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The Future of Nuclear Weapons

by

Michael Mandelbaum

I
Assessing the future of nuclear weapons means addressing two questions: What changes are likely in the design, deployment, and distribution of nuclear armaments? And how will those changes, if any, affect international politics?

The future is, of course, unknowable. It is possible, however, to identify with some confidence the forces likely to shape the nuclear future. Three in particular are important.

The first is the improvement, the technical refinement, of the weapons of the superpowers. Regular innovation has been basic to the industrial revolution, whose most important invention, it has been said, is the *idea* of invention. The United States and the Soviet Union have both worked systematically for more than three decades to make their nuclear arsenals larger, more diverse, and more deadly. The nuclear age has seen rapid and substantial change in the design of nuclear explosives and especially in the vehicles for delivering them. Each has felt impelled to expand and improve its store of nuclear weapons because the other was doing so, or because it feared the other might do so. The nuclear arms race between the United States and the Soviet Union is likely to continue to the millenium.

The second force that will bear on the nuclear future is the diffusion of technology. The industrial revolution has proceeded unevenly; some parts of the planet and some countries have consistently led the others in industrial development, and this has had profound consequences for relations between and among them. Progress in mastering the technology of nuclear weaponry has been especially uneven. The technology has spread slowly from its points of origin. The capacity to make nuclear weapons will certainly continue to spread, putting them in the hands of ever more countries. The arms race and the prospect of nuclear proliferation have been important features of international politics for more than three decades.

The third force to be considered is more recent. It is public discontent in the West with the world's nuclear arrangements. The strength and likely influence of that discontent are not clear. Neither is its future. Until now the public has exerted little direct influence on nuclear policy. In the Eastern bloc the reasons are obvious; there is no direct public influence on *any* issue. In the West nuclear policy has by and large been left to the discretion of public officials. What governments have decreed necessary citizens have accepted. There are signs that this is no longer true, and that the change may affect the nuclear future.

II

The nuclear age has seen dramatic leaps forward in the technology of destruction. The original man-made nuclear chain reaction and the initial bombs were the first and most important of them. These were followed by fusion weapons, then the

techniques for making nuclear explosives cheaply so that the United States and the Soviet Union could easily afford thousands of them, and finally the ballistic missile.

These landmark innovations have two things in common. All came relatively early in the nuclear age. The last of them, the ballistic missile, dates from the late 1950s. The world's present nuclear arrangements, therefore, were in place, or at least their outline was clear, more than two decades ago. And all favored the offense. All have made nuclear attack easier, defense against it more difficult. Technical developments in nuclear weaponry since 1960 have largely continued in this pattern. They have made possible a multiplicity of offensive nuclear weapon systems, with different warheads carried by various delivery systems deployed in different locations and with different ranges.

If a practical means of defense against nuclear attack appeared it would be as momentous for the nuclear future as any of the landmark innovations of the past; it would have some claim to being as momentous as *all* of them put together, since it would negate their combined effect. It would make the world a more comfortable place in which to live. Deterrence by mutual assured protection is a more agreeable prospect than deterrence by the threat of mutual assured destruction. But to create an effective defense against nuclear attack is a formidable task. Indeed, because both the Soviet Union and the United States have thousands of weapons that can be launched from all over the world with an almost infinite variety of speeds, altitudes and flight patterns, because flying with the weapons would be many decoys and penetration aids, and because all those weapons have to be prevented from reaching their targets, an effective defense against nuclear attack is probably impossible at present.¹

The presumption that effective—that is, perfect—defense is impossible is encoded in the 1972 ABM Treaty, which forbids each power to build ballistic missile defense systems for its cities. The superpowers agreed to the treaty precisely because the task of defense seemed technically hopeless; their aim was to avert a costly competition in expensive hardware that would not, in the end, offer protection from nuclear attack. (Each may also have believed that the other had an advantage in ballistic missile defense technology.)

Even so, in the ten years since the treaty was signed research on missile defense has continued. Lasers and particle beams hold out hope for the eventual production of foolproof defensive systems. It is, however, still a distant hope. Whatever the ultimate prospects for these technologies they will not make possible working, effective protective machinery in the next twenty years.

The history of warfare is the history of the struggle between the offense and the defense; between weapons and tactics that confer advantage on the attacker and countermeasures that benefit the defender. The advent of nuclear weapons appears to have brought this struggle to an end by bestowing permanent superiority on the offense.²

The appearance is partly deceptive. There are two ways in which one side can defend against the other. The ordinary way is by protection, by blocking the attack of the enemy who has struck first. There is another way; defense by *preemption*. One party to a conflict can evade damage by striking first and destroying the *weapons* of the other.

In the nuclear age fully successful defense by preemption is as difficult as fully successful defense by protection. It would require the more or less simultaneous

destruction of the thousands of nuclear weapons that the other side possessed, weapons carried by a variety of different delivery vehicles scattered all over the world. In the competition between the United States and the Soviet Union, however, the two modes of defense have been treated differently. Whereas the impossibility of mounting a perfect defense by protection against nuclear attack has induced the two sides to forswear all efforts to do so, the comparable difficulties of total defense by preemption have not kept each side from acquiring the *partial* capacity for defense of this sort. This is because defense by preemption is a byproduct of the improvements in *offensive* weaponry that both the United States and the Soviet Union have made regularly.

Thus, the arms competition between the superpowers has become in part a version of the familiar contest. On one side are forces capable of defense by preemption, including powerful warheads that can destroy the other side's armaments, sophisticated surveillance to track these armaments, and accurate guidance systems to direct the warheads to the targets that the surveillance systems have located. On the other side are measures to protect weapons from preemptive attack so that they can strike enemy targets if necessary. These measures involve protection, through the construction of underground silos and, potentially, of systems of ballistic missile defense with the limited and manageable mission of protecting weapons rather than cities, concealment, although this has had limited appeal because it violates one of the main tenets of arms control, and above all mobility.

In the last two decades the struggle between offense and defense for nuclear weapons has moved from the point at which the attack takes place to the point at which the weapons are launched. Increasing the number of weapons makes more available for a preemptive attack but also provides more targets at which to shoot. An increase in the number of explosives, or warheads, tends to favor the cause of preemption and thus the defense; an increase in the number of delivery vehicles makes the survival and penetration of the nuclear weapons that they carry more likely, (although it also provides more warheads), and so on balance tends to assist the defense. A single weapon system may incorporate both features.

The United States and the Soviet Union will acquire more offensive nuclear weapons between now and the year 2000. These weapons will likely incorporate features that lend themselves to preemption as well as characteristics designed to keep them from being knocked out of commission by a preemptive strike. Both sides will have the means to destroy some of the other's weapons, but neither will have the means to destroy so many as to strip the other of its capacity for assured destruction. Nuclear weapons are so powerful, each has so many, the delivery vehicles that carry them, particularly the submarines, are so invulnerable to preemptive assault that both the United States and the Soviet Union will be able to bring unparalleled devastation to the other *no matter what* the other does to avoid it.³ What makes perfect defense impossible makes assured destruction inevitable.

If the two superpowers will be equal in their capacity for assured destruction, their nuclear arsenals will not be equal in all other ways. The arms race has not been, and likely will not be, run evenly. The two sides bring different assets to it. The West has technical advantages. It is better able to design and build increasingly sophisticated armaments. But it labors under a political disadvantage, the existence of opposition to the deployment of some of the new weapons, opposition that has arisen against the

enhanced radiation warhead (the "neutron bomb"), the M-X missile, and the long-range Pershing missiles and the cruise missiles that are scheduled to be based in Western Europe. Each side can therefore be expected to have in the future, as it has had in the past, weapons and capabilities that the other lacks.

