disarmament arrangements, and of political and economic arrangements.

We are dealing with a process that is inherently frantic, noisy, and disruptive, in an environment of acute uncertainty, conducted by human beings who have never experienced such a crisis before and on an extraordinarily demanding time schedule. We have to suppose that the negotiation would be truncated, incomplete, improvised, and disorderly, with threats, offers, and demands issued disjointedly and inconsistently, subject to misunderstanding about facts as well as intent, and with uncertainty about who has the authority to negotiate and to command. These six topics are therefore not an agenda for negotiation but a series of headings for sorting out the issues that might receive attention. They are an agenda only for thinking in advance about the termination of war, not for negotiation itself.

How soon should the terminal negotiations begin? Preferably, before the war starts. The crisis that precedes the war would be an opportune time to get certain understandings across. Once war became an imminent possibility, governments might take seriously a "strategic dialogue" that could powerfully influence the war itself. In ordinary peacetime the Soviet leaders have tended to disdain the idea of restraint in warfare. Why not? It permits them to ridicule American strategy, to pose the deterrent threat of massive retaliation, and still perhaps to change their minds if they ever have to take war seriously. On the brink of war they would. It may be just before the outbreak that an intense dialogue would occur, shaping expectations about bringing the war to a close, avoiding a contest in city destruction, and keeping communications open.

It is sometimes wondered whether communications could be established mid-course in a major war. The proper question is whether communications should be cut off. There would have been intense communication before the war, and the problem is to maintain it, not to invent it.

6

THE DYNAMICS OF MUTUAL ALARM

With every new book on the First World War it is becoming more widely appreciated how the beginning of that war was affected by the technology, the military organization, and the geography of Continental Europe in 1914. Railroads and army reserves were the two great pieces of machinery that meshed to make a ponderous mechanism of mobilization that, once set in motion, was hard to stop. Worse: it was dangerous to stop. The steps by which a country got ready for war were the same as the steps by which it would launch war, and that is the way they looked to an enemy.

No one can quite say just when the war started. There was a great starting of engines, a clutching and gearing and releasing of brakes and gathering momentum until the machines were on collision course. There was no "final" decision; every decision was partly forced by prior events and decisions. The range of choice narrowed until the alternatives were gone.

Railroads made it possible to transport men, food, horses, ammunition, fodder, bandages, maps, telephones, and everything that makes up a fighting army to the border in a few days, there to launch an attack or to meet one, depending on whether or not the enemy got to the border first. Reserve systems made it possible to field an army several times the size that could be afforded continuously in peacetime. Business management on a scale eclipsing any other enterprise known to government or industry determined the railroad schedules, the depots, the order of call-up and shipment, the ratio of horses to caissons, hay to horses, ammunition to gun-barrels, combat troops to field kitchens, the empty cars returning for more, the evacuation of rail-

heads to make room for more troops and kitchens and hay and horses coming in, and the matching of men with units, units with larger units, and the communications to keep them in order.

This miracle of mobilization reflected an obsession with the need for haste—to have an army at the frontier as quickly as possible, to exploit the enemy's unreadiness if the enemy's mobilization was slower and to minimize the enemy's advantages if he got mobilized on the frontier first. The extraordinary complexity of mobilization was matched by a corresponding simplicity: once started, it was not to be stopped. Like rush-hour at Grand Central, it would be fouled up enormously by any suspension or slowdown. A movie of it could be stopped; and while the movie is stopped everything is suspended—coal does not burn in the engines, day does not turn to night, horses get no thirstier, supplies in the rain get no wetter, station platforms get no more crowded. But if the real process is stopped the men get hungry and the horses thirsty, things in the rain get wet, men reporting for duty have no place to go, and the process is as stable as an airplane running out of fuel over a fogged-in landing field. Nor is the confusion merely costly and demoralizing; the momentum is gone. It cannot be instantaneously started up again. Whatever the danger in being slow to mobilize, worse still would be half-mobilization stopped in mid-course.

This momentum of mobilization posed a dilemma for the Russians. The Czar wanted to mobilize against Austria with enough speed to keep the Austrians from first finishing off Serbia and then turning around to meet the threatened Russian attack. The Russians actually had mobilization plans for the contingency, a partial-mobilization plan oriented toward the southern front. They also had full-mobilization plans oriented toward the main enemy, Germany. As a precaution against German attack, full mobilization might have been prudent. But full mobilization would threaten Germany and might provoke German mobilization in return. Partial mobilization against Austria would not threaten Germany; but it would expose Russia to German attack because the partial mobilization could not be

converted to full mobilization. The railroads were organized differently for the two mobilization plans. The Russian dilemma was to "trust" in peace with Germany—in the face of a German threat to mobilize if Russia mobilized against Austria—and try to preserve it by mobilizing only against Austria, or to hedge against war with Germany by mobilizing for it and thus to confront Germany with an Eastern enemy mobilizing as though for total war.[1]

How different it would have been if the major countries had been islands, as Britain was. If a hundred miles of rough water had separated every country from its most worrisome enemy the technology of World War I would have given the advantage to the country invaded, not to the invader. To catch the enemy's troop ships on the high seas after adequate warning of the enemy's embarkation, and to fight on the beaches against amphibious attack, with good internal communications and supplies against an enemy dependent on calm seas for getting his supplies ashore—especially for a country that preferred to arm itself defensively, with railroad guns and shore batteries, and submarines to catch the enemy troopships—would have given so great an advantage to the defender that even an aggressor would have had to develop the diplomatic art of goading his opponent into enough fury to launch the war himself. Speed might have mattered to the defender, but not much. If in doubt, wait; or mobilize "partially" until the situation clears up. Being a few days late won't matter if it takes the enemy several days to load his armada and cross the channel; and defensive mobilization will not threaten the other country with attack and provoke its own.

It is not inherent in the logic of warfare, or in the science of weaponry, that haste makes all that difference. With some kinds of geography and technology speed is critical—with other kinds, not. But in 1900, with the transport and military technology

1. See Ludwig Reiners, *The Lamps Went Out in Europe* (New York, Pantheon Books, 1955), pp. 134 ff. His three chapters, 13–15, pp. 123–58, are the best I know on the dynamics of mobilization and their effect on decisions. See also Michael Howard, "Lest We Forget," *Encounter* (January 1964), pp. 61–67.

available then to Europe (and which had been tested in the Franco-Prussian war), being fast on the draw appeared decisive.

> Victory can only be insured by the creation in peace of an organization which will bring every available man, horse, and gun (or ship and gun if the war be on the sea) in the shortest possible time, and with the utmost possible momentum, upon the decisive field of action. . . . The statesman who, knowing his instrument to be ready, and seeing war inevitable, hesitates to strike first, is guilty of crime against his country.

So reads Colonel Maude's introduction to Clausewitz.[2]

Even if we have no control over the way technology unfolds we can still know what we like. And what we like is a military technology that does not give too much advantage to haste. We like that whether we are Russians, Americans, or anybody else. The worst military confrontation is one in which each side thinks it can win if it gets the jump on the other and will lose if it is slow. Let us modify Colonel Maude's statement: The statesman who, knowing his instrument to be ready *on condition he strike quickly,* knowing the enemy instrument to be equally ready, knowing that if he hesitates he may lose his instrument and his country, knowing his enemy to face the same dilemma, and seeing war not inevitable but a serious possibility, who hesitates to strike first is—what?

He is in an awful position. It is a position that both he and his enemy can equally deplore. If neither prefers war, either or both may yet consider it imprudent to wait. He is a victim of a special technology that gives neither side assurance against attack, neither such a clear superiority that war is unnecessary, and both sides a motive to attack, a motive aggravated by the sheer recognition that each other is similarly motivated, each suspicious that the other may jump the gun in "self-defense."

Among all the military positions that a country can be in, in

2. Karl von Clausewitz, *On War* (New York, Barnes & Noble, 1956), introduction by F. M. Maude. The date of this introduction is apparently around 1900.

relation to its enemy, this is one of the worst. Both sides are trapped by an unstable technology, a technology that can convert a likelihood of war into certainty. Military technology that puts a premium on haste in a crisis puts a premium on war itself. A vulnerable military force is one that cannot wait, especially if it faces an enemy force that is vulnerable if the enemy waits.

