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VERIFICATION AND THE CHEMICAL WEAPONS BAN

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Verification is by no means the only problem that negotiators face in elaborating a comprehensive ban on chemical weapons, but it seems the most formidable. The others are mainly political and may be resolved in a relatively short time once there is a practical will. Verification, however, is also a very complicated scientific and technological problem for which there is no quick and ready solution. One can well imagine that a person not intimately familiar with the ins and outs of CW might easily conclude that a chemical weapons ban is not verifiable. I consider that attitude as far too pessimistic.

The most difficult aspect is making sure that chemical weapons are not being produced in the civilian chemical industry. This is treated in article VI of the "rolling text." Trying to verify nonproduction may, at first sight, seem a hopeless undertaking, since the chemical and pharmaceutical industry is so large -- very much larger, for example, than the nuclear industry. But there are limiting factors. First of all, the number of chemical warfare agents is relatively limited. It was clearly shown during the first world war that, among the hundreds and perhaps thousands of toxic chemicals available, only a few possess all the properties that make them useful as chemical warfare agents. From this it follows also that the number of key precursors of such agents is limited. Schedules 1 and 2 of article VI list these chemicals, and they are not long. The second limiting factor is a quantitative one: we only have to worry about quantities of chemicals great enough to have some relevance to military activities. The verification need not be concerned with, for example, laboratory quantities.

In general, there seems to be agreement on two forms of inspection for the verification. On the one hand there should be a routine type of inspection. This would be applied to facilities declared as producing or processing the chemicals named in schedule 2 of article VI. The purpose would be to ascertain that no other schedule 2 chemicals, nor any schedule 1 chemicals, are produced, and that the quantities declared for permitted purposes correspond to those actually produced. Some twenty countries have now carried out national trial inspections to test this type of verification. Results are being evaluated and will be used to organize one or more international trial inspections. Under consideration is the possibility of applying routine inspection to facilities

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declared as having equipment particularly suitable for the production of chemical weapons, regardless of which chemicals they actually produce.

At the other end of the spectrum is challenge inspection -- the "anywhere, anytime, without right of refusal" type of inspection originally mentioned in article X of the 1984 US draft CW treaty (CD/500). Many regard this type of inspection as the ultimate safety net. If that is the case, there will be a gap between the routine inspection of the declared facilities and the ultimate challenge. Others deny this gap and propose to "banalize" the challenge inspection. I have my doubts about this. A banalized challenge inspection will not be compatible with the "anywhere, anytime" principle. The only consequence would be a need for a "super-challenge inspection," and this would not take us much farther. To fill that gap, one can imagine that both routine and challenge elements could be applied. For the routine part, there is already a very useful proposal (CD/869) by the FRG in the form of "ad hoc checks" (AHC). Under this proposal, the chemical industry in the states parties would be registered and random on-site checks made at registered facilities to ascertain that no activities prohibited under the treaty are being conducted. Already two trial inspections along these lines have been carried out, with promising results. The problem, however, is that the AHC procedure is based only on technical elements. In a random system, even with weighting factors applied, the burden of the inspection will fall most heavily on those states parties which have a well developed chemical industry. But it is readily imaginable that a facility in country A poses a greater risk to the Convention than five facilities in country B. A challenge element, therefore, would still be needed. It could either be of an anonymous kind or it could be arranged according to a quota system. In this area, too, there is a very useful proposal (CD/909), this time by the UK and named "ad hoc inspections" (AHI). Although probably meant primarily for military activities, these could also usefully be applied to the chemical industry. An integration of the AHC and the AHI -- said to be in preparation by the US delegation and eagerly awaited at the CD -- would provide us with a very effective and flexible mechanism for verification.

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Will this give us 100% verification? Of course not, but one has to take several matters into account. First of all, the procedure will increase in effectiveness over time. As has been clearly demonstrated during the trial inspections, all depends on the quality and performance of the inspectors. The subject of recruiting and training inspectors and keeping them motivated has not been addressed up to now in Geneva, and it is about time that we did so. Secondly, the instrumentation of the inspectors will become much more sophisticated in the future. Claims that "all evidence can be removed within 24 hours" have already been disproved. A group of experts on instrumentation has been set up recently in Geneva under the able chairmanship of Dr. Marjatta Rautio of Finland. This type of work should be organized on a more permanent basis, and will be indispensable for the inspectorate. Thirdly, there are the alternatives one has to consider. One has to balance the benefits of a convention with an initially imperfect, but over time certainly improving, verification system against the benefits of having no Convention at all.