To the first question about the nuclear future, what will the two nuclear arsenals look like, the answer is that both are likely to be larger, more versatile, and more capable than they are now, but that they won't look identical to each other. This leads to the second question: what differences will the likely asymmetries between them make for international politics in general and for Soviet-American relations in particular?

It has been argued that they will make no difference at all. As long as each side has the unchallengeable capacity to destroy the other, goes this argument, asymmetries will have no military value and hence will not affect the results of political conflicts. Such conflicts, even if they involve the use of force, will be contests of wills between the United States and the Soviet Union. Each will try to force the other to back down, or at least to refrain from using its most powerful weapons. Neither will be anxious for such contests, because of the uncertainties involved. If they occur, their outcomes will not depend upon the composition of the two principal nuclear arsenals.⁴

The policies of both the United States and the Soviet Union, however, are based on, or at least are closer to, the view that asymmetries *do* matter, or at least that neither side can afford to act as if they do not.

One argument in favor of this view is that appearances count for a great deal in international politics, and the appearance of each side's nuclear forces affects the policies of third countries, those who rely on one of them for protection and those for whose allegiance they compete. If the two arsenals are not "essentially equivalent"; that is, equal in the most important categories of weaponry, the inferior side will forfeit support.⁵

Another argument is based not on the appearance of each arsenal but on the military uses of the weapons that comprise them. It holds that when one side has a capability that the other lacks even when both have the capacity for assured destruction the asymmetry can be used to achieve "escalation dominance." This assumes a spectrum of possible military capabilities that vary according to the level of force employed and the theater where it is used, ranging from modest nonnuclear weapons useful for combat far from the borders of the Soviet Union and the United States to the nuclear forces that are poised to lay waste to the homeland of each. This concept is sometimes depicted in vertical terms, as an "escalation ladder." If one side is superior to the other at a particular point on the spectrum, goes this part of the argument, it can attack with that level of force and compel its opponent either to accept defeat or escalate to the next level. At the next level it may enjoy equality but not, presumably, superiority, and by going to the next level it risks uncontrolled escalation to a mutually disastrous exchange of fire at each other's cities. Leery of such dangers, the thinking goes, the defender will choose to suffer a defeat. Even if no attack ever takes place, this part of the argument concludes, the understanding that it might occur serves as a political asset for the side with the capacity for escalation dominance.⁶

Like most of the body of strategic doctrine that has been developed in the nuclear age, "escalation dominance" is a Western idea. Specifically it is of American origin,

and not just because the United States has been by far the most prolific producer of nuclear ideas, but also because Americans must worry about more than self-defense. They are pledged to defend countries from which they are separated by large oceans.

The idea of escalation dominance has been the moving force behind a number of American military programs. The most notable of these was, the plan of President Kennedy and his Secretary of Defense, Robert McNamara, for bolstering the nonnuclear capabilities of the North Atlantic Treaty Organization forces stationed in Western Europe so as to preclude the Soviet Union's being able to launch a nonnuclear attack and present Nato with the choice of accepting defeat or resorting to nuclear weapons to stop the attack, a choice, as it was called, between "humiliation and holocaust." The name for the strategy of which this program formed the core, "flexible response," denoted its animating conviction, namely that the West had to be prepared to respond to a Communist assault in a variety of ways, at all levels of the escalation spectrum. It had to be able to tailor its response to the nature of the attack.

The idea of escalation dominance underlies the worry about the growing vulnerability to preemptive attack of the American land-based intercontinental ballistic missiles. If the Soviets have a superior counterforce capacity, it is feared, they will be able to launch a strike at American missiles, leaving the United States with the means only to destroy Soviet cities in reply, which would risk the reciprocal destruction of American cities. The fear is not so much that the Soviets would launch such an attack, but that the theoretical capacity to do so could be translated into political gains for them.⁷

The fear of Soviet escalation dominance is the root of the Western determination to match Soviet theater nuclear forces in Europe with long-range missiles and cruise missiles stationed on the continent. Without these weapons, it is believed, the Soviet Union could achieve escalation dominance in the European theater, forcing the United States to contemplate launching nuclear strikes on the Soviet Union from outside the continent, which would in turn invite Soviet nuclear retaliation against North America.

Which view, which set of arguments is correct? What differences in international politics are asymmetries between the two principal nuclear arsenals likely to make? The history of the nuclear age offers little evidence on which to base a judgment, and what evidence does exist is ambiguous. The Cuban missile crisis, the closest brush the superpowers have had with war with each other, is often cited as the model of direct conflict between them. Its outcome can be construed to support the proposition that differences do matter, and that the capacity for escalation dominance is important: The United States was superior to the Soviet Union in nuclear weaponry in October 1962, and the outcome was a victory for the United States; the Soviet Union was obliged to withdraw the nuclear-capable missiles it had placed in Cuba.

The missile crisis may equally be interpreted, however, as lending no support at all to the case for the significance of escalation dominance. The United States enjoyed a nuclear advantage, it may be argued, that can never be reproduced. The Soviet capacity to strike the continental United States was modest. Now it is immense. Then the Soviets had only a handful of weapons of intercontinental range. Now they have thousands, as do we.

The outcome of the crisis may be attributed not to the American nuclear advantage but to the overwhelming nonnuclear superiority of the United States, the result of the fact that Cuba is so much closer to the United States than to the Soviet Union, which might be held to demonstrate that escalation dominance is important below, but not above the nuclear threshold.

Finally, it is possible to interpret the outcome of the Cuban missile crisis not as a clear-cut triumph for the United States but as a bargain, in which both sides made concessions to avert open conflict.⁸

The likely innovations in the technology of nuclear weaponry over the next two decades also give cause for uncertainty about the role of asymmetries between the two principal nuclear arsenals and the importance of escalation dominance between now and the year 2000. To be useful for escalation dominance a weapon must have a military mission other than the destruction of the opponent's cities. In theory the coming advances in the guidance, control, surveillance, and miniaturization of weapons should lend themselves to such missions. The actual weapons that seem likely to incorporate these features turn out, upon inspection, to be less unambiguously suitable for them.

The most prominent and distinctive new weapon is likely to be the cruise missile, the small subsonic drone capable of carrying nuclear (and nonnuclear) warheads that is descended from the "buzz bomb" of World War II. The cruise missile assumed a prominent place in American strategic planning during the 1970s because it seemed cheap and its deployment appeared unlikely to be restrained by strategic arms limitation agreements. As it has developed, however, the cruise missile's future role has become less clear.⁹

The price of the cruise missile is in question. It will depend not only on the cost of the missile but on the cost of the platform from which it is launched as well. These may be more expensive than anticipated.¹⁰ The cruise missile will have a sophisticated guidance system that will make it a highly accurate weapon. This particular characteristic is important for counterforce attacks, which are compatible with the idea of escalation dominance. But the usefulness of the cruise missile for counterforce attacks is not clear. Its capacity to survive a preemptive strike by an opponent, and to penetrate defenses that may be constructed to thwart it, are both in doubt. They will depend on how many one side has, how they are deployed, and how much the other side invests in defending against them.¹¹ Even if they survive a preemptive attack and are launched in a retaliatory strike, cruise missiles, which fly at subsonic speed, will take a relatively long time to reach their targets, giving the opponent time to launch any weapons at which they may be aimed. Of course cities are targets that, unlike weapons, cannot be moved, but striking cities is irrelevant to escalation dominance.¹²

The next two decades will also see improvements in the techniques of battlefield management.¹³ More and more sophisticated and capable systems of electronic communication, guidance, and information processing will in theory give both American and Soviet commanders increasing control over their forces in a nuclear battle, with a wider choice of targets and more flexibility in timing their attacks. But each side's methods for managing battles will themselves be vulnerable to the weapons of the other, especially because of the expected improvements in accuracy.