If the weapons can act instantaneously by the flip of a switch, a "go" signal, and can arrive virtually without warning to do decisive damage, the outcome of the crisis depends simply on who first finds the suspense unbearable. If the leaders on either side think the leaders on the other are about to find it unbearable, their motive to throw the switch is intensified.

But almost certainly there is more to it than just throwing the switch; there are things to do, and there are things to look for. Things to look for are signs of whether the enemy is getting closer to the brink or has already launched his force. The things to do are to increase "readiness." Readiness for what?

Some steps can increase readiness to launch war. Some steps reduce vulnerability to attack. The mobilization systems of continental countries in 1914 did not discriminate. What one did to get ready to meet an attack was the same as what one did to launch an attack. And of course it looked that way to the enemy.

There is bound to be overlap between the steps that a country can take to get ready to start a war and the steps it can take to make war less inviting to its enemy or less devastating to itself. There is no easy way to divide the measures of alert and mobilization into "offensive" and "defensive" categories. Some of the most "defensive" steps are as important in launching a war as in awaiting enemy attack. Sheltering the population, if shelter is available, is an obviously "defensive" step if the enemy may launch war before the day is out. It is an equally obvious "offensive" step if one expects to launch an attack before the day is out and wants to be prepared against counterattack and retaliation. To stop training flights and other incidental air force activity, readying the maximum number of bombers on airfields,

is a way of assuring greater reprisal against the enemy in case he attacks us; it can also be a step toward readiness to attack the enemy.

Still, though there is overlap, there can be a difference. One readiness step that was widely reported at the time of the Cuban crisis was the dispersal of bombers to alternate airfields. The airfields of many large cities are capable of handling air force bombers; in peacetime it would be a nuisance, an expense and possibly a danger, to keep bombers with bombs dispersed to large-city airfields. But in a crisis, when it is important not to confront the enemy with a bomber force that is too easy a target for his missiles, doubling or trebling the number of bases among which the bombers are dispersed can be worth some nuisance, some expense, even some danger. The bombers are in no better condition to launch an attack if they are dispersed away from their main bases; they may actually be somewhat less ready for a coordinated surprise attack, especially since they may be more susceptible to enemy surveillance. But they are less vulnerable to enemy attack. Thus the *comparison* of our readiness for a war that *we* start and our readiness for a war that the *enemy* starts is changed by such dispersal. Whatever the wisdom of converting large-city airfields into urgent military targets—and it is preposterous unless the bombers are desperately in need of a modest improvement in their security—one can at least recognize that such dispersal mainly reduces vulnerability to attack rather than increasing the advantage to be gained by launching an attack.

There can also be a difference in the sheer timing of mobilization. The enemy can presumably take steps for his own readiness at the same time we take steps for our own. If the steps he takes reduce his vulnerability to attack, reducing the advantage to us of a sudden surprise launch of our strategic forces and giving him greater assurance of our unlikelihood to do that, then just allowing him time for such increased readiness will reduce our offensive capability relative to our defensive, or our "counterforce" capability relative to our "retaliatory" capability. The way both sides alert their forces and mobilize in a crisis can have much to do with whether the situation becomes increas-

ingly dangerous or not. The degree of readiness, the extent of mobilization, the high alert status of strategic forces and a sense of "confrontation" will make the situation tense and expectant and hostile in appearance. The situation may not be more dangerous at the end of a day's mobilization, though, if each side provides the enemy less to be gained by sudden attack and the penalty on waiting (the premium on haste) is reduced.

The Mischievous Influence of Haste

The premium on haste—the advantage, in case of war, in being the one to launch it or in being a quick second in retaliation if the other side gets off the first blow—is undoubtedly the greatest piece of mischief that can be introduced into military forces, and the greatest source of danger that peace will explode into all out war. The whole idea of accidental or inadvertent war, of a war that is not entirely intended or premeditated, rests on a crucial premise—that there is such an advantage, in the event of war, in being the one to start it and that each side will be not only conscious of this but conscious of the other's preoccupation with it. In an emergency the urge to preempt—to preempt the other's preemption, and so on ad infinitum—could become a dominant motive if the character of military forces endowed haste and initiative with a decisive advantage. It is hard to imagine how anybody would be precipitated into full-scale war by accident, false alarm, mischief, or momentary panic, if it were not for such urgency to get in quick. If there is no decisive advantage in striking an hour sooner than the enemy and no disadvantage in striking an hour later, one can wait for better evidence of whether the war is on. But when speed is critical the victim of an accident or a false alarm is under terrible pressure to get on with the war if in fact it is war or if the enemy seems likely, even in "self-defense," to anticipate war by starting it. If each side imputes similar urgency to the other, the urgency is aggravated.

It is not accidents themselves—mechanical, electronic, or human—that could cause a war, but their effect on decisions. Accidents can trigger decisions, and this may be all that anybody has ever meant; but the distinction needs to be made. The

remedy is not just preventing accidents, false alarms, or unauthorized ventures, but tranquilizing the decisions. The accident-prone character of strategic forces—more correctly, the sensitivity of strategic decisions to possible accidents or false alarms—is closely related to the security of the forces themselves. If a country's retaliatory weapons are reasonably secure against surprise attack, preemptive or premeditated, the country need not respond so quickly to alarms and excursions. Not only can one wait and see but one can assume that the enemy himself, knowing that one can wait and see, is less afraid of a precipitate decision, less tempted toward a precipitate decision of his own.

But there are two ways to confront the enemy with retaliatory forces that cannot be destroyed in a surprise attack. One is to prevent surprise; the other is to prevent their destruction even in the event of surprise.

Radar, satellite-borne sensory devices to detect missile launchings, and alarm systems that signal when a country has been struck by nuclear weapons, could give us the minutes we might need to launch most of our missiles and planes before they were destroyed on the ground. If the enemy knows that we can react in a few minutes and that we will have the few minutes we need, he may be deterred by the prospect of retaliation. But hardened underground missile sites, mobile missiles, submarine-based missiles, continually air-borne bombs and missiles, hidden missiles and aircraft, or even weapons in orbit do not so much depend on warning; they are designed to survive an attack, not to anticipate it by launching themselves at the enemy in the few minutes after warning—perhaps ambiguous warning—is received. In terms of ability to retaliate, warning time and survivability are to some extent substitutes but they also compete with each other. Money spent dispersing and hardening missile sites or developing and building mobile systems could have been spent on better warning, and vice versa.

More important, they conflict in the strategy of response. The critical question is, what do we do when we do get warning? The system that can react within fifteen minutes may be a potent deterrent, but it poses an awful choice whenever we think we have warning but are not quite sure. We can exploit our

speed of response and risk having started war by false alarm, or we can wait, avoiding an awful war by mistake but risking a dead retaliatory system if the alarm was real (and possibly reducing our deterrence in a crisis if the enemy knows we are inclined to give little credence to the warning system and wait until his bombs have landed).

The problem may be personal and psychological as well as electronic; the finest products of modern physics are of no avail if the top ranking decision-maker, whoever he may be within the time available, is too indecisive, or too wise, to act with the alacrity of an electronic computer.

We get double security out of the system that can survive without warning: the enemy knowledge that we can wait in the face of ambiguous evidence, that we can take a few minutes to check on the origin of accidents or mischief, that we are not dependent on instant reaction to a fallible warning system, may permit the enemy, too, to wait a few minutes in the face of an accident and permit them in a crisis to attribute less nervous behavior to us and to be less jumpy themselves. (If we think the other side is taking Colonel Maude's advice, we have an extra reason for taking it ourselves!)

