Enhancing Crisis Stability: Correcting the Trend Toward Increasing Instability
Charles F. Hermann

Introduction

We live in a dangerous era, when both the United States and the Soviet Union continue to amass nuclear weapons and rely on the threat of their use to deter major war. In such times some encouragement can be found in the repeated expressions by leaders of both countries that they recognize each side would experience catastrophic devastation in a nuclear conflict. The acknowledgement that neither side could escape destruction has been expressed by political leaders ranging from Khrushchev to Gorbachev, from Eisenhower to Reagan. Whatever military leaders and civilian strategists may contemplate as hypothetical contingencies, one observes that politicians of enormously different beliefs, motives, and world views have sensed at a "gut level" that nuclear war as an instrument for achieving political ends makes no sense. Beyond the assurances of their declaratory statements, we have little direct evidence of occasions for decision where Soviet leaders were presented with the option of using nuclear weapons and explicitly rejected the possibility even if it meant accepting possible setbacks, but it certainly is an observable fact that despite various provocations they have not done so even when it meant alienating the Chinese or allowing Egypt to suffer a humiliating defeat. On the American side we know of multiple cases where the idea surfaced and was dismissed (e.g. see Halloran, 1986).

It seems reasonable to conclude that despite occasional flip remarks and endless (and necessary) reexaminations of nuclear deterrence, nuclear war as an acceptable means for achieving policy goals other than political
system survival has been repeatedly rejected in actual cases to date
and nuclear war has been widely regarded by political leaders at a more
general level of declaratory statements as probably suicidal. Because
such beliefs seem very widespread, one might conclude, as many have,
that in normal times a nuclear war beginning abruptly as a bolt out of
the blue in a calculated attempt to achieve potential political advantage
appears extremely remote.

Regrettably other causes of nuclear war seem less remote. Among
major categories of nuclear war risk are the following:

- demented dominant political leader with dictatorial control over
  nuclear forces
- accidental or unauthorized use of nuclear weapons
- crises involving threats to core values of a nuclear power

Each of these risks of nuclear war deserves careful attention, but this
chapter concerns the third.

From the perspective of policy-makers in a country, an international
polito-military crisis exists when they perceive a severe threat to the
basic values of their political system from sources that are at least
partially outside their polity; when they believe there is relatively short
time before the situation (if unaltered) will evolve in ways unfavorable
to them; and when they have an increased expectation that in the near
future there will be an outbreak of military hostilities or a sharp escalation
of already existing hostilities.

The period of extreme antagonism and severe competition that has
marked relations between the Soviet Union and the United States since
World War II has been punctuated by such crises. In the most recent
years there has been no shortage of provocations by either side—the
Soviet invasion of Afghanistan, the American insertion of Marines in
Lebanon backed by naval and air strikes against Syrian controlled areas,
the Soviet shooting down of a civilian airliner with Americans including
a Congressman aboard, the American air strikes against Libya or the
shooting of a U.S. Major on duty in East Germany by one of their
soldiers. Despite such aggressive acts toward one another, these pro-
"vocations fail to meet our criteria for a major crisis and lead to the
observation that recent years have not entailed the kind of episodes
that earlier transpired repeatedly over Berlin, or the Cuban missile crisis,
or the potential escalation during the 1973 Arab-Israeli War.

The recent lull in politico-military crises between the Soviet Union
and the United States may reflect a growing recognition about the great
danger of acute crises in a manner somewhat parallel to that surrounding
the use of nuclear weapons in war. Yet to date we have witnessed no

wide-spread series of declaratory actions to the potentially increased dan-
ger. We have witnessed practices on both sides, but the war potentially greater in any future

Both the Soviet Union and the United States have engaged in changes in force structure and
military stability. Given our mutual reliance on these developments make crisis situations
even greater concern than it has been.

Crisis stability can be viewed from two perspectives. One arises from a country’s reliance on
its nuclear forces and on other valued assets. The second arises from the threat of strategic
nuke war to be neutralized or severely eroded by a strategic nuclear attack, such as by an initial strike against the enemy’s targets at which the will or capacity of the enemy to impose a nuclear or capability to authorize retaliation. In short,
these are perceived as country’s reliance on and the capability of the strategic nuclear force’s
nuke challenge (e.g., Steinbruner, 1976). The substantial degree of stability under the threat of
military escalation during a crisis.

Thus, crisis instability appears to be much less

1. Crises can expose technical features of strategic plans that have not been disregarded.
ICBMs in other advanced military capabilities, the process of fuel
change or refueling procedures that had to be performed. These features come under pressures of a crisis.
2. Crises may require, or make it desirable, as protective preparations or as defensive preparations of a high degree of complexity and susceptibility to misinterpretation intended by the initiator.
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Enhancing Crisis Stability

Wide-spread series of declaratory statements that reflected a sensitivity to the potentially increased danger of crises and, more critically, we have witnessed practices on both sides that make the risks of nuclear war potentially greater in any future crisis.

Both the Soviet Union and the United States have in the past decade engaged in changes in force structure and doctrine that reduce crisis stability. Given our mutual reliance on some form of nuclear deterrence, these developments make crisis as a path to nuclear war a matter of even greater concern than it has been in the past.

Crisis stability can be viewed as a subset of deterrence stability and arises from a country's reliance on deterrence to prevent attacks on itself and on other valued assets. Deterrence stability requires that the threatening capability of strategic forces not be perceived by either party to be neutralized or severely eroded by actions of a potential adversary such as by an initial strike against those forces, or by effective protection of the enemy targets at which they are aimed, or by some development that impedes the will or capacity of the deterrent country's leadership to authorize retaliation. In short, deterrence forces are stable to the degree that they are perceived as capable of inflicting damaging retaliation regardless of the potential adversary's action such as a counterforce first strike. For this reason, such stability is often simplified to the invulnerability of strategic nuclear forces—a perspective that is open to challenge (e.g., Steinbruner, 1978). A strategic nuclear force that has a substantial degree of stability under normal conditions can be adversely affected by a crisis. Thus, crisis instability can be viewed as the extent to which such situations reduce the deterrence stability perceived to exist under normal conditions and create incentives to initiate a strategic nuclear attack.

Crisis, as defined, can put stress or special demands on a deterrent force in several different ways:

1. Crises can expose technical features of the force structure or design features of strategic plans that had not previously been understood or had been disregarded. Thus, in the early days of liquid-fuel ICBMs, the process of fueling missiles was protracted and once fueled the missiles had to be launched within a limited period of time or a refueling process introducing long delays had to be initiated. These features could interact adversely within the time pressures of a crisis.

2. Crises may require, or make very desirable, certain actions—such as defensive preparations or demonstrations of resolve—that are highly susceptible to misinterpretation by the adversary. An action intended by the initiator as a prudent defensive response to a
crisis is perceived by the adversary as provocative and offensive. Thus, the Russian desire for a mobilization to show support for Serbia in 1914 was misinterpreted by Germany.

3. Crisis may also change the way policy-makers think. The stress produced by a crisis may cause leaders to believe that they have few options; that their adversary alone has avenues for de-escalating the situation; and that raising questions about the merit of plans proposed by fellow policy-makers is unpatriotic and dangerous.

In summary, crisis stability can be affected by changing the state of weapons systems, by previously unforeseen consequences of forces or plans, or by changes in the perceptions and thinking of policy-makers. The dynamics that can lead to crisis instability involve some mix of the following:

- Perception by top political authorities that nuclear war is now virtually inevitable. This perception can be compounded by disruption in individual or group reasoning that sometimes results from the stress induced by a crisis. Of particular concern is the perception of some people upon experiencing severe stress in a situation with the adversary that they are helpless and have no further options and that only their opponent has the ability to exercise control and initiate alternatives that can avert disaster.
- Belief that one’s own forces are so extremely vulnerable to attack now that little of one’s intended retaliatory force would survive the enemy’s first strike. This belief may result from “worse-case” type thinking, from actual momentary disadvantage (e.g., a higher than usual number of one’s own strategic systems or control arrangements that are down for maintenance or are discovered to be momentarily out of order), from full recognition for the first time by political leaders (although previously known by others) of some of the very real limits on their strategic capabilities and the doctrines governing their use, or some combination of the above.
- Belief that there is a possible decisive advantage in attacking first with nuclear weapons. This belief may be the result of a long-established governmental policy (as for the United States in responding to a conventional attack by Soviet forces that cannot be stopped by the NATO non-nuclear defense forces) or of the sudden conclusion that nuclear war is inevitable, at which point, as Betts observes (1985a; 59) “... the opponent’s nuclear force is automatically transformed from a deterrent into a target, which must be attacked to limit the damage that will be suffered from the inevitable exchange.”

Enhancing Crisis Stability

If war is to be avoided by mutual interest and the likelihood of escalating military arrangements designed to avoid war and increase the risk. It is precisely that is, greater crisis instability—States and the Soviet Union have

Recent Sources

In considerations of crisis stability and emerging developments and the United States—many of them in which any future crisis invol areas require review. They are: change of weapons, changes in strategic allocation of nuclear weapons, and change in connections among these developments. Each can be viewed as produc

Weapons Systems Characteristics

A discussion of changes in the greatest salience to crisis stability American deployment in the ever-harder-targeted Reentry Vehicles (RVM) in sufficient numbers and are considered to be warhead accuracy to pose a threat to ICBMs. The resulting “hard-target” capability with substantial probability has a significant portion of each side’s strategic forces, hence all of one’s first strike involving only a portion of their MIRVs and highly accurate MXs, Trident D-5s, SS-18s and SS-20s. Policy-makers than in earlier periods. The attack if the likelihood of nuclear submarines have ICBMs at risk, each side may be planning an increased tendency to interpret indications of preemption than one’s own weapons before they...

