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Introduction

We are closing "chapter one" of the nuclear age. Whatever happens to the Soviet Union and to Europe, some of the major determinants of nuclear policy will not be what they have been for the last forty-five years.

We have had a bilateral confrontation between two large, stable states, relatively remote from each other in terms of geography and interests. By the standards of earlier years, each was cautious. Furthermore, each lined up (by different methods) the half of Europe closer to its boundary and interests in a solid security alliance.

The traditional tinder boxes of Europe were thereby dampened or smothered. The situation in East Asia included the bloody Korean war, but, whether owing to a perceived remoteness of the site, or to nuclear fears, or to still other factors, the major powers pulled back from escalation. The tight United States-Japan alliance served to channel Japanese dynamism into useful channels and to limit, until now, U.S. concerns over this dynamism. Elsewhere in the world, the confrontation has engendered or worsened tragic situations, but, from the point of view of great power security, confrontation in Africa, Vietnam, or Afghanistan is not the same as confrontation in Czechoslovakia, Poland, or Germany.

There were some dangerous crises, of course. Nuclear "stability," as we have somewhat wishfully come to call it, cannot be considered as an understood phenomenon, even in its simplified, two-dimensional, "chapter one" version. But, for a variety of reasons, which include the lack of incentives for direct aggression, the lack of potentially destabilizing third actors, the lack of mutual fears other than the very sobering fear of nuclear war, and some salutary caution in high places, we did not go to war and seldom (never, perhaps) came close.

By the early seventies, both the U.S. and the Soviet Union were acting more and more like status quo powers, at least as far as Europe, East Asia, and any other situations that might lead to war were concerned. Thus, when Mikhail Gorbachev swept aside the iron curtain, which his predecessor had drawn, he uncovered, among many things, the lack of political rationale for a continuing arms race of the type we have had, together with the dangers that it entailed. By an arms race of the type we have had, I mean an arms race in which high numbers and a high degree of alertness are part of the competition and in which political guidance to the military includes consideration of a near-term first-strike; an arms race that dominates arms control negotiations so that these negotiations, for the sake of largely imaginary advantages, give up outcomes that would be preferable for both sides.

Although we do not need and have not needed that type of arms race, certain aspects of the arms competition, primarily the search for continuing survivability and control in the face of evolving technology, stem from the nature of nuclear weaponry in the present state of international relations and are likely to remain essential elements of any nuclear posture, whatever the underlying political situation.

Thus, part of the task for U.S. nuclear weapons policy is to adapt its nuclear forces and the organizations managing them to the present, highly uncertain, but not urgently competitive situation between the U.S. and the Soviet Union. Containment is no longer the appropriate watchword. Stabilization in the face of uncertainty, a more complicated and politically less readily communicable goal, may come closer.

A second and more difficult part of the task is to deal with what may be the greatest potential source of danger to come out of the end of the cold

war: the breakup of some of the cooperative institutions that managed the nuclear threat and were created by the cold war. These cooperative institutions, principally the North Atlantic Treaty Organization (NATO), the Warsaw Pact, the U.S.-Japan alliance, were not created specifically to manage the nuclear threat, nor was this management their most salient characteristic, but manage it they did. Because the nuclear threat was a major dimension of the U.S.-Soviet confrontation, the nuclear policy of the allies on each side was either totally or largely (in the case of France) carried out cooperatively under the guidance of the relevant superpower. The results, while far from ideal, at least prevented nuclear competition from entering the settlement of divisions and rivalries in Europe and in East Asia. Although there is no present indication of any desire among the nations involved to participate in nuclear competition, quite to the contrary, some of the major mechanisms for settling nuclear questions (e.g., nuclear deployments or non-deployment, nuclear employment doctrine, the interaction of nuclear and non-nuclear forces, nuclear information sharing, which are all potentially divisive issues) have been weakened to varying degrees.

A third task for nuclear weapons policy is that of dealing with nuclear proliferation under modern conditions, when the technologies needed to field effective nuclear weapons systems and their command and control apparatus are ever more widely available, and the leverage over some potential proliferators, which stemmed from superpower military support, is likely to be on the wane.

