The JCS believe that we must ensure that hedges and safeguards related to the INF Treaty are preserved as we move forward with the START process.

Overall, programs of this type are strongly supportive of NATO's need to improve its force posture. The traditional and lingering fear that NATO is collectively prepared to move from common R&D to the more expensive business of acquiring and deploying weapon systems required by the common defense.

U.S. Contributions

As a leader of the alliance, the United States likewise must seriously address the crucial issues confronting NATO, and there is no better time than now as we implement the INF Treaty.

As I pointed out earlier, the JCS have been dissatisfied with the NATO force balance for several years. Admittedly, we have made considerable improvement in our posture to deal with NATO's 90% and we know that these steps have reinforced uncertainties in the minds of Kremlin planners. But the Soviets continue to run fast and attempt to match our efforts. While the Chiefs strongly endorse the INF Treaty, we should not conclude that it will be satisfied after that accord is implemented—it speaks only to a slice of their overall concerns.

What the Chiefs prefer, of course, is to develop an integrated concept for the future that strengthens all of NATO, lays out a course for our representatives to pursue in alliance councils, guides U.S. investment strategy, and receives the strong support of the Congress. We are working hard to bring together such a concept in the Pentagon now.

That is the central thrust of recent work by OSD [Office of the Secretary of Defense] on "Long Term Competitive Strategies," a concept designed to get the most out of our acquisition process.

Secretary Carlisle's report to Congress on Support for NATO Strategy in the 1990's clearly notes that competitive strategies is not a substitute for NATO Conventional Defense Improvements (CDI). The allies must move forward to correct critical deficiencies in infrastructure, munitions, C3I, sustainability, and a number of other areas. We intend to continue to press our NATO friends to see the CDI through to completion. Still, the two efforts have one thing in common. Both call for the exploitation of the technologies to blunt the initial attack and to counter follow-on forces of the Pact.

Conceptually, the "Competitive Strategies" effort first addresses Soviet plans for overrunning NATO—the initial air offensive, the rapid penetration of our forward defenses, and the central coordination of forces massed for the seizure of large cities and key installations. These are the heart of current Soviet military strategy. They also point to endemic weaknesses on the Soviet side and to new technologies which can be used effectively to exploit these weaknesses and disrupt the "permeability" of the defensible forces.

Overall, the proposed solution relies heavily on conventional high-accuracy guided missiles and supporting battlefield and rear area surveillance capabilities (great similarity to Follow-On Force, Backstop). Many of the proposed systems can be found in present cooperative research programs of NATO, and many of the concepts of the battlefield surveillance systems are well along in the U.S. development program.

Conclusions

Put all of this into perspective: The Supreme Allied Command Europe is the only unified command that is operating under the same pressures to develop new technologies that are available to NATO as a whole. It would be in a very advantageous strategic position if it were allowed to proceed with a full program to develop and deploy modern defenses. It would be in a very disadvantageous position if it were forced to hold on to dated systems and to modernize slowly. The latter is not an option. The former could place the entire Western German military establishment at risk, and perhaps even more importantly, it would place the entire Western European military establishment at risk.

The effort to achieve agreement on a convention to rid the world of chemical weapons, which for nearly two decades has moved at a languid pace—when it has moved at all—seems to have lost considerable momentum. During the past year, negotiators laboring under the auspices of the little publicized 40-nation "Chemical" Convention (C) in Geneva have succeeded in resolving or narrowing differences on many of the military-technical issues which but a short time ago seemed to present insurmountable obstacles to the conclusion of a world-wide convention. Significant strides have been made in elaborating a "rolling test," that is, the test of an agreement that from conclusion to session in 1992, was expanded, refined, and improved upon.

The importance of this effort rests on several considerations. As a consequence of the development of supertoxic chemical agents and improved means of delivery, there is heightened concern about the chemical warfare (CW) threat in future conflicts. The existence of a major Soviet CW capability is of particular concern to the population of Western Europe, but the relative ease and moderate cost of developing a CW capability makes the scope of the threat to world-wide dimensions. Reportedly at least 15 countries now have some form of CW capability. The fact that some of these are obvious enemies is in no way unique and provides yet another sign of the weakening border between the "friend and foe".