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Enhancing Crisis Stability

If war is to be avoided by military deterrence, then it is imperative that in situations where policy-makers perceive great threat, short time, and the likelihood of escalating military action that none of the deterrence arrangements designed to avoid war suddenly act in the reserve way and increase the risk. It is precisely this increased risk in a future crisis—that is, greater crisis instability—that recent actions of both the United States and the Soviet Union have generated.

Recent Sources of Crisis Instability

In considerations of crisis stability it is important to review recent and emerging developments and practices of both the Soviet Union and the United States—many of them quite familiar—that affect the context in which any future crisis involving them would occur. At least four areas require review. They are: changes in the characteristics of strategic weapons, changes in strategic alerts, changes in command and control of nuclear weapons, and changes in strategic plans. Clearly there are connections among these developments, but with respect to crisis stability, each can be viewed as producing some separate effects.

Weapons Systems Characteristics

A discussion of changes in the inventory of strategic weapons of greatest salience to crisis stability might reasonably begin with the American deployment in the early 1970s of MIRVs (Multiple Independently-targeted Reentry Vehicles), which are now deployed by both sides in sufficient numbers and are combined with substantial improvements in warhead accuracy to pose a threat to the survivability of fixed-base ICBMs. The resulting “hard-target kill capability,” or ability to destroy with substantial probability hardened missile silos, has put a major portion of each side’s strategic force at risk from the other side’s possible first strike involving only a portion of its total strategic forces.

MIRVed and highly accurate systems such as the Minuteman IIs, MXs, Trident D-5s, SS-18s and SS-19s produce a greater pressure on policy-makers than in earlier post-World War II crises for preemptive attack if the likelihood of nuclear war seems pronounced. Because both sides have ICBMs at risk, each will be attempting to calculate whether the other side may be planning to preempt. As a result there will be an increased tendency to interpret any ambiguous military activities as indications of preemption that in turn could trigger decisions to use one’s own weapons before they are destroyed.

In recent years the Soviet Union has led the way in the development of antisatellite (ASAT) rockets designed to destroy satellites in space.
Just as the Soviet Union followed the United States in MIRV development, so the United States has followed the USSR's initiative in the pursuit of an ASAT system. ASAT capability on both sides appears unperfected at present. Even if improved, the present generation of such weapons would appear to threaten only low orbit satellites or those in highly elliptical orbits. Although most U.S. strategic satellites are stationed in very high orbit, both countries maintain numerous low orbit military satellites of great importance for intelligence purposes and these systems could be vulnerable in the near future. According to Garwin and his associates (1984: 47): "The ability to destroy low-orbit military satellites, coupled with the fear that the opponent may at any moment attack one's own satellites, could therefore create an irresistible temptation to remove the opponent's satellites. As a consequence the ability to destroy low-orbit satellites promptly could inflame a political crisis or minor conflict that might otherwise have been resolved by diplomacy if there were no antisatellite weapons."

Clearly the destruction of satellites at any time, and particularly during a crisis, would be regarded as a violation of existing treaties and an act of extreme provocation. Even without actual attacks, the knowledge of the presence of antisatellite weapons on both sides will compound tensions in a future crisis. The existence of a substantial antisatellite capability would be perceived as reducing stability in a crisis regardless of whether such weapons were used. Like land-based ICBMs in silos, satellites have become vulnerable, particularly those in low earth orbit.

Optimally the momentous decision about the use of nuclear weapons should be taken under circumstances that promote thoughtful reflection and analysis. The magnitude of the consequences certainly separate this potential decision from all others. Yet both the United States and the Soviet Union push the development and deployment of weapons systems that continuously erode available decision time. Current ICBMs take 25 to 30 minutes to reach most targets in the other country from their present sites. Both sides have available missile systems that reduce warning time to well under ten minutes by the use of submarine-launched ballistic missiles (SLBMs) that traverse much shorter distances from their location in off-shore subs. Pershing IIs and, for European members of NATO, the SS-20s pose equivalent decision-time reducing systems.

The ultimate decision-time reducer will be weapons designed to attack ICBMs or SLBMs in their boost phase. For the present generation of ICBMs, the boost phase begins when the main rocket engines start firing just before lift-off and ends when the final stage rocket engines shut off—an elapsed time of three to five minutes. Both sides are currently working on systems designed to do this. To destroy missiles (perhaps up to their flight paths, the defensive system could also plunge up, what damage was done for post- minutes. Clearly no human decision a highly restricted time frame. If time, determine whether a missile launch mission, or a defective sensor. Its a crisis but could also plunge our greater escalation. Severe consequences by policy-makers that the other automated system control over the involving the detonation of nuclear the system would work and believe inevitable, he would know that be massively overwhelming. Both systems designed to attack missile support equipment as prime target encourage preemption. Furthermore in a crisis of the defense systems of acute opportunity or vulnerability believes that both sides know a system cannot work effectively against is deployed anyway, then the advantage of a first-strike strategy. It would a number of launched enemy missile system. Such beliefs would reduce threat by the side not having the system.

In summary, there are some disadvantages that come from these new weapons systems. The second and third order policy-makers take other steps that could seriously reduce stability in a fashion that every new strategic weapon system. A mobile, single warhead missile, for example, would not appear to be described above.

Strategic Alerts in an Era of Essentials

On three occasions since 1952 military forces on an increase
he United States in MIRV development, the USSR's initiative in the pursuit of such weapons, and their deployment of MIRV satellites on both sides appears unperfected in present generation of such weapons. MIRV orbit satellites or those in highly elliptical orbits are stationed in present day blast first military intelligence purposes and these systems will be deployed once military intelligence purposes and these systems are developed. According to Garwin and his co-authors, the low-orbit military satellites, opponent may at any moment attack and create an irresistible temptation to any states. The ability to inflame a political crisis with minor means by diplomacy if there is a consequence a violation of existing treaties on satellite weapons on both sides will produce consequences that promote thoughtful reflection on the nature of the deployment of weapons systems and the decision-making time. Current ICBMs take 25 minutes to reach the other country from their launch site, which traverse much shorter distances in minutes. Pershing II and, for European capabilities, the decision-time reducing system is a test for the US with its equivalent decision time, but Time will be weapons designed to attack the United States. For the present generation of the main rocket engines start firing at the final stage rocket engines shut down after minutes. Both sides are currently working on systems designed to attack missiles in their boost phase. To destroy missiles (perhaps up to 1400 in a full scale attack) in the boost phase, the defensive systems must identify rocket launches, track their flight paths, launch interceptor beams or projectiles, and assess what damage was done for possible second efforts—all in under five minutes. Clearly no human decision making can be introduced in such a highly restricted time frame. In such circumstances, computers must determine whether a missile launch is only a test, a manned space mission, or a defective sensor. Its malfunction could not only precipitate a crisis but could also plunge opponents into an existing crisis into vastly greater escalation. Severe consequences could flow from the perception by policy-makers that the other side intended to relinquish an automated system control over the initiation of strategic defense—possibly involving the detonation of nuclear devices. If the adversary believed the system would work and believed in a crisis that war seemed increasingly inevitable, he would know that his first strategic move would have to be massively overwhelming. Both sides would regard the space-based systems designed to attack missiles in their boost phase and the related support equipment as prime targets for ASAT attacks and would encourage preemptive strikes. Furthermore, both sides would regard any evidence in a crisis of the defense system's temporary malfunction as a period of acute opportunity or vulnerability. If, on the contrary, an adversary believes that both sides know a strategic defense against ballistic missiles cannot work effectively against a large-scale attack and such a system is deployed anyway, then the adversary will assume the defense is part of a first-strike strategy. It would be used against the presumably small number of launched enemy missiles that escaped destruction in the first strike. Such beliefs would reduce crisis stability and encourage preemptive strikes by the side not having the system.

In summary, there are some discernible direct effects on crisis stability from these new weapons systems, but the most significant consequences are the second and third order effects. To deal with these weapons, policy-makers take other steps or form new mental images that, in turn, seriously reduce stability in a future crisis. It is important to recognize that every new strategic weapon system does not necessarily erode crisis stability. A mobile, single warhead missile or strategic bomber, for example, would not appear to have such grave effects as those systems described above.

Strategic Alerts in an Era of Essential Equivalence

On three occasions since 1960, the United States has put its global military forces on an increased alert status during a crisis with the
Soviet Union. These include the collapse of the summit conference in May 1960, the Cuban Missile crisis in October-November 1962, and the final days of the Middle East War in October 1973 (See Sagan, 1985). Not much comparable information appears to be publicly available regarding the Soviet Union. To date, however, it does seem that the United States and the USSR have not put their worldwide strategic forces on a very high alert at the same time. The basic military purpose of an increase in strategic alert status is to heighten the preparedness for war by taking steps to reduce the time between a subsequent order to use force and the actual initiation of coordinated military action. At least, the United States has demonstrated its willingness to use a heightened alert status as a means of signaling to the other side quickly and dramatically its resolve to protect threatened vital interests. Clearly that was the intent of the American alert during the Yom Kippur War: to signal readily that the U.S. would regard the introduction of Soviet troops into Egypt as contrary to U.S. vital interests. (For a discussion of this strategic alert, see Blechman and Hart, 1982; and Kissinger, 1982.)

