

ON MAY 1, 2001, George W. Bush made his first presidential address on global issues, announcing that the U.S. "must move beyond the constraints of the 30-year-old Anti-Ballistic Missile Treaty" and deploy an extensive and expensive shield against nuclear missiles. In doing so, the President withdrew the nation's support from principles that have governed the world's nuclear balance for the past three decades. His arguments included support for a wide variety of missile defense systems, including "technologies that might involve land-based and sea-based capabilities to intercept missiles in midcourse or after they reenter the atmosphere." He highlighted the "substantial advantages of intercepting missiles early in their flight, especially in the boost phase," and referred to "promising options for advanced sensors and interceptors that may provide this capability."

The strenuous objections to national missile defense by America's friends and potential enemies, which may delay the programs, and severe technical problems leave time for genuine debate of a strategic system which, if deployed, will leave the U.S. and the world considerably less secure than it was before.

When analyzed carefully, it will be seen that the Bush round is simply the last of a series of futile attempts to deploy national missile defense; the threat it is supposed to meet has been systematically exaggerated; none of the approaches to missile defense being considered works or is likely to work in the foreseeable future; and deployment will lead to a new arms race, and will likely tear up the fabric of arms control agreements that have improved global security for more than three decades. The cost of missile defense programs, estimated in excess of \$115,000,000,000, will pull funds away from military housing, health care, readiness, and the transformation of the armed forces.

National missile defense reflects an outmoded worldview that fosters a unilateral foreign policy. Moreover, military and diplomatic policies are available which can deliver at a fraction of the cost the results national missile defense is supposed to provide.

National missile defense was first proposed to counter a possible massive nuclear strike by the Soviet Union. A nuclear exchange with our principal Cold War rival, with its prospect of 100,000,000 deaths, was the nightmare scenario that haunted the first planners of an anti-ballistic missile defense system as they began their work in the early 1960s.

The more scientists and technicians worked on such a system, however, the less feasible it seemed. Prototypes flunked test after test, or passed tests which so greatly simplified their task that success meant little or nothing. It would always be possible for the Soviets in a *real* situation to overwhelm the system by launching too many incoming missiles, and it would always be possible for the incoming missiles to avoid being hit by con-

fusing the defending missiles with chaff (essentially small pieces of wire or aluminum) and decoys. Finally, the cost of meeting an offensive challenge would be many times higher than that of the offensive challenge itself.

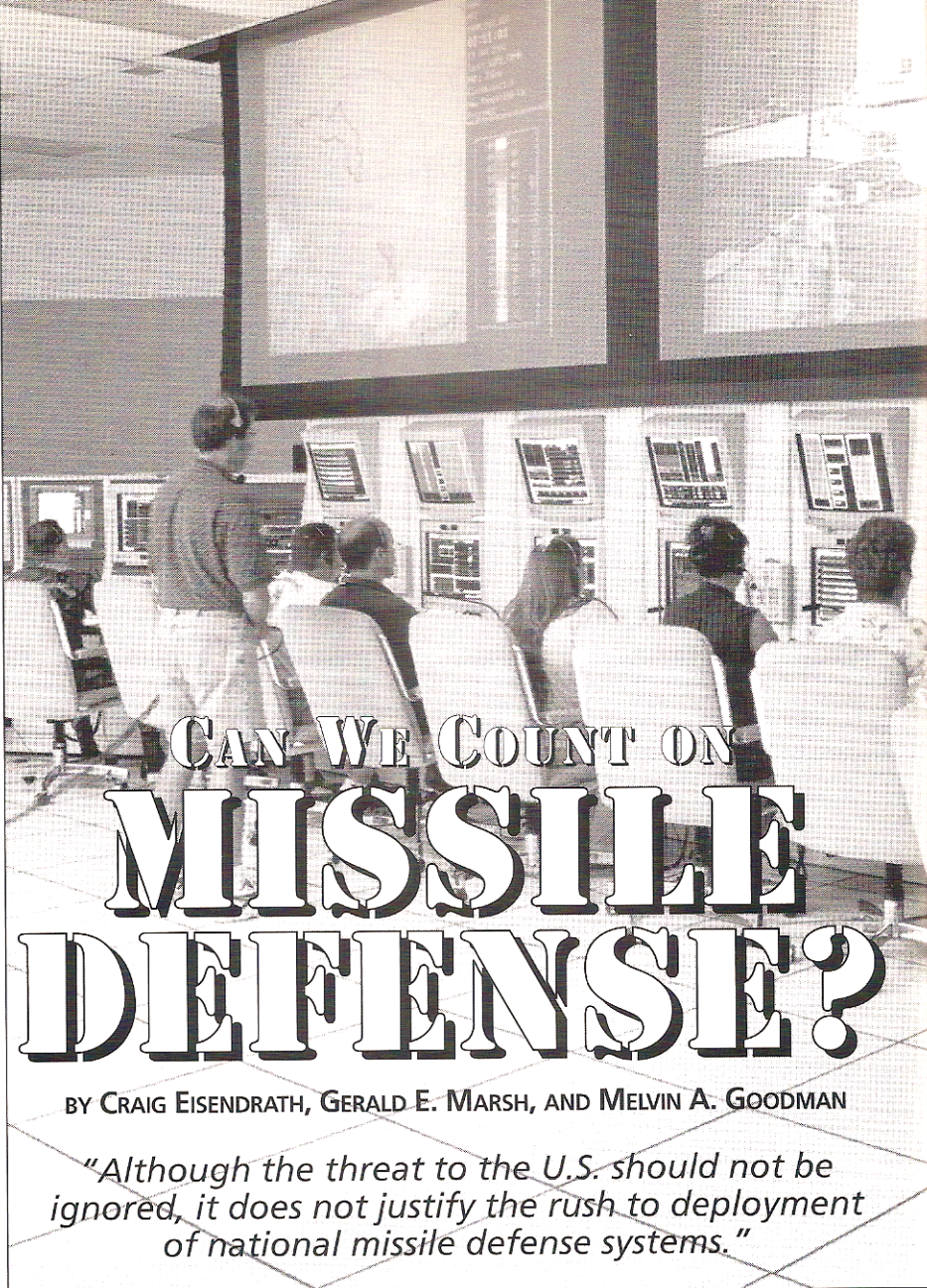
After more than a decade of research, both sides recognized the futility of going on with a missile defense system neither side could successfully develop. Pentagon planners also realized that the massive amount of dollars spent on a missile defense system which wouldn't work would drain money away from others the military needed to guarantee U.S. security and protect forces in the field.