In the rest of this discussion, I will make some suggestions regarding these tasks, bearing in mind that the unsettled nature of that part of the world most likely to become involved in nuclear weapons decisions today must make any suggestions tentative and the allowance for surprise more than usually important. My suggestions are listed under four categories: those dealing generally with future nuclear forces, depending only, as I see it, on the technical nature of those forces and the present uncertainty as to their future utility; those pertinent to our "nuclear relations" with the Soviet Union and other nuclear powers; those dealing with the nature and means of international nuclear cooperation with the states that can and must be involved in such cooperation, especially Germany and Japan; and those dealing with states that might not be so cooperative about nuclear weapons questions.

Suggestions

Future Nuclear Forces

Future nuclear forces are almost certainly going to be reduced in the U.S. and the Soviet Union. Political and economic perceptions all but dictate that they should be. In addition, several factors inherent in the present approach to targeting will serve to drive the number of nuclear systems down.

First, the number of targets is decreasing. The targets for tactical nuclear weapons associated with the forward positions of the Warsaw Pact Forces are vanishing and the rear-echelon targets, supporting a potential Soviet attack on Western Europe, are diminishing in numbers. Strategic targets fall into four categories: targetable nuclear forces, other military targets, command and control and leadership targets, and industrial and other war-supporting targets. The number in the first two categories, which comprise the majority of strategic targets, will fall

as the Soviet Union reduces its nuclear and conventional forces both through arms control and unilateral reductions.

Second, the ratio of weapons allocated to targets, sometimes called the targeting factor, is also likely to fall. This ratio is composed of factors expressing the reliability, availability, and survivability of nuclear weapons systems. Worst-case conditions must be assumed under present guidance. Thus, the availability is taken as that of the day-to-day peacetime posture, and the survivability is taken as survivability after a surprise attack. Targets are cross-targeted to allow for the possibility of the systematic failure of parts of the strategic triad. If relations between the U.S. and the Soviet Union continue to improve, the worst case considered by the guidance is sure to become less demanding. As one early harbinger of this, the continuous operation of the airborne command post has recently been terminated.

Excess nuclear weapons are a liability, because they generally mean more destruction potential aimed at both sides, more instability potential in a crisis, and more drain on financial resources and on scarce managerial, operational, and technical talent. With the Soviet Union retrenching in Europe and willing to cooperate, at least for now, on a variety of useful initiatives having to do with reductions, verification, safety, confidence-building, and the like, an opportunity exists to reduce that excess.

I believe that the U.S. should continue its present general approach to targeting, that is, it should continue to target the means of projecting force and of sustaining a war in such nuclear countries as pose a threat to the U.S. We cannot know what will deter. The suicide pact inherent in a counter-city only doctrine is an adjunct to caution in an already stable situation, but it may not be suited to deter conventional attack by a nuclear-armed aggressor. Conventional forces are best suited to that task, but suitably targeted nuclear forces can deter escalation in a more credible way than the threat of a counter-city exchange. Against a nuclear-armed Hitler, they may be the only effective deterrent. In addition, if deterrence were to fail and war were to come, targeting unused and vulnerable nuclear forces would limit damage.

Some changes are desirable and likely, however. First, a higher fraction of systems should be made survivable against a nuclear attack, so that the fraction of nuclear systems that could be usefully targeted should go down. With a more cooperative approach to arms control negotiations, this could happen on both the U.S. and Soviet sides. Both would benefit from the cooperation. There is probably an irreducible upper limit on the survivable fraction (some submarines have to be in port, some bombers off alert), but it could be significantly higher than it is now, thereby reducing the risk of first-strike instability no matter what the targeting (which cannot be made the subject of verifiable international agreements).

It will be difficult to improve survivability. The U.S. defense establishment will need to save money. It will be under the usual pressures to keep what have come to be viewed as economic and bureaucratic entitlements, as well as to do new things in the conventional arms field. Under such circumstances, there will be a temptation to freeze the present nuclear systems and simply reduce their numbers. That would make for a

"garrison" type nuclear force, just as we had during earlier periods of relaxed threat, "garrison" armies and navies, which incorporated vulnerabilities that had to be remedied when war came. We will need to focus special effort on this problem, through political attention, such as perhaps a standing Congressional subcommittee on nuclear forces; through attention from technical advisory and evaluation groups, and through an unusually high ratio of research and development (R&D) to production funding.