They might be destroyed quickly in a nuclear engagement, leaving one or both sides

with only the capacity for random, uncoordinated attacks against the other rather than the measured, precise strikes necessary for escalation dominance.¹⁴

The role of the theory and practice of escalation dominance is further in doubt because it depends upon the Soviet attitude toward both. And the Soviet views on this, as on other issues, especially nuclear issues, have not been clearly and systematically presented to the rest of the world.

In the latter half of the 1970s a vigorous debate took place in the West about Soviet attitudes toward nuclear weapons. Out of that debate emerged general but by no means unanimous agreement that Soviet attitudes are different, but not entirely different from those broadly held in the United States. The Soviets do not contemplate the prospect of nuclear war serenely. They do not appear to be confident that they could win such a war, if winning is taken to mean avoiding terrible damage.¹⁵ Neither, however, do they draw the clear distinction that is basic to American nuclear doctrine between preparations to deter and preparations to fight a nuclear war.

American strategic thinking has held that making cities the targets of one side's nuclear force gives evidence of an intent to strike only in response to an attack, and not to start a war. If both sides target the other's cities both are committed not to strike first. The result is stability, a highly desirable state of affairs. Aiming at military targets, by contrast, is thought to denote an intention to preempt, to strike first. It is considered to bespeak a serious interest in *fighting* a nuclear war. It is therefore subversive of deterrence, and highly undesirable.

The Soviets, by contrast, appear to regard the visible capacity to fight a nuclear war as part and parcel of a policy of deterrence. The better they can fight such a war, the more preemptive damage they can do to the adversary's military facilities they evidently believe, the less likely it is that the West will begin one.¹⁶

The respective approaches of East and West to nuclear deterrence and war-fighting have been central to the discussion of Soviet nuclear weapons policy. They do not, however, bear directly on Soviet attitudes toward escalation dominance. There are reasons to suppose that the idea would strike a responsive chord in the ranks of the Soviet high command. Soviet literature on strategic affairs stresses the political content of military matters, and the idea of escalation dominance concerns precisely the political consequences of different levels of military force. The Soviets have, moreover, equipped themselves with a versatile nuclear arsenal, including weapons of different range with ever-improving accuracies.

What the Soviets have *said*, however, gives the opposite impression. They have consistently denied that gradations of nuclear force have political importance. They have claimed that nuclear war cannot and will not be kept limited in any meaningful sense of the term.¹⁷

The relevant public statements have not been made in deliberate, systematic fashion. They do not, therefore, prove that the Soviet leaders have no interest in, and have made no provision for, escalation dominance in a conflict with the West. Neither, however, can they be interpreted to support the proposition that the idea is central to Soviet nuclear strategy.

In view of all this, what role will asymmetries between the two great nuclear arsenals play over the next two decades? It is unlikely that either the United States or the Soviet Union will feel confident that the assumptions underlying the idea of

escalation dominance are true. Even if they do, neither is likely to believe that it enjoys enough advantage at any point on the "escalation ladder" to attack at that level in the expectation that the other side will accept defeat. How asymmetries might affect the outcome of a crisis begun for other reasons is hard to say; there is no clear evidence that they have made any decisive difference so far.

Though the only side that has a particular capability may not be confident in its usefulness, the other side, fearing its usefulness, may try to match it or compensate for it. That is, asymmetries will not provoke attacks but will inspire counter-measures. This has been one of the principal dynamic forces behind the Soviet-American arms race over the past decade.

The continuation of that arms race will perpetuate the impulse to restrain it by formal agreements between the superpowers. The new weapons that are in the offing, whatever their implications for escalation dominance, are likely to complicate the task of negotiating arms control accords. Cruise missiles may be produced in large numbers, be highly mobile, and versatile, and be capable of carrying either nuclear or nonnuclear payloads. If so, keeping track of them will be difficult.

But keeping track of the other's nuclear weapons has been central to arms control. It has been a fixed rule that each side must be able to know precisely how many of each kind of weapon the other has. What cannot be counted independently—in the American case, at least, by reconnaissance satellites—cannot be included in an arms control accord. Cruise missiles certainly will not be as easy to count as are large ballistic missiles. Still, a way was found for including cruise missiles in the SALT II agreement.¹⁸ The new technologies do not present insuperable obstacles to arms control.

SALT II foundered on political, not technical issues. The Carter administration withdrew the treaty from the Senate in response to the Soviet invasion of Afghanistan. The Reagan administration deemed it unacceptable because it was too favorable to the Soviet Union (although tacitly agreeing to observe its terms pending the negotiation of a new, more satisfactory agreement). The political obstacles to arms control, however, like the technical ones, are not necessarily insuperable. Administrations change their minds about issues and policies; and no administration lasts forever. Although subject to criticism, SALT II enjoyed considerable congressional support before it was withdrawn. It might well have won the approval of two-thirds of the Senate had the invasion of Afghanistan not occurred. The debate in the Senate in the fall of 1979 concerned not the merits of the treaty but the size of the increase in American defense spending that would accompany it.

Still, the second half of the 1970s was not a halcyon period for arms control. The agreements that were reached disappointed both those who believed that their terms enabled the Soviet Union to improve its position in the military competition with the United States and those who wanted dramatic reductions in the two nuclear forces.¹⁹ The specific purposes and overall usefulness of arms control were cast into doubt. These will have to be clarified if there are to be substantial negotiated agreements on nuclear weapons between now and the year 2000.

A number of suggestions for recasting the form of the negotiations and the scope of the agreements have been made.²⁰ Whatever direction these take, arms control will remain in essence a form of diplomacy, a way of advancing mutual interests by states

whose basic interests conflict.²¹ The principal interest that the United States and the Soviet Union have in common is the avoidance of war with each other. They must cooperate, if only tacitly, at least to this extent. Arms control provides a measure of mutual reassurance by serving as a symbol of the possibility of cooperation. This is, to be sure, a very modest contribution to nuclear peace. Arms control agreements do not address the basic causes of conflict between the United States and the Soviet Union. They do not encompass the issues over which war between the two is likely to erupt. But these are issues over which, on the whole, formal agreement is not possible.²²

Arms control serves a more tangible common interest, the management of the nuclear competition between the superpowers. Since what each side believes it needs depends on what the other side has, or on what it believes the other side has or will have, the more confident each is of the other's nuclear plans the more comfortable both can be with their own. Arms control agreements impart a measure of predictability to the arms race.²³

They also reduce its cost. This is perhaps the most tangible benefit that the United States and the Soviet Union have drawn from the nuclear agreements that they have reached. The ABM treaty probably averted a costly competition in defensive systems. Restrictions on offensive weapons may have made the nuclear competition less expensive for both sides than it would otherwise have been. The cost of the nuclear arms race is likely to be increasingly burdensome for both countries during the next two decades. Weapons will become more expensive, and each will have difficulty in paying for them. Both are likely to suffer from lagging growth rates; both are subject to competing claims on national resources.²⁴

The two sides will differ in their respective capacities to sustain the arms race, but the differences will likely prove offsetting. The Soviet Union's economic circumstances will be far worse than those of the United States, the civilian uses for resources that would otherwise be invested in nuclear hardware far more pressing. But the Soviet government will have a political capacity for ignoring other needs and building weapons that will far exceed that of its American counterpart. The difficulties that both sides encounter in investing in new weaponry, however, will constitute the most powerful incentive they will have for reaching negotiated agreements limiting nuclear arms during the balance of the century. These incentives may well be powerful enough to make arms control, appearances to the contrary notwithstanding, increasingly attractive.