One does not have to go to the Palais des Nations in Geneva to realize that a non-proliferation treaty along the lines of the nuclear NPT is out of the question. Export control measures, as taken by the Australia and Leipzig groups, however effective they might be in the short term, have to be considered as temporary. The solution recently proposed by Kenneth Adelman, formerly Director of the Arms Control and Disarmament Agency, to "take out" the Rabta plant in Libya¹ (And why stop there? Why not take out Samarra, Shikhany and Pine Bluff, as well?) can be regarded as disarmament, but probably not of the type the world is waiting for.

There really is no good substitute for a comprehensive ban.

¹ Ken Adelman, "Chemical Weapons Realities," *Washington Times*, 14 August 89

US lowering estimate of Soviet chemical stockpile

So reads the headline of a *Washington Times* article on 8 November. The article reports that in preparation for next month's data exchange with the Soviet Union "US intelligence agencies are reviewing their estimates of Soviet [chemical] capacity." According to the article, "the CIA believes the Soviets actually have slightly less than 50,000 tons, while the Pentagon's Defense Intelligence Agency believes its is closer to 75,000 tons. Estimates from the State Department and a special Army research center are considerably higher." The CIA appraisal brings the US estimate in line with the Soviets' repeated claim of a stockpile no larger than 50,000 agent-tonnes. In the following day's *Washington Post* more details are provided.

Warren Strobel, "U.S. lowering estimate of Soviet chemical stockpile," *Washington Times*, 8 Nov 89

R. Jeffrey Smith, "Estimate of Soviet Arms Is Cut: U.S. Revises Figure on Chemical Weapons," *Washington Post*, 9 Nov 89

What follows is taken from the Sussex-Harvard rolling CBW chronology. The intervals covered in successive Bulletins have a one-month overlap in order to accommodate late-received information. The basic chronology, which is continuously updated, is fuller and provides complete citations of sources. For access to it, apply to Julian Perry Robinson at SPRU, University of Sussex, Brighton, BN1 9RF, England.

7 June The UK House of Commons Defence Committee, in its report on the annual defence White Paper [see 2 May], states its position on the CWC negotiations in the following terms: "We said last year that 'although the possibility of clandestine violations of a convention means that a prohibition on chemical weapons could not of itself entirely remove the problem posed by such weapons, we believe that, provided NATO maintains its chemical defences at a realistic level, a convention could contribute significantly to our security.' That remains our view; we believe that the risk of proliferation adds to the urgency of obtaining agreement on a global, comprehensive and adequately verifiable convention and we note with concern the apparent slowing of progress to that end." {HC 383 of 1988-89}

8 June In the US Senate, an Armed Services subcommittee holds hearings on CBW budgets and programs. The Office of the Secretary of Defense testifies that, compared with the budget submitted in January, an extra \$24.9 million is sought for Fiscal Year 1990, and \$4 million for FY 1991, in order to accelerate the "retrograde" of US chemical weapons from the FRG [see 6 Mar]. {Prepared statement of Dr Billy Richardson, Acting Deputy Assistant to the Secretary of Defense (Chemical Matters)}

10 June *Jane's Defence Weekly* publishes an interview with Israeli Defence Minister Yitzhak Rabin, in which he says that, in contrast to chemical warfare, "we are not aware of the existence of any dangerous biological capability in our area of interest, so we don't think it is necessary to give this a high priority in our plans." {JDW 10 Jun}

11-16 June The Third International Symposium on Protection against Chemical Warfare Agents is held in Umeå, Sweden. It is opened by the King of Sweden. The presentations include papers by scientists from the CW defense establishments of China, France, the FRG, Hungary, Israel, the Netherlands, Norway, Sweden, Switzerland, the UK, the US and Yugoslavia. {Swedish Defence Research Establishment, report C 40266-4.6,4.7, Jun 89}

13 June The private US-Soviet bilateral talks on banning chemical weapons resume [see 10-11 May] in Geneva for their 11th round. They will end on 29 June. Each side is led by the head of its CD delegation. {TASS in FBIS-SOV 13 Jun}

13 June In Geneva, the CD reconvenes for its summer session.

13 June Australian Foreign Minister Gareth Evans speaks to the CD in Geneva of the Government-Industry Conference Against Chemical Weapons (GICCW) which his government is to host [see 6 Mar]. The conference is to be held in Canberra during 18-22 September. All CD member countries have been invited, as have "other countries with significant chemical industries and those countries with a particular interest in chemical weapons issues." Senator Evans says that the context of the conference is the CWC negotiation, which it will support fully. {CD/PV.508}

14 June A joint FRG-USSR declaration on chemical weapons is issued following talks between the Foreign Ministers of the two countries during the visit of President Gorbachev to Bonn. It expresses the intention of both countries to become initial signatories of the CWC [see 8 Jan] and records agreement to intensify bilateral

discussions on CW, including regular expert consultations in Geneva.