Whether the Soviet Union's leadership will elect to follow the American precedent and use an increase in strategic alert status as a means of signaling in a future crisis is unknowable, but the mutual perception of the increased size and relative capabilities of present Soviet strategic forces, as compared to 1973, might invite such action. At a minimum, Soviet leaders may feel they can no longer allow the Americans to engage in such escalation without a comparable response to curb the U.S. and communicate that they are equally prepared to defend their vital interests.

If heightened strategic alert status in some superpower crises is to be expected, and is perhaps necessary, that does not alter its implications for crisis stability. This is particularly true if the escalated levels of strategic readiness are mutual. In an acute crisis the American president (and perhaps his Soviet counterpart) could be expected to delegate authority to initiate use of nuclear weapons down the chain of command. This action would be a necessary precaution against a possible enemy attempt to immobilize the strategic system by instantly killing the President, Secretary of Defense, Chairman of the Joint Chiefs and those in the constitutional line of presidential succession with a very small number of nuclear weapons. In contrast to the normal peace time disposition of managers of the strategic system to disbelieve and check repeatedly any information indicating an incoming attack has been launched, in crisis such messages become more credible. Because the authority to initiate use of nuclear weapons would be dispersed, more individuals would be in a position to make separate and independent judgments that this time the mistake would be mutual. This, however, is most sensitive with submarines because the boats have no physical constraint on the boats' crews themselves and communication while making manuevers occurs on an ad-hoc basis. Each side's alert preparations would be considered as potential targets by the other side. (Quick detection of the United States went to a higher level of its resolve.) The temptation to raise or maintain a still higher state of one's own war readiness in the two systems but the psyche of our group of policy-makers, each weighing the risks.

At higher alert levels in a crisis, an exchange of bluffs will occur—either unauthorized or not, that will be misconstrued by the other side to a commitment to attack. In the past, such actions occurred. With mutual mistrust, the tolerance of such events could lead to a crisis.

Finally, simultaneous high levels of alert and the high level of anti-war sentiment in society has made little sense of these actions by one side would take place. The motivations that led to such actions. For example, the motivation that led to a commitment to attack. In the past, such actions occurred. With mutual mistrust, the tolerance of such events could lead to a crisis.

Command and Control of Nuclear Warheads

The command and control of nuclear warheads are an area of increased attention in recent years (e.g., Blair, 1985). With respect to nuclear warheads, the command and control issues seem paramount:

- Elements of command and control are not at the top levels of the strategic system.
- Highly centralized control of weapons are at the top levels of the strategic system.

Command and Control Vulnerabilities

Command and control vulnerabilities are a result of several factors. The presence of electronic elements of the system (e.g., satellite communication) to the uncertain effectiveness of electronic systems, the ability of the electromagnetic phenomenon to create hard
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most sensitive with submarines placed on a higher alert status. These
boats have no physical constraint on launching nuclear weapons outside
the boats’ crews themselves and experience difficulty with outside
communication while making maximum effort to avoid detection. Finally,
each side’s alert preparations would almost certainly be quickly detected
by the other side. (Quick detection by the Soviets is precisely why the
United States went to a higher level of strategic alert in 1973 to signal
its resolve.) The temptation to respond to the other side’s alert with a
still higher state of one’s own would feed not only the physical changes
in the two systems but the psychological state of the respective, enlarged
group of policy-makers, each with a finger on the nuclear trigger.7

At higher alert levels in a crisis a greater danger arises that action
will occur—either unauthorized or actions with unanticipated effects—
that will be misconstrued by the other side as moving beyond preparation
to a commitment to attack. In the Cuban missile crisis, multiple such
actions occurred. With mutual high alerts, the number and reduced
tolerance of such events could be extremely troubling.

Finally, simultaneous high levels of alert may complicate the task of
orchestrating de-escalations back down to lower alert conditions when
such action by one side would appear to give the other very decided
advantages.8

Command and Control of Nuclear Weapons

The command and control of nuclear weapons or C^{I}I (command,
control, communications and intelligence) have become subjects of in-
creased attention in recent years for both policy-makers and analysts
( e.g., Blair, 1985). With respect to crisis stability, two command and
control issues seem paramount:

- Elements of command and control remain one of the most vulnerable
elements of the strategic system susceptible to a first strike;
- Highly centralized control of nuclear weapons by the highest national
authority poses an exceptionally vulnerable target.

Command and Control Vulnerability. The general vulnerability of C^{I}I
results from numerous factors ranging from the “softness” of many
elements of the system (e.g., satellite receiver stations, radars, telephone
exchanges) to the uncertain effects of nuclear detonations on the per-
formance of electronic equipment and certain radio frequencies (e.g.,
the ability of the electromagnetic pulse, or EMP, from a high altitude
nuclear explosion to create harmful voltage surges over a wide area);
from the increased operational requirements that result from adopting more complicated strategic plans to the increased complexity arising from the tighter integration of more components.

As with so many of the consequences for crisis stability, the main effects appear to flow from the policy-makers’ awareness of this vulnerability and their efforts to cope with it. Because each side knows that key elements of the other side’s command and control system can readily be disrupted by a modest force and that such an attack might offer a chance of hindering a substantial, effective counterattack, there is a temptation to consider a preemptive strike. This is particularly so knowing that one’s own side might be made similarly inoperative by an equivalent assault. If war seems likely (which is what a crisis is about), the command and control system may become a factor, not for controlling the situation and promoting a resolution of the crisis, but for a preemptive nuclear attack.

National Authority Vulnerability. A second dimension of the problem is the vulnerability of the national command authority. Control of nuclear weapons by the highest national authorities has been a widely accepted principle since the beginning of the nuclear age. With the proliferation of strategic systems in geographically diverse locations, the problem of maintaining control has become more complex. In characterizing the evolution of the American system, Bracken (1983) uses the analogy of a rifle trigger and safety catch in which the trigger is inoperative so long as the safety catch is on. “The primary command centers were to serve as triggers, but their ability to fire would be restrained by the viable functioning, and the survival, of the presidential command center. If the safety catch of the system were destroyed, direct operational control would devolve to the primary command centers...” (Bracken, 1983: 196–197). Obviously, many steps have been taken to ensure the accessibility of the President or his successor to the primary command centers—the constant proximity of the military aide with the authorizing codes, the standby maintenance of the National Emergency Airborne Command Post, and so on.

As with other parts of the command and control system, the centralized control—both the “safety catch” and the primary “triggers”—represent a fairly small number of targets. The Soviet Yankee class submarines off the Atlantic coast of the United States, the American Pershing II missiles in Europe, and nearby American Poseidon and Trident submarines all have missiles with flight times of under 12 minutes capable of destroying the high command centers. The time from the moment of detection of their launch to impact on their targets could in many circumstances be insufficient to remove the designated authorities to safety. In fact, the key subordinate commands also could be subject to similar prompt attacks creating the possibility of the top political and military leadership being in the line of fire.

Strategic Plans

Not only the weapons, the mechanisms on which readiness is suddenly crucial, but strategic plans for their use can affect crisis stability. Strategic plans can undergo perceived changes in these other areas. Once perceived changes in these other areas can thus affect the stability of the crisis. For example, changes in nuclear war plans. The two criteria for crisis stability appear to stem from the vulnerability of strategic war plans. The two criteria are: (1) the vulnerability of strategic war plans and (2) and the increasing vulnerability of the war plans and the increasingly complex nature of the crisis.

Launch Under Attack. Launching a nuclear attack is a critical step in a nuclear war. If the enemy launches a nuclear attack, the US forces may find it difficult to launch a retaliatory strike. If the enemy launches a nuclear attack, the US forces may find it difficult to launch a retaliatory strike. This is because the enemy’s forces may be able to launch a nuclear attack before the US forces can launch a retaliatory strike. This is because the enemy’s forces may be able to launch a nuclear attack before the US forces can launch a retaliatory strike. This is because the enemy’s forces may be able to launch a nuclear attack before the US forces can launch a retaliatory strike. This is because the enemy’s forces may be able to launch a nuclear attack before the US forces can launch a retaliatory strike.
similar prompt attacks creating the specter of a society abruptly deprived of its top political and military leadership as the result of a decapitation strike.

Once again the adverse effect on crisis stability partially results from the steps taken to cope with the command and control susceptibility to attack and the resulting perceptions. Bracken (1983) describes the American system designed to meet this problem as one of "cascading authority" whereby through a practice of pre-delegated authority, the ability to authorize an attack is passed to consecutively lower levels of military command before an attack. Assuming higher levels of authority are lost, then by pre-arrangement these officers decide on the use of the weapons under their command. It is the knowledge that the higher authority may disappear suddenly that poses the direct danger of pre-delegated command to crisis stability. Once authority over the use of nuclear weapons has been pre-delegated in a crisis, how does one continuously and confidently assure designated commanders that higher authorities are still safe and retaining authority? After the crisis is over, how is authority firmly recovered? These are the kind of problems posed for crisis stability by eroding decision control.

Strategic Plans

Not only the weapons, the means for their control, and the occasions on which readiness is suddenly accelerated, but also the pre-arranged plans for their use can affect crisis stability. Indeed actual changes or perceived changes in these other factors often motivate changes in strategic war plans. The two current proposals with powerful implications for crisis stability appear to stem from analyses of changing characteristics in weapons and the increasingly recognized problems of command and control vulnerability. The two proposed plans are launch under attack and a preemptive decapitation strategy.