Second, nuclear systems should be viewed as weapons of last resort (as President Bush called them in connection with NATO) against a conventional attack by a nuclear aggressor. Experience in Europe seems to show that conventional forces as well as nuclear are required to make deterrence credible to allies (if not necessarily to adversaries). With no force imbalance in prospect, there is no reason to incorporate nuclear weapons in a first-line of defense and every reason not to.

With these changes, the numbers of nuclear weapons needed under any definition of what is needed to deter will go down. Given our positive experience in cooperating with the Soviet Union on these matters over a number of years, one can readily imagine that the numbers of nuclear weapons that the U.S. and the Soviet Union allocate to deterring each other (in the absence of considerations of relations with other nuclear powers) could go down to a few hundreds in each of the categories of targets noted earlier. The difference between allocating and not allocating weapons to residual vulnerable nuclear targets and to the bases for force projections would no longer drive the arms race. A considerable change in the perceptions of the political relationship on both sides will have to take place first, however.

The SIOP, as we have known it, the approach of pre-targeting essentially all of the non-reserve elements of the nuclear force, may become a casualty of the times. Nuclear forces may have to be, like other forces, flexibly targetable. This will impose new requirements on nuclear weapons systems hardware and software, and on the command and control systems. The fact that we are not so likely to have to make up our minds in ten minutes may help in accommodating these new requirements. But what these requirements are and what the costs of flexible targeting will be, in money, potential vulnerability, and other parameters, are not known.

Ideally, as few force elements as possible should require a visible and possibly misinterpretable alerting process in order to survive attack. We have an opportunity to work with the Soviet Union and eventually other nuclear powers to improve the safety and security attending the alerting process. Both the command and control and the communications systems, and the status of forces should be reviewed, with the goal of maintaining alertness and at the same time reducing the likelihood of accidents and misunderstandings.

Thus, forces that are less vulnerable, more alert, more flexibly targeted, are an important key to reductions. With reduced overall defense expenditures and lower levels of deployed forces, the nuclear effort, along probably with other sectors of the defense effort, will have to be focused on R&D in a higher proportion than it has been in the past. There will be more of a bureaucratic contest between smaller forces that are more adequate for the times, and larger forces that are more likely to be obsolete. It will also be a struggle to avoid coming up prematurely with new doctrines to justify new numbers. Our ignorance about certain dimensions of the future will have to be explicitly factored into the sizing and design of nuclear forces, as they more customarily have been into the design of other forces.

Relations with Other Nuclear Powers

The Soviet Union is a far less predictable entity than it has been. It may fragment into several entities. Whether it does or not, successor governments to Gorbachev are more likely to be concerned with their prerogatives and their security *vis-à-vis* their neighbors as well as *vis-à-vis* Germany and the West than Mr. Gorbachev is. Gorbachev is unusual by the standards of Russian or indeed any national leader. It is not clear who will inherit control over the Soviet Union's nuclear forces, just as it is not clear who will control the army or armies. The best bet, but one that is not assured, is that either Union control will be maintained, or Russia will control all (or most?) of the weapons.

Under those circumstances, the U.S. may become concerned about continuing negotiations on nuclear matters. It may for instance no longer be willing to grant equality to the Soviet Union or its successors. In addition, there may be resistance to reductions in the Soviet Union: lower

numbers would bring the Soviet Union closer to France, the United Kingdom, and China. A new Soviet leadership may perceive it would lose the last vestige of superpowerdom, which could make for resentment and a desire to slow reductions.

No one can predict the shape of these problems, or what U.S. reactions to them will or should be. Two points however come to mind as more likely than not to remain true. One is that the U.S. and the Soviet Union have little reason to be enemies. Over most of our history, we were not, though the Russian government always came in for American criticism. Neither geography nor commerce pit us against each other. Ideology did and it may again, but as much could be said of any country. Stalin's regime was in many respects an aberration.