Finally, the truth became inescapable. In 1972, Pres. Richard Nixon and Soviet Leader Leonid Brezhnev agreed to the Anti-Ballistic Missile (ABM) Treaty that forbade both sides from deploying a national missile defense system and restricted the testing that might make such a system possible. The treaty, which did allow the limited deployment of missile defenses, saw the U.S. install such a system in Grand Forks, N.D., at a cost of

\$6,000,000,000, only to dismantle it immediately when it became clear it would be ineffective. The Soviets also deployed a limited missile defense system around Moscow, called *Galosh*, discounted as ineffective by U.S. analysts.

One of the arguments that led to Senate approval, with only two dissenting votes, of the ABM treaty, in addition to the fact that anti-missile defense didn't work, was the fear that such a system would provoke the Soviet Union to stoke up the arms race, without increasing U.S. security. In other words, America would be worse off with the system than without it. A national missile defense system was like a cap pistol; the other side, thinking it was real, might shoot an actual gun first.

Despite passage of the ABM treaty, the Reagan Administration took up the cause again in the 1980s, driven, in part, by scientist Edward Teller's and the Livermore Laboratory's overoptimistic claims for a new, nuclear bomb-driven X-ray laser. The rationale for a national missile defense system was more po-





At the Mission Control Center on Kwajalein Island in the Pacific, a successful intercept of a missile (insert) took place on July 14, 2001, as part of a flight test for the National Missile Defense Program. Whether this feat could be duplicated against an actual enemy launch is the key to the future development of a U.S. ballistic missile defense.

fense (NMD) system, and to propose a limited Global Protection Against Accidental Launch System. Bush also called for the development of theater missile defense programs against shorter-range missiles.

Waning appropriations were boosted by claims of success, advanced strenuously by then-Secretary of Defense Richard Cheney, of the U.S. Patriot missile during the Gulf War. These claims were later reduced by the General Accounting Office (GAO) to state that Patriots hit just nine percent of the Scud warheads, and possibly none. Nevertheless, claims for the success of the Patriot have continued to fuel support for NMD.

Once again, a new anti-missile technology drove appropriations—autonomous, small-kill vehicles lifted into outer space which would engage intercontinental ballistic missiles (ICBMs). Called Brilliant Pebbles, this system, like the X-ray laser, was advanced by Livermore Laboratory. Skyrocketing costs—an estimated \$85,000,000,000—poor performance, and the clear threat the system posed to the ABM treaty, including strenuous Russian objections, doomed it, and appropriations decreased. By the end of George H.W. Bush's administration, more than \$100,000,000,000 had been spent on anti-missile research, making it the largest weapons research project in history, with virtually nothing to show for it.

Following the 1994 Contract with America, when the Republican Congress attempted to mandate a national missile defense by 1993, Pres. Bill Clinton vetoed the bill. In 1996, he sought to co-opt the issue by devising a Three-Plus-Three program, supporting development of a national missile defense system over three years and designating 2000 as the year in which a decision would be made whether to deploy the system over the following three years. The system—which could be deployed by 2003—would consist of 20 ground-based interceptors that, if they worked, could block missiles launched by “rogue states” or accidental launches by Russia and China.