Negotiated agreements have served a final common interest in the last two decades. It is an interest that stems from anxiety about the consequences of the second broad force that will shape the nuclear future—the diffusion of nuclear weaponry. That final interest is the prevention, or at least the inhibition, of nuclear proliferation.

III

The improvement of nuclear weaponry has taken place at a more or less even pace, though its diffusion has been irregular. The arms race has proceeded more rapidly than hoped, the pace of proliferation has been slower than feared.

The regularity of the arms race makes it possible to predict with fair confidence what the American and Soviet nuclear arsenals will look like in the year 2000. The

technology that will be available in the near future is known now, and it may be presumed that both sides will make use of it. For the distribution of nuclear armaments beyond the jurisdictions of the superpowers the first question—what will the world look like?—is much more difficult to answer. It is hard to predict which countries will get the bomb in the next two decades.

For the answer to the second question—what difference will it make?—nuclear proliferation also differs from the Soviet-American arms race. To this question the answer for the diffusion of nuclear weapons technology seems much clearer than for its improvement.

Nuclear proliferation will be bad for the world, or so it is widely assumed. The more there is of it—the further, that is, that the bomb spreads—the worse it will be for everybody. The answer to the second question for the diffusion of nuclear technology affects the answer to the first. Because it is widely believed that proliferation will have invidious consequences the world has made a concerted, and partly successful, effort to prevent it.

The world's generally pessimistic, even baleful, attitude toward proliferation is in fact a series of interrelated beliefs. One is that the rate of proliferation is likely to accelerate. A few more nuclear weapon states will lead to several more, it is thought, and several more will lead to many more.²⁵ There is fear of a global scramble for the bomb like the "scramble for Africa" among the European imperial powers in the 1880s.

Another belief is that the more widely distributed nuclear weapons are the more likely it is that another nuclear war will occur.²⁶ Prospective owners of the bomb are considered more likely to use it than the present ones. It is anticipated that the introduction of nuclear armaments into political quarrels will worsen them.²⁷ And the farther nuclear weapons are diffused, it is assumed, the more likely it is that the bomb will fall into the hands of an irresponsible or even mad national leader. Nuclear proliferation is thought likely to make nuclear war more likely, finally, because, unlike the nuclear forces of the United States and the Soviet Union, the new arsenals will be small and thus vulnerable, and tempting, to a preemptive attack.²⁸

A third belief is that a single nuclear shot fired in anger will lead to many more. Breaking the nuclear taboo that has been in force since 9 August 1945, it is feared, will lead to a world in which nuclear war is common.²⁹

None of these beliefs is self-evidently correct. The pace of nuclear proliferation has not accelerated so far. The entry of the Soviet Union, Great Britain, France and China into what is sometimes called the "club" of nuclear weapon states did not touch off a stampede for membership.

The introduction of nuclear weapons into existing international conflicts might calm rather than aggravate them. This has, after all, been their effect on the rivalry between the United States and the Soviet Union.³⁰ Even if they do not dampen these conflicts, the result will not necessarily be nuclear war. The Arab-Israeli conflict has been one of the bitterest of the postwar period, giving rise to five wars in a quarter-century. In each of them both sides observed some restraints. And the impulse to launch preemptive attacks against infant nuclear arsenals may not prove to be overwhelming. The Soviet Union has managed to resist it as the Chinese nuclear force has grown. Small arsenals are not wholly vulnerable. A few bombs may be hidden or moved about to make preemption appear a chancey prospect.³¹ Israel

did attack a nuclear reactor in Baghdad, but this was before Iraq had any nuclear weapons.

Finally, the second nuclear war is scarcely guaranteed to lead quickly to a third, and a fourth. The first one had the opposite effect. The horror that Hiroshima and Nagasaki inspired has endured long after the cities have been rebuilt, and has helped to discourage the further use of the bomb.

Each of the counter-arguments to the widely held beliefs about the ill effects of nuclear proliferation has a measure of plausibility. None, however, commands much credence. They are rarely even made. The international community has chosen to believe that the diffusion of nuclear weapons is a bad thing, and for the same reason that Pascal chose to believe in God: It is the safer belief. Perhaps a world of many nuclear weapon states would be as peaceful as the present world. But if it should prove to be less peaceful the consequences would be frightful. The present world is familiar, and tolerable; better to try to keep it.³²

The conviction that the spread of nuclear weapons would be dangerous has been reinforced by another broadly held belief—that proliferation is a single global problem that every nation on the planet has an interest in addressing. The prevention of nuclear proliferation is to the international political system, it is widely held, what coping with environmental pollution and providing for the national defense are for domestic politics: an “externality,” the responsibility for which falls on everybody and that must be achieved collectively and cooperatively. The bomb is considered so powerful, and the effects of its acquisition, not to mention its use, by presently nonnuclear states are thought likely to reverberate so widely, that every state is believed certain to gain in the long term by keeping its distribution limited. Just as the American economy was considered so tightly interconnected that the failure of a large enterprise like Lockheed or the Franklin National Bank would ultimately injure even competing firms that stood to benefit in the short term, so the United States has seen an interest in keeping nuclear weapons out of the hands even of countries likely to aim them at the Soviet Union.

Proliferation is considered a global problem as well because it is thought to proceed by chain reaction. The American bomb, which was produced partly out of fear that Germany was seeking to make one, was followed by a Soviet atomic weapon; the Soviet nuclear force drove China into the nuclear business; India's nuclear explosion was a response to China's arsenal and now Pakistan is trying to get a bomb of its own to match India's achievement. The sequence of events leading to a Pakistani nuclear explosion, according to this interpretation, began with the Manhattan Project, which was completed before the Muslim state in South Asia was even founded.

This view of the origins of the world's nuclear weapons program is oversimplified. None of the decisions to acquire nuclear weapons that have been made so far has been based entirely on what others have decided. Nor is it obvious that the effects of proliferation will be felt everywhere. The opposite may turn out to be true; the introduction of nuclear weapons into a particular region may promote its insulation from the rest of the world.

Nonetheless, the belief that the spread of nuclear weapons is likely to affect everybody adversely and that the international system as a whole therefore has an abiding interest in retarding proliferation is a powerful one, and has given rise and

lent legitimacy to a nonproliferation “regime”—a series of rules, procedures and institutions designed to serve this purpose.³³

The presumption against proliferation is encoded in the Nonproliferation Treaty (NPT) of 1968. Its terms require states without nuclear weapons not to acquire them, and states with these weapons not to help states without them to get them. One section of the NPT establishes the International Atomic Energy Authority (IAEA), a kind of international civil service charged with monitoring the nuclear-fueled electric power generating plants located in the nonnuclear weapon states to be certain that the fuel that they consume and the waste that they produce are not treated and used as material for bombs. An informal adjunct to the IAEA came into existence in the 1970s to restrict the distribution of the technology for doing so. It consisted of representatives of states that manufactured the relevant equipment, for enriching uranium and reprocessing plutonium. Since they ordinarily convened in London it became known as the “London Suppliers’ Club.”