Further: "The two sides declare their readiness to support any verification measure conducive to greater security [They] attach special significance to confidence building and regard practical measures in this field as an effective means of promoting the early conclusion of the convention. The two sides have agreed to step up their efforts aimed at greater openness and further exchange of the data required for progress at the negotiations."

And on CW proliferation: "They agreed that the entry into force of a global and comprehensive ban would be the only lasting solution to the problem of chemical weapons But they consider it an important task to take effective measures in the mean time to prevent the proliferation of chemical weapons. They concur that the continued spread of chemical weapons confronts the community of nations with grave responsibility that no Government can evade." {CD/930, CD/931}

15 June British Foreign-Office Minister William Waldegrave introduces a paper into the CD in Geneva describing initial findings from a program of "practice challenge inspections" (PCIs) in military facilities. Two PCIs are described in the paper, one conducted during October 1988, the other during March 1989, both at ammunition storage depots. Further PCIs are planned which will include more sensitive facilities. The exercise is described as having three objectives: (a) assessing the security implications of challenge inspections under the projected CWC; (b) examining ways of demonstrating CWC compliance while protecting legitimate security interests unrelated to CW weapons; and (c) learning how challenge inspections might be conducted in reality. {CD/921, CD/PV.509}

16 June Switzerland reports on its National Trial Inspection to the CD Ad Hoc Committee on Chemical Weapons {CD/CW/WP.247}. The trial had had two objectives: To determine (a) whether the inspection procedures laid down in the Rolling Text were appropriate for verifying, in a non-intrusive manner, that declared data on production, processing and consumption of Schedule 2 chemicals are correct; and (b) which confidential business documents should be disclosed to inspectors so that the latter can fulfil their tasks in as non-intrusive, cost-effective and speedy a manner as possible. General conclusions are presented without specifics of the plant or chemicals involved.

One conclusion is that the provisions which appear in the Rolling Text are "not yet sufficiently developed for the verification of a modern multipurpose facility." {CD/PV.523}

19 June In Geneva, today's meeting of the CD Ad Hoc Committee on Chemical Weapons is devoted to the question of the staffing and costs of the international Organization which the CWC is to establish {CD/CW/WP.244}. It is opened by a series of three presentations by outside experts invited to Geneva specifically for the occasion -- Nicholas Sims of the University of London School of Economics & Political Science, Johan Lundin of the Stockholm International Peace Research Institute, and Herbert Beck of the University of Stuttgart.

20 June The Federal German government, responding to parliamentary questions, states that the planning for the withdrawal of US CW weapons from the FRG has still to be completed; the government will inform the public in good time. The weapons them-

are in good condition and present no danger to the environment or population. {BT-Drs.11/4871}

20 June The Canadian Assistant Deputy Minister for Political and International Security Affairs, Fred Bild, addressing the CD, questions the view that "requests for challenge inspections would generate political sensitivities and suggestions of guilt," therefore being provocative. Such a danger is, he suggests, "a problem that can be overcome as long as we keep our eyes firmly on the following: first, an essential concern of the convention is to ensure that international inspectors have access to any facility where clandestine activities might be undertaken; second, the essential obligation is on the challenged State to demonstrate its compliance, and not on the requesting State to prove non-compliance." He goes on, however, to speak of possible additional forms of recourse, such as "mutually agreed bilateral measures, fact-finding 'clarification visits' or other means of demonstrating [compliance] short of invoking the challenge provisions." {CD/PV.510}

21 June The United Kingdom reports on its National Trial Inspection to the CD Ad Hoc Committee on Chemical Weapons. The purpose of the trial had been to enable effective detailed procedures for routine inspections to be elaborated on the basis of practical experience. The process inspected had been batchwise production of dimethyl methylphosphonate at a medium-sized factory of undisclosed location, the product being sold for onward processing as a fire retardant. {CD/CW/WP.249}