Launch Under Attack. Launch under attack represents a possible response to the perceived growing vulnerability of land-based, fixed-site ICBMs, whose protection through hardening appears to some to be overwhelmed by sufficient numbers of accurate, MIRVed warheads possessed by the other superpower. Such a strategy also offers greater assurance that retaliation can be implemented with an intact command and control system, and, thus, represents a better chance for a coordinated and effective counterstrike. In addition, it recognizes that at the beginning of a nuclear exchange an opponent would act to disperse and otherwise protect moveable strategic systems such as bombers and submarines located at known bases. These are time-urgent targets that one has the best chance of destroying by attacking very quickly before they are
moved. (An aggressor might be reluctant to move all these assets prior to his initial attack because it could reveal his intention.)

In a crisis, the possibility of strategic or advanced warning of an impending attack is uncertain and quite likely to be ambiguous. It is only after information processing centers have interpreted signals from intelligence sensors of a ballistic missile attack under way that a tactical warning can be flashed to command centers. If one's own ICBM sites appear to be the probable targets of such an attack, the policy-makers face the much discussed problem of losing a substantial portion of their hard-target, quick response strategic force in less than 30 minutes. Ordering a launch of the targeted systems before they are destroyed by incoming warheads is the proposed plan for launch under attack.

If a launch under attack plan were to have any reasonable hope of success, it would require putting strategic forces on a high state of alert at once an international crisis occurs. To minimize delay, launch procedures must be linked very closely to warning sensors. As Bracken (1983: 55) has noted, "tightly coupled systems are notorious for producing overcompensation effects." Information in any part of the system gets repeated and amplified and the costs of any verifications or checks that take more than a moment may insure the defeat of the time-urgent plan. The tendency in any launch under attack plan would be to "switch off" certain normal negative controls under high conditions of alert that might fatally delay its implementation.

Information processing under such conditions would likely appear very different than in the same strategic command and control system under normal conditions or even in a crisis without a commitment to a launch under attack plan. Crisis stability would be sharply degraded as any real or false signals surged through the system. Not only the authorities in the country using such a plan, but also their counterparts on the other side, would be severely affected if they suspected that in a crisis their adversaries were committed to a launch under attack plan.

Preemptive Decapitation. Under the prevailing conditions of mutual deterrence, policy-makers in the Soviet Union and the United States both now and in the future are expected to conclude that no objectives or goals are remotely worth the horrors of nuclear war. But in a crisis would these same calculations prevail under the conditions in which, for example, one side believed the other had adopted a launch under attack policy? Or suppose the policy-makers fully recognized and accepted the implications of the other circumstances described in this chapter. Might they still believe that nuclear war was not worth any of their goals, but conclude that such a war now seemed extremely likely or, perhaps, inevitable? On such an occasion might leaders be tempted to implement a preemptive first strike against the most vulnerable element of the other side's strategic force in the belief that it offered a plausible target of their own survival? It would be imperative that such a strike that would be targeted, not the weapons themselves, but the political and military command nodes, and the information, communication nodes, and the intelligence the brain of the highly integrated nuclear force be well identified by both sides. (See, for example, to Blair (1985: 189): "Half the 400 C3I targets could be struck by a single patrol." Steinbruner (1981-82) suggests that the political and military nuclear force have a number of several advantages. First, it is used in a retaliatory response because the threat of a first strike (Should retaliation be uncertain) is "Second, it offers some small chance of being the first to occur and no retaliation will follow.

The consequences for crisis stability are staggering. It imposes powerful incentives on the other side to avoid nuclear strike if, in a crisis, war is unavoidable. It also greatly increases the likelihood of miscalculated escalation as suggested."

**Proposals for Enhancing Crisis Stability**

If policy-makers' conscious decision-making (and the effects of the United Nations) in both the United Nations produced the recent developments in a future crisis, then it should be achieved to undo these adverse effects. It is considered that actions were taken during the Cold War to reduce greater instability resulted in the need to military leaders to realize other goals. The purpose is to create the most stable environment for the many criteria must be pursued.

- The deterrent must be credible;
- The deterrent must be accompanied by the economic, social, and political consequences of war;
- The deterrent must provide guarantees (e.g., for the United Nations, for Europe and certain others) against nuclear attack.)
of the other side's strategic forces—the command and control system—in the belief that it offered a possible chance, however slim, of their own survival? It would be imperative to attack first with a preemptive strike that would be targeted, not primarily against the strategic forces themselves, but the political and military command centers, the strategic communication nodes, and the information processing centers that constitute the brain of the highly integrated force. Such targets appear to be well identified by both sides and their numbers are small. According to Blair (1985: 189): “Half the 400 primary and secondary U.S. strategic C3I targets could be struck by Soviet missile submarines on routine patrol.” Steinbruner (1981–82) suggests that a decapitation strike against the political and military nuclear command and control system offers several advantages. First, it is likely to reduce the damage of any retaliatory response because the response would lack controlled coordination (Should retaliation be undertaken? When? Against what targets?). “Second, it offers some small chance that complete decapitation will occur and no retaliation will follow” (Steinbruner 1981–82: 19).

The consequences for crisis stability of a decapitation strategy are staggering. It imposes powerful incentives on both sides for a preemptive nuclear strike if, in a crisis, war is perceived to be nearly inescapable. It also greatly increases the likelihood of war by loss of control or miscalculated escalation as suggested by Lebow (1987b).

Proposals for Enhancing Crisis Stability

If policy-makers' conscious decisions (sometimes without appreciation of the effects) in both the United States and the Soviet Union have produced the recent developments that increasingly jeopardize stability in a future crisis, then it should follow that they can make decisions to undo these adverse effects. It is most unlikely, however, that any of the described actions were taken deliberately to reduce crisis stability. Rather, greater instability resulted inadvertently from efforts by political and military leaders to realize other objectives. Even if one's sole military purpose is to create the most effective strategic deterrence possible, many criteria must be pursued. Among them are the following:

- The deterrent must be credible to potential adversaries.
- The deterrent must be acquired and maintained at acceptable levels of financial, social, and political burden.
- The deterrent must provide protection to all highly valued assets (e.g., for the United States extended deterrence requires protection of Europe and certain other allies against both conventional and nuclear attack).
• The deterrent, if entailing nuclear weapons, must not make conventional war more likely (i.e., neither side must become so convinced that nuclear war has been prohibited by deterrence that they feel free to initiate conventional war without fearing risk of escalation).
• The deterrent must minimize the possibility of accidental or inadvertent war.

This list by no means exhausts the requirements. Moreover, each of the criteria mentioned can be further elaborated to reveal additional specifications. Such criteria and their elaboration create demands that are contradictory. Some are achieved at the direct expense of others. For example, it is commonly thought that a degree of uncertainty about the conditions that trigger release of a deterrent force contributes to extended deterrence (coverage of all valued assets) and prevents an adversary from believing a conventional war can be waged without the danger of nuclear escalation. Though uncertainty may benefit those requirements, it increases the risk of miscalculation and accidental war. Similarly if strategic deterrence doctrine includes a launch under attack policy, then an adversary may be deterred from considering a preemptive strike, but again the risks of loss of control and accidental war are increased. In brief, the pursuit of these deterrence criteria often entail major tradeoffs. Efforts to fulfill one mean that others may be left unsatisfied. Thus, many steps that could be taken to improve crisis stability will have adverse effects on other deterrent criteria.

Appreciation of this agonizing dilemma has led some thoughtful people to challenge the appropriateness of strategic deterrence as presently conceived as a satisfactory means of war prevention. If all the criteria are necessary to make deterrence work and some are mutually exclusive, then strategic deterrence as a means of war prevention is seriously defective. Although the list of necessary deterrence requirements offered by these individuals might appear different from those indicated above, it is the same essential dilemma that has prompted advocates on both the political left and right to press for alternatives to nuclear deterrence and the present condition it has generated of mutual assured destruction. The results have ranged from advocacy of the strategic defense initiative to the American Catholic and Methodist bishops’ respective critiques and calls for disarmament. Thus, one response to the problems of crisis stability is to avoid war by some means other than nuclear deterrence. As important as the search for alternatives is, it is not the focus of this chapter. The remaining task of this essay is to consider means of dealing with crisis stability within the context of a policy of nuclear deterrence.

Enhancing Crisis Stability

We will review a variety of arrangements under three categories that can be performed unilaterally or even if not reciprocated by the opponents that require either the tacit or public agreement of both primary parties. Some arrangements are designed to be an active role for third parties.

Many things that might be useful in crisis management—such as ensuring that the crisis is not allowed to escalate, taking sufficient steps to prevent a crisis as it develops. These steps, nevertheless, are designed to prevent a crisis from happening. How do we protect our interests in a crisis to prevent a crisis from occurring? The solution is to increase the risk of war if it starts. This has been done for a 1973 Arab-Israeli War with increased risk of war if it starts. The solution is to increase the risk of war if it starts.

Unilateral Actions

Reduce Vulnerability of Strategic Systems

Two lines of reasoning. First, vulnerability of strategic systems as well as the possibility of retaliation for such systems as well as the possibility of retaliation in a nuclear crisis. This means that any system that is not vulnerable to nuclear war is not vulnerable to a nuclear war. The solution is to increase the risk of war if it starts.

At the present time the fixed agreement is being pressed on the Soviet Union to abandon reliance on such systems by submarine missiles is often recommended (IAEA, 1985: 231). The problem of vulnerability is that vulnerable ICBMs are not vulnerable to a nuclear war if the vulnerable ICBMs are not vulnerable to a nuclear war. Furthermore, alternative systems to the obvious cost requirements, the problem has been widely recognized. New approaches to the problem are being developed and generally favorably inclined.