If we think of the decisions as well as the actions we can see that accidental war, like premeditated war, is subject to deterrence. Deterrence, it is often said, is aimed at the rational calculator in full control of his faculties and his forces; accidents, it is said, may trigger war in spite of deterrence. "The operation of the deterrence principle in preventing war," says Max Lerner, "depends upon an almost flawless rationality on both sides." [3] But it is really better to consider the more "accidental" kind of

3. *The Age of Overkill*, p. 27. Incidentally, when people say that "irrationality" spoils deterrence they mean—or ought to mean—only particular brands of it. Leaders can be irrationally impetuous or irrationally lethargic, intolerable of suspense or incapable of decision. A Hitler may be hard to deter because he is "irrational," but a Chamberlain is equally irrational and especially easy to deter. The human inability to rise to the occasion may sometimes lead to a Pearl Harbor, or to a remilitarization of the Rhineland; it probably also cushions a good many shocks, accidents, and false alarms and helps governments to rationalize their way out of crises. This is no consolation when we confront the wrong kinds of madness; still, we may as well get the theory straight.

war—the war that arises out of inadvertence or panic or misunderstanding or false alarm, not by cool premeditation—as *the* deterrence problem, not a separate problem and not one unrelated to deterrence.

We want to deter an enemy decision to attack us—not only a cool-headed, premeditated decision that might be taken in the normal course of the Cold War, at a time when the enemy does not consider an attack by us to be imminent, but also a nervous, hot-headed, frightened, desperate decision that might be precipitated at the peak of a crisis, that might result from a false alarm or be engineered by somebody's mischief—a decision taken at a moment when sudden attack by the United States is believed a live possibility.

The difference is in the speed of decision, the information and misinformation available, and the enemy's expectations about what happens if he waits. The enemy must have some notion of how much he would suffer and lose in a war he starts, and of how much more he may suffer and lose in a war that, by hesitating, he fails to start in time. He must have some notion of how probable it is that war will come sooner or later in spite of our best efforts and his to avert it. In case of alarm he has some estimate, or guess, of the likelihood that war has started and of the risks of waiting to be sure. In deciding whether to initiate war or to respond to what looks like war the enemy is aware not only of retaliation, but of the likelihood and consequences of a war that he does not start, one that we start. Deterring premeditated war and deterring "accidental war" differ in those expectations—in what the enemy thinks, at the moment he makes his decision, of the likelihood that alarms are false ones or true, and of the likelihood that if he abstains, we won't.

Accidental war therefore puts an added burden on deterrence. It is not enough to make a war that he starts look unattractive compared with no war at all; a war that he starts must look unattractive even as insurance against the much worse war that—in a crisis, or after an accident, or due to some mischief, or in misapprehension of our intent—he thinks may be started against him or has already started. Deterrence has to make it

never appear *conservative* to elect, as the lesser danger, preemptive war.

"Accidental war" is often adduced as a powerful motive for disarmament. The multiplication and dispersion of ever more powerful weapons seems to carry an ever growing danger of accidental war; and many who are confident that deliberate attack is adequately deterred are apprehensive about the accidental-war possibilities inherent in the arms race.

But there is a conflict, and a serious one, between the urge to have fewer weapons in the interest of fewer accidents and the need—still thinking about "accidental war"—to have forces secure enough and so adequate in number that they need not react with haste for fear of not being able to react at all, secure enough and so adequate in number that, when excited by alarm, we can be conservative and doubt the enemy's intent to attack, and that the enemy has confidence in our ability to be calm, helping him keep calm himself. A retaliatory system that is inadequate or insecure not only makes the possessor jumpy but is grounds for the enemy's being jumpy too.

It is important to keep in mind, too, that (as in any other business) accidents and mischief and false alarms can be reduced by spending more money. To correlate weapons, accidents, and arms budgets ignores the fact that the security of retaliatory forces, the control over them and communication with them, is an important and expensive part of the military establishment. For a given number of weapons, more money may mean more reliable communications and command procedures. Skimpy budgets may mean skimpy protection against malfunction, confusion, and mischief.

Even numbers can help. Few people have kind words in print for "overkill," but it is probably a valid principle that restraining devices for weapons, men, and decision processes—delaying mechanisms, safety devices, double-check and consultation procedures, conservative rules for responding to alarms and communication failure, and in general both institutions and mechanisms for avoiding an unauthorized firing or a hasty reaction to untoward events—can better be afforded, and will be afforded,

if there is redundancy in numbers. If weapons are scarce, every restraining device will meet with the argument that some weapons somewhere will fail to get the word, that some lock will be unopened when a weapon should be fired, and that delay will cause some weapons to be fired too late. The best answer to this argument is that there is enough ammunition to keep a few duds from making all that difference and we can afford an occasional malfunction resulting from conservative procedures and restraining devices.

To say this does not prove that a larger strategic force will be less susceptible to accidental or unauthorized launch. But it can be; and while the argument is not of enough weight to pretend to settle the question of disarmament, it surely is of enough weight to be taken into account.

"Vulnerability" and Deterrence

"Vulnerability" is the problem that was dramatized by Sputnik in 1957 and by Soviet announcements then that they had successfully tested an ICBM. Nobody doubted that the aircraft of the Strategic Air Command, if launched against Soviet Russia, could do enormous damage to that country, unquestionably enough to punish any aggression they had in mind and enough to deter that aggression if they had to look forward to such punishment. But if the Soviets were about to achieve a capability to destroy without warning the massive American bomber force while the aircraft were vulnerably concentrated on a small number of airfields, the deterrent threat to retaliate with a destroyed bomber force might be ineffectual. The preoccupation with vulnerability that began in 1957 or so was not with the vulnerability of women and children and their means of livelihood to sudden Soviet attack on American population centers. It was the vulnerability of the strategic bomber force.

This concern with vulnerability led to the improved alert status of bombers so that radar warning of ballistic missiles would permit the bombers to save themselves by taking off. And it led

to the abandonment of "soft," large, liquid-fueled missiles like the Atlas, and the urgent substitution of Minuteman and Polaris missiles which, in dispersed and hardened silos or in hidden submarines, could effectively threaten retaliation. An Atlas missile could retaliate as effectively as several Minutemen, if alive, but could not so persuasively threaten to stay alive under attack. In the late 1950s and the early 1960s the chief criterion for selecting strategic weapon systems was invulnerability to attack, and properly so. Vulnerable strategic weapons not only invite attack but in a crisis could coerce the American government into attacking when it might prefer to wait.

Vulnerability was a central theme of the Geneva negotiations in 1958 about measures to safeguard against surprise attack. There is nothing especially heinous about a war begun in surprise; if people were going to be killed it would be small consolation to have the bad news a little before it happened. What made surprise attack a worthy category for consideration in a disarmament conference was precisely this character of strategic weapon systems, the possibility that "surprise" might help an attack to succeed, and by inviting success spoil deterrence. But success would be measured by how well the surprise attack could forestall retaliation on the country launching attack; the measure of success would not be the speed with which cities could be destroyed but the likelihood that the victim's strategic weapons could be destroyed. If enemy bombers could be caught on the ground, with speed and surprise, the enemy population could be disposed of at leisure. Measures that might spoil surprise, or that might make strategic weapons less vulnerable to surprise, if available to both sides and possibly arising out of collaboration between them, might stabilize deterrence and make it more reliable, assuring each side against being attacked and thus reducing each side's incentive to attack.

So we have the anomaly of a great disarmament conference devoting itself in large measure to the protection not of women and children, noncombatants and population centers, but of weapons themselves. If an "open skies" arrangement could

make bombers and missiles more secure, keeping the threat of retaliation a lively one no matter who launched the war, the women and children would be safer, not because they would have warning if the war were to come but because the war would be less likely to come. If a city has a limited number of bullet-proof vests it should probably give them to the police, letting the people draw their security from a police force that cannot be readily destroyed.

