself from dependence on offensive nuclear forces would be to maintain a constant technological lead over the Soviet Union in offensive missile and BMD-turned-ASAT technologies. A diffuse confidence in the perpetual superiority of American technology is an important part of President Reagan's defense vision. Yet from a practical point of view, nothing so complex as a multi-tiered BMD network could be continually modernized. The initial investment in equipment would be too high to be scrapped wholesale with each real or feared breakthrough in Soviet technology. Modernization would have to proceed in cycles: the latest U.S. defense technology would be deployed; as it aged and Soviet technology advanced, incremental modifications would be made in our defenses to sustain a desired effectiveness level; when modifications could no longer keep pace, a major new U.S. system would have to be deployed. During these modernization cycles, the technological advantage would seesaw back and forth between the United States and the Soviet Union. The United States would have to fall back on threats of retaliation during those periods when confidence in our defenses was undercut.

In short, deterrence based on retaliatory weapons is a difficult condition to escape in a nuclear world. Even if the United States and the Soviet Union had comparable and near-perfect defenses and no other security interests beyond protecting themselves from each other, they would still have an incentive to keep offensive nuclear forces. If our defenses were less-than-perfect, giving up retaliatory forces would be foolhardy.[11]

ARMS CONTROL AND THE SDI

What remains, then, of the president's vision?

A world in which deterrence still mattered might nevertheless become "defense-dominant," that is, a world in which (within limits) it was easier to be a defender than an attacker. We might arrive at this point by two paths. One would be through technological innovations that would make defenses cheaper than *both* offensive forces arrayed against them *and* weapons designed to attack the defense directly. Making comprehensive defenses cheaper than anti-defense weapons will be difficult, however, because of the paradox noted above: every development in boost-phase defense technology can be used by the opponent as an excellent *anti*-defense weapon.

The other path would be through arms control—mutual formal or informal agreement between the superpowers to limit offensive forces and anti-defense weapons, but not defenses. This brings us back to the Fletcher and Hoffman reports. Following its instructions, the Fletcher panel narrowed its focus to technical issues and returned with a vision of technological innovations that might give the defense significant leverage over the offense, "leading to the final, low-leakage system." And yet, recognizing that what our own technology gives us, Soviet technology can take away, the panel concluded that maintaining the defense's dominance over the offense could not be accomplished by technology alone. It would require arms control.

> The ultimate effectiveness, complexity, and degree of technical risk in this system will depend not only on the technology itself, but also on the extent to which the Soviet Union either agrees to mutual defense arrangements and offensive limitations, or embarks on new strategic directions in response to our initiative.[12]

Advice like this had been heard before. One month after the first atomic bomb test in 1945, scientists with the Manhattan Project (Oppenheimer, Fermi, Compton, and Lawrence) offered a similar bit of counsel to Secretary of War Henry Stimson:

> We believe that the safety of this nation—as opposed to its ability to inflict damage on an enemy power—cannot lie wholly or even primarily in its scientific and technical prowess. It can be based only on making future wars impossible. It is our unanimous . . . recommendation to you that . . . all steps be taken, all necessary international arrangements be made, to this one end.

The Fletcher panel did not probe Soviet motives, and so did not explain why the Soviets might be willing to resurrect arms control years after limits defined in the ABM treaty had been abolished to make way for missile defenses.

The Hoffman panel, on the other hand, squarely addressed Soviet motives but came away with little optimism for arms control, unless a wholesale transformation of Soviet character occurred:

> Current Soviet policy on arms agreements is dominated by the Soviet Union's attempt to derive unilateral advantage from arms negotiations and agreements. . . . There is no evidence that Soviet emphasis on competitive advantage over mutual benefit will change in the near future, unless a fundamental change occurs in the Soviet Union's underlying foreign policy objectives.
>
> If the new defense technologies offer sufficient leverage against the offense . . . the Soviets may accept a reduction in their long-range offensive threat against the West, which might be reflected in arms agreements. . . . Their current program emphases suggest that they would be more likely to respond with a continuing buildup in their long-range offensive forces.

In this panel's view, if anything could induce the Soviets to negotiate seriously (presumably, even after the demise of the ABM treaty), it would be a combination of Western toughness and technological dominance that threatened to thwart Soviet objectives. "In that event, it might also be possible to reach agreements restricting offensive forces so as to permit defensive systems to diminish the nuclear threat."

Where does this leave us? Members of the Fletcher panel argued that the United States could not assert and preserve defense dominance without arms control. The Hoffman panel doubted Soviet openness to arms control, unless the U.S. could assert technological dominance. Yet the defense secretary's report, released at the same time and ostensibly summarizing the advisers' findings, asserted that "defense against ballistic missiles offers . . . new opportunities and scope for arms control." This, of course, turned the Fletcher panel's conclusion on its head and transformed the Hoffman panel's pessimism into optimism, without providing any rebuttal of the panels' judgments.