Upgrade Strategic Command and Control

An approach to the problem of vulnerability is the development of new systems to the problem of vulnerability is the development of systems that are not vulnerable to a nuclear war. The solution is to increase the risk of war if it starts.
We will review a variety of proposals for improving crisis stability arranged under three categories. Some approaches entail actions that can be performed unilaterally and presumably could improve conditions even if not reciprocated by the other side. Others are bilateral arrangements that require either the tacit cooperation or explicit agreement of both primary parties. Some arrangements are multilateral and involve an active role for third parties.

Many things that might be useful to try and control a crisis once it occurs need to be planned and initiated long before any crisis happens. These steps, nevertheless, are designed to affect the nature and path of a crisis as it develops. They could be examined under the heading of crisis management—which is beyond our current focus. What will be considered as crisis avoidance are possible steps intended to reduce the likelihood of a politico-military crisis between the superpowers ever happening. How do we protect against another Cuban missile crisis or a 1973 Arab-Israeli War with its rapid escalation? This approach to crisis stability tackles the problem by focusing on the prevention of such potentially risky episodes. We begin by examining actions that one party acting alone can perform.

Unilateral Actions

Reduce Vulnerability of Strategic Forces. This prescription follows from two lines of reasoning. First, vulnerable strategic forces might encourage counterforce preemption. Second, if both sides recognize a particular strategic system as vulnerable, then the party toward which it is directed must assume that it is intended for use either as part of a first strike or for retaliation in a hair-trigger launch under attack mode. Either condition could convert a confrontation into a major crisis.

At the present time the fixed-base ICBMs of the United States and the Soviet Union are becoming more vulnerable. Reducing each side's reliance on such systems by shifting to mobile ICBMs or submarine borne missiles is often recommended as a response (e.g., Allison et. al., 1985: 231). The problem of vulnerability will not be addressed, however, if the vulnerable ICBMs are not withdrawn once the alternative strategic forces become available. In the past, unilateral dismantling of older systems has been difficult to achieve, particularly for the Soviet Union. Furthermore, alternative systems have liabilities. In addition to the obvious cost requirements, the problem of verification of mobile systems has been widely recognized. Nevertheless, building new weapon systems is an approach to deterrence problems to which both sides are accustomed and generally favorably inclined.

Upgrade Strategic Command and Control. The growing recognition that command and control of strategic forces may be the most vulnerable
component of the deterrent force compels advocacy of steps to reduce its exposure for the same reasons as those for silo-based ICBMs. A great danger lies in attempted cures that heighten the crisis instability problem. As we have noted earlier, the pre-crisis delegation of authority to use nuclear weapons or the tendency to connect even more directly strategic warning and nuclear response systems can greatly compound efforts at crisis management.

Steps to build in more redundancy and to harden components of C3I represent better responses from a crisis stability perspective. Among others, Blair (1985) has warned that there are real limits to the degree that command and control systems can be made less vulnerable. It may also be the case that command and control upgrades may appear less attractive to strategic force managers, always faced with budget constraints, than acquiring and maintaining new weapons systems. The pressure always exists for lower costs, quick fixes in the form of changes in doctrine and strategy—the very approaches that further erode crisis stability.

Making Political Leaders Better Informed About Crisis. Lebow (1987b) makes a strong case that most recent presidents and their top advisers have devoted minimal efforts to learning about plans for operating in an extreme politico-military crisis—e.g., learning about evaluation plans, nuclear options, control procedures, etc. Drills involving the president have been exceedingly rare. Similarly, there has been little systematic review of past crises—particularly the points at which major difficulties in perception, information management, implementation, and communication arose. The neglected consideration of plans or past crises may breed a false sense of security that someone else has made all the necessary arrangements and if the contingency arises the president and his advisors can slip quickly and effectively into the pre-established crisis management mode.

Some briefings and rehearsal might improve the quality of the decisionmaking process and choices made should a crisis arise. (Change in crisis management planning could be developed in response to the president’s requirements and political judgments that might result from rehearsals.) But this recommendation is introduced in the crisis avoidance category because the heightened knowledge by the highest political officials of the frailty of crisis management might add incentives for leaders to avoid crises. Few political leaders would admit to a preference for brinksmanship or management by crisis, but the reluctance of policymakers to become acquainted with the details regarding the probable conditions and decisions that might be required of them can lead to unwarranted confidence in the ability to handle readily such problems when they arise. Of course, the biggest obstacle to such rehearsals and planning is that they demand time. Such activities appear to have the future date. Moreover, because they are not thinkable, it is likely an unpleasant real-world avoidance.

Introduction of Unilateral Confidence-building measures at the time of Osgood’s (1962) proposals (such in tension), suggestions have been made to consider—suggestions for reducing tensions—and for reducing the number of measures. Such steps are design to make one’s actions more predictable, less likely to escalate or make the absence of action more likely. Confidence-building measures could include moves from rhetorical gestures (e.g., neutralization of non-intervention in certain regions, a moratorium on certain weapons by opponent or neutral parties).

Betts (1985: 68) captures one aspect of confidence-building measures, viz. not the most certain way to prevent war but this approach can be counted an advantage of relaxed inhibitions that an opponent will take advantage of. Another is that the opponent was to be, not initiated solely for propaganda purposes, as designed to create false confidence to be responded to with increased difficulties can be reduced if the opponent’s strategy is examined in the next section.

Bilateral Actions

Arms control agreements might serve for bilateral crisis avoidance initiatives that when the primary objective is to achieve crisis stability, including crisis stability viewing arms control primarily in terms of weapons, attention is directed to the arms control process in war. As Nye (1984a: 404) observes, “A more concerned with the prospects of nuclear war. Of course, prohibitions of certain kinds may be one re
compels advocacy of steps to reduce those for silo-based ICBMs. A great heighten the crisis instability problem. -crisis delegation of authority to use to connect even more directly strategic items can greatly compound efforts at

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planning is that they demand time of the president and his top associates. Such activities appear to have the quality of being deferrable to a later date. Moreover, because they require leaders to think about the unthinkable, it is likely an unpleasant experience that most would wish to avoid.

Introduction of Unilateral Confidence-building Measures. At least since the time of Osgood's (1962) proposals for GRIT (graduated reduction in tension), suggestions have been introduced for reducing East-West tensions—and for reducing the risk of crisis—by confidence-building measures. Such steps are designed to assure one's adversary of one's intention not to act in provocative or war-like ways. Often this entails making one's actions more predictable and visible (observable) to one's adversary or making the absence of actions predictable and observable. Confidence-building measures can take many different forms ranging from rhetorical gestures (e.g., nuclear no first use declarations, pledges of non-intervention in certain regions) to physical demonstrations (e.g., a moratorium on certain weapons tests, opening installations to inspection by opponent or neutral parties).

Betts (1985: 68) captures one of the basic difficulties of unilateral confidence-building measures, when he observes: “In pre-crisis times the most certain way to prevent tension is to give in to the opponent, but this approach can be counter productive if the other side takes advantage of relaxed inhibitions to expand its influence.” This danger—that an opponent will take advantage of a gesture—is one of three. Another is that the opponent will regard the step as meaningless or initiated solely for propaganda purposes. Such actions can also be viewed as designed to create false confidence and invalid assurance that should be responded to with increased vigilance and suspicion. Some of these difficulties can be reduced if the steps are mutual, which is an approach examined in the next section.

Bilateral Actions

Arms control agreements might be viewed as the primary vehicle for bilateral crisis avoidance initiatives. It is important to note, however, that when the primary objective of arms control is to increase deterrence stability, including crisis stability, then the emphasis shifts. Instead of viewing arms control primarily as a means of reducing or eliminating weapons, attention is directed to preventing the conditions that lead to war. As Nye (1984a: 404) observes: “... risk-reduction measures are more concerned with the prospects of use of such weapons regardless of numbers.” Of course, prohibition of certain weapons or force reductions of certain kinds may be one means to achieving stability, but other
means exist as well. Moreover, as has often been noted, reductions to very low levels of some major weapons, without highly confident means of verifying compliance, could actually reduce stability. When the agreed-upon level of a weapon is at or near zero, one side may conclude that the clandestine construction of a very small number that are suddenly revealed in a crisis could provide an enormous advantage. Thus, from the perspective of stability the emphasis in arms agreements must be to constrain the use of weapons under severe circumstances. Numerous stabilizing arms control proposals have been advanced, but a review of several will illustrate major approaches.

Prohibit Strategic Weapons Deployments Near Borders. In the so-called "keep-out zones" or "stand-off zones" approach, the parties agree not to deploy strategic weapons close to the border of their adversary. The purpose of such an agreement is to reduce the vulnerability of national capitals and major command and control centers to sudden knock-out strikes by weapons that offer virtually no time (i.e., less than 10 minutes flight time) for evacuation or other protective measures. Enhancing the survivability of political and military authorities means that a decapitation option would appear less likely to succeed and, therefore, that threat to deterrence would be reduced. Such a strategy also enhances the survivability of the bomber leg of deterrence forces by allowing those on alert time to clear the runway. Lebow (1987b) has suggested a keep-out zone of 2,500 kilometers from a nation's capital, although a longer distance might be desirable. Such an agreement, at a minimum, would have to include land and sea-based ballistic missiles, but might also include a ban on the forward deployment of cruise missiles. (See Blair, 1985: 301) Close-in patrolling of nuclear submarines is particularly troubling. It is noteworthy that following the initial deployments of American Pershing II missiles (ballistic missiles with short flight time characteristics) in West Germany, the Soviet Union moved several of its nuclear-armed strategic submarines stationed in the Atlantic closer to the Eastern seaboard of the United States.