The other point is that our two countries have every reason to cooperate in nuclear matters. We pose the greatest threat to each other, the only fatal external threat, through nuclear weapons. A certain irreducible part of this threat will remain. But the threat can be largely tamed, and it is in both our interests to do so. As important or more so is the fact that very little in the way of future cooperative management of the nuclear threat, such as is discussed below, will work unless the U.S. and the Soviet Union pull in the same direction.

Thus, despite the political uncertainty about the Soviet Union, I believe that a strong continued effort to reduce the threat we pose to each other, in its many dimensions, is warranted. If the agreements reached are seen as fair (and this is a reason to make them so), follow-on regimes are not likely to repudiate them, especially since, in the foreseeable future, the U.S. will be in much better shape to rebuild than the Soviet Union. Nuclear discussions and negotiations could be a way to maintain a positive relationship with elements of the Soviet Union, or the Russian state, which are likely to have durable importance.

Matters will soon get more complicated, however, in these discussions and negotiations, regardless of what happens in the Soviet Union. The true lower limit on the size of U.S. and Soviet nuclear forces is the size of the nuclear forces of France, the U.K., and China. These forces will loom as more, not less, important to their owners as the U.S. and the Soviet Union head toward reductions. Reductions on the part of the big two, along possibly with a move to denuclearize NATO or reduce the saliency of its

nuclear dimension, is unlikely to lead other nuclear powers to devalue their nuclear status if a calculus of interests, rather than a desire to follow a "good example," is operative. The best that can be hoped for is to enlighten the calculus of interests so that a long-term cooperative outlook prevails, rather than the pursuit of narrow national advantage.

To that end, the U.S. and the Soviet Union should attempt to involve the other nuclear powers as soon as START-I is signed. This involvement can be qualitative at first, focusing on such matters as safety and stability, but it must eventually involve numbers as well. All nuclear powers have an interest in maintaining their nuclear status at reasonable cost and in minimizing the forces aimed at them (all targetable nuclear forces are presumably targeted by somebody, some perhaps by more than one nation). Before the U.S. and the Soviet Union take the next step in reductions, other nuclear powers could be required to observe a limit. If that is impossible, the U.S. and the Soviet Union might include a provision in the next U.S.-Soviet reductions agreement to the effect that the agreement is based on the nuclear status quo being observed elsewhere and that the two parties will meet and reconsider their agreement if that status quo is breached significantly in the nuclear area. In any case, it would seem inadvisable (as well as probably politically impossible) to go below about 3000-5000 weapons on either side without including the other nuclear powers in the following step of reductions. The U.S. should retain adequate leverage in nuclear matters to lead the move to nuclear cooperation rather than leave nuclear weapons as solely tools to further national advantage.

Nuclear Cooperation

In the absence of some mechanism for cooperation, independent decisions by the nuclear powers that affect the fate of Germany and other European countries are likely to be a constant irritant and a fertile source of resentment in those countries. Independent decisions on nuclear matters by Pacific powers are likely to be a similar source of irritation and resentment in Japan. Thus, two of the world's major powers and several other important countries, which are probably disposed to support the peace but lack a present structure to participate in it, may come to feel threatened rather than supported by their former nuclear allies.

Germany has reaffirmed its commitment not to get nuclear weapons, has voluntarily limited the size of its armed forces, and has pledged itself not to use them except in self-defense or in accord with other European countries and the United Nations (UN) charter. This is an excellent outcome, but a mechanism is needed to make it continuously acceptable to the Germans themselves.

Much has been and is being written about what the shape of cooperative security institutions in Europe should be. I will limit myself to a comment on the nuclear dimension of whatever institutions emerge—the comment is that they must have one. NATO found a harmless way to have a German finger on a nuclear trigger, and, though times have changed, a new harmless way must be found. The alternative is that France, the U.K., the Soviet Union, and the U.S. will each have a finger on a nuclear trigger and that Germany will not—that arrangement will not last.

The form of German participation will depend on a number of factors, including German choices—for instance:

- Will this participation involve NATO or a more pan-European organization.
- Will it involve nuclear weapons systems on the soil of Germany or not.
- What form will the the cooperation between the German military and its civilians take.