The Charact of Weapons: Strength vs. Stability

There is, then, something that we might call the "inherent propensity toward peace or war" embodied in the weaponry, the geography, and the military organization of the time. Arms and military organizations can hardly be considered the exclusively determining factors in international conflict, but neither can they be considered neutral. The weaponry does affect the outlook for war or peace. For good or ill the weaponry can determine the calculations, the expectations, the decisions, the character of crisis, the evaluation of danger and the very processes by which war gets under way. The character of weapons at any given time determines, or helps to determine, whether the prudent thing in a crisis is to launch war or to wait; it determines or helps to determine whether a country's preparations to receive an attack look like preparations for attack itself; it determines or helps to determine how much time is available for negotiation on the brink of war; and it determines or helps to determine whether war itself, once started, gets altogether out of control or can be kept responsive to policy and diplomacy.

To impute this influence to "weaponry" is to focus too narrowly on technology. It is weapons, organization, plans, geography, communications, warning systems, intelligence, and even beliefs and doctrines about the conduct of war that together have this influence. The point is that this complex of military factors is not neutral in the process by which war may come about.

Obviously this is so in a one-sided sense. The weak are unlikely to attack the strong, and nearly everybody acknowledges

that there is something to "deterrence." This is not what I have in mind; the matter would be simple if relative strength were all that mattered and if relative strength were easy to evaluate. Either the strong would conquer the weak or the strong, if peaceful, would be safe against weaker enemies; combinations might form to achieve a balance or a preponderance, but we would be dealing with simple quantities that could be added up. When I say, though, that "weaponry" broadly defined is an influential factor itself, I refer to its character, not its simple quantity. A military complex cannot be adequately described by a quantity denoting "strength."

One critical characteristic has just been discussed—the dependence on speed, initiative, and surprise. This is different from "strength." If one airplane can destroy 45 on an airfield, catching the other side's airplanes on the ground can be decisively important while having *more* airplanes than the other side is only a modest advantage. If superiority attaches to the side that starts the war, a parade-ground inventory of force—a comparison of numbers on both sides—is of only modest value in determining the outcome. Furthermore, and this is the point to stress, the *likelihood* of war is determined by how great a reward attaches to jumping the gun, how strong the incentive to hedge against war itself by starting it, how great the penalty on giving peace the benefit of the doubt in a crisis.

The dimension of "strength" is an important one, but so is the dimension of "stability"—the assurance against being caught by surprise, the safety in waiting, the absence of a premium on jumping the gun.[4]

4. If not already acquainted with it, the reader should certainly see Albert Wohlstetter's classic, "The Delicate Balance of Terror," *Foreign Affairs, 37* (1959), 211–34; it marks the watershed in professional treatment of the "vulnerability" problem and the stability of deterrence. Malcolm Hoag, "On Stability in Deterrent Races," *World Politics, 13* (1961), 505–27, is a lucid theoretical treatment that contrasts alternative arms technologies and the types of arms race they can generate. T. C. Schelling and Morton H. Halperin consider the arms-control implications in *Strategy and Arms Control* (New York, Twentieth Century Fund, 1961), especially Chapters 1, 2, and 5.

Stability itself has both a static and a dynamic dimension. The static dimension reflects the expected outcome, at any given moment, if either side launches war. The dynamic dimension reflects what happens to that calculation if either side or both sides should *move* in the direction of war, by alert, mobilization, demonstration, and other actions that unfold over time. It involves the steps taken in a crisis. Do we become more vulnerable or less vulnerable as we ready ourselves for the possibility of war, and does the enemy become less vulnerable or more vulnerable and less or more obsessed with his own vulnerability and his need to attack quickly? Equally important: what happens tomorrow and the day after as a result of the steps we take today? If we make ourselves less vulnerable today is it at the expense of tomorrow?

A vivid example of this dynamic problem is bomber aircraft. In case of warning they can leave the ground. If they leave the ground they should initially proceed as though to target; in case it is war, they should not be wasting time and fuel by loitering to find out what happens next. As they proceed to target, they can be either recalled or confirmed on their mission. (The actual procedure may be that they return to base unless confirmed on their mission, by "positive control" command procedures.) If recalled, however, they return to the relative vulnerability of their bases. They need fuel, their crews are tired, they may need maintenance work, and they are comparatively unsynchronized. They are, in sum, more vulnerable, and less ready for attack, than before they took off.

This is a dynamic problem, involving the pressure of time; it is a situation that cannot be sustained indefinitely. It is not an unsolvable problem; but it is one that has to be solved. Like the railroad mobilization of World War I, the bomber arrangements may enjoy simplicity and efficiency by ignoring the possibility that they may have to loiter or return to base. Like the railroad mobilization of World War I, the procedures may coerce decisions unless the procedures are compromised to facilitate orderly return to base. Decisions may be compromised in either of

two directions. The planes may fail to take off when they ought to, because of the high cost of spoiling the force on a false alarm and having to return to base disorganized. Or a decision to proceed with war may be coerced by a situation in which aircraft are momentarily in a good position to continue with war and in a poor one to call it off.[5]

If both sides are so organized, or even one side, the danger that war in fact will result from some kind of false alarm is enhanced. This is one of those characteristics of armed forces that influences the propensity toward war and that is not comprised within a calculation of "strength." The Strategic Air Command has undoubtedly been cognizant of this problem and has taken steps to minimize it; the point here is simply that the steps are necessary, they undoubtedly cost something, and the technology of aircraft affects how well the problem can be solved. If the problem is not perceived at the time when the aircraft are designed, or at the time the runways and refueling facilities are provided, the solution of the problem may be less complete or more costly.

The fueling of missiles could have created a similar problem if solid-fueled missiles had not so quickly replaced the originally projected missiles utilizing refrigerated fuels. If it takes *time* to fuel a missile, fifteen minutes or an hour, and if a fueled missile

5. Roberta Wohlstetter, whose unique study of *Pearl Harbor: Warning and Decision* (Stanford, Stanford University Press, 1962), dissected the problem of intelligence evaluation in a crisis, has recently pointed out the crucial interaction between intelligence and response. "In the Cuban missile crisis," she says, "action could be taken on ambiguous warning because the action was sliced very thin. . . . If we had had to choose only among much more drastic actions, our hesitation would have been greater. The problem of warning, then, is inseparable from the problem of decision. . . . We can improve the chance of acting on signals in time to avert or moderate a disaster . . . by refining, subdividing and making more selective the range of responses we prepare, so that our response may fit the ambiguities of our information and minimize the risks both of error and of inaction." "Cuba and Pearl Harbor," *Foreign Affairs*, 43 (1965), 707. For an example of action sliced so appallingly thick that paralysis was guaranteed, see Henry Owen's discussion of the Rhineland crisis of 1936, "NATO Strategy: What Is Past Is Prologue," in the same issue, pp. 682–90.

cannot be held indefinitely in readiness, a problem very much like the bomber problem can arise. To fuel a missile is not a simple act of prudence, achieving enhanced readiness at the cost of some fuel that may be wasted and some potential maintenance work on the missiles themselves after the crisis is over. If the fuel begins to dissipate, or the fueled missile becomes susceptible to mechanical fatigue or breakdown, getting a missile ready requires a risky decision. The risk is that the missile will be less ready, after a brief period, than if it had never been made ready in the first place. It, too, like the aircraft burning fuel in the air, can coerce a decision; it can coerce a decision in favor of war once it is fueled and ready and threatens to become unready shortly. It can coerce a decision to remain unready by making it dangerous to put the missile into its mobilization process.

In the mid-1960s, American strategic weapon systems did not appear to have much in common with the mobilization process of 1914. Secure yet quick-firing missiles of the Minutemen and Polaris type, and carefully designed alert procedures for the bombers, appeared to minimize the constraint or coercion on decisions in a crisis. The strategic weapon systems seemed to have a minimum of "dynamic instability" embodied in their alert and mobilization procedures.

Some observers thought this was a disadvantage, because the enemy could not be so readily coerced by American demonstrations, by getting ourselves in a position of temporarily increased readiness, by taking steps that showed our willingness to risk war and that actually increased the risk of war. There were some who thought that bombers were more usable in a crisis than instantly ready missiles, because they could dramatically take off, or disperse themselves to civilian bases, giving an appearance of readiness for war.