As in many arms control agreements, verification of compliance poses a significant obstacle. Fixed-site, land-based missiles such as the Pershing II or the Soviet SS-20 (which threatens European capitals, but not Washington) pose the least problem for verification. Cruise-missiles, which are small and easily moved, are extremely difficult to detect and, thus, to verify. Submarines also pose a problem. Both sides might be reluctant to reveal the circumstances under which a reasonable degree of verification could be achieved with their submarines because such information would reveal valuable data about the status of anti-submarine warfare capabilities. A further problem is that even intercontinental ballistic missiles based over 5,000 miles away afford less than 30 minutes warning and that may not always be feasible. Nevertheless, in a crisis or preparation already has been made, to ensure enough uncertainty about command authority that the target would be more easily resisted. This is true by the routine dispatch of a top security aide or vice president at the beginning of a crisis.

Restrict Tests of ASAT Weapons on Depressed Trajectories. An alternative of certain weapons in a given region. Certain technologies judged to be of the testing of such weapons (Dreazen, 1988) have different problems for crisis stability. Missiles (SLBMs) that do not follow a satellite weapons both illustrate this on testing. In each case the technology to the point where either side is ready for deployment. A prohibition would exclude the emergence of the threat.

The elimination of ASAT testing would both sides use extensively for nuclear with existing treaties and for CFE. The capability to destroy such satellites would pose problems for crisis stability. Depriving a comparable difficulty to that of command centers—they severely impair the ability to command and control a ballistic path of these weapons reduces their effectiveness.

Agreeing to outlaw a promising technology has always been a problem for the negotiators, particularly acute when one side has an advantage. In the case of a new technology, the ability to develop a space-based Strategic Defense Initiative. Thus, the spillover effects on other weapons programs, however, is that verification can be a form of confidence, although some reliance on high energy lasers or even limited test (summarized in the figure 298–300).
warning and that may not always be enough to insure evacuation of leaders. Nevertheless, in a crisis where some degree of strategic alert and preparation already has been initiated, a keep-out zone agreement might create enough uncertainty about the survival of the adversary’s command authority that the temptation to adopt a decapitation strategy would be more easily resisted. This strategy could be further enhanced by the routine dispatch of a top leader from the capital (e.g., the American vice president at the beginning of any crisis). (See Allison et. al., 1985: 231)

Restrict Tests of ASAT Weapons and Submarine Ballistic Missiles in Depressed Trajectories. An alternative to the prohibition on the deployment of certain weapons in a given area is to prevent the maturation of certain technologies judged to threaten stability by agreeing to restrict the testing of such weapons (Drell and Ralston, 1985). Although posing quite different problems for crisis stability, submarine launched ballistic missiles (SLBMs) that do not follow a high-arching trajectory and anti-satellite weapons both illustrate curbs that could be imposed by bans on testing. In each case the technology currently has not been developed to the point where either side has a reliable and threatening system ready for deployment. A prohibition on further testing would likely exclude the emergence of the threat these systems could create.

The elimination of ASAT tests would protect existing satellites, which both sides use extensively for monitoring the other side’s compliance with existing treaties and for C‘I. As noted earlier in this essay, the ability to destroy such satellites as a result of ASAT could pose grave problems for crisis stability. Depressed trajectory weapons would create a comparable difficulty to that of deploying weapons close to national command centers—they severely minimize warning time and threaten the ability to command and control a retaliatory strike. The flatter flight path of these weapons reduces the possibility of radar detection.

Agreeing to outlaw a promising technology by banning its testing has always been a problem for major military powers. The problem is particularly acute when one side or the other sees that it might achieve an advantage. In the case of a prohibition on ASAT, it would sharply limit the ability to develop a space-based defense such as the American Strategic Defense Initiative. Thus, there is the added problem of the spillover effects on other weapons programs. The advantage of test bans, however, is that verification can usually be devised with a high degree of confidence, although some related problems such as monitoring the use of high energy lasers or encryption (coding of information from permitted tests) can arise. An ASAT test ban would also leave in place some existing capability in the form of antiballistic missiles (Blair, 1985: 298–300).
Strengthen the ABM Treaty. A third arms control approach for enhancing stability is a total prohibition on certain classes of weapons. The 1972 Anti-Ballistic Missile (ABM) Treaty is a case in point. It uses prohibitions of weapons tests, but goes beyond that to ban operation of radars in certain modes and regulates their location as the major controversy over the Soviet radar at Krasnoyarsk illustrates. (The radar’s location appears to be a clear violation of the ABM Treaty.) Suppose one concludes that the technologies likely to be available well into the 21st century would not allow the United States, or any other country, to deploy a ballistic missile defense having a high probability of destroying almost all missiles in a large-scale attack. Going ahead with such a system would then likely be seen as part of a first-strike strategy. Having only limited defensive capability and itself open to disruption from attack, the ballistic missile defense system could seriously increase the pressure on the adversary to launch a preemptive strike in a crisis. Scenarios like this one reveal the danger for crisis stability.

To prevent such developments, it can be argued that a comprehensive ban on ABMs should be continued and the treaty instrument strengthened. Clearer definitions to prohibit exotic technologies and to sharpen the meaning of what constitutes laboratory testing would be required. Modes of testing radars must be further detailed and what is meant by the periphery of each country also needs tightening.

Such an upgrading of the ABM Treaty encounters opposition on several grounds. If one accepts the assumption that a ballistic missile defense can be designed to be highly effective against a large-scale first strike (or against a strike limited in size by agreements to reduce the size and kind of offensive systems), then its threat to stability may not be so severe. Opponents also argue that Soviet violations have occurred that make further emphasis on this kind of treaty prohibition unwise.

Establish Nuclear Risk Reduction Crisis Center. In 1982 Senators Sam Nunn, John Warner, and the late Henry Jackson amended the Defense Authorization Act to direct the Defense Department to evaluate several ideas for reducing the risk of nuclear crises. One of their proposals was for a joint nuclear risk reduction center. (See Interim Report of the Nunn-Warner Working Group, 1985.) The basic concept entails creation of a bilateral forum for diplomatic and military personnel of the superpowers at which potential or actual confrontation problems and procedures for dealing with them would be discussed. Groups and individuals have explored variations of this proposal (e.g., Betts, 1985b; Blechman, 1983; Landi et al., 1984; Ury and Smoke, 1984; Ury, 1985). Advocates have viewed the proposal both as a means of crisis prevention and as a tool for crisis management, alt though not emphasized here.

The center or centers (there might be several linked by telecommunications) would serve to keep the Soviet Union and the United States in touch with each other on confidence-building actions, reduce the risk of crisis, and work on confidence-building on other issues to reduce the risk of crisis. As a confidence-building exercise, it would create confidence in each other’s honest intentions, in that both sides would be free to share each other’s intentions, raise questions, and make suggestions in a forum that has worked well. (See the Geneva Protocol, 1986.)

Agree on Code of Conduct for Crises. The joint crisis center stresses the need for a code for avoidance of crises, then the prohibition of the use of nuclear weapons, and rules and norms emphasizes prohibition of the use of nuclear weapons. It is hoped, then, that the American summit meetings in 1985 and 1986 will have been the high water mark for crisis avoidance were adopted. In May 1985, Gorbachev and Brezhnev signed the Basic Principles for Nuclear War. These bilateral agreements were based on nuclear war and principles to which both sides pl
arms control approach for enhancing certain classes of weapons. The 1972 is a case in point. It uses prohibitions that to ban operation of radars in location as the major controversy over strates. (The radar’s location appears in Treaty.)

The technologies likely to be available not allow the United States, or any stic missile defense having a high missiles in a large-scale attack. Going then likely be seen as part of a first-l defensive capability and itself open missile defense system could he adversary to launch a preemptive his one reveal the danger for crisis
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M Treaty encounters opposition on e assumption that a ballistic missile y effective against a large-scale first in size by agreements to reduce the s, then its threat to stability may not that Soviet violations have occurred s kind of treaty prohibition unwise. Crisis Center. In 1982 Senators Sam Henry Jackson amended the Defense Department to evaluate several ar crises. One of their proposals was center. (See Interim Report of the 5.) The basic concept entails creation and military personnel of the supera confrontional problems and pro be discussed. Groups and individuals proposal (e.g., Betts, 1985b; Blechman, Smoke, 1984; Ury, 1985). Advocates a means of crisis prevention and as a tool for crisis management, although the avoidance functions will be emphasized here.

The center or centers (there might be one in each superpower capital linked by telecommunications) would involve representatives of both the Soviet Union and the United States. Their purpose would be to work on confidence-building activities in normal times and to clarify positions and avoid unintended provocations in times of increased tension. “In principle its work could involve exchanges of data, discussions of particular issues in force posture and doctrine, and consideration of problematic scenarios and possible joint actions” (Betts, 1985b: 68).

The approach to crisis stability taken in this proposal is bold—to improve crisis stability and avoid superpower crises. Not surprisingly, a proposal that calls for continuous dialogue between the major antagonists about the issues on which their competitive interests may be greatest raises numerous questions. One of the criticisms is that such a center might become a means for planting disinformation and engaging in deception. Another is that each side might be reluctant to commit the kind of high level officials to participation in the center necessary for meaningful exchange. If the center discussion occurred among lower level military officers and diplomats, their flexibility for innovation from official policy would be minimal and the likelihood of their ideas receiving attention within their own governments would be very limited. The center might also be viewed with alarms by allies and Third World countries as evidence of an emerging condominium between the super-powers at the expense of the rest of the world. Although none of these criticisms can be easily dismissed, it should be noted that the center proposal appears to be a logical extension of the Standing Consultative Commission (SCC) created by the 1972 ABM and SALT I Treaties. The SCC, designed to address issues associated with compliance with the treaties, has been generally regarded as a very useful bilateral, professional forum that has worked well. (See Caldwell, 1985; Buchheim and Caldwell, 1986.)