21 June Federal German Foreign Minister Hans-Dietrich Genscher, visiting Washington, is told by Secretary of State James Baker of US concern about a deal in which a West German company has arranged the sale to Iran of large quantities of a potential CW-agent precursor [see also 29 and 30 Jan]. Details are soon afterwards leaked to the US press. The deal reportedly involves some hundreds of tons of thionyl chloride [which is one of the more convenient of a number of chlorinating agents that can be used either to convert thiodiglycol into mustard gas or to produce a precursor of a wide variety of nerve gases] manufactured in India, the bulk of which had not yet been delivered. The Iranian diplomat implicated in overseeing this and earlier [see 29 Jan] deals is said by the Bonn Foreign Ministry to have left the country {NYT 27 & 28 Jun}. Federal Government inspectors begin an urgent inquiry {TL 28 Jun}. The premises of the company, Rheineisen Chemical Products GmbH of Düsseldorf, are raided by police on 29 June. Prosecutors say they have evidence indicating that the company had illegally failed to seek an export permit required for the deal, contravening the new Foreign Trade Law enacted following the Rabta

affair {WP 30 Jun}. The company acknowledges the deal but denies any wrongdoing {NYT 29 & 30 Jun}.

Der Spiegel reports that, among the papers seized from the company is a contract dated 1 June 1989 under which 257 tonnes of the chemical, made in India, were to be shipped to Iran. Other seized papers indicate that the Iranian state-owned Defence Industries Organization had, at the beginning of 1989, been seeking to purchase 3400 tonnes of thionyl chloride {DerS 3 Jul in JPRS-TAC 11 Jul}. By 1 July, part of the shipment has reached Dubai where, at the request of the Federal German government, United Arab Emirates officials turn it back to Bombay {NYT 3 Jul}. It transpires later that Rheineisen is an Iranian-owned "shell" company {C&EN 10 Jul}.

Unidentified US officials reportedly say that, over the past two years, Indian firms have sold hundreds of tons of poison-gas precursors to Iraq and Egypt as well as to Iran. A spokesman for the particular Indian firm involved reportedly states that its production of thionyl chloride had increased from 150 tons in 1979 to 2203 tons in 1987; several hundred tons had been exported in the past year {NYT 10 Jul}. Indian officials state that their country has no export restrictions on thionyl chloride or other such chemicals, and that the Indian Government will not ban their manufacture until there is a comprehensive global agreement to ban chemical weapons {G 11 Jul, IHT 12 Jul}.

22 June The Soviet Union informs the CD that it is "carrying out a national experiment related to challenge inspections [see 18 Apr and 15 Jun], within the framework of which one visit to a military storage facility has already taken place" {CD/PV.511}. Later, at the GICCW in Canberra [see below 18-22 Sep], the Soviet Union states that this practice challenge inspection had taken place in May, at a military storage facility, and that another one was being prepared, this time at an industrial facility {GICCW/WSI/8}.

22 June In the US Senate, the Subcommittee on International Finance and Monetary Policy of the Committee on Banking, Housing and Urban Affairs holds a hearing on chemical and biological weapons proliferation. Testimony from Under Secretary of State Reginald Bartholomew reiterates [see 4 May] the administration's opposition to automatic sanctions, whether against countries that use CW weapons or against companies that aid proliferation, but reaffirms the administration's readiness to work with Congress on developing some form of sanctions legislation.

Current US export controls are described by Under Secretary Bartholomew as follows: "Through the Department of State Office of Munitions Control, the International Traffic in Arms Regulations (ITAR) govern the export of munition items, including chemical