The option proposed by Clinton was a limited land-based system designed to impact incoming missiles directly in outer space. It was devised to counter a limited ballistic missile strike by a country like North Korea or Iran. It could not conceivably protect the U.S. from a major ballistic missile strike by Russia or even from a significantly smaller one by China. Estimates of the system's cost ranged from \$30,000,000,000 to \$60,000,000,000.

On Sept. 1, 2000, Clinton announced that the decision to deploy a national missile defense system would be left to the next administration. Among the reasons cited were the system's unproven technology, as dramatically brought home by a series of failed tests; the unresolved possibility that countermeasures, such as decoys, could foil it; and the objections of Russia, China, and America's NATO allies that deployment would jeopardize the 1972 ABM treaty and the texture of current

litical than strategic. As Pres. Ronald Reagan knew, a generation of Americans had grown up under the shadow of a possible nuclear war. The doctrine of what had become known as Mutual Assured Destruction (MAD) could be seen as carrying a high moral price. If we could rely on defense, however, we could escape catastrophe without guilt. In addition, a strong nuclear freeze movement put pressure on Reagan to come up with an alternative to MAD. Once he proposed his Strategic Defense Initiative (SDI), or “Star Wars,” his approval ratings shot up.

Ultimately, the Reagan Administration spent tens of billions of dollars on the development of missile defense the vast majority of scientists knew couldn't work and was banned by treaty. While Reagan promised a “nuclear shield” that would achieve an “ultimate security” for the American people, such a system was never even conceivable. Nor was one feasible that would be limited to protecting the ability of U.S. land-based missiles to survive and retaliate against a Soviet first strike.

The initial emphasis on the X-ray laser was quietly dropped in 1984, when it became clear the concept was not viable, although the public was not told, and other options were explored, with equally dismal results. No system was ever found to be technically feasible, and none was deployed. Periodic statements by the Union of Concerned Scientists and other bodies made clear the opinion of the nation's scientists that SDI was not scientifically feasible, was a waste of money, and was a spur to the arms race.

(The SDI endeavor was not without benefit, though. The USSR, trying to keep pace with American outlays, poured billions down similar sinkholes, helping to drive the Soviet Union to dissolution as its economy buckled under the weight of such competition.)

Although George H.W. Bush had disapproved of SDI as vice-president, in his 1988 presidential campaign he came out for full deployment and reinterpreting the ABM treaty. High projected costs, however, led him to abandon the idea of a full nuclear missile de-

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arms-control agreements. Analysts pointed out that deployment could lead to a new arms race. If China, for example, in response to NMD, strengthened its force of ICBMs, India and possibly Japan would certainly respond, provoking a response from Pakistan.

Technical evaluation of the testing of a national missile defense was complicated by the fact that testing often was conducted in situations considerably simpler than would be presented in reality. For instance, there would be an absence of decoys, or decoys with different reflecting surfaces from the warhead, or prior programmed information given to the anti-missile system of the flight characteristics of the warhead. Still another difficulty was created by the fact that the defense contractors who stood to gain by contracts were conducting the evaluations. Finally, the possibility of fraud and misrepresentation was raised by Nira Schwartz, a computer software expert at TRW, who maintained that the company had forced her to misrepresent her findings. These allegations are presently being investigated. Similar allegations of misrepresentation were made by Theodore Postol of MIT.

As part of his campaign, and in the first few weeks of his administration, Pres. George W. Bush called for early deployment of a national missile defense system, although what kind, the schedule for research and development, and deployment dates are yet to be determined.

The systems under discussion include not only the midcourse, land-based system proposed by the Clinton Administration, but "boost-phase," sea-based, outer-space laser, and nuclear systems, as well as expanded theater defenses. Many of the same people and institutions involved in the earlier Reagan and Bush periods, including Secretary of Defense Donald Rumsfeld; Frank Gaffney, who heads the Center for Security Policy; Richard Perle, a foreign policy advisor to George H.W. Bush; the Livermore Laboratory; the Heritage Foundation; and corporations like Boeing, TRW, Raytheon, and Lockheed-Martin are again working with members of Congress and contributing to their reelection campaigns to push through national missile defense.

Potential threats

In 1998, the Commission to Assess the Ballistic Missile Threat to the United States, chaired by Rumsfeld, made headlines with its dire warning that North Korea, Iran, and Iraq could deploy an operational intercontinental ballistic missile with "little or no warning." A more balanced net assessment of global ballistic missile arsenals over the past 15 years would reveal that the threat is confined, limited, and changing relatively slowly. Although the threat to the U.S. should not be ignored, it does not justify the rush to deployment of national missile defense systems.

The 1999 National Intelligence Estimate (NIE) on the ballistic missile threat concluded

that, over the next 15 years, the U.S. "most likely will face ICBM threats from Russia, China, and North Korea, probably from Iran, and possibly from Iraq, although the threats will consist of dramatically fewer weapons than today because of significant reductions we expect in Russian strategic forces." This conclusion was essentially reiterated by the 2000 NIE. Specifically, the reports suggested that North Korea might well test a missile that could deliver a several hundred-kilogram payload to Alaska and Hawaii, and that, with North Korean or Russian assistance, Iran could develop a longer-range missile similar to the North Korean Taepo-Dong 2.