Agree on Code of Conduct for Crisis Prevention. If the concept of a joint crisis center stresses the creation of a structure to assist in the avoidance of crises, then the proposal for a code of conduct or set of rules and norms emphasizes processes for avoiding crises. At the Soviet-American summit meetings in 1972 and 1973, which subsequently appear to have been the high water mark of detente in that era, formal rules for crisis avoidance were adopted. In Moscow in May, 1972, Nixon and Brezhnev signed the Basic Principles Agreement and the following year in Washington they negotiated the Agreement on Prevention of Nuclear War. These bilateral agreements constitute an effort to establish general principles to which both sides pledge to adhere in order to prevent their
competition from triggering major crises. These particular documents contain only broad generalities and were accompanied by no mechanisms to encourage compliance or for consideration of how they might be applied in particular situations. George (1983, 1984a), who has led the exploration of this approach in the United States, judges such broad principles of agreement to be extremely unlikely to be effective. Instead, he proposes three different kinds of declarations for crisis prevention—norms, rules of engagement, and _ad hoc_ ground rules (George, 1983).

Norms are tacit understandings that emerge from experience or lessons drawn from experience. These are practices that both sides may follow without formal agreement. Rules of engagement are explicitly negotiated between the two sides and establish specific actions that would and would not be permitted in a given area or under given conditions. Finally, _ad hoc_ rules for escalation control can be devised when the two other arrangements are absent and the superpowers find themselves in a particular situation with clear potential for escalating conflict. These are limitations devised for controlling a specific encounter. All three approaches emphasize agreement on operational features linked closely to well-specified conditions.

The fundamental difficulty is that the mix of common interests and competing interests between the superpowers seems to be perceived on both sides as favoring competition in most circumstances. The desire to gain or maintain a unilateral advantage over an adversary is incredibly powerful. To reach and abide by an agreement that constrains those opportunities in exchange for the possibility of avoiding a crisis that has not yet occurred (and may not happen soon) requires actions that meet strong political and military resistance. Nye (1984a) notes that specific qualities of the superpowers—the secretive nature of the Soviet society and the relatively frequent shifts and inconsistencies in American policy—compound the problem of perceiving and sustaining reciprocity of compliance with crisis avoidance procedures. Thus, each side tends to believe that what it must forego in way of unilateral advantage is not equal to what the other may yield if it complies at all.

**Multilateral Actions**

We will not emphasize multilateral arrangements for crisis avoidance, but wish to acknowledge the desirability of further exploration of this approach. It is noteworthy that U.S.-Soviet crises frequently have involved third parties including their allies and Third World countries who often become the subject of the crises. In fact, without their competition in these areas, the Soviet-American rivalry would have created many fewer occasions for crisis. Clearly the need to coordinate with allies or take into account the parties in any crisis arises, recommends consideration of how to manage this process. The conflict management literature has attributed a major role to third parties as brokering of major variations of the Nunn-Warner plan to end the Cold War. George and associates (1984) have proposed that the United States establish a series of procedures that could be combined into various potential crisis situation warrants.

One intriguing multilateral idea is an international monitoring agency for the inspection of weapons of the Soviet Union and the United States (1985a), the multilateral monitoring of the verification of the status of each other's high-technology satellites and other technology. This would be a more difficult task for the United States to conduct without the knowledge of such additional monitoring, but it is necessary to perform the job which would be expensive and would require a deterrent. The computer would be more desirable to openly share state data. Yet they might feel pressured to join the advanced technological societies of the future.

**Conclusions**

For approximately the last 30 years, the United States and the Soviet Union have been in a state of arms buildup. As noted, these changes have included:

- Deployment of certain weapons with advanced characteristics;
- Command and control conflicts leading to instability;
enhancing Crisis Stability

into account the parties in any region in which a superpower crisis arises, recommends consideration of multilateral approaches. Furthermore, the conflict management literature traditionally has assigned a major role to third parties as brokers, mediators, and arbitrators. Some variations of the Nunn-Warner proposal for a crisis avoidance center envisioned it as having multilateral participation. (See Ury, 1985.) Landi and associates (1984) have proposed that the Soviet Union and the United States establish a series of bilateral direct communication links that could be combined into various multilateral networks as a particular potential crisis situation warranted.

One intriguing multilateral idea proposes the establishment of an international monitoring agency to provide surveillance of the strategic weapons of the Soviet Union and the United States. Proposed by Lebow (1985a), the multilateral monitoring agency would provide independent verification of the status of each side's strategic forces using state of the art satellites and other technology. The purpose would be to provide a check on each side's own early warning system to reduce the likelihood that system failures could lead to launching an attack by mistake. It might also make either side's efforts to prepare for a preemptive attack more difficult to conduct without detection and worldwide reporting. Knowledge of such additional monitoring and verification would serve as a further deterrent. The computers, satellites, and associated technology necessary to perform the job with sufficient reliability to be credible would be expensive and would likely require the active assistance of the antagonists themselves. The superpowers could be expected to be reluctant to openly share state of the art technology for surveillance. Yet they might feel pressured to participate by other nations or other advanced technological societies might be able to supply the necessary capability.

Conclusions

For approximately the last one and a half decades both the United States and the Soviet Union have initiated a variety of actions with respect to their strategic nuclear forces that have reduced crisis stability. As noted, these changes have included:

- Deployment of certain weapons systems with destabilizing characteristics;
- Command and control configurations whose vulnerability produces instability;
• Established practices of force generation in response to strategic alerts (admittedly dormant during recent times), that if used in the future could be destabilizing;
• Changes in doctrine and strategy—both proposed and adopted—that could be destabilizing in a crisis.

Not all changes have decreased crisis stability. Although there have been some actions that have contributed to improved crisis stability, the judgment must be that on balance the net effect of all changes in the configuration of strategic forces has been to reduce crisis stability. This conclusion does not mean that any major crisis in the future between the United States and the Soviet Union must inevitably result in a breakdown of deterrence and the initiation of war. The point is that both sides have made it more difficult to end an acute crisis without war. In sum, the nuclear war risk is greater.

The changes that have increased the risk of war in crisis do not appear to result from callousness or indifference to crisis stability. Rather the effects seem to be the inadvertent consequences of pursuing other objectives to strengthen deterrence and conserve resources.

Dangers to crisis stability have sparked numerous prescriptions for corrective action. Table 6.1 summarizes the options reviewed in this essay. An examination of this sample of proposals for enhancing crisis stability leads to several observations.

1. The approaches are diverse. Some assume a direct approach and seek to alter the immediate source of the problem. Thus, for example, the proposed ban on ASAT tests or the initiative to improve C3I deal with the specific developments that have generated stability problems. Other proposals tackle the problem indirectly by advancing offsetting measures to deal with possible effects. The proposal for submarine stand-off zones illustrates an indirect approach to dealing with strategic plans of decapitation or preemption in general. Still other proposals seek to eliminate the problem by minimizing the occurrence of situations that could alter normal stability. In other words, if we could avoid acute superpower crises entirely, we would not have to worry about their effects on deterrence stability.

2. The emphasis seems to be on crisis avoidance. Whether the proposals take a direct or indirect approach, there appear to be a greater range of recommendations for initiatives in the category of crisis avoidance than for crisis management. No systematic review of the literature has been undertaken to confirm this conclusion, but certainly the range of approaches would appear to be greater in principal for averting such situations as opposed to getting out once they have occurred. It would be a mistake, however, to infer that exploration of the topic of crisis

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**TABLE 6.1** SUMMARY OF PROPOSALS FOR ENHANCING CRISIS STABILITY

<table>
<thead>
<tr>
<th>Proposal</th>
<th>Purpose</th>
<th>Possible Liabilities</th>
</tr>
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<tbody>
<tr>
<td>MULTILATERAL ACTIONS</td>
<td>a. Create an International Strategic Missile Monitoring Agency</td>
<td>Technology might require participation of U.S. and USSR who could be expected to resist sharing such technology. Costs of reliable system would be high.</td>
</tr>
<tr>
<td>BILATERAL ACTIONS</td>
<td>a. Prevent decapitation strike against political and military leaders</td>
<td>Verification difficulties with some weapons (e.g., cruise missiles).</td>
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</table>
Charles E. Hermann