While beneficial to the alliance, the INF Treaty will not correct other imbalances confronting NATO, particularly in the case of short-range missiles, conventional forces and chemical weapons. The United States and its allies must move forward in a timely fashion to complete yesterday's work and prepare for the future. Precious time is allowed to slip away. NATO could end up with neither a credible deterrent nor a viable defense. Conversely, if this time is used wisely and productively, I am confident that the United States and its allies can move to improve their condition, use the nuclear threshold, and reduce the risk of Soviet misadventure.

Elimination of Chemical Weapons: Is Agreement in Sight?

Charles S. Flawner

A complete ban on chemical weapons is about as complicated an undertaking as exists in the entire field of arms control, made even more difficult by the fact that it is being negotiated in a 40-nation forum. Iran. Many of the adherents to the protocol, including the United States and the Soviet Union, have reserved the right to respond in kind to a chemical weapons attack. These various considerations have led to the recognition that the only insurance against the use of chemical weapons in future conflicts is their complete elimination under strict international control.

Agreement on Basics

For some years now there has been general agreement on the basic outline of a multilateral CW convention. Briefly, it would prohibit the development, production, acquisition, possession, transfer, or use of chemical weapons as these are defined by the treaty; all such weapons would be destroyed and production facilities would be eliminated. States party to the convention would be required to declare their CW stocks and production facilities and possess plans for getting rid of them. Verification of compliance with the provisions of the treaty would be entrusted to an international authority that would be responsible for the proper functioning of the treaty regime and provide the mechanisms to ensure compliance with it. How to put flesh on this skeletal outline has absorbed the energies of generations of negotiators. A complete ban on chemical weapons is about as complicated an undertaking as exists in the entire field of arms control, made even more difficult by the fact that it is being negotiated in a 40-nation forum. Even if agreement could be reached on all the elements of a convention, the task of eliminating existing weapons and production facilities would take some 30 years. A world-wide convention would also require continuous monitoring of one of the most lethal of industries. Mankind has become enormously dependent on an infinite variety of chemicals, some of which are intrinsically highly toxic, or even lethal (dramatically demonstrated by Bhopal). Even the most deadly nerve gases have beneficial uses in small quantities for research purposes. Keeping production, distribution, and use of these dangerous chemicals under control while preventing military applications is a daunting proposition.

As of the beginning of the 1980s, the Geneva negotiations had succeeded in elaborating general provisions covering many of the major elements of the basic outline. However, the language has been incorporated into the "rolling test," but bracketed words and phrases signify that important matters in some areas and many details remain to be worked out. A summary of agreed elements follows:

The convention shall apply to virtually all toxic chemicals. Whetherher

bicidizer or insect control agents ("nerg gas") are to be included has not yet been decided. Separately covered are precursors (chemicals that take part in the production of a toxic chemical in the manufacturing process or serve as a key component of binary chemical weapons) and munitions and equipment designed to deliver chemical warps.
**Western observers examine a chemical weapons display at the Soviet military base at Shikhany in October 1987. The exchange of visits to U.S. and Soviet CW sites indicates a climate of increased openness which helps negotiations.**

- Each party will be required to make a declaration within 30 days of the entry into force stating whether it has chemical weapons, giving specific data on the quantity and location of its stocks and a detailed inventory of its declared weapons. In addition, parties are required to report any weapons of another state that may be on their territory and any transfers or receipts of chemical weapons covered by the convention.

- Any state possessing chemical weapons must submit a plan for their destruction to the international authority. Destruction would begin within one year of entry into force and be complete within 10 years. The process would be subject to immediate verification by on-site inspection and would be subject to continuous monitoring by the international authority.

- Declarations would also be required for production facilities within 30 days of entry into force. Such facilities would have to cease production immediately and, to be completed within three months, and submit plans for their eventual elimination. Some plants might have to be utilized for the destruction of weapons, but after 10 years all would have to be eliminated. The process of eliminating production facilities would be subject to on-site verification by the international authority.