By assessing "projected possible and likely missile developments by 2015 independent of significant political and economic changes," the NIEs may well have overestimated potential ballistic missile threats from still-developing countries such as Iraq, Iran, and North Korea. At the same time, they probably underestimated the dangers from existing arsenals in Russia and China, and poorly prepared policymakers for the sharply deteriorated international security environment that would emerge should deployment of national missile defense weaken or destroy the nonproliferation regime.

As analyzed by Joseph Cirincione of the Carnegie Endowment for International Peace, the 1999 NIE concentrated almost exclusively on the possible threat from North Korea, Iran, and Iraq and emphasized who *could test* a long-range missile over the next five to 10 years. This is a change from the previously established standard of when a country *would deploy* a long-range missile. It reflects a shift to a series of worst-case assumptions, independent of significant political and economic changes. In addition, the shift in standards from deployment to testing represents a difference of five or more years. The previous standard had been to estimate the time it would take to threaten the 48 continental states with a ballistic missile; the shift to any part of the 50 states represents a change of some 5,000 kilometers (a kilometer equals .62 miles), and decidedly a reduced threat.

These three changes account for most of the differences between the latest NIEs and earlier estimates. The NIEs have led some observers to conclude that there has been a significant technological leap forward in Third World missile systems, when, in fact, there has been only incremental development in programs well known to analysts for years.

- In actuality, the threat to the U.S. has shrunk. Currently, Russia has about 5,200 warheads deployed on 1,000 missiles, a decrease of 52% in the number of missiles since 1980, and these decreases are likely to continue. China presently has about 20 ICBMs, a force that is not likely to increase unless the U.S. deploys an NMD system.

- The threat in intermediate-range missiles (3-5,000 kilometers) has virtually ended due to the 1987 treaty banning them.

- Just six nations—Israel, Saudi Arabia, India, Pakistan, North Korea, and Iran—have medium-range missiles (1-3,000 kilometers), and these do not threaten the territory of the U.S. Only four of them have active programs for trying to stretch the range of these systems to over 3,000 kilometers in the next 10 years (India, Pakistan, North Korea, and Iran).

- Of the 33 nations with ballistic missiles, 27 have just short-range ones—that is, under 1,000 kilometers.

- China and Russia are still the only potential adversaries with the capability of hitting the U.S. with nuclear-armed missiles.

North Korea. The threat it poses to the U.S. should not be ignored, although, like Iran's, it is much smaller than presumed by the 1998 Rumsfeld Commission and the 1999 and 2000 NIEs, and in no way justifies a rush to deployment of a national missile defense.

North Korea maintains 1,000,000 men under arms, is the only nation that is presently militarily hostile to the U.S., and has steadily pursued a program to turn short-range Scud technology into longer-range rockets. In the 1990s, it tested and deployed a 1,000-kilometer-range missile, the Nodong, based on clustered Scud engines. On Aug. 31, 1998, it tested a Taepo-Dong 1 missile, believed to be a Nodong with a Scud-like second stage and a small third-stage kick-motor used in a failed attempt to orbit a small satellite. In addition, according to CIA reports, North Korea could have acquired enough plutonium to build one or two nuclear weapons.

Yet, it is important to realize how small and economically weak North Korea is—a country intermittently hit by famine with a gross national product just four percent of Taiwan's. It has only tested two longer-range missiles (none since 1998); its test facilities are quite primitive; and its missile system is not capable of sustaining multiple launches.

Moreover, its recent moves, including historic exchanges between the heads of state of North and South Korea in June, 2000, indicate it is coming out of its self-imposed isolation and acting constructively to improve its international position. Continued negotiations between the U.S. and North Korea could well yield a diplomatic resolution, including a verifiable agreement to end the latter's missile and nuclear programs.

Negotiations have worked in the past. The 1994 Agreed Framework provided a way to verify allegations of missile development. Without it, Western observers would not have been allowed to investigate North Korea's Kumchon-Ni facility when suspicious activity took place in 1998.

Despite this impressive record, during his March 7, 2001, meeting with South Korean Pres. Kim Dae Jung, Pres. Bush squandered the opportunity to conclude a verifiable, permanent end to North Korea's long-range missile program. He stated that talks started in the Clinton era would not resume soon, but at "some point in the future." This is perhaps

risking the best opportunity to defeat potential long-range North Korean missiles—by resuming talks with that nation.

It should be noted that the threat of military retaliation has deterred North Korea from launching a full-scale attack on South Korea for 50 years and would most certainly prevent it from launching a missile attack against either the U.S. or South Korea. Ironically, the U.S. is focusing on North Korea as the *raison d'être* for NMD at the very time that Pyongyang is moderating its policies, improving its relations with South Korea and Japan, and looking for ways to tone down its modest strategic programs.