The pace of proliferation has been relatively slow. Since 1945 only five states have become full-fledged nuclear powers, a rate of less than one every seven years. This is evidently a tolerable rate. At least, none of the dire consequences that, it is feared, more rapid growth in the size of the club of nuclear weapon states will bring has come to pass. How much credit for this satisfactory state of affairs belongs to the nonproliferation regime?

No doubt the NPT, the IAEA and the London Suppliers’ Club have had something to do with it. The presumption against the bomb that the NPT makes official has raised the consciousness of the international community on the subject. Britain became a nuclear power as a matter of course, without pondering the consequences of obtaining the weapon. No country could become a nuclear weapon state unthinkingly now. France proudly announced its first nuclear weapon test in 1960. India, by contrast, gave little publicity to its 1974 explosion, except to stress its peaceful purposes.³⁴

The measures designed to restrict the distribution of nuclear weapon technology have also no doubt had some effect. Some states do not have the bomb because they can’t make it and others won’t give it to them.³⁵ This technology has diffused more slowly than most other industrial inventions. Most other inventions have not encountered the barriers of the sort that have been erected against the spread of the wherewithal for making the bomb. Many other inventions have in fact been deliberately exported. The pace of global industrialization in general would certainly have been slower if the other products of the industrial revolution had been treated as nuclear weapons have been by the nonproliferation regime; that is if every country had had to produce every industrial innovation by itself more or less from scratch. (Of course the NPT did not formally go into effect until 1970, 25 years after Hiroshima. Its central tenet had been practiced, however, from the beginning.)

Still, barriers to the spread of nuclear technology do not fully account for the slow pace of proliferation. They have not completely restricted the diffusion of this technology, nor are the secrets of making the bomb so arcane and formidable as to defy mastery by all but the states that presently have it. A large number of countries could have acquired nuclear weapons but have chosen not to do so.³⁶ Many of these countries signed the NPT. But international treaties do not have the same binding character as national laws, since there is no international police force to punish those who violate them. Rather than practicing nuclear abstinence because they have

signed the treaty these countries signed the treaty because they had decided, independently, not to acquire nuclear weapons.

Why did they decide not to do so? The general fears about the consequences of proliferation for the international system as a whole probably counted for little in most cases. A state makes such a decision not on the basis of what is good for the international community, or what is just, but what is in its own particular interest. The interest that nuclear weapons have the potential to serve is security, the basic strategic goal of every state. So the basis for past decisions to acquire and not to acquire them and for speculating about which states may decide to get them in the future is the strategic use of the bomb.

The body of nuclear doctrine comes from the superpowers. Its concepts have emerged to explain and to shape their nuclear policies. But their experience is not wholly relevant for other, lesser states, and can be a misleading guide to the circumstances in which the weapons are likely to seem valuable strategic assets for them.

The bomb's central feature is, of course, its immense destructive power. It is so destructive that it is not useful for fighting battles.³⁷ Nuclear weapons are useful for punishment, and punishment is a suitable goal only in retaliation for an attack. The threat of punishment is a powerful disincentive to attack. Thus, although their only actual use was for coercion, nuclear weapons serve the general purpose of defense through deterrence.³⁸ Deterrence is of course the purpose that the American and Soviet nuclear arsenals have served. Each threatens to punish the other, by destroying its cities, in response to an attack; so both are deterred from attacking.

But the superpowers do not wholly rely on nuclear deterrence to defend themselves. Both field large armies capable of defense through resistance rather than deterrence. Each has the capacity to achieve the universal goal of self-defense by being prepared to repulse an attack rather than simply by threatening to annihilate the homeland of the attacker. Moreover, the superpowers have other purposes besides self-defense, for which nuclear weapons are not well-suited. Each aspires to extend its influence beyond its borders. This is another reason why neither confines its military forces to nuclear weaponry. In sum, even without nuclear weapons the United States and the Soviet Union can do what nuclear weapons do best, and they wish to do things that nuclear weapons cannot do at all. Hence, the bomb is not well suited to the goals of the world's most powerful states.

It is better suited to the purposes of lesser, weaker states. For them self-defense is likely to be more important. But even for these states nuclear weapons are not necessarily attractive.

They may need to defend themselves against states of comparable power. In that case nuclear armaments may not be required; defense by repulsing an attack may be within their means and the threat of punishment unnecessary. In such cases, in fact, nuclear weapons may be not only unnecessary but undesirable. A state pondering how to protect itself against a neighbor must worry that if it acquires nuclear weapons the neighbor will also get them. It must worry, that is, about starting a chain reaction. Just as the two superpowers deter each other from using nuclear weapons, therefore, lesser powers may deter each other from acquiring them.

Even if the acquisition of the bomb by one state prompted its neighbor to get it as well the first state might still be better off than it would have been if neither had nuclear weapons. But overhanging the first state's nuclear deliberations would be

the fear that lies at the heart of the world's attitude toward proliferation, namely that it would be worse off.

There is a middle path between nuclear abstinence and formal entry into the club of nuclear weapon states. This is the path of what has been called "quasi-proliferation."³⁹ It involves the acquisition of some but not all of the elements of a full-fledged nuclear arsenal. India has detonated a nuclear explosion but has not fabricated a bomb. Israel is widely believed to have a store of bombs, or be a few simple steps away from having one, but has never admitted to this or exploded a nuclear device.

Both India and Israel get some of the benefits of having nuclear weapons. Their would-be adversaries must reckon with the possibility of incurring nuclear punishment in reply to an attack on them. Neither, however, has had to bear the full weight of the disadvantages that nuclear proliferation courts. Neither has suffered serious condemnation by the international community. More important, none of the neighbors of either country has acquired nuclear armaments—yet.

A lesser power may confront not another lesser power but a superpower. In this case nuclear weapons seem, on the surface, more unambiguously attractive. A weaker state cannot hope to ward off an attack by a superpower, and so must defend itself by deterrence through the threat of punishment. While lesser states do not have the means to contrive successful nonnuclear defenses against either of the superpowers, most can aspire to modest nuclear arsenals, which they can threaten to hurl at the superpower's cities. Although they cannot hope to match the thousands of nuclear weapons that the superpowers have, each weapon is so powerful that a handful may well be enough to deter a superpower attack. This, of course, is the rationale for the French nuclear force, and probably for the Chinese as well. Because smaller and with less versatile delivery vehicles than those of the superpowers, the nuclear arsenals of lesser states might seem vulnerable to preemptive superpower attack. They are inevitably more vulnerable to such an attack than those of either the United States or the Soviet Union. It is far from clear however that they are inevitably so vulnerable that they are useless, or invite preemptive attacks.

So the states for whom nuclear weapons make the most sense are those that fear one or the other superpower—or both, as was the case for China during the 1960s. The list of such states is a long one; yet few of them have acquired the bomb. Why have most chosen to do without it? There are several reasons.

Since 1945 the territorial and political integrity of most of the more than 170 states of the world have been respected. Though there have been some violations, few of them have been committed by the United States or the Soviet Union. Since 1945 the superpowers have conducted themselves quite differently toward less powerful peoples than did the great European powers of the eighteenth and nineteenth centuries, who conquered much of the non-European world and incorporated it into large multinational empires. Because the age of empire is over, the felt need for nuclear weapons has been weaker than it might otherwise have been.

Some states have well-founded fears of superpower intervention but lack the technical capability or the political autonomy—or both—to assemble a nuclear arsenal. A multinational empire does, after all, still hold sway in Central and Eastern Europe, but the nations that are part of it have never had the opportunity to acquire nuclear armaments. Afghanistan and Poland are obvious examples of states with the incentive but not the means to get the bomb.