They could be right. What needs to be recognized is that the flexing of muscles is probably unimpressive unless it is costly or risky. If aircraft can take off in a crisis with great noise and show of activity, but at no genuine risk to themselves and at modest cost in fuel and personnel fatigue, it may demonstrate

little. The impressive demonstrations are probably the dangerous ones. We cannot have it both ways.[6]

Mobilization: A Contemporary Example

There is nevertheless an important area of mobilization, one little recognized and much underrated, that could prove enormously important in a crisis, for good or ill—for good if one wants demonstrations, for ill if one does not want to put national decision-makers under acute pressure for a decision, especially for ill if it has not been foreseen and taken into account. This is the area of civil defense.

Civil defenses are often called "passive defenses," while anti-missile missiles, anti-aircraft missiles, and interceptor aircraft are called "active defenses." In an important sense, though, giving the words their ordinary meanings, it is the civil defenses that are probably the most active and the "active defenses" that would be the most passive. If we should install anti-missile missiles around our population centers they would probably be quick-reacting missiles themselves, in a state of fairly continuous readiness, involving no dramatic readiness procedures and not being utilized unless threatening objects appeared overhead. One can imagine other kinds of defenses against ballistic missiles that did involve readiness procedures, that required decisions to mobilize in advance; perhaps short-lived orbiting systems that had to be launched in an emergency in anticipation of attack would have this character. But the systems currently under discussion or development appear to be relatively "passive." They would sit still in constant readiness

6. Alfred Vagts has a rich chapter on "Armed Demonstrations," in his *Defense and Diplomacy* (New York, King's Crown Press, 1956). He warns, cogently citing Disraeli and Churchill on his side, against the demonstration that falls short of the mark and signals the opposite of stern intent. He believes, too, that a fundamental change has taken place in "this instrument of diplomacy" in the last thirty years, namely, "Much if not most of Western demonstrativeness is inward, rather than outward. It is directed toward their own citizenry, rather than at the address of the Russians." Whether or not he would change his emphasis today, ten years later, the point is a valid one.

and fire only in response to the local appearance of hostile objects overhead.

The civil defenses would be a dramatic contrast. Shelters work best if people are in them. The best time to get people in the shelters is before the war starts. To wait until the enemy has launched his ballistic missiles (if one expects some of them to be aimed at cities) would be to leave the population dependent on quick-sheltering procedures that had never been tested under realistic conditions. Even if the enemy were expected not initially to bring any of our cities under attack, fallout from target areas could arrive in periods ranging from, say, a fraction of an hour up to several hours, and in the panic and confusion of warfare a few hours might not be enough. Furthermore, the most orderly way to get people into shelters, with families assembled, gas and electricity shut off, supplies replenished and fire hazards reduced, the aged and the sick not left behind, and panic minimized, would be by sheltering before the war started.

And that means sheltering before war is a certainty. There is a dilemma right here. If sheltering will be taken as a signal that one expects war and intends to start it, sheltering gives notice to the other side. Surprise would depend on not sheltering. A nation's leaders must decide whether the advantage of surprise against the enemy is worth the cost of surprising their own population unprepared. This would be a hard choice. Can one afford to warn his own population if it means warning the enemy? Can one afford surprising the enemy if it means surprising one's own country?

It is unlikely that sheltering would be an all-or-none operation. Partial or graduated steps would almost certainly recommend themselves if a government took the problem seriously. If at midnight a president or a premier considers war a significant likelihood within the next twenty-four hours, can he let everybody go to work the next morning? Or should he declare a holiday, so that families stay together, urban commuter transportation is not fouled up, people can stay tuned in to civil defense bulletins, last-minute instructions can be communicated, and some kind of discipline maintained? If the possibility of general

war rises above some threshold, perhaps because a vigorous war is in process in some theater, might not the aged and infirm and those distant from shelter facilities be sheltered or readied for shelter; and should not some of the less essential economic functions be shut down? Can a president or a premier leave the entire population in its normal pristine vulnerability to attack, knowing that war has become a significant likelihood? There is the possibility that any sheltering would be a dramatic signal that war was imminent, and would tip the scales toward war itself, and should be avoided. Equally compelling, though, is the notion that sheltering is less dramatic, less dangerously demonstrative, if it can be graduated in a crisis, so that there is no sudden all-or-none shutdown of activity and rush to the shelters.

Sheltering is not the only "passive defense" activity that might be involved. One type of defense against thermal radiation from nuclear weapons—and it is semantically unclear whether this is a passive defense or an active one—is smoke or fog injected into the atmosphere. A thick layer of smoke can make a difference, especially if anti-missile defenses could oblige the enemy to detonate his weapons at a distance. But a smoke layer could not be produced instantaneously after enemy weapons came in sight; it would work best if the smudge-pots were put into operation before the war started. This means that it is most effective if subject to "mobilization," with the attendant danger that it signals something to the other side.

People in shelters cannot stay forever. The usual calculations of how long people should be able to stay in shelters—what the supply of rations should be, for example—relate to how long it might take radioactivity to decay, and cleanup procedures to dispose of fallout, so that the outside environment would be safe. But if we must envisage sheltering as a mobilization step, as something that occurs before war is a certainty, then the endurance of people in shelters is pertinent to the crisis itself. They may well have been in their shelters for two or three weeks without any war having started; and, like aircraft in the air, they coerce the nation's leaders into decisions that reflect the inability of the country to sustain its readiness indefinitely. Of all the

reasons for having people able to stay in shelters for an extended period, one of the most important would be to avoid any need to have a war quickly because the people couldn't stand the suspense or the privation any longer.[7]

De-sheltering would be a significant activity. It would be a dramatic signal either that a nation's readiness was exhausted or that the crisis was becoming less dangerous. It would be at least as significant as a withdrawal of troops or diminished alert for strategic forces. In fact, if populations were sheltered, negotiations would concern not only what the crisis was originally about but also the crisis itself. The imminence of war would be at least as important as the originating cause of the crisis, and perhaps dominate negotiations. It is likely that a condition for de-sheltering one's own populations would be the enemy's assuming comparable vulnerability for its own population, whether through synchronized de-sheltering or the enemy's de-sheltering as a condition for our own.

These are not purely hypothetical possibilities; the fact that the United States has only a rudimentary civil defense program does not make these considerations irrelevant. We undoubtedly have in this country a tremendous potential for civil defense in a crisis. If reasonably organized, the labor force and the equipment of the United States might create a good deal of civil defense within a week or a day. There were at least some people who stayed home during the Cuban crisis. That was a mild crisis; but it might have gone differently. If most Americans decided, or were advised, that war was an imminent possibility, they would undoubtedly provide themselves a good deal of protection if they were decently instructed. They could do even better if plans for such a "crash civil-defense program" were available in advance, and if any critical supplies and equipment were pre-positioned for such an emergency. In fact, simply to avoid panic it could be essential to get the population busily at work

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7. In a prolonged crisis, sheltered people could take fresh air nearby, perhaps by rotation, and separated families could be reunited; stocking of supplies could continue and emergency measures be taken outside shelters. This possibility eases the hardships of shelter, but complicates planning—unless it goes ignored in the planning.

on civil defense in a crisis, whether filling cans with water, shoveling dirt against fire hazard, educating themselves by television, or evacuating particular areas before panic set in.

Some of the "mobilization" steps might be more dramatic, more difficult, even more important in the absence of prepared civil defense facilities. So the lack of a systematic program would not necessarily mean that the President had no decisions to make, in a crisis, with respect to the population and the economy. It might only mean that he had less cognizance of his options, less control over his own choice, and less knowledge of the consequences for lack of plans and preparations.

So we do have "mobilization procedures" that could become dramatically important in a crisis. They are anomalously called "passive" defenses when they are potentially more "active" than any others. They are not part of our military organization and our weaponry, so we typically ignore them in discussions of our military posture. But there they are, and they could make the brink of war as busy and complicated and frantic as the mobilizations of 1914. We can hope they would not make it as irreversible.