Iran. In July, 2000, Iran completed its first successful test of the Shahab-3, a medium-range missile capable of hitting targets in Saudi Arabia, Israel, and Turkey. The missile has never been tested to its claimed range of 1,300 kilometers and is highly inaccurate, with only about a 50% chance of landing within four kilometers of its target.

Even if Iran could develop a long-range missile in the near future, it is not clear that its leaders wish to do so. Iran's priority is not to threaten the U.S. homeland, but to establish regional hegemony by challenging the supremacy of American military forces in the Middle East. For this objective, intercontinental ballistic missiles are unnecessary, and the Shahab-3 is inconsequential.

Changes in the diplomatic environment could obviate the Iranian threat. If U.S.-Iranian relations continue to warm and the domestic influence of Iranian conservatives wanes, financial support for missile programs could be cut. Successful U.S. efforts to prevent North Korean, Chinese, and Russian missile exports, upon which the Iranian program depends, would strangle the ayatollahs' efforts.

Iraq. Even when United Nations sanctions are lifted, it is unlikely that Iraq could develop an ICBM within the next 15 years. It is very difficult, if not impossible, to leap from short-range Scuds to intercontinental missiles. Iraqi reluctance to use chemical weapons in the Gulf War indicates that it is subject to the same inhibition in launching missiles, given the capacity of the U.S. to retaliate.

Nevertheless, Iraq could launch missiles against American troops or allies in the region, as it did against Israel in the Gulf War. This is an argument for developing adequate theater defenses. What Iraq is not likely to have in the foreseeable future is any capacity to hit the U.S. with an ICBM.

Terrorism. Given the enormous expenses and technical difficulties involved in their development, intercontinental ballistic weapons are highly unlikely weapons for terrorists. The 1999 and 2000 NIEs perform a significant service by discussing in greater detail than previous unclassified assessments the dangers posed by delivery vehicles other than ICBMs, including forward-based launchers (sea-based short- or medium-range ballistic missiles, cruise missiles, and aircraft) and covert deliv-

ery by ship, plane, or land. These are not delivery systems that could be countered by an NMD system.

Chemical and biological weapons. Although NMD has been touted as a defense against biological and chemical weapons, these are not best delivered by ICBMs. Again, terrorists are simply not likely to have access to such missiles, and it is unlikely that nations would waste ICBM capacity on such ineffective weapons. Other means of delivery—drug shipments, suitcases, small boats, etc.—would be more probable.

Why it won't work

The most obvious problem facing the Bush Administration in its rush to deployment is that it does not have a system which can be reliably deployed. This is underscored in the Coyle Report of January, 2001, prepared by the former head of the Department of Defense's Testing and Evaluation program, and the GAO's February, 2001, report on NMD's new satellite-tracking system. The difficulties with current NMD models are those which for the most part have plagued NMD for decades.

The national missile defense system proposed by Clinton is designed to attack the warhead of an incoming missile in the near-vacuum of space before it reenters the atmosphere. It is therefore a type of midcourse defense. Interception relies on the high relative velocity between the warhead and a maneuverable "kill vehicle" designed to strike the warhead dead-on, thereby destroying it by the force of the impact. While this is in and of itself a very difficult task, it may actually be achievable, although not with certainty or even with a high success rate given current technology.

However, a missile need not carry just a single warhead. It may also carry lightweight chaff and decoys that could confuse the interceptor's sensors. The decoys can be lightweight, like a metal-coated Mylar balloon, since once the payload is in the vacuum of space, all its elements—warhead or warheads, decoys, chaff—travel at the same velocity without any slowing due to atmosphere.

Unfortunately for the defense system, all of the emissions from the reentry vehicle can be mimicked by cheap, lightweight decoys—that is, no fluctuating feature in the signals from decoys and warhead can be used to distinguish one object from another. The number of such decoys deployed on each missile could vary between 10 and 50. The technology of decoys is well within the limits of any country developing the missile system itself. (U.S. intelligence has reported that the Chinese recently tested a missile with decoys and chaff—the Dongfeng-31.)

Finally, the cost of decoys is less than one percent as much as the defensive missile needed to knock it out. That has been the problem plaguing this system from its incep-

tion, one which has never been solved and is not likely to be solved in the next few decades.

None of the national missile defense systems proposed over the past 20 years has ever proven in tests to be technically feasible. The U.S. is many years away from conducting the kinds of realistic tests that could provide military and political leaders with the confidence they should have in these weapons to deploy them.

An example is the rigged test of Oct. 2, 1999, in which the target followed a preprogrammed flight path to a designated position; the interceptor missile also flew to a preprogrammed position; the decoy had a significantly different thermal temperature from the target; and a Global Positioning Satellite receiver was placed on the target to send its position to ground control.