**Progress on Verification**

While there is general agreement on the shape of the verification制度, there are many issues relating to the distribution of power among its components and their specific functions. In particular, how inspections will be made and how the body will be financed remain to be resolved.

- The “rolling test” are annexes which, inter alia, spell out in detail (a) what kinds of data will be needed concerning CW stockpiles, production facilities, and transfers or receipts of specified chemicals; (b) measures for destroying stockpiles of munitions and rendering production facilities incapable; and (c) measures for conducting systematic monitoring of CW stockpiles, production facilities and the single small-scale facility allowed by the convention for producing chemicals identified as necessary for peaceful purposes.

Given the sweeping nature of the proposed CW regime, there are a number of unanswered questions on how the agreement will be enforced. One important topic on which there is as yet no agreed language is the on-site inspection challenge. This question has been a contentious one for some time and was highlighted when the Soviet Union introduced a new type of a draft convention in 1984. The U.S. concept, known as “mandatory on-site inspec-
tion,” is that whenever a state party or group of parties detects an activity that might be construed to be a violation of the convention, the state charged with the activity taking place would be obliged to prompt, immediately, and unconditionally to conduct an on-site inspection to determine whether a violation has indeed occurred.

Initially this proposal was considered a sure-fire rejection by the negotiators—a close spiritual cousin of the zero option for “intermediate-range nuclear missiles” with the same light when it was first proposed. However, now, the principle has been accepted by both the Western and Eastern negotiators as a possibility of the countries involved in the negotiations. China and India are the two most prominent delegations that so far have not agreed in principle.

- While the “rolling test” does not treat monitoring in one area, the working group charged with developing agreed language has discussed it in considerable detail. A possible approach was outlined by the group’s chairman in a report to the Conference on Disarmament (CD) in August 1989:
  - A request for an on-site inspection should be submitted to the head of the technical coordination body.
  - The state party being challenged would be notified immediately and a team of inspectors would be dispatched to the site.
  - Inspectors would be provided with appropriate equipment and access to all relevant documents. (Some have proposed 24 hours from receipt of a request to arrival on site.)

- The draft agreement—already referred to as the “requested state” in the draft—would be obligated to cooperate with the inspectors on means of conducting the inspection in a manner that would protect sensitive installations or objects not related to CW activities.

Several alternatives have been proposed for handling situations in which the inspectors and the state being inspected cannot reach agreement on these arrangements, but this remains a problem on which there is no consensus. There is general agreement, however, that the investigation should be completed within a fixed deadline and that the report (which would be made available to the executive council, the requesting state, and the requested state) should be strictly factual and contain only directly relevant information.

Given the many complexities of verifying the parties with which it would work to outline detailed provisions on points agreed in principle, particularly with regard to inspection procedures, the possibility of an agreement by the end of the current conference is remote. These violations might take place in locations that have not been declared presently some

**Improved U.S.-Soviet Relations**

A less tangible but nonetheless significant development has been the improvement in the atmosphere surrounding the negotiations. In addition to the general easing of East-West tensions in the past months, there have been the visits of Western and other negotiators to the Soviet Union and of the minority of the countries involved in the negotiations. China and India are the two most prominent delegations that so far have not agreed in principle.

- The U.S. and Soviet militaries are working closely on a proposal to exchange technical information on the safety characteristics of their respective CW systems. This exchange, which will require a high level of trust, is expected to last for several years.

- The U.S. and Soviet militaries are working closely on a proposal to exchange technical information on the safety characteristics of their respective CW systems. This exchange, which will require a high level of trust, is expected to last for several years.

**U.S. Army soldiers in full chemical/biological protection gear advance through a smoke screen simulating a chemical attack during exercises in West Germany.**

Recently the Soviets, as another gesture of openness, announced that their stockpile of chemical weapons "does not exceed 50,000 tons in terms of toxic substances." This announcement, however, has been met with skepticism by the West. It gives no indication of whether this is a figure for filled munitions or is supposed to apply to the entire quantity of chemical agent in the Soviet inventory. In order to verify the figure, more information would be needed, including stockpile location.