GLOSSARY OF ABBREVIATIONS FOR NEWS CHRONOLOGY

AFP	Agence France Press	DerS	<i>Der Spiegel</i>	JPRS	Joint Publications Research Service (Washington)
AN	<i>Atlantic News</i>	DN	<i>Defense News</i>		
AP	Associated Press	DW	<i>Defense Week</i>	KZ	<i>Krasnaya Zvezda</i>
BS	<i>Baltimore Sun</i>	DTel	<i>Daily Telegraph</i> (London)	LAT	<i>Los Angeles Times</i>
BT-Drs.	<i>Bundestag-Drucksache</i>	FBIS	Foreign Broadcast Information Service (Washington)	NYT	<i>New York Times</i>
C&EN	<i>Chemical & Engineering News</i>			Obs	<i>Observer</i> (London)
CBW	Chemical/biological warfare	FT	<i>Financial Times</i> (London)	SFC	<i>San Francisco Chronicle</i>
CD	Conference on Disarmament	G	<i>Guardian</i> (London)	TL	<i>Times</i> (London)
CD/	CD document series	GICCW	Government-Industry Conference Against Chemical Weapons	TZ	<i>Tagesszeitung</i> (West Berlin)
CQ	<i>Congressional Quarterly</i>			SovR	<i>Sovetskaya Rossiya</i>
CR	<i>Congressional Record</i>	HC	<i>House of Commons Papers</i>	STel	<i>Sunday Telegraph</i> (London)
CSM	<i>Christian Science Monitor</i>	IHT	<i>International Herald Tribune</i>	UN	United Nations
CW	Chemical warfare	Ind	<i>Independent</i> (London)	WP	<i>Washington Post</i>
CWC	The projected Chemical Weapons Convention	Izv	<i>Izvestiya</i>	WT	<i>Washington Times</i>
		JDW	<i>Jane's Defence Weekly</i>	WSJ	<i>Wall Street Journal</i>

agents and related equipment. The US currently exercises foreign policy export controls on 40 designated chemical weapons precursors, eleven of which [see 28 Feb] require a validated export license for export to all destinations, except to members of the Australia Group The remainder require a validated export license for COCOM proscribed destinations and/or Iran, Iraq, Syria and Libya as well as Cuba, Vietnam, Cambodia and North Korea. The licensing policy is to deny applications for Iran, Iraq, Syria and Libya, while applications for Cuba, Vietnam, Cambodia and North Korea are denied in conjunction with the general trade embargo for these countries. Exports to other destinations may be approved unless we believe they will be used for CW purposes. The ... controls set by the US and other members of the Australia Group have not prevented acquisition of chemicals by countries of concern. Suppliers and producers are becoming more adept at circumventing the controls, few countries practice reexport control over the chemicals, and chemicals may be purchased from countries that do not belong to the Australia Group."

He continued: "In order to coordinate our intragovernmental efforts to constrain CW proliferation, in February of this year [see 10 Feb] we formed an interagency interdiction committee to ensure timely and appropriate action on information on the flow of CW materials and technology to problem countries. The group monitors intelligence, coordinates proposed demarches, and provides a centralized mechanism for obtaining clearance to downgrade or release intelligence information and ensure necessary follow-up." He went on to describe the major diplomatic effort in which the US is currently engaged "specifically to prevent the acquisition by problem countries of a CW capability." {Prepared statement}

26-30 June In Geneva, representatives of the US Chemical Manufacturers Association, the Canadian Chemical Producers Association, the Australian Chemical Industry Council, the European Federation of Chemical Manufacturing Associations and the Japan Chemical Industry Association meet, first among themselves, and then with CD experts, to discuss CWC issues.

27 June The United States submits to the CD the report on its National Trial Inspection [see 4 Apr] {CD/922}. The US CD delegation this day includes 7 senators, members of the Senate Arms Control Observer Group, and their staff.

Ambassador Friedersdorf describes the US NTI to the CD as "the beginning of a process to develop and refine inspection procedures, not as a test of procedures that are close to final form Thus, it is clear to us that further work on a national level, especially additional trial inspections, will be necessary to establish a realistic data base." He cautions against proceeding with multilateral equivalents of the NTIs, saying that "it would be better to undertake several types of multilateral activities related to chemical industry verification."

He comments on the proposals for ad hoc checks and ad hoc inspections [see 18 Apr]: "While the two approaches are somewhat different, both have strong points that could be incorporated in an eventual provision for ad-hoc verification. We hope that such a provision can be developed relatively soon."

He proposes that amiton be placed in the newly agreed Schedule 2B, saying "We are not persuaded that any of the other toxic chemicals suggested for the list are appropriate." {CD/PV.512}

27 June The FRG informs the CD that a trial ad hoc check has just been concluded and that a report on it will soon be submitted. "The results ... are encouraging and corroborate our view that ad hoc checks are effective and feasible." {CD/PV.512}

27 June The Netherlands submits to the CD reports on two National Trial Inspection exercises, which had been conducted earlier in the year at an unidentified chemical manufacturing complex {CD/PV.512}. One exercise had aimed at verifying the declared

processing of a Schedule 2 chemical, triphenylmethylphosphonium bromide, in a particular batch reactor of a multipurpose plant within the complex {CD/924}. The other, simulating aspects of a non-routine inspection and focussing more on equipment than on chemicals, had aimed at verifying nonproduction of Schedule 1 substances within the complex as a whole {CD/925}.