Inadequate testing constitutes a problem as well. The Clinton system faced this, as illustrated by the finding of the GAO in 1997 that, "Because of the compressed development schedule, only a limited amount of flight test data will be available for the system deployment decision in fiscal year 2000." Inadequate testing is also cited in the Coyle Report, and flight tests are way behind schedule. In fact, just 15 intercept attempts outside the atmosphere have been conducted by the Department of Defense since 1982. In a mere four, or 26%, did the anti-missiles actually hit their targets, and none demonstrated an ability to distinguish warheads from realistic decoys. Other missile defense systems being discussed by the Bush Administration have failed to pass their tests or remain seriously under tested, though the successful interception of a missile in a July, 2001, test raised optimism.

The boost-phase, sea-based model. Boost-phase defense—one that attempts to destroy missiles before they enter the upper atmosphere or outer space—is being advanced as an alternative or supplement to the Clinton model. Such a system is less threatening to Russia and China because it cannot readily be expanded to defend against more than a limited attack and is probably ineffective against China's small arsenal because the interceptors cannot be located close enough to the Chinese launch points. Although boost-phase defenses may be deployed without threatening the arms-control regime, they are only useful in meeting threats from "states of concern"—that is, North Korea, Iraq, and Iran—which, as we have pointed out, have been vastly exaggerated. (Even against North Korea, boost-phase defenses might well be unable to stop launches over the North Pole.) Boost-phase defenses seem preferable to the defenders because they do not require nuclear weapons, and countermeasures are more difficult in the atmosphere where they operate.

Boost-phase defenses are designed, for the most part, to be stationed on ships, but there are numerous problems. The most important

is that the boost-phase interceptor is too large to fit on any of the standard Navy combat ships without serious structural modifications. Second, boost-phase defenses do not allow enough time—less than two minutes—for a human being to make a decision that could lead to war. Third, the cost of stationing enough ships around a potential enemy and keeping crews on combat readiness is astronomical.

The sole vehicles presently able to handle boost-phase interceptors are the Trident ballistic missile submarines. These vessels are, in effect, the “ultimate weapon,” as measured by their immense destructive capability. Deployment of NMD on these ships could compromise their invulnerability by forcing them to operate in inappropriate, shallow coastal waters. Even more seriously, a launch by a “rogue” state might well be ambiguous, as it might be a weather or astronomical satellite or an attack. It would be far too risky to have Trident subs respond immediately to such actions.

Finally, the testing of boost-phase defenses lags significantly behind that of midcourse systems. Again, the U.S. is many years away from conducting the kinds of reliable tests that would allow it to deploy boost-phase weapons for national defense with any confidence.

Expanded theater defenses, such as the Army’s Theater High-Altitude Defense and the Navy’s Theater-Wide System, designed for defense against intermediate-range ballistic missiles, have been touted as forming the basis for a full national defense. This is a serious error. The kill vehicles of both systems lack the necessary lateral acceleration capability needed for boost-phase intercept. This is really the end of the story, although the fact that these systems use the wrong kind of sensors, designed for midcourse interception, makes them inappropriate as well. The Coyle Report makes it clear that current theater systems are many years away from reliable deployment, even for use at the ranges for which they have been designed.

The airborne model. Both the Air Force’s Airborne Laser, mounted on a Boeing 747, and space-based lasers fail because of their vulnerability. Anti-aircraft missiles do work, and the components of space-based defenses are sitting ducks for longer-range missiles. Space-based lasers are quite heavy, require enormous amounts of fuel, and have to be in the right place when a missile is launched. Since they have to be in low-Earth orbit to maximize the energy they can put on the missile, to have one always in the right place to destroy an attacking missile means there must be a very large constellation of lasers in space. This becomes very expensive, very quickly. Still another problem is that space-based systems would violate the 1967 Peaceful Uses of Outer Space Treaty and thus set a dangerous precedent of weaponizing outer space.

As for propagation of lasers through the at-

mosphere, there are numerous reasons why this simply does not work: the turbulence of the atmosphere; the tendency of the laser beam to spread; the efficacy of countermeasures to confuse compensatory mechanisms (“adaptive optical techniques”); divergence of the beam through what is called “thermal blooming”; and the use of countermeasures to carry off the heat. In sum, such defenses are still very much at the research stage, and have remained there for well over 20 years.

The nuclear model. Once again, the nuclear model is being discussed. For example, as Frank Gaffney stated in *The New York Times*, “If we have to, we can absolutely, certifiably destroy incoming ballistic missiles by putting a small nuclear weapon on the front end.” Yet, one reason the system used by the Russians in their defense of Moscow—the *Galosh* system—was discounted, in addition to the fact that U.S. missiles could overwhelm it, was that the large phased-array radars *Galosh* relied upon for information needed to guide its battle management radars would be destroyed early in a nuclear exchange.