Other states have decided, at least for the time being, that although they must rely on the threat of punishment to discourage interloping by the superpowers they can mount an adequate threat without a nuclear arsenal. Finland, Sweden, and Yugoslavia all have nonnuclear defense plans designed to make a Soviet invasion costly, although none could, in the end, withstand a determined Soviet attack.

Finally, there are states that need to rely on nuclear deterrence but have managed to do so without formally obtaining nuclear weapons themselves. These are the states that have allied themselves with one of the superpowers, on whom they count to deter an attack on them by the other one. This is the security policy of the Western European members of Nato and of Japan. It is the reason why the American system of alliances is often cited as an even more important institutional bulwark against the spread of nuclear weapons than the NPT.

The future of nuclear proliferation will depend in part on the barriers to the spread of nuclear weapon technology. Since the widely shared aversion to the spread of the weapons themselves will continue, these are likely to remain in place, although they may become increasingly permeable.

Even if they do, the political incentives for acquiring the bomb may well continue to be modest for most countries. It is on the force of these incentives for the growing number of states with the technical capacity to make the bomb that the pace and scope of proliferation will also depend.

It will depend, as well, on the political consequences of the proliferation that does take place. South Asia offers a test case. Pakistan is apparently going to great lengths to equip itself with nuclear weapons. If it succeeds in getting them this will show that the nuclear regime is not foolproof, that a state determined to obtain the relevant technology can manage to do so.⁴⁰ A Pakistani bomb would support the assumption that nuclear proliferation proceeds by chain reaction.⁴¹ A Pakistani nuclear weapon program would also present an instructive test of the attractions of "quasi-proliferation." Pakistan might be expected to match India's explosion without proceeding to manufacture a weapon. India's response to such an explosion, and the subsequent course of relations between the two, will similarly provide a test of the effects of the introduction of nuclear armaments into a previously nuclear-free region. A Pakistani nuclear weapon program, if there is one between now and the year 2000, will illuminate a final factor that will influence the global distribution of these armaments: the response of the international community.

The world has responded to proliferation in the past in two not fully consistent ways. The political status of each state that has acquired nuclear weapons has not changed very much. The United States and the Soviet Union became political rivals independently of either's nuclear weapons program. Britain and France remained American allies after getting the bomb. The Sino-Soviet split predated the first Chinese nuclear explosion, and the United States was willing to improve relations with the People's Republic despite, but not necessarily because of, the Chinese nuclear arsenal. India's nuclear explosion has had little evident effect on its relations with the rest of the world.

Yet each milestone in the history of nuclear proliferation, each unexpected or unsettling addition to the club of nuclear weapon states, has given rise to an effort to keep others from following suit. Each has provoked efforts, that is, to create a nonproliferation regime or to shore up the existing one.

The American bombing of Hiroshima and Nagasaki inspired the most dramatic, sweeping scheme of all for preventing the further spread of the bomb, the Baruch Plan, which proposed to put all aspects of atomic energy under international control. It was never implemented because, although one of the great powers, the United States, was its chief sponsor, the other, the Soviet Union, opposed it.

No nonproliferation measure has a chance of success without at least the tacit support of both. But both *have* supported measures general enough so as not to conflict directly with their specific political goals. In response to the French and especially the Chinese nuclear explosions they worked out the terms of the NPT, and then coaxed and pressured other countries to sign it. The Indian explosion of 1974, and the prospective sale of uranium enrichment and plutonium reprocessing facilities to nations considered likely to develop nuclear weapons, led to the formation of the London Suppliers' Club and ultimately to the series of international meetings whose purpose was to write ground rules for international commerce in nuclear equipment called the International Nuclear Fuel Cycle Evaluation Conference.⁴²

The next unanticipated or troubling nuclear event, such as evidence of acquisition of the weapon by another state, can be expected to have a comparable effect. It will have an even greater effect if it is the use of nuclear weapons by one or more of the states that already have them. The second nuclear war will shock the world. The consequences of that shock are difficult to predict. But it is safe to assume that it will engage the energies of the third broad source of influence over the nuclear future, the one whose impact is the least certain, Western public opinion.

IV

In both the United States and Western Europe public opposition to the nuclear weapon policies of the Nato governments has increased dramatically in the first years of the 1980s. In this as in other things the two wings of the Atlantic alliance differ. The issues around which public disquiet have crystallized are not the same. In the United States it is the demand that the two superpowers "freeze" their nuclear arsenals at their existing levels, that neither of them tests, produces, or deploys any more of them. On the other side of the ocean it is the plan to deploy on Western European soil American intermediate-range nuclear weapons capable of striking targets in the Soviet Union. The American and European protest movements have different origins and different political characters. They may have different effects on the military and political future of the alliance. They therefore must be considered separately.

In the United States petitions, rallies, and marches have been sponsored by groups formed to educate the public and lobby the government on nuclear weapons issues. These groups are made up of members of the various professions—the Physicians for Social Responsibility has been particularly active—and of representatives of the clergy, especially the Catholic Conference of Bishops and the Protestant National Council of Churches.

The inspiration for the flurry of activities comes from what the Reagan administration has done and especially from what the President has said, which have tapped a current of anxiety about the bomb in the American psyche that has been present since 1945 but has rarely risen to the surface of public discussion.

There have been a few occasions when this underlying sense of unease has made itself felt and influenced public policy. The first Soviet atomic test in 1949 and causing the launch of the Soviet Sputnik in 1957 alarmed the public. During the Berlin crisis of 1961 President Kennedy announced plans for every American to have access to a fallout shelter, touching off a mild wave of panic in the country and causing the administration to back away from the program.⁴³ In the late 1960s the proposal to build antiballistic missile systems to protect American cities aroused considerable opposition, and a decade later the plan to base the M-X missile in a system of multiple interconnected shelters in the desert of the southwestern United States ran afoul of public hostility in that part of the country.

These episodes had an important feature in common. Each forced Americans to think about what they prefer, and ordinarily manage, to ignore: the nuclear peril in which we all live. Each made explicit what is universally understood but usually kept implicit: that nuclear war, a war that could annihilate cities and civilian populations as well as military forces, is technically possible.⁴⁴

The nuclear weapons policies of the first eighteen months of the Reagan administration have had the same effect. The President himself carried the burden of lingering doubts about his capacity for keeping the nuclear peace. This he owed to the occasionally bellicose rhetoric that had marked his political career, and particularly to the 1976 presidential election, when his rival for the Republican nomination, the incumbent President Gerald Ford, put these doubts at the center of his own campaign in the primaries. "Governor Reagan couldn't start a war. President Reagan could" said one of the Ford television commercials.

Ordinarily someone whose trustworthiness on the nuclear issue is subject to public doubt cannot be elected president. This was Barry Goldwater's fate. Mr. Reagan worked assiduously to dispel those doubts, and in 1980 succeeded well enough to win the general election. But they were reawakened by his administration's hostility toward, and its failure to take up, nuclear negotiations with the Soviet Union, its public discussion of the possibility of fighting and winning a nuclear war, its emphasis on civil defense, and the public disagreement between the secretaries of State and Defense about whether Nato plans called for the firing of a nuclear "warning shot" should the Soviets attack in Europe. It is unlikely that any one of these events by itself would have struck the American public's nuclear nerve. Their accumulation, in combination with previous suspicions about the President, touched off a wave of "nuclear populism."