The discrepancy in opinions between the Fletcher and Hoffman panels regarding arms control is not surprising, since members of the

Defense Department supervising the panels were reluctant to have them come in contact or coordinate their findings. Having two panels work separately on the same problem is an excellent way to get independent assessments. But here the panels were being asked to work in isolation on parts of a puzzle that were supposed to fit together. Precisely how the "policy" panels were to assess the political implications of strategic defenses, ignorant of the technologies and performance levels being recommended by the Fletcher panel—or how the DTST was to sketch out technology paths and requirements, ignorant of "policy" constraints—is not clear. In the end, staff members in Under Secretary of Defense Fred Ikle's office (which supervised the Hoffman panel and, through Franklin Miller, the Miller panel) objected to the Fletcher panel's remarks on arms control, on the grounds that this was a "policy" matter and not a technology issue. The deadline for submitting the reports arrived before the disagreement between the staffs of Ikle and DeLauer, and the discrepancy between the reports, were resolved.

CONCLUSION

The conflicting advice of the Hoffman and Fletcher panels, and their scaled-back visions of what the Strategic Defense Initiative might achieve, cut to the very heart of President Reagan's vision. "Diminishing the nuclear threat"—in the Hoffman panel's words—is a rather different vision from rendering nuclear weapons "impotent and obsolete." Even granting that the very purpose of the SDI is to narrow the technical uncertainties about what can and cannot be achieved, there seems little doubt that both the SDI and the public debate over strategic defenses would have greater clarity if the fundamental issues raised by the Fletcher and Hoffman reports had been confronted, debated, and then integrated into our strategic defense policy. Surely, it matters to the public whether the risks and sacrifices entailed in pursuit of the president's vision are likely to yield less-than-perfect rather than nearly perfect defenses, defenses of retaliatory forces rather than cities, a world free of mutual nuclear threats rather than one of buttressed deterrence. Yet long after the panels finished their work, these issues were still not placed in sharp focus. For instance, a White House pamphlet issued under President Reagan's signature in January 1985 seemed to speak squarely on the

matter of whether we are pursuing a true defense—living "free in the knowledge that . . . security did not rest upon the threat of instant U.S. retaliation"—or merely buttressed deterrence:

> U.S. policy has always been one of deterring aggression and will remain so even if a decision is made in the future to deploy defensive systems. The purpose of the SDI is to strengthen deterrence.

But the pamphlet also reiterated the president's own phrase, "What if a free people could live secure in the knowledge . . ." as a banner across page one, and promptly blurred the meaning of "deter" on the same page by asserting "a very real possibility that future Presidents will be able to deter war by means other than threatening devastation to any aggressor—and by a means which threatens no one."[13]

In a sense, the failure of the panels to bring sharper focus to the debate rests with the nature of the panels themselves. From the beginning, they were contending with a president who had already committed himself publicly to a goal of nearly perfect defenses. Although members of the panels clearly believed that more modest expectations were warranted, they had no reason on that point alone to confront Reagan and force him from his commitment. The panel members were in fact quite content with more modest goals than "perfect defense," and thought that even modest goals justified a vigorous BMD research program. Moreover, either by design or good fortune, the defense system and research program sketched out by the Fletcher panel also seemed to discourage debate and hard decisions rather than to provoke them. Almost everyone's favorite BMD technology or strategic purpose could find a place within the multi-tiered defense system.

If any of the panels were to provoke debate or dissuade the president from his commitment, logically it would be the Hoffman panel that would do it. Certainly the Hoffman group had a more coherent argument for its less-ambitious recommendations than did the Fletcher panel. But an argument is not an inducement, and in the way of inducements to confront choices or to change policies the Hoffman panel offered Reagan little or nothing. The Hoffman panel's strident image of unrelenting Soviet competition was not necessary for a president already persuaded that the Soviets should be dealt with firmly; neither was it welcome to one also in a mood to offer Americans hope of a brighter future. And telling the president the

journey to a brighter future should begin with a request to the Europeans that they accept American ATBM missiles, was certainly no inducement.

From the president's standpoint, the hardest choice the Hoffman panel posed to him was whether to set aside the exotic technologies and his long-term vision of population defense—since escaping deterrence was doubtful—in favor of more prosaic technologies and near-term defense of retaliatory forces. But President Reagan was not about to make such a choice. The prevailing view in the White House was that the United States had been down that path already in the 1960s, and had stumbled on two problems: inadequate BMD technology, and domestic opposition to having BMD sites in the nation's neighborhoods. While new technologies might perhaps overcome previous deficiencies, the recent political obstacles encountered in finding a home for the MX missile showed that siting problems were, if anything, greater in the 1980s than in the 1960s. Moreover, since the U.S. could defend the bulk of its retaliatory forces only by scrapping or renegotiating current ABM treaty limits, and thus liberating the Soviets as well from ABM restraints, this made little sense if the only defenses at hand were prosaic, ground-based technologies that the Soviets, unfettered by domestic opposition, might exploit more readily than the United States. Space-based defenses could circumvent such problems, play to the American strong suit in exotic technology, and avert unpalatable choices between defense of retaliatory forces and defense of population. So long as the Hoffman panel was willing to say polite things on behalf of space-based technologies and the president's long-term vision, Reagan was under no compulsion to make hard choices. His vision could remain intact.