Putting nuclear weapons on ships would break an important barrier put into place by George H.W. Bush and possibly lead to the Russians redeploying nuclear weapons on their ships. Another problem is that it would be difficult for the military to obtain timely permission to launch nuclear-armed interceptors, and the resulting delay could seriously impact their effectiveness. Moreover, the threat cloud—containing the incoming warhead, chaff, and decoys—would have had time to disperse over a considerable range, as the interception would not occur until late in midcourse. Accordingly, it would still be necessary to discriminate between chaff, decoys, and the warhead, a task that is currently not possible. The reason for this is that even nuclear-tipped interceptors must be relatively close to knock out the warhead, and the warhead can be so designed or “hardened” that this distance must be *quite* close.

In addition, the use of nuclear weapons is prohibited by the ABM treaty and forbidden in outer space by the Outer Space Treaty of 1967. Such a utilization of nuclear weapons would also be destructive of the satellite system used by advanced countries for communications, weather, and surveillance.

On April 2, 2001, the Ballistic Missile Defense Organization provided figures to *Defense Week* that give some indications of the cost of the proposed systems. BMDO states that developing and producing just the eight highest-profile anti-missile systems will run around \$80,000,000,000, with most of that amount spent by 2010. This figure covers just research, not production, and includes but a part of the planned purchases.

When the cost of operating and supporting these systems is added, the figure expands to \$115,000,000,000. This figure is inadequate as well because BMDO couldn’t give the cost of a number of its systems, so that the figure

may well be up to \$150,000,000,000, or, indeed, several times even this figure if certain options are fully developed.

International implications

The ABM treaty was based on the realistic proposition that offensive strategic forces could counter any innovations strategic defenses might offer, and at a significantly lower price. The treaty specifically bans a space-based defense and rules out not just deployment, but developmental testing for a national missile defense. It provides a useful impediment to the expansion of the arms race which national missile defense would induce.

Arms-control advocates and international lawyers consider the ABM treaty the backbone of the arms control regime and an obvious barrier to any current deployment of a national missile defense. The international community also shares this view. A unilateral reinterpretation of the treaty would undermine American credibility abroad and would violate the balance of powers established in the Constitution, if the executive branch unilaterally reinterpreted a treaty that had been ratified by the Senate. While the Reagan Administration eventually accepted the restrictions on research of the treaty, the Bush Administration seems prepared to impose unilateral executive reinterpretation or abandon the treaty altogether. Its argument that the treaty is null and void because it was signed with the Soviet Union is specious, as Russia is clearly the legal inheritor of obligations undertaken by its predecessor.

The Russian reaction. Russia, which continues by orders of magnitude to be the greatest missile threat, considers national missile defense systems as an attempt to gain “unilateral military and security advantages” as well as a violation of the ABM treaty. Russia has announced plans to reduce its nuclear arsenal dramatically from the approximately 6,000 nuclear warheads deployed to under 1,500 by the end of the decade. Russian leaders have warned, though, that future reductions are highly conditioned on the U.S. not deploying a missile defense system.

Pres. Vladimir Putin has repeatedly stated that any move to withdraw from the ABM treaty could lead his nation to treat all existing U.S.-Russian security agreements as null and void. This could lock both countries into unnecessarily large nuclear weapons inventories for the foreseeable future unless unilateral reciprocal reductions take the place of agreements. As the 2000 NIE points out, Russia could again deploy shorter-range missiles along its borders and return to multiple warheads for its strategic weapons, thus rejecting a major provision of START II, and could deploy additional countermeasures on its missiles to penetrate the NMD system. In maintaining a larger arsenal than it can adequately support, given its ailing economy, Russia would be more prone to an accidental or

unauthorized launch of nuclear ballistic missiles.

The Chinese reaction. Rather than seeing its own missile system as offensive, China, like Russia, believes that deployment of U.S. missile defenses would be an offensive move. In reaction, China would likely expand its nuclear weapons arsenal, building more missiles, equipping some with multiple warheads, adding decoys and other countermeasures, and placing them on full alert. China's principal concern is not simply the deployment of U.S. national missile defense, but the strengthening of Taiwan through the possible sale or deployment of theater defenses and the sale of U.S. cruisers equipped with Aegis radar. Such moves, in Chinese eyes, could lead to Taiwanese independence.

China's chief arms negotiator, Sha Zukang, has suggested that, if Washington went ahead with an NMD deployment designed to intercept "tens of warheads"—a figure suspiciously close to China's 18-20 single-warhead ballistic missiles—this would "lead to serious confrontation" and a renunciation of previous undertakings barring nuclear or chemical weapons proliferation and nuclear testing. The 2000 NIE suggests that China might well increase its ICBM arsenal from 20 to 200 within a few years. Thus, instead of providing security, a deployed NMD system could provoke responses from Russia and China that would actually exacerbate the threat.

Meanwhile, Sino-Russian joint opposition to either a U.S. effort to deploy a national missile defense system or reinterpret the ABM treaty has led to improved bilateral relations between them. NMD has given Putin the opportunity to travel to Europe, China, and North Korea and to suggest a regional defense for Europe, although his ideas are still quite vague.