TABLE 6.1 SUMMARY OF PROPOSALS FOR ENHANCING CRISIS STABILITY

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<tbody>
<tr>
<td>MULTILATERAL ACTIONS</td>
<td></td>
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<tr>
<td>1. Create an International Strategic Missile Monitoring Agency</td>
<td>a. Guard against breakdown of either side's independent strategic warning system that might lead to accidental war and to further discourage any attempts by either side to engage in covert war preparations.</td>
<td>Technology might require participation of U.S. and USSR who could be expected to resist sharing such technology; costs of reliable system would be high.</td>
</tr>
<tr>
<td>BILATERAL ACTIONS</td>
<td></td>
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</tr>
<tr>
<td>1. Prohibit Strategic Weapon Deployments Near Borders</td>
<td>a. Prevent decapitation strike against political and military leaders. b. Enhance survivability of second-strike forces (e.g., enable bombers to be flushed).</td>
<td>Verification difficulties with some weapons (e.g., cruise missile). Could expose state of ASW capabilities. Limits to how much time for evaluation can be achieved even with keep-out zones.</td>
</tr>
<tr>
<td>2. Restrict Tests of Submarine Ballistic Missiles in Depressed Trajectories and ASAT Tests</td>
<td>a. Prevent decapitation strike. b. Maintain survivability of C3I and related satellites.</td>
<td>Constrains other programs such as SDI. Banning technology at test stage has been difficult.</td>
</tr>
<tr>
<td>3. Strengthen the ABM Treaty</td>
<td>a. Discourage preemption by prevention of the development of a ballistic missile defense which would be perceived as being used in conjunction with a first strike.</td>
<td>SDI not provocative if it can be made to work against large scale attack. Soviet violations of ABM Treaty challenges utility of that approach.</td>
</tr>
<tr>
<td>4. Establish Nuclear Risk Reduction Crisis Center</td>
<td>a. Avoid crises by continuous discussion and information exchange between Soviet and American diplomats and military officers.</td>
<td>Could foster deception; staffing by officials with sufficient seniority to be flexible would be difficult; might generate alarm among allies and Third World.</td>
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(TABLE 6.1)

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<thead>
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<th>Purpose</th>
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<tr>
<td><strong>BILATERAL ACTIONS (cont.)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Agree on Code of Conduct for Crisis Prevention</td>
<td>a. Avoid crises by negotiating agreement to adhere to certain codes of conduct to limit superpower competition</td>
<td>Requires each to forego unilateral advantage which may not appear to be reciprocated equally; secret nature of Soviet society and inconsistency of U.S. policy heighten in each other's suspicion.</td>
</tr>
<tr>
<td><strong>UNILATERAL ACTIONS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Reduce Vulnerability of Strategic Forces</td>
<td>a. Reduce perception of weapons' mission as being for first strike</td>
<td>Older systems are not always destroyed, so purpose is defeated. New weapons accelerate arms race and overall costs; mobile ICBMs are difficult to verify.</td>
</tr>
<tr>
<td>2. Upgrade Strategic Command and Control</td>
<td>a. Curb adversary's incentive for a decapitation strike in particular and preemption in general b. Reduce the necessity for immediate use of retaliatory strategic forces (increase decision time)</td>
<td>Given the nature of C³I, there are significant limits to which some components can be protected at reasonable costs. Military may resist heavy expenditures that come at the expense of maintaining existing weapons or acquiring new ones.</td>
</tr>
<tr>
<td>3. Have Political Leaders Better Informed About Crises</td>
<td>a. Increase incentive to avoid crisis by more realistic understanding of difficulties in maintaining control b. Improve crisis management</td>
<td>Training time of president and top advisors difficult to schedule; subject is unattractive and appears less pressing than other business.</td>
</tr>
<tr>
<td>4. Introduce Unilateral Confidence-Building Measures</td>
<td>a. Provide adversary with assurances that one does not intend to act in provocative way — particularly to minimize unintended provocations or uncertainties</td>
<td>Opponent may take advantage of assurances, or may regard them as meaningless or deliberately designed to be misleading.</td>
</tr>
</tbody>
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1. An earlier version of this paper dealt with the International Political Science Association's Crisis in the Nuclear Era, "A Call for Action," and the Peace Research Institute Oslo's "International Security: The Search for Understanding." Other classifications have been used to categorize nuclear war and war with nuclear weapons, albeit less precisely. Although the term "nuclear war" is not an adequate description, it has been used here, because other terms are even less meaningful. Nevertheless, they have not been used because they carry with them a certain aura of authority and authority, and because the terms would add nothing to the analysis presented here.

2. The term "nuclear war" is used here to describe the use of nuclear forces. If such a war were to occur, it is assumed that, for the sake of simplicity, it would be a nuclear war, since the effects of such a war are so great that, like major war, it would have the potential to destroy humanity. Nevertheless, the term "nuclear war" is used to describe the use of nuclear forces. If such a war were to occur, it is assumed that, for the sake of simplicity, it would be a nuclear war, since the effects of such a war are so great that, like major war, it would have the potential to destroy humanity.

3. The term "enhancing crisis stability" refers to the process by which a crisis is managed, rather than to the crisis itself. The term "enhancing crisis stability" refers to the process by which a crisis is managed, rather than to the crisis itself. The term "enhancing crisis stability" refers to the process by which a crisis is managed, rather than to the crisis itself.
management to enhance crisis stability should not be vigorously explored. Certainly, the crisis management proposals make clear that preparations for their use, e.g., upgrading the hot line, must be in place before the crisis.

3. All the proposals involve tradeoffs. No effort has been made to enumerate every objection that could be raised to each proposal for enhancing crisis stability. It has been possible, however, to illustrate that each approach poses difficulties. Some directly affect other deterrence criteria, such as uncertainty. Others have substantial financial and/or political costs.

Where does this leave us? Three major questions appear to be central for the future examination of crisis stability.

1. What priority should be given to improving crisis stability relative to other requirements for effective deterrence? This question requires us to weigh the evidence as to how serious we regard the threat to stability as well as to articulate the other requirements for avoiding nuclear war.

2. What are the criteria by which proposals for enhancing crisis stability should be appraised? We need to engage in a serious assessment exercise in which major proposals are evaluated in a comparative perspective rather than in isolation.

3. Have the risks associated with major superpower crises become so great that, like major war itself, they are no longer acceptable instruments for the pursuit of national policy? It is unlikely that leaders would admit to pursuing a national policy through crisis confrontations. Nevertheless, they have not adopted the same kind of shared norms concerning the unacceptability of acute crises that now appear to apply to the use of nuclear forces. If acute crises are now too risky to contemplate, how can that conclusion be reached in a timely fashion by the leadership in both the United States and the Soviet Union?

Notes

1. An earlier version of this paper was presented at the XIIIth World Congress of the International Political Science Association under the title: "The Ultimate Crisis in the Nuclear Era."

2. Other classifications have been proposed. For example, Allison, Carsenale, and Nye (1985: 10) suggest the following general paths to war: accidental or unauthorized use, surprise attack, preemption in crisis, escalation of conventional war, and catalytic war. Although important insights can be gained by considering such distinctions, the last three categories can be regarded as further differentiation of what has been referred to here as war resulting from crises.
3. For evidence in the movement toward consensus on a definition of crisis, at least from a decision-making perspective, compare Hermann (1972), Young (1977), and Brecher (1978). The definition of crisis used here is a variation on Brecher's modification of my own earlier efforts. I accept his introduction of the expectation of military hostilities as particularly appropriate for delimiting the class of problems to be examined in this essay.


5. This section is a condensed version of a chapter entitled, "Trends Toward Crisis Instability: Increasing Danger of Nuclear War," prepared by the author for a forthcoming book edited by Stephen Cimbala, Challenges to Deterrence in the 1990s to be published by Praeger.

6. This analysis applies to space-based or space-supported ballistic missile defenses designed to attack the boost phase of enemy missile launchers. Ground-based, point-defense might enhance crisis stability with respect to increasingly vulnerable silo-based ICBMs. Without such defense ICBMs may be recognized by both sides as increasingly valuable only if they are launched before they are attacked. If they can be restored as second-strike, retaliatory weapons by ballistic missile defense, it would reduce the possible "use them or lose them" pressure on policy-makers in a crisis.

7. In his book, Lebow (1987) envisions three broad ways in which a superpower crisis could result in war—preemption, miscalculated escalation, and loss of control. In his view increased strategic alerts above normal levels represent a primary means by which the sides could lose control.

8. Several readers of an earlier version of this paper correctly noted that there has been no trend toward increased use of strategic alerts, but on the contrary they have occurred less frequently—none since 1973 despite incidents such as the invasion of Afghanistan or the Soviet shooting down of the Korean airliner. Perhaps there is increased sensitivity in the policy community to the implications of strategic alerts. The assumption of this essay remains, however, that a higher level of strategic alert in the late 1980s would be far more serious than in 1973 because of the changing nature of the force systems of the two sides and the greater likelihood that the expanded Soviet capability would mean that they would respond with a higher alert level of their own.

9. A considerable literature exists on confidence building measures (CBMs). (For an introduction see Holst, 1983). Most of the analysis to date, however, has focused on theater operations (particularly between NATO and WTO) rather than on strategic forces. An exception is Vick and Thomson (1985) who discuss the use of CBMs in each of the three legs of the triad (ICBMs, bombers, submarines) to reduce the crisis of strategic nuclear war. Many CBMs assume mutual adoption by both sides rather than unilateral steps. In his initial work, Osgood (1962) assumed that each step would be unilateral but there would be expectations of a responsive step by the other side—sooner or later. The unilateral first step would remain in place until there was a response. When a responsive step occurred, then the initiator would take an additional step. Thus, he envisioned sequential unilateral measures.

10. Both the Soviet Union and the United States have put their missile forces on patrol off the coast of the United States in February 1984 (after the beginning of the crisis). Instead they have 1,000 to 2,000 miles off the U.S. east coast of their exact location by the U.S. in 1986: 6.)
Enhancing Crisis Stability

10. Both the Soviet Union and the United States keep submarines carrying ballistic missiles on patrol off the coasts of the other country. Apparently the Soviet Union has not kept its three ballistic missile submarines that normally patrol in the mid-Atlantic at the closer range demonstrated in January and February 1984 (after the beginning of American deployment of Pershing II missiles in Europe). Instead they have moved back to the "box area" roughly 1,000 to 2,000 miles off the U.S. eastern coast. This may be to reduce detection of their exact location by the U.S. Navy. (See the New York Times, October 6, 1986: 6.)