ENDNOTES

[1]In interviews with a *Los Angeles Times* reporter in the spring of 1980, candidate Reagan remarked: "I think the thing that struck me here was the irony that here, with this great technology of ours, we can do all of this yet we cannot stop any of the weapons that are coming at us. I don't think there has been a time in history when there wasn't a defense against some kind of thrust, even back in the old-fashioned days when we had coast artillery that would stop invading ships if they came. . . . I do think that it is time to turn the expertise that we have in that field—I'm not one—but to turn it loose on what do we need in the line of defense

against their weaponry and defend our population, because we can't be sitting here." Quoted in Robert Scheer, *With Enough Shovels* (New York: Vintage Books, 1983), pp. 233–234.

[2]Robert Scheer, "Teller's Obsession Became Reality in 'Star Wars' Plan," *The Los Angeles Times,* July 10, 1983, section VI, pp. 6–9.

[3]Texts of the unclassified summary reports from the Defensive Technologies and Future Security Strategy study teams and from Secretary Weinberger can be found in "Strategic Defense and Anti-Satellite Weapons," U.S. Senate Hearings before the Committee on Foreign Relations, 98th Cong., 2nd sess., April 25, 1984, pp. 94–175. Page references to the reports below are to the publicly released versions, with corresponding page numbers in the Senate Hearings noted in brackets [ ].

The Defensive Technologies panel had some sixty members. Formally, it reported to Richard DeLauer, under secretary of defense for research and engineering; informally, the panel chairman, James Fletcher, discussed the group's progress directly with Secretary of Defense Weinberger. The Future Security panel had twelve members, plus a senior policy review group of an additional nine members, and it submitted its findings to Franklin C. Miller, director of strategic forces policy in the office of Fred Ikle, under secretary of defense for policy. Both panels were drawn from the national weapons-research laboratories, defense-related private industries and research firms, universities, and the military services. The panels' members and their affiliations are listed in the reports.

Although an unclassified version of the Miller panel's report has not been released, brief testimony by Franklin C. Miller on the panel's work may be found in the Defense Department Authorization for Appropriations FY1985, U.S. House of Representatives, Hearings before the Committee on Armed Services, 98th Cong., 2nd sess., part 6: "The Strategic Defense Initiative," March 8, 1984, pp. 2; 948–59.

[4]Studies of defenses against bombers and cruise missiles were also begun at this time within the Defense Department. But they were not part of, nor integrated into the conclusions of the Fletcher or Hoffman panels, nor are they part of the Strategic Defense Initiative.

[5]The SDI may also prove novel in its final cost. The Manhattan Project cost $2 billion between 1941–1945 (about $13 billion in 1984 dollars), roughly 0.2 percent of total GNP of those four years. The Apollo project cost $25 billion between 1961–69 (about $57 billion in 1984 dollars), roughly 0.4 percent of total GNP of those years.

The nation's GNP in 1984 was $3664 billion. Assuming that a real growth rate (after inflation) of 3 percent is achieved for the next 20 years, total cumulative GNP over those years would be roughly $98,500 billion. So, to equal the same portion of total GNP as the Manhattan Project, a comprehensive defense system would have to cost no more than $200 billion; to equal Apollo, no more than $400 billion. In contrast, a Defense Department study submitted to Congress in 1982 estimated that the cost of a space-based laser BMD system capable only of "damage denial" (that is, less-than-perfect defense of the population) would be $500 billion. See Senate Foreign Relations Committee hearings, "Strategic Defense and Anti-Satellite Weapons," op. cit., p. 67.

[6]The Fletcher report, p. 10 [p. 151], and "U.S. Strategic Defense Options: Study Urges Exploiting of Technologies," *Aviation Week & Space Technology,* Oct. 24, 1983.

[7]See testimony by James C. Fletcher during the Hearings before the Committee on Armed Services, op. cit. (footnote 3), p. 2919. Fletcher was quoting from the classified version of the panel's summary report, and this passage was a summary judgment very carefully crafted so that all members of the panel could endorse it.

[8]The Fletcher report, p. 19 [p. 160].

[9]Quoted in *Aviation Week & Space Technology,* Oct. 17, 1983, p. 19, from the classified version of the Fletcher report.

[10]The unclassified version of Hoffman report may be found in the Senate Foreign Relations Committee Hearings, "Strategic Defense and Anti-Satellite Weapons," op. cit., pp. 125–140.

[11]Within days after the declassified versions of the Fletcher and Hoffman reports were released, Defense Department officials confirmed that they did not foresee a future in which the U.S. would be able to give up its offensive nuclear forces, even when defenses were deployed. According to Under Secretary of Defense Fred Ikle, the only way to escape our need for offensive nuclear weapons would be through a combination of defenses plus arms-control agreements. See the testimony of Ikle, Under Secretary of Defense Richard DeLauer, and director of Defense Advanced Research Projects Agency (DARPA), Robert Cooper, Hearings before the Senate Armed Services Committee, cited in footnote 7, p. 2924.

[12]James C. Fletcher, testimony, cited in footnote 7 above.

[13]"The President's Strategic Defense Initiative," pamphlet released by the White House, Jan. 1985, pp. 3 and 1.