Further consequences

Despite American assurances, NATO allies continue to oppose unilateral deployment by the U.S. of a national missile-defense system. They fear the Chinese and Russian reaction to NMD, beginning of a new arms race, unraveling of the arms-control regime, and the prospect that NMD could "decouple" the U.S. from Europe.

If China were to increase its arsenal and walk away from nonproliferation, it is very likely that Pakistan and India, both of which detonated nuclear devices in 1998, would do the same. A breakdown of the arms-control regime would decrease nonproliferation controls and help non-nuclear powers attain their own strategic forces. Not only would this affect Iraq, Iran, and North Korea, but proliferation might spread to other countries. Rarely has so much international cooperation been placed at risk for the promise of so little.

With the end of the Cold War, the U.S. emerged as the world's sole superpower, a position it may well hold for some decades.

What it chooses to do with this power is up for question. The Bush Administration believes it is America's attempt to maintain and extend an encompassing world order which the U.S. defines and that serves its national self-interest without constraint of international treaties or arrangements, including the current arms-control regime. If the U.S. does so, it believes the world will benefit. It is no accident that those who support NMD opposed the Anti-Ballistic Missile Treaty, the Strategic Arms Reduction Talks treaties, the Outer Space Treaty, the Comprehensive Nuclear Test Ban, and the International Criminal Court. For them, arms control represents a "Cold War mentality."

The other, multilateralist view of the world recognizes that the U.S.'s territorial borders may end at Mexico or Canada, but the financing, ownership, production, and sales of transnational corporations are oblivious of national frontiers. Jurisdictions are becoming transnational, whether for environmental controls, human rights, intellectual property rights, or the maintenance of world peace. The argument that the U.S. must alone determine everything which affects its citizens, that its sovereignty is absolute, looks backward to a world which is rapidly disappearing. Adherents of multilateralism hold that, in the post-Cold War world, the nation's first option for defense should be the strengthening of relations that facilitate mutual security and make its extension more advantageous. Attacks against the U.S., and particularly the use of weapons of mass destruction, they believe will only be acts of desperation. Because such acts against the world's remaining superpower would be national suicide, they are considered avoidable through diplomacy and economic initiatives. Attributions of madness or total irrationality to potential enemies—"rogue states"—is then a form of cultural snobbery the U.S. can ill afford. Diplomacy and negotiations and mutually constraining relations through international agreement are ready options. The vast power, both military and economic, the U.S. possesses can be used to facilitate the move to diplomacy and further conditions of mutuality that make such attacks unthinkable. The notion that the U.S., acting alone, can solve its international problems by some technological breakthrough flies in the face of facts.

The unilateralists' position has been strengthened by the fact that the defense budget is being handled in Congress with virtually no connection to funds devoted to other areas of national security, such as international security assistance, economic assistance, and diplomacy. Over 90% of the national security budget is directed to military programs, and if military assistance is included, about one percent of the budget is concerned with other areas. This system has resulted in a lopsided reliance on military defense and difficulty in seeing the cost-effectiveness of other means of dealing with security concerns.

For example, recent missile programs in Iraq and North Korea have led to calls for the building of national missile defense. In both cases, though, it was multilateral activity that proved effective in creating a nuclear freeze and suspension of missile tests. In Iraq, the verification regime of the UN led to the identification and destruction of more Iraqi strategic weapons than had the campaigns of Desert Storm. Such lessons should create precedents for greater consideration of nonmilitary options.

It is not difficult to imagine that North Korea's interest in building missiles might well be blunted by an economically advantageous relation with the U.S. and the world economic community. After all, the promise of increased economic relations with the West was a primary factor in getting it to the negotiations table for the talks that created the 1994 Agreed Framework.

Consideration of national missile defense requires that it be seen as one, not the only means, of dealing with any apparent missile threat, and that its cost be considered competitive with other options.

If the decision is made to go ahead with NMD, it will likely involve the destruction of the Anti-Ballistic Missile Treaty, the cornerstone of U.S. deterrence for the past 30 years, the alienation of Russia and China from the arms-control process, the opposition of NATO allies, and the end of American leadership to stop proliferation of nuclear weapons. National missile defense would destabilize U.S. national security policy and greatly increase American defense spending. It would register a net decrease in U.S. security, exchanging an inadequate defense for the abrogation of two important treaties and the ensuing instability.

Instead of national missile defense, the U.S. should be looking for ways to reduce nuclear inventories in this country and abroad. America is in a strong position to accept the unofficial Russian proposal to reduce U.S. nuclear inventory to 1,500 strategic weapons and still maintain a credible deterrent. (This policy may emerge after the comprehensive review of the U.S. military being undertaken by the Bush Administration, although the danger exists that such cuts will be coupled to the deployment of a national missile defense.) America should work closely with Russia to support cooperative efforts to secure Russian nuclear materials and weapons, a policy under threat should funds be reduced. ★

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