An important development in Geneva has been the resumption of consultations between the U.S. and Soviet delegations. In the late 1970s, the United States and the Soviet Union engaged in bilateral negotiations with the objective of completing an agreed draft treaty that would then be submitted to the CD for review and the adoption of such proposed modifications as might achieve consensus. These bilateral negotiations were suspended after the 1980 session. In recent years, however, with the CD undertaking full-scale negotiations, the two delegations have been meeting regularly to attempt to iron out disagreements and to work on problems of mutual concern. Among the subjects that have been discussed are the exchange of data between the U.S. and Soviet governments before the convention is signed, as a means of building confidence. The two delegations are also working on a regime to govern the destruction of CW production facilities.
National Security and the CW Regime

While the military-technical problems standing in the way of an agreement now seem to be less intractable, a panoply of difficult issues of a political and commercial nature hover over the entire exercise. Some of these have only recently begun to crystallize in the positions taken by countries involved in the negotiations. As has been said about the hangman's noose or a 500 point drop in the Dow, a shift in the prospects for an arms control agreement from a theoretical possibility to a real one tends marvellously to focus the mind—in the case of the CW negotiations, collective governmental and congressional skittishness over the specifics of proposed arrangements for international supervision of segments of the CW regime.

Naturally, sovereign nations, especially those with significant chemical industrial capacity, are concerned about how the proposed international authority with its broad mandate would operate. The Geneva negotiations and to identify areas in which industry could offer advice. The participants agreed to draft papers suggesting approaches to such issues as:

- The protection of confidential business information;
- Protocols for inspection;
- Data-reporting methodologies for commercial chemicals covered by the convention;
- Technical requirements for an international inspectorate; and
- Monitoring devices and techniques.

Only a small proportion of the nations which might become parties to a chemical weapons convention would be directly affected by its military aspects, but all would be affected in some way by monitoring provisions for the chemical industry. Thus whether an effective worldwide convention emerges from the Geneva deliberations would depend on the willingness of nations to accept and support not only strict verification measures on the military side but also a significant measure of international oversight of the global chemical industry.

A Low U.S. Priority?

A word about the United States and the effect of the currentintoned nation's interests, all of whom are sensitive to matters touching on their jealously guarded sovereignty.

Chemical Industry Concerns

The chemical industry worldwide is equally concerned about the constraints of a sweeping sweep of scope will place on its mode of operation. This concern is mitigated, however, by the fact that the chemical industry in recent years has become accustomed to a degree of control imposed by national and international environmental regulations. Moreover, in the United States the government has being consulted with industry about the negotiations for over 10 years.

A heartening development in the active role that chemical industry representatives in other countries have begun to take in helping to develop measures that will ensure effective verification without unduly burdening the industry. An informal meeting of industry experts and negotiators was held in Geneva last July. In late January of this year experts from the chemical industry and manufacturing associations of Western Europe, Japan, and the United States met in Zurich to review the status of the Geneva negotiations and to identify areas in which industry could offer advice. The participants agreed to draft papers suggesting approaches to such issues as:

"Naturally, sovereign nations, especially those with significant chemical industries, are concerned about how the proposed international authority with its broad mandate would operate."

Star Wars Testing and the ABM Treaty

Matthew Bunn

The Reagan administration's Star Wars end run on the Anti-ballistic Missile (ABM) Treaty has been temporarily beaten back. In the defense authorization conference an agreement has limited testing of the Strategic Defense Initiative (SDI) to those tests described by the Defense Department as within the bounds of the traditional interpretation of the treaty through fiscal year 1988. For the moment, the administration cannot move to implement its "broad" interpretation of the ABM Treaty, which would allow unlimited testing of exotic technology Star Wars systems.

Unfortunately, this victory over the broad interpretation is threatened by the administration's twisting of the traditional view. By stretching ambiguities in the treaty's language, the Defense Department is attempting to justify tests that go far into grey areas. A strong case can be made that some of the tests currently planned are likely to violate a reasonable reading of the traditional interpretation of the treaty. Other planned tests, while complying with the letter of the treaty, are clear efforts to circumvent the agreement's intent, undermining the effectiveness of the treaty regime. If the United States were to push forward with these tests by making unverifiable distinctions and exploiting loopholes, we will have no grounds for complaining when the Soviet Union does the same, and we will ultimately lose the security benefits provided by the ABM Treaty. In the light of these considerations and the test results raised by SDI's current plans, this analysis will describe the major past and planned SDI tests that may affect the ABM Treaty regime.