The special danger is that the way these processes work will not be understood before they are put to test in a real emergency. The dynamics of readiness—of alert and mobilization both military and civilian—involve decisions at the highest level of government, a level so high as to be out of the hands of experts. "The bland ignorance among national leaders," writes Michael Howard in describing the mobilization of 1914, "of the simple mechanics of the system on which they relied for the preservation of national security would astonish us rather more if so many horrifying parallels did not come to light whenever British politicians give their views about defense policy today."[8] Being an Englishman, he modestly confined his comment to his own kind. I have no knowledge of how profound the Russian ignorance is of these matters; the American ignorance is surely not "bland," but it must be great. There are only twenty-four hours in the day; and no President, Secretary, Chief

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8. "Lest We Forget," p. 65.

of Staff, or national security advisor is likely to master the diplomacy of military alert and mobilization, particularly when it depends on knowledge of how the Soviet machine works, a knowledge that the best intelligence cannot provide us if the Soviet leaders do not understand it themselves. There are only twenty-four hours in their day, too. In managing nations on the brink of war, every decision-maker would be inexperienced. That cannot be helped. Thinking about it in advance can and should make an enormous difference; but it did not in 1914. The only people who thought about it were the people responsible for victory if war should occur, not the people responsible for whether war should occur.[9]

The Problem of Stability in an Armed World

These two modes of potential instability—one arising in the advantage that may attach to speed, initiative, and surprise at the outbreak of war, the other arising in the possible tendency for alert and mobilization procedures to become irreversible, to impose pressure of time on decisions, or themselves to raise the premium on haste and initiative—are undoubtedly the main sources of mischief that reside in armaments themselves. Deliberate war can of course be undertaken, and sometimes credibly threatened, no matter how much stability resides in the weapons themselves; but the extent to which armaments themselves may bring about a war that was undesired, a war that could bring no gain to either side and was responsive to no political necessity, must be closely related to one or both of these two kinds of instability. And it is the *character* of weapons as much as their quantity, probably more than their quantity, that makes the military environment stable or unstable. The character of military forces is partly determined by geography, partly by the way

9. As background for interpreting the events of 1914 and the ensuing war, and even more as background for today's problems, the first two chapters of Brodie, *Strategy in the Missile Age*, are a merciless examination of the way high officials, civilian and military alike, are tempted to evade the awful responsibility for managing military force when things go wrong.

technology unfolds over time, partly by conscious choices in the design and deployment of military force.

If all nations were self-sufficient islands with the pre-nuclear military technology of World War II, mutual deterrence could be quite stable; even a nation that had determined on war would not care to initiate it.[10] With thermonuclear technology the danger of preemptive instability becomes a grave one; weapons themselves may be vulnerable to sudden long-distance attack unless they are deliberately designed and expensively designed to present less of a surprise-attack target. This in turn can imply a choice between weapons comparatively good for launching sudden attack and weapons comparatively good for *surviving* sudden attack and striking back. The Polaris submarine, for example, is comparatively good at surviving attack and striking second; the Polaris missile itself may be good for starting a war, but not compared with its ability for surviving attack. It is an

10. This is meant to be a factual statement and therefore could be wrong. It could be wrong either about the facts or about the way people would perceive the facts. If amphibious assault looks promising because coastal defense or submarine interdiction is underestimated, the mutual deterrence will not be stable even though it ought to be. And if a country exaggerates the security its oceans give it, as the United States may have done up to 1914, it may not take the steps that, together with its oceanic isolation, could give it security. Hudson Maxim estimated in 1914 that, though the United States had great potential for self defense, there were actually three or four countries that could use our oceans as avenues and successfully invade us. He doubted the United States would arm itself until after it had been badly defeated in a war, and he concluded, discouraged, that "Our business at the present time is to pick our conquerors. I choose England." *Defenseless America* (New York, Hearst International Library, 1915), pp. xx, 72–78, 99–108, 120–25. T. H. Thomas, in a most interesting article on "Armies and the Railway Revolution," says that, "One of the most popular anticipations throughout Germany in the early 1840's was that the coming railway network would establish a decisive handicap against offensive wars, and in particular would make impossible a French invasion of German territory. . . . The first actual test of war quite shattered this picture. In the Italian war of 1859, even with incomplete and very imperfect railway systems, large armies were carried rapidly from distant regions to the chosen front of attack, and Napoleon III could launch a major offensive with a speed the first Napoleon could never have attempted." *War as a Social Institution,* Jesse D. Clarkson and Thomas C. Cochran, eds. (New York, Columbia University Press, 1941), pp. 88–89.

expensive weapon compared with other missiles, and the expense goes into making it less vulnerable to attack, not into making it a better weapon for launching sudden attack. To put the same point differently: a reliable ability to strike back with 500 Polaris missiles, after absorbing an attack, corresponds to a first-strike capability of about 500 missiles, whereas a reliable capability to strike back with 500 more vulnerable weapons would require having a multiple of that number, in order that 500 survive attack, and the first-strike capability would be correspondingly larger. To say that the Polaris system provides, for any given level of retaliatory capability, a comparatively small first-strike capability is only to say that it provides, for any given level of first-strike capability, a comparatively large second-strike capability.

If both sides have weapons that need not go first to avoid their own destruction, so that neither side can gain great advantage in jumping the gun and each is aware that the other cannot, it will be a good deal harder to get a war started. Both sides can afford the rule: When in doubt, wait. In Colonel Maude's day, the recommended rule was: When in doubt, act. Act quickly; and if tempted to hesitate, remember that your enemy will not.

The problem does not arise only at the level of thermonuclear warfare. The Israeli army consists largely of a mobilizable reserve. The reserve is so large that, once it is mobilized, the country cannot sustain readiness indefinitely; most of the able-bodied labor force becomes mobilized. The frontier is close, the ground is hard, and the weather is clear most of the year; speed and surprise can make the difference between an enemy's finding a small Israeli army or a large one to oppose him if he attacked. Preparations for attack would confront Israel with a choice of mobilizing or not and, once mobilized, with a choice of striking before enemy forces were assembled or waiting and negotiating, to see if the mobilization on both sides could be reversed and the temptation to strike quickly dampened.

At the thermonuclear level, the problem of preemptive instability appeared a good deal closer to solution in the middle of the 1960s than it had at the beginning of that decade. This was

largely due to the deliberate design and deployment of less vulnerable offensive weapons, partly due to a more explicit official recognition of the problem, and perhaps somewhat due to a growing understanding between the United States and the Soviet Union about the need, and some of the means, for avoiding false alarms and avoiding responses that would aggravate suspicion. During the Cuban missile crisis the Soviet Union apparently abstained from any drastic alert and mobilization procedures, possibly as a deliberate policy to avoid aggravating the crisis. The establishment of a "hot line" between Washington and Moscow was at least a ceremony that acknowledged the problem and expressed an intent to take it seriously.

But the problem of instability does not necessarily stay solved. It may be kept solved, but only by conscious efforts to keep it solved. New weapon systems would not automatically preserve such stability as had been attained by the second half of the 1960s. Ballistic missile defenses, if installed on a large scale by the United States or the Soviet Union, might preserve or destroy stability according to whether they increased or decreased the advantage to either side of striking first; that, in turn, would depend on how much better they worked against an enemy missile force that had already been disrupted by a surprise attack. It would also depend on whether ballistic missile defenses worked best in protecting missile forces from being destroyed or best in protecting cities against retaliation. And it would depend on whether ballistic missile defenses induced such a change in the character of missiles themselves, or such a shift to other types of offensive weapons—larger missiles, low flying aircraft, weapons in orbit—as to aggravate the urgency of quick action in a crisis and the temptation to strike first.

Stability, of course, is not the only thing a country seeks in its military forces. In fact a case can be made that some instability can induce prudence in military affairs. If there were no danger of crises getting out of hand, or of small wars blowing up into large ones, the inhibition on small wars and other disruptive events might be less. The fear of "accidental war"—of an unpremeditated war, one that arises out of aggravated misunder-

standings, false alarms, menacing alert postures, and a recognized urgency of striking quickly in the event of war—may tend to police the world against overt disturbances and adventures. A canoe can be safer than a rowboat if it induces more caution in the passengers, particularly if they are otherwise inclined to squabble and fight among themselves. Still, the danger is almost bound to be too little stability, not too much of it; and we can hope for technological developments that make the military environment more stable, not less, and urge weapon choices on both sides that minimize instability.