Its animating issue was of course quite different from the high interest rates and transportation charges that turned the original populists, western and southern farmers, against eastern banks and railroads and their political representatives at the end of the nineteenth century. But, like the original populism, the present variety is a movement that comes from the grass roots of politics. It was not called into existence by political leaders, nor has it found a home in either of the two major political parties. It owes something to the civil rights and antiwar movements of the 1960s. Many of its adherents are veterans of those enterprises, and some of the tactics from that period have carried over to the present.

There are also instructive similarities between the protests against American nuclear weapons policies and a movement whose members tend to come from the opposite end of the American political spectrum, the movement for a Constitutional

amendment to require the federal budget to be balanced. Both are citizens' movements, begun outside Washington by people without professional political credentials. Both gained sufficient support for national political leaders to attach themselves to the causes that they represent. Prominent senators endorsed the proposal for a nuclear "freeze" and President Reagan threw his weight behind the balanced budget amendment only after the strength of feeling in the country for each had become apparent.

Despite these endorsements each movement is directed against, because based on distrust of, national political leaders. Elected officials of all political stripes profess allegiance to the principle that each movement seeks to promote—nuclear and fiscal restraint. These officials tend to argue, however, that the specific measure the movement has adopted is too restrictive, and if enacted would subvert rather than help to achieve the commonly sought goal. Committing the United States to precisely the weapons that it has now, it is said, would do away with any Soviet incentive to negotiate; it would force the United States to retain obsolete, dangerous weapons and forgo new and safer ones. Similarly, it is argued, a rigid commitment to a balanced budget would prevent the necessary adjustments of federal fiscal policy to changing economic conditions. A balanced budget is advisable in some circumstances, devastating in others, as at the beginning of the Great Depression of the 1930s.

But one of the purposes of each movement is precisely to tie the hands of public officials. Without statutory limits on their freedom of maneuver, partisans of both the nuclear freeze and the balanced budget amendment believe, political leaders will *not* exercise nuclear or fiscal restraint no matter what they say. Each movement thus partakes of a current of opinion that has become increasingly powerful in the United States in the last two decades: public distrust of government.

The comparison with the movement for a balanced budget amendment suggests the possible impact of the antinuclear movement. Although a substantial number of state legislatures have ratified the amendment and the President has endorsed it, it is not likely to become part of the Constitution. It has already served as a vehicle for the cause of fiscal restraint, however. The attention that it has received has helped make orthodox in both parties the idea that the budget should be in balance, an idea accepted by neither party a decade ago. It has pushed the politics of the federal budget in the desired direction. Similarly, although a formal freeze is unlikely, the antinuclear movement has made arms control a more pressing political issue than it was at the outset of the Reagan administration. It has created political pressure for the resumption, and the conclusion, of arms control negotiations, to which the administration has responded.

European discontent with Nato's nuclear weapons policies has roots in Europe's thirty-year relationship with the United States. The Western Europeans depend on the United States for their security. Specifically, they depend on the American nuclear arsenal to deter an attack by the Soviet Union. It is therefore the Americans, not they themselves, who have ultimate control over their destiny. This has given rise to two concerns which are inherent in the nature of an alliance. One is the fear of abandonment. The Europeans have worried that if the Soviet Union attacks them the United States will not come to their rescue, especially since this would put the continental United States at risk. The other and recently more powerful fear is that

of entrapment. The Europeans have worried that the United States will drag them into a conflict, in Europe or elsewhere, that they have no wish to fight.⁴⁵

The fear of entrapment has been all the greater because of a divergence in view of the Soviet Union, and of the policy of relaxation of tensions with the other superpower known as *détente*. In American eyes *détente* has been a failure, yielding few benefits and providing the occasion for Soviet gains at the expense of the West through a military buildup, the invasion of Afghanistan, and the extension of Soviet influence by military means in Southern Africa. The appropriate Western response is a tougher military and political approach to the East. For the Europeans the gains have been substantial; increases in east-west trade, cultural exchanges, and especially easier relations between the two German states. These are gains they are unwilling to surrender by adopting the policies toward the Soviet Union that the United States favors.⁴⁶

The European antinuclear movement, like its American counterpart, is partly the product of nervousness about the Reagan administration. It is not wholly the creation of the present American government, however. It was the Carter administration that stirred European anxieties by proposing to deploy the enhanced radiation warhead, or "neutron bomb," which Europeans feared would make nuclear combat in their homelands appear less catastrophic and so become more likely. The European movement has, however, a political characteristic that is missing in the American version. It has roots in left-wing politics on the continent and in Great Britain. The British END movement, the left wing of the German SPD, the French Socialists (although not since M. Mitterrand's election as President of the republic), the Italian Communists, and Mr. Papandreou's PASOK in Greece have called at one time or another, in one form or another, for the removal of all nuclear weapons from Europe.

This position appeals to the European left on several counts. It is a way of opposing the United States without embracing the Soviet Union. It promises the diversion of resources from military to social programs, an important goal of the left.⁴⁷ It is consistent with the left's reformist impulse, a program for peace abroad that corresponds to the commitment to justice at home.

Since the European antinuclear movement is divided among different countries it is difficult to come to any general conclusion about its likely impact. It is safe to say, however, that it will put pressure on Western governments to arrive at agreements on nuclear weapons with the Soviet Union. The pressure has already been felt. The deployment of the extended-range Pershing missiles and cruise missiles ticketed for Western Europe has been made contingent on progress in negotiations to limit weapons of this type.

There is another, more radical, although for that reason less likely consequence of the European antinuclear movement that bears mentioning. The removal of nuclear weapons from the continent, for which left-wing political groups have called, is part of a larger goal, which is also explicitly invoked on occasion: the dissolution of the two military blocs. The antinuclear movement is motivated by, among other things, the wish to get Europe out from under the control of the two superpowers, and to restore the political independence of the continent and the British Isles that disappeared in 1945.

It is an understandable wish. The aspiration to independence is universal. No state will feel wholly comfortable while its fate rests in the hands of others. It is also an

unrealistic wish. The two blocs are not about to dissolve. To be precise, the *Soviet* block is not about to dissolve, not as long as the Communist Party of the Soviet Union has the military power to prevent this, which seems likely to be a very long time. The Western alliance, however, unlike its Eastern counterpart is voluntary. It is not immune to substantial change, including the kind of change implied by the European antinuclear movement.

It is in one sense surprising that such a change has not already occurred. The Atlantic alliance began as a guarantee pact, with the United States extending a guarantee to Western Europe, not as the integrated military force that is stationed on the continent today. The United States promised to help the Europeans in the event of a Soviet attack. It was thought, however, that the Europeans would assume most of the responsibility for defending themselves once they had regained economic health. The restoration of economic well-being was the purpose of American policy toward Western Europe from 1947 to 1950. With the outbreak of the Korean war American troops were dispatched to Europe for a stay of indefinite duration, and Nato was transformed. Western Europe has, of course, long since recovered from the ravages of World War II, but continues to depend heavily on the United States for its defense.

It need not do so. The nations of Western Europe have the resources to defend themselves without American troops, even without an American guarantee. If they should assume the full burden of their own defense they would achieve one of the goals of the antinuclear movement. They would free themselves from American tutelage. Their fate would no longer be tied to that of the United States. They would be able to conduct independent foreign policies.

But they would have to sacrifice another of the antinuclear movement's aims. Independence would require more European armaments, not fewer. It would require that nuclear weapons be more widely distributed in Europe than they are at present. Without the American nuclear umbrella the impulse would be strong for the states of Western Europe that do not presently have them, notably the Federal Republic of Germany, to get them.