German choices have been conservative thus far, in the sense of acting to preserve assets. Access to nuclear decision-making and to some know-how is an asset that Germany has had through NATO. Conservative forces in the West are acting to preserve NATO at this time, for this and analogous non-nuclear reasons.

Preserving the benefits of NATO as a means of arranging for European nuclear cooperation will require considerable broadening of its present role. Yet going that road presents some advantages: both the Conference on Security and Cooperation in Europe (CSCE) and the European Community have important and difficult agendas before them, agendas that are not likely to be furthered by taking on the additional difficulties of providing for nuclear security. At the same time, such nations as Poland, Czechoslovakia, and Hungary are or will soon be independent actors on the European security scene, with significant nuclear and other technical know-how, so that, if NATO is to be the vehicle for European nuclear security, it will need to find ways to satisfy these

other countries' concerns, as well as to work with the Soviet Union.

Japan offers a very different problem. The U.S. provides for Japan's security by its dominant naval presence and its nuclear deterrent. That arrangement has suited everyone: the U.S. by freeing it from concern over Japanese naval and other military competition; Japan by giving it as much independence and security as it could have had in the postwar decades; and everyone else in the area by preventing a Japanese military resurgence. Japan's stated "nuclear allergy" has additionally reassured the other Pacific nations and also has fit in well with Japan's own political-military stance to date.

Soviet hostility up to now provided an appropriate cover for this situation. Now however, Mr. Gorbachev has partially blown that cover. This brings up many questions. For instance, what are the interests of the Soviet Union or of China in the U.S.-Japan alliance? What would be the consequences of a breakup in terms of the naval or the nuclear balance? The Japanese nuclear allergy is a political fact of life, but political facts of life change. All that is written in stone at Hiroshima is that "this will not happen again." It does not say how.

Japan at present buys its security from the U.S. It is difficult to see this situation continuing over the long term, given the stressful, ultimately competitive nature of the relationship between the two countries. Both stress and competition date back to the early part of this century, perhaps earlier, and have taken both economic and military forms. In no area is farsighted management more badly needed in both the U.S. and Japan. The breakup of the security alliance between the two could have catastrophic consequences, leading to a new arms race in the Pacific in which Japan would be involved. It need not occur if an adequate cooperative mechanism is in place, but such mechanisms have not been very resilient against the pressures of national interest in the past. The new nuclear dimension may provide the best reason for durable security cooperation.

Maintaining close security cooperation with Japan means, *inter alia*, not reaching any security agreement, nuclear or otherwise, that might affect Japanese security interests without genuine consultations with the Japanese. Thus, Japan should generally share in all confidence-building measures, transparency agreements, communication agreements among naval headquarters,

intelligence sharing, and the like in the region. In some of these areas, the U.S.-Japan relation has been close. In others, Japan has sometimes inadvertently been left out.

Nuclear Problems

Thus far, relations with some of the nations that may have a potentially major impact on the nuclear future of the U.S. have been discussed, though not all the important ones by any means. It would be a mistake to call all these nations status quo powers, but it is fair to say that they share an interest, if not in keeping the world more or less as it is, at least in not seeing its major centers of wealth and power laid waste. Their neighbors feel the same way. For such nations, cooperative security arrangements of various kinds have a chance to work.

But there are other nations and groups for whom even that much of the preservation of the status quo is not a matter of priority. In addition, several more or less status quo oriented states have neighbors who are not, even to the limited extent defined above. The diffusion of modern means of warfare (missiles, accurate targeting systems, real-time intelligence, and nuclear materials) is likely to give groups bent on challenging the status quo, even at considerable risk to themselves, something of an equalizer against the defenders of the status quo, among whom the U.S. is often foremost.

Nuclear weapons can serve aggressive leaders of resentful peoples as equalizers, not in the sense of trading city-for-city, at least not in the first instance, but in the sense of making the conventional means of large-power intervention, such as carrier task forces and air bases on foreign soil, seriously vulnerable. Thus, if Saddam Hussein had nuclear weapons, he would pose an enormous direct threat to the blockade against him without threatening anyone's cities or civilians, or at least without making that threat obvious. The question would not then be, who would win a nuclear war; the question would be, who would risk an intervention.