The Problem of Stability in a Disarmed World

Much of the interest in arms control among people concerned with military policy became focused in the early 1960s on the stability of mutual deterrence. Many writers on arms control were more concerned about the character of strategic weapons than the quantity, and where quantity was concerned their overriding interest was the effect of the number of weapons on the incentives to initiate war, rather than on the extent of destruction if war should ensue. A fairly sharp distinction came to be drawn between "arms control" and "disarmament." The former seeks to reshape military incentives and capabilities with a view to stabilizing mutual deterrence; the latter, it is alleged, eliminates military incentives and capabilities.

But the success of either depends on mutual deterrence and on the stability of that deterrence. Military stability is just as crucial in relations between unarmed countries as between armed ones. Short of universal brain surgery, nothing can erase the memory of weapons and how to build them. If "total disarmament" could make war unlikely, it would have to be by reducing incentives. It could not eliminate the potential. The most primitive war could be modernized by rearmament, once it got started.

If war breaks out a nation can rearm, unless its capacity to rearm is destroyed at the outset and kept destroyed by enemy military action. By the standards of 1944, the United States was

fairly near to total disarmament when World War II broke out. Virtually all munitions later expended by the United States forces were nonexistent in September 1939. "Disarmament" did not preclude U.S. participation; it merely slowed it down.

As we eliminate weapons, warning systems, vehicles, and bases, we change the standards of military effectiveness. Airplanes count more if missiles are banned, complex airplanes are needed less if complex defenses are banned. Since weapons themselves are the most urgent targets in war, to eliminate a weapon eliminates a target and changes the requirements for attack. A country may indeed be safer if it is defenseless, or without means of retaliation, on condition its potential enemies are equally disarmed; but if so it is not because it is physically safe from attack. Security would depend on its being able to mobilize defenses, or means of retaliation, faster than an enemy could mobilize the means to overcome it, and on the enemy's knowing it.

The difficulty cannot be avoided by banning weapons of attack and keeping those of defense. If, again, nations were islands, coastal artillery would seem useless for aggression and a valuable safeguard against war and the fear of war. But most are not. And in the present era "defensive" weapons often embody equipment or technology that is superbly useful in attack and invasion. Moreover, a prerequisite of successful attack is some ability to defend against retaliation or counterattack; in a disarmed world, whatever lessens the scale of retaliation reduces the risk a nation runs in starting war. Defenses against retaliation are close substitutes for offensive power.

Disarmament would not preclude the eruption of crisis; war and rearmament could seem imminent. Even without possessing complex weapons, a nation might consider initiating war with whatever resources it had, on grounds that delay would allow an enemy to strike or to mobilize first. If a nation believed its opponent might rush to rearm to achieve military preponderance, it might consider "preventive war" to forestall its opponent's dominance. Or, if confidence in the maintenance of disarma-

ment were low and if war later, under worse conditions, seemed at all likely, there could be motives for "preventive ultimatum," or for winning a short war through coercion with illicitly retained nuclear weapons, or for using force to impose a more durable disarmament arrangement. As with highly armed countries, the decision to attack might be made reluctantly, motivated not toward profit or victory but by the danger in not seizing the initiative. Motives to undertake preventive or preemptive war might be as powerful under disarmament as with today's weapons, or even stronger.

In a disarmed world, as now, the objective would probably be to destroy the enemy's ability to bring war into one's homeland, and to "win" sufficiently to prevent his subsequent buildup as a military menace. The urgent targets would be the enemy's available weapons of mass destruction (if any), his means of delivery, his equipment that could be quickly converted for strategic use, and the components, standby facilities, and cadres from which he could assemble a capability for strategic warfare. If both sides had nuclear weapons, either by violating the agreement or because the disarmament agreement permitted it, stability would depend on whether the attacker, improvising a delivery capability, could forestall the assembly or improvisation of the victim's retaliatory vehicles or his nuclear stockpile. This would depend on the technology of "disarmed" warfare, and on how well each side planned its "disarmed" retaliatory potential.

If an aggressor had nuclear weapons but the victim did not, the latter's response would depend on how rapidly production could be resumed, on how vulnerable the productive facilities were to enemy action, and whether the prospect of interim nuclear damage would coerce the victim into surrender.

In the event that neither side had nuclear weapons, asymmetrical lead times in nuclear rearmament could be decisive. Whether it took days or months, the side that believed it could be first to acquire a few dozen megatons through a crash program of rearmament would expect to dominate its opponent.

This advantage would be greatest if nuclear facilities them-

selves were vulnerable to nuclear bombardment; the first few weapons produced would be used to spoil the opponent's nuclear rearmament. Even if facilities were deep under the ground, well disguised or highly dispersed, a small difference in the time needed to acquire a few score megatons might make the war unendurable for the side that was behind. It might not be essential to possess nuclear weapons in order to destroy nuclear facilities. High explosives, commandos, or saboteurs could be effective. "Strategic warfare" might reach a purity not known in this century: like the king in chess, nuclear facilities would be the overriding objective. Their protection would have absolute claim on defense. In such a war the object would be to preserve one's mobilization base and to destroy the enemy's. To win a war would not require overcoming the enemy's defenses—just winning the rearmament race.

Such a war might be less destructive than war under present conditions, not primarily because disarmament had reduced the attacker's capability for destruction but because, with the victim unable to respond, the attacker could adopt a more measured pace that allowed time to negotiate a ceasefire before he had reduced his victim to rubble. Victory, of course, might be achieved without violence; if one side appeared to have an advantage so convincingly decisive as to make the outcome of mobilization and war inevitable, it might then deliver not weapons but an ultimatum.

An International Military Autho ity

Some kind of international authority is generally proposed as part of an agreement on total disarmament. If militarily superior to any combination of national forces, an international force implies (or is) some form of world government. To call such an arrangement "disarmament" is about as oblique as to call the Constitution of the United States "a Treaty for Uniform Currency and Interstate Commerce." The authors of the Federalist Papers were under no illusion as to the far-reaching character of the institution they were discussing, and we should not be either.

One concept deserves mention in passing: that the projected police force should aim to control persons rather than nations. Its weapons would be squad cars, tear gas, and pistols; its intelligence system would be phone taps, lie detectors, and detectives; its mission would be to arrest people, not to threaten war on governments. Here, however, we shall concentrate on the concept of an International Force to police nations—and all nations, not just small ones. The most intriguing questions are those that relate to the Force's technique or strategy for deterring and containing the former nuclear powers.

The mission of the Force would be to police the world against war and rearmament. It might be authorized only to stop war; but some kinds of rearmament would be clear signals of war, obliging the Force to take action. There might be, explicitly or implicitly, a distinction between the kinds of rearmament that call for intervention and the kinds that are not hostile.

The operations of the Force raise a number of questions. Should it try to contain aggression locally, or to invade the aggressor countries (or all parties to the conflict) and to disable them militarily? Should it use long-range strategic weapons to disable the country militarily? Should it rely on the threat of massive punitive retaliation? Should it use the threat or, if necessary, the practice of limited nuclear reprisal as a coercive technique? In the case of rearmament, the choices would include invasion or threats of invasion, strategic warfare, reprisal or the threat of reprisal; "containment" could not forestall rearmament unless the country were vulnerable to blockade.