This is not a likely future. It is not likely for the same reason that proliferation seems a dubious risk; indeed it is a future marked by proliferation. Whatever the disadvantages of the current arrangements for the defense of Western Europe they are familiar, tolerable. Change would bring unknown consequences; better, therefore, to try to avoid it.

But it is a possible future. In the distribution of nuclear weapons it would *look* different, and in the consequences of that distribution for international politics it would *be* different, from what the world has known in the past.

NOTES

1. For a brief summary of the defense problem see Jan M. Lodal, "Deterrence and Nuclear Strategy," *Daedalus*, Fall 1980, pp. 164-5.

2. George Rathjens and Jack Ruina, "Nuclear Doctrine and Rationality," *Daedalus*, Winter 1981, p. 182.

3. *Ibid.*, p. 181.

4. The clearest statement of this argument is Robert Jervis, "Why Nuclear Superiority Doesn't Matter," *Political Science Quarterly*, Winter 1979-80, pp. 617-633. See also Rathjens and Ruina, pp. 185-6.

5. Lodai, pp. 159, 163; Richard K. Betts, ed., "Innovation, Assessment, and Decision," in Betts, *Cruise Missiles: Technology, Strategy, Politics*. (Washington, D.C.: The Brookings Institution, 1981), p. 15.

6. Rathjens and Ruina, p. 184.

7. The case that a superior Soviet hard-target capability is detrimental to American interests is in Paul H. Nitze, "Assuring Strategic Stability in an Era of Détente," *Foreign Affairs*, January 1976, pp. 207-232. A different view of the problem may be found in John Steinbruner and Thomas Garwiu, "Strategic Vulnerability: The Balance Between Prudence and Paranoia," *International Security*, Summer 1976, pp. 138-181.

8. Michael Mandelbaum, *The Nuclear Question: The United States and Nuclear Weapons, 1946-1976* (New York: Cambridge University Press, 1979), Chapter 6, and Michael Mandelbaum, "In Defense of SALT," *The Bulletin of the Atomic Scientists*, January 1979, p. 16.

9. The discussion of the cruise missile is drawn from Betts, ed., especially the introductory and concluding essays by the editor, "Innovation, Assessment and Decision," and "Complexities, Uncertainties and Dilemmas."

10. *Ibid.*, p. 513.

11. *Ibid.*, pp. 521, 523, 553.

12. *Ibid.*, pp. 171, 518.

13. William Kincade, "Over the Technological Horizon," *Daedalus*, Winter 1981, p. 107.

14. *Ibid.*, pp. 110, 114, 135. The vulnerability of command and control facilities is a problem for the superpowers' strategic forces as well. See John Steinbruner, "Nuclear Decapitation," *Foreign Policy*, Winter 1981-82, pp. 16-28.

15. David Holloway, "Military Power and Political Purpose in Soviet Policy," *Daedalus*, Fall 1980, p. 23.

16. *Ibid.*, p. 20. Raymond Garthoff, "Mutual Deterrence and Strategic Arms Limitation in Soviet Policy," *International Security*, Summer 1978, p. 122; Stanley Sienkiewicz, "SALT and Soviet Nuclear Doctrine," *International Security*, Spring 1978, p. 97.

17. Kincade, p. 113; Fritz W. Ermarth, "Contrasts in American and Soviet Strategic Thought," *International Security*, Fall 1978, pp. 148-9; Dimitri K. Simes, "Deterrence and Coercion in Soviet Policy," *International Security*, Winter 1980-81, pp. 96-7. The difference between the American and Soviet attitudes toward escalation dominance may be due to the fact the concept is the work largely of civilian strategists, who have been prominent in the development of American nuclear doctrine but have played, so far as is known, no comparable role in the Soviet Union. There may be a tendency for the professional military, who dominate nuclear affairs there, to concentrate on the strictly military uses rather than the political implications of nuclear armaments. The professed Soviet disinterest in escalation dominance may also stem from a felt disadvantage in the weaponry necessary for it. The American nuclear arsenal is larger and more versatile than its Soviet counterpart, and more of the Soviet nuclear force is deployed in fixed sites that are vulnerable to counterforce strikes.

18. Strohe Talbott, *Endgame: The Story of SALT II* (New York: Harper and Row, 1979).

19. Joseph J. Kruznel, "Arms Control and American Defense Policy: New Alternatives and Old Realities," *Daedalus*, Winter 1981, p. 137ff.

20. *Ibid.*, p. 142ff.

21. Mandelbaum, *The Nuclear Question*, pp. 12-18, Chapters 2, 7.

22. Mandelbaum, "In Defense of SALT," p. 21.

23. Kruznel, p. 157.

24. Mandelbaum, *The Nuclear Revolution* (New York: Cambridge University Press, 1981), pp. 136-46. On the United States see James Fallows, *National Defense* (New York: Random House, 1981), Chapter 1; on the Soviet Union see Seweryn Bialer, *Stalin's Succession: Leadership, Stability and Change in the Soviet Union* (New York: Cambridge University Press, 1980), Chapter 15.

25. George Quester, "In Defense of Some Optimism," in Quester, ed., *Nuclear Proliferation: Breaking the Chain* (Madison, Wisc.: University of Wisconsin Press, 1981), p. 10.

26. Lewis A. Dunn, *Controlling the Bomb: Nuclear Proliferation in the 1980s* (New Haven: Yale University Press, 1982), pp. 18-23.

27. *Ibid.*, p. 70, 71.

28. *Ibid.*, p. 9.

29. *Ibid.*, pp. 9-10.

30. Kenneth N. Waltz, *The Spread of Nuclear Weapons: More May Be Better*, Adelphi Paper 171 (London: The International Institute for Strategic Studies, 1981), p. 11. This paper presents a powerful challenge to the widely held beliefs about nuclear proliferation.

31. *Ibid.*, pp. 15-16.

32. Joseph S. Nye, "Maintaining a Nonproliferation Regime," in Quester, ed., p. 33.

33. *Ibid.*

34. Dunn, pp. 8, 10.

35. *Ibid.*, p. 24 ff.

36. Waltz, p. 29.

37. There are battlefield nuclear munitions; but these have never been used and are in any case available only to the superpowers.

38. For a similar analysis see Waltz, pp. 5-7.

39. Quester, p. 1, and Quester, "Preventing Proliferation: The Impact on International Politics," in Quester, ed., p. 224.

40. Dunn, pp. 36, 45-6; Onkar Marwah, "India and Pakistan: Nuclear Rivals in South Asia," in Quester, ed.

41. In this sense the cause of nonproliferation might be better served if Pakistan does than if it does not acquire nuclear weapons, since the fear of triggering a chain reaction presumably serves as a deterrent to getting the bomb.

42. Nyc, p. 19.

43. Mandelbaum, *The Nuclear Question*, pp. 119-124.

44. For speculation about why and how this is usually ignored see Mandelbaum, *The Nuclear Revolution*, Chapter 8.

45. These ideas are discussed in Mandelbaum, *The Nuclear Revolution*, Chapter 6.

46. A good general discussion of this widely discussed issue is Josef Joffe, "European-American Relations: The Enduring Crisis," *Foreign Affairs*, Spring 1981, pp. 835-851.

47. Pierre Hassner, "Arms Control and the Politics of Pacifism in Protestant Europe," Working Paper Number 31, The Woodrow Wilson International Center for Scholars International Security Studies Program, Washington, D.C., 27 October 1981, p. 13.

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