Neither the West nor the East side of the cold war have distinguished themselves by farsightedness in the matter of restraint in selling advanced military technology nor of course has China. Furthermore, neither East nor West has pursued a farsighted policy that would minimize the power base of irredentist, extremist groups capitalizing on the resentment and grievances of

underprivileged peoples. Certainly, in areas like the Near East, Africa, Latin America, the richer powers have, for the most part, pursued policies much like those of a century ago, allying themselves with this or that reactionary ruler to maximize either economic or strategic gain, without much effective concern for the political or economic aspirations of the peoples involved. These two forms of shortsightedness may reap the whirlwind for us.

A much more concerted policy of seeking out and supporting middle-of-the-road progressive elements where they exist in the countries involved and of avoiding long-term military commitments when they do not exist would help. This unfortunately is likely to be an extremely difficult, slow process, and therefore an unpopular one. Yet without it, we seem doomed to have Ayatollahs and Saddams as the only alternatives to the obsolete regimes we do support. The Soviet clients were no better. This may have been acceptable from a prudential if not a human point of view in earlier times, but it will be decreasingly acceptable from either point of view whenever there is a nuclear dimension.

The range of useful suggestions in this regard is limited. Considering such suggestions in detail would take us far away from nuclear matters. There is an important lesson in this: decisions to acquire or not acquire nuclear weapons are rooted in the history, environment, and perceptions of the countries involved, and a nuclear

nonproliferation policy cannot be successful unless it takes these factors into account. Nor can the U.S. and its partners in the nonproliferation effort limit themselves to understanding the perceptions and interests of regimes now in power in countries where such regimes are likely to be changed, and often enough ought to be changed, suddenly and by force. It is just in the countries where people feel little benefit from the status quo that extremist leaders may rise to power by revolution and subsequently try to assure and legitimate their power through the acquisition of modern means of making war.

The nonproliferation regime, in order to work, needs not only better inspections and sanctions, but also a supporting structure of security guarantees and incentives as well as a more perceptive understanding of polities whose modernization process is likely to be traumatic. In this regard, the revitalization (not very long-lived yet) of the United Nations is the best consequence of the otherwise dangerous current course of events in the Persian Gulf. Keeping the U.N. and the International Atomic Energy Agency (IAEA) in a central position to deal with the crisis, even at the cost of giving up some national objectives, can help create a security community and a sense that a commitment to peace is safe. This sense could be of greater long-term help in dealing with pressures to acquire nuclear weapons than a quick or more thorough victory viewed as stemming from a unilateral U.S. decision.

Conclusions

In summary, now as before, the fear of nuclear war can be used to concentrate the mind on how to resolve conflicts peacefully, a "crystal ball" as one group has called it. The way in which nuclear war may come is less clear than it was, however. The crystal ball is more cloudy. As a general policy, I believe that the U.S. should continue to hold potentially decisive numbers of nuclear weapons and also continue not to use them. If the U.S. is not a potentially decisive nuclear power, it will have little to say about nuclear developments in the world. If the U.S. ever uses nuclear weapons, it will show by example how they can be used by others. Nuclear powers should go to great lengths to adhere to the

Nonproliferation Treaty commitment not to use nuclear weapons against non-nuclear states, as in conflicts such as the present one in the Persian Gulf. In other words, deterrence is still the watchword, even though the consequences of the failure of deterrence might not be as immediately drastic as we have been used to contemplating.

The embodiment of nuclear deterrence in post-cold war political institutions will be more complicated and will require far more cooperation in the multilateral future than it has in the bilateral past. Because we see no obvious enemy, we may find enemies everywhere. It is thus necessary for the great powers to give a high priority to building such institutions. The cooperation of

the U.S. and the Soviet Union in security matters, including nuclear, is the necessary first step for these institutions to work. Beyond this, the establishment of an effective European security mechanism, with an explicit say in nuclear

matters, and the continued cooperation of Japan are also necessary. With these in place, there may exist in the U.N. and in the IAEA the beginning of a framework to address the further problems posed by nuclear weapons.

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