Is the Force intended to do the job itself or to head a world-wide alliance against transgressors? In case of aggression, is the victim to participate in his own defense? If the Indians take Tibet, or the Chinese encourage armed homesteading in Siberia, the Force would have to possess great manpower unless it was prepared to rely on nuclear weapons. A force could not be maintained on a scale sufficient to "contain" such excursions by a nation with a large population unless it relied on the sudden

mobilization of the rest of the world or on superior weaponry —nuclear weapons if the defense is to be confined to the area of incursion. But the use of such weapons to defend, for example, Southeast Asia against neighboring infiltrators, Western Europe against the Soviet bloc, East Germany against West Germany or Cuba against the United States, would be subject to the ordinary difficulties of employing nuclear weapons in populated areas. A country threatened by invasion might rather capitulate than be defended in that fashion. Moreover, the Force might require logistical facilities, infrastructure, and occasional large-scale maneuvers in areas where it expects to be called upon. Keeping large forces stationed permanently along the Iron Curtain is a possibility but not one that brings with it all the psychological benefits hoped for from disarmament.

A sizable intervention of the Force between major powers is not, of course, something to be expected often in a disarmed world. Nevertheless, if the Force is conceived of as superseding Soviet and American reliance on their own nuclear capabilities, it needs to have some plausible capability to meet large-scale aggression; if it hasn't, the major powers may still be deterred, but it is not the Force that deters them.

A capability for massive or measured nuclear punishment is probably the easiest attribute with which to equip the Force. But it is not evident that the Force could solve the problems of "credibility" or of collective decision any better than can the United States alone or NATO collectively at the present time. This does not mean that it could not solve them—just that they are not automatically solved when a treaty is signed. If the Force is itself stateless, it may have no "homeland" against which counter-reprisal could be threatened by a transgressor na-tion; but if it is at all civilized, it will not be wholly immune to the counter-deterrent threats of a transgressor to create civil damage in other countries. These could be either explicit threats of reprisal or implicit threats of civil destruction collateral to the bombardment of the Force's own mobilization base. (The Force presumably produces or procures its weaponry in the industrial

nations, and cannot be entirely housed in Antarctica, on the high seas, or in outer space.)

If it should appear technically impossible to police the complete elimination of nuclear weapons, then we should have to assume that at least minimal stockpiles had been retained by the major powers. In that case, the Force might not be a great deal more than one additional deterrent force; it would not enjoy the military monopoly generally envisaged.

One concept needs to be disposed of—that the Force should be strong enough to defeat a coalition of aggressors but not so strong as to impose its will against universal opposition. Even if the world had only the weapons of Napoleon, the attempt to calculate such a delicate power balance would seem impossible. With concepts like preemption, retaliation, and nuclear blackmail, any arithmetical solution is out of the question.

The knottiest strategic problem for an International Force would be to halt the unilateral rearmament of a major country. The credibility of its threat to employ nuclear weapons whenever some country renounces the agreement and begins to rearm itself would seem to be very low indeed.

The kind of rearmament would make a difference. If a major country openly arrived at a political decision to abandon the agreement and to recover the security it felt it had lost by starting to build a merely retaliatory capability and sizable home-defense forces, it is hard to envisage a civilized International Force using weapons of mass destruction on a large scale to stop it. Limited nuclear reprisals might be undertaken in an effort to discourage the transgressor from his purpose. But unless the rearmament program is accompanied by some overt aggressive moves, perhaps in limited war, the cool and restrained introduction of nuclear or other unconventional weapons into the country's population centers does not seem plausible, unless nonlethal chemical or biological weapons could be used.

Invasion might offer a more plausible sanction, perhaps with paratroops armed with small nuclear weapons for their own defense; their objective would be to paralyze the transgressor's

government and mobilization. But if this should be considered the most feasible technique for preventing rearmament, we have to consider two implications. We have provided the Force a bloodless way of taking over national governments. And a preemptive invasion of this kind might require the Force to act with a speed and secrecy inconsistent with political safeguards.

There is also the question of what kinds of rearmament or political activity leading to rearmament should precipitate occupation by the Force. In our country, could the Republicans or Democrats campaign on a rearmament platform, go to the polls and win, wait to be inaugurated, denounce the agreement, and begin orderly rearmament? If the Force intervenes, should it do so after rearmament is begun, or after a party has introduced a rearmament resolution in Congress? The illustration suggests that one function of the Force, or the political body behind it, would be to attempt first to negotiate with a potential rearming country rather than to intervene abruptly at some point in these developments.

Again, the character of rearmament would make a difference. Suppose the President presented a well-designed plan to build an obviously second-strike retaliatory force of poor preemptive capability against either the International Force or other countries, but relatively secure from attack. If he justified it on the grounds that the current military environment was susceptible to sudden overturn by technological developments, political upheavals, irrepressible international antagonism, the impotence of the Force for decisive intervention, the corruption or subversion of the Force, or other such reasons, then the authorization of a drastic intervention by the Force in the United States would be less likely than if the President ordered a crash program to assemble nuclear weapons, trained crews, and long-range aircraft. It would make a considerable difference, too, whether rearmament occurred at a time of crisis, perhaps with a war going on, or in calmer times.

The point of all this is simply that even an international military authority with an acknowledged sole right in the possession

sarily lessen the incentive to be first under the wire. It may, however, reduce the advantage of a small headstart; it may allow time to renegotiate before the race has too much momentum; and it may reduce the confidence of a fast starter that he could win if he called for a race.

The likelihood of war, then, or of a rearmament race that could lead to war, depends on the character of the disarmament. If mobilization potentials are such that a head start is not decisive and the race course is long, preemptive action may be delayed until motives are clear. Important elements for stability in a disarmed world would be the dispersal and duplication of standby facilities for rearmament and of reserve personnel or cadres around which rearmament could be mobilized. Dispersal could be important because of the interaction between rearmament and war itself. If a nation could achieve just enough production of weapons to disrupt its opponent's rearmament, it might gain a decisive advantage. Once the race were on, a few easily located facilities for producing nuclear weapons might invite a preventive and very limited war.

The argument here is not that disarmament would be especially unstable, or less stable than the present world of armament. It is that disarmament could be *either* more stable *or* less stable militarily than an armed world, according to how the existing military potential loaded the dice in favor of speed, surprise, and initiative or instead made it safe to wait, safe to be second in resuming an arms race or second in launching attack, and on whether the easiest directions of rearmament tended toward stable or unstable armaments.

It should not be expected that reduced tensions would be the natural consequence of a disarmament agreement, making the existing military potential irrelevant. Not everyone would be confident that disarmament provided a viable military environment or promised the political atmosphere most conducive to peace and good relations. It is hard to believe that any sober person under any conceivable world arrangement could come to believe with confidence that war had at last been banished from human affairs until there had been at the very least some decades of experience. There would be surprises, rumors, and

sharp misunderstandings, as well as the usual antagonisms among countries. It is not even out of the question that if something called "general and complete disarmament" were achieved, responsible governments might decide that international apprehensions would be reduced if they possessed more secure, more diversified, and more professionally organized mobilization bases or weapon systems, with more freedom to improve them, drill them, and discuss the strategy of their use. It might be that moderate though expensive modern weapon systems, professionally organized and segregated from the main population centers, would provide less—not more—military interference in everyday life than a "total" disarmament agreement under which every commercial pilot carried emergency mobilization instructions in his briefcase.

Stability, in other words, of the two kinds discussed in this chapter, is relevant to any era and to any level of armament or disarmament. It is just not true that if only disarmament is "total" enough we can forget about deterrence and all that. It would be a mistake to suppose that under "total" disarmament there would be no military potential to be controlled, balanced, or stabilized. If disarmament were to work, it would have to stabilize deterrence. The initiation of war would have to be made unprofitable. It cannot be made impossible.

It is sometimes argued that to perpetuate military deterrence is to settle for a peace based on fear. But the implied contrast be-tween stabilized deterrence and total disarmament is not per-suasive. What would deter rearmament in a disarmed world, or small wars that could escalate into large ones, would be the apprehension of a resumed arms race and war. The extent of the "fear" involved in any arrangement—total disarmament, nego-tiated mutual deterrence, or stable weaponry achieved unilater-ally by conscious design—is a function of confidence. If the consequences of transgression are plainly bad—bad for all par-ties, little dependent on who transgresses first, and not helped by rapid mobilization—we can take the consequences for granted and call it a "balance of prudence."