The Treaty's Terms

The ABM Treaty allows full-scale development and testing, and even limited deployment of fixed land-based ABMs, but it bans all development, testing, and deployment of "sea-based, air-based, space-based, or mobile land-based" ABM systems and components. It also bans testing of any non-ABM system or component (such as an air defense missile or an antisatellite weapon) "in an ABM mode," or giving such systems an ABM capability.

To clarify what is permitted, the Defense Department has divided legal ABM &D activities into three categories:

Category One. Research of all types is permitted, including laboratory testing. During the ABM Treaty negotiations, neither side believed that research should be cut off, or that limits on research could be adequately verified. The U.S. definition of the line between permitted "research" and prohibited "development," based on the negotiating record, was provided by chief negotiator Gerald Smith during the ABM Treaty ratification hearings in 1972.

In essence, development begins at the point when a "prototype or breadcrumb model" of an ABM component leaves the laboratory and is ready for "field testing." "Breadcrumb" is an expression for the early phase of a component that performs the essential functions to be tested, but may have different physical configuration than the final, fully operational system.

For some years after President Reagan's Star Wars speech in 1983, the Soviet Union claimed that the ban on development of space-based ABM systems applied even to research, despite then-Minister of Defense Marshal Andrei Gromyko's statement in 1972 that the ABM Treaty "places no limitations" on research. More recently they have returned to a position similar to the traditional U.S. approach.

Category Two. Testing and development of equipment other than ABM "systems" and "components" is also permitted. Article II of the ABM Treaty defines ABM systems as "to counter strategic ballistic missiles or their elements in flight trajectory," and lists then-current "components" of such systems as including ABM interceptor missiles, ABM launchers, and ABM radars. Thus, there are no limits on other ABM-related equipment such as computers and power supplies.

An interceptor missile, launcher, or radar is counted as an ABM component—rather than, for example, an air defense missile—if it is "constructed and deployed for an ABM role" or a type tested in an "ABM mode." The term "tested in an ABM mode" was defined in a 1978 Agreement Statement in essence, an interceptor missile "tested in an ABM mode" if it attempts to intercept a strategic ballistic missile or a test rocket. The ABM Treaty only requires it to be "tested in an ABM mode" if it tracks and guides an ABM interceptor, or tracks strategic ballistic missiles while another radar is guiding an ABM interceptor.

New technologies "based on other physical principles" are considered ABM components if they are "capable of substituting for" an ABM interceptor, launchers, or radars. Thus, a laser that could destroy a missile at long range (and thus "substitute for" an interceptor) would be covered by the treaty, while less powerful lasers would not. Unfortunately, this "capable of substituting for" concept is inherently im-
What Next For Arms Control?

Building on the Achievement. With the signing of the INF Treaty, the Reagan administration has taken a positive step for arms control and has the opportunity to achieve an historic agreement on strategic arms reductions. A broad agenda of other important issues faces this—and the next—administration, including conventional forces in Europe, chemical weapons, a nuclear test ban, and nonproliferation.

Protecting the Antiballistic Missile Treaty. Amid these hopeful developments, the Reagan administration is still pursuing its campaign to revise the ABM Treaty to facilitate early deployment of a strategic defense system. The "broad" interpretation would lead to the immediate erosion and eventual collapse of the ABM Treaty, the cornerstone of arms control, and would prevent further progress on strategic arms reductions.

Keeping the Arms Control Vigil. During the crucial coming months, it will be important for arms control supporters to keep a careful watch over developments. The Arms Control Association carefully analyzes unfolding events in all areas of arms control, and disseminates this information through its press and public education programs.

YOU CAN HELP. As a member of ACA, you will receive Arms Control Today, the monthly journal that gives comprehensive coverage of developments in this vital field. And best of all, you can support ACA's work and play a more effective role in the current debate.

Join the Arms Control Association

Use the convenient mailer inside to renew your membership or to become a new member.