27 June In the United States, the House Armed Services Committee approves an amendment to the Defense Authorization bill requiring that, before necessary funds are released, the President certifies that safety standards for the withdrawal of the CW weapons in West Germany will be met. {AP as in SFC 29 Jun}

29 June Ghana is formally admitted to observer status at the CD {CD/PV.513}, as Qatar had been one week previously {CD/PV.511} and Jordan at the start of the summer session {CD/PV.508}. They join the 20 other CD-nonmember countries given observer status at the start of the 1989 session [see 16 Feb], plus Chile, the Holy See, Malaysia, Oman and Viet Nam admitted later on {CD/INF.22}, thus bringing the total number of countries involved in the CWC negotiation up to 68. Israel, however, was not invited; the Israeli request was reportedly blocked by Algeria in retaliation for US opposition to admission of the PLO to the UN or its specialized agencies {NYT 30 Aug}.

29 June In the United States, 74 senators [i.e., more than a two-thirds majority of the Senate and a majority of both political parties] release a letter (written previously in June) to President Bush expressing their full support for his efforts to achieve "a total, verifiable, international treaty banning the production and stockpiling of all chemical weapons" {WP 30 Jun}. The letter speaks of the grave dangers in CW proliferation and says: "it is clear to us that [such a] treaty will be the most effective way of addressing this threat."

29 June The 11th round of the bilateral US-Soviet CW talks [see 13 Jun] ends in Geneva {TASS 29 Jun in FBIS-SOV 30 Jun}. The head of the US team, CD Ambassador Max Friedersdorf, describes the talks as "one of the more productive sessions we have had," but characterizes the Soviet statement on them as "premature and exaggerated" {FT 1 Jul}.

Speaking to the CD on 11 July, the head of the USSR delegation, Serguei Batsanov, describes the session thus: "Substantial progress was made as a result of intensive work at the plenaries, restricted meetings between the heads of delegations, and meetings of experts. This relates in the first instance to the draft paper on procedures for challenge inspections, which we believe might soon be submitted for examination to Working Group 1 of the [CD] Ad Hoc Committee on Chemical Weapons. Considerable progress was also made in preparing proposals on the order of destruction of chemical weapons stocks and chemical weapons production facilities, though some questions relating to certain numerical parameters and terminology still need to be resolved. A useful discussion was held on permitted production and synthesis of Schedule 1 chemicals as well as on toxins. Finally, although no complete agreement has been reached as yet, we have made progress on a whole range of bilateral measures of confidence-building, openness and mutual inspection. These measures are to be implemented even before the future convention is signed. All in all, we are encouraged with the results of the round and hope that after some time they will have a favourable influence on the multilateral negotiations as well." {CD/PV.516}

In a subsequent press interview Ambassador Friedersdorf says: "We have an agreement in principle on order of destruction but we don't have all the details worked out. There should be a total destruction of all existing arsenals after 10 years. After 8 years there would be a levelling out, and after that everybody would go down to zero at the end of 10 years. We have an agreement on data exchange, except on the timing [see 6 Apr] And we have an agreement on the conduct of a challenge inspec-

tion. With all of these papers we agreed upon tentatively, in principle and have submitted them to Washington for review and final approval there [That] could take several weeks" {TZ 19 Jul}. In another press interview he says: "We reached agreement on a very complete, detailed proposal for the conduct of challenge inspections." And his deputy, James Granger, reportedly says that the agreement on chemical weapons data exchange covered production and storage sites, and provided for trial inspections to validate exchanged data; the disagreement was whether the exchanges should happen before, as the US wanted, or after initialing of a treaty. {NYT 18 Jul}

7 July In Geneva, the Czechoslovak-FRG-GDR trilateral talks on CW reconvene for their 14th round. {CTK 7 Jul in FBIS-EEU 14 Jul}

7-8 July Warsaw Pact Heads of State and Government meet in Bucharest. A document adopted by the meeting, *For a Stable and Secure Europe Free of Nuclear and Chemical Weapons, for a Substantial Reduction of Armed Forces, Armaments and Military Spending*, calls for, among other things, "the speedy preparation of an international convention on the general and complete prohibition of chemical weapons and the destruction of their stockpiles." {CD/934}

10 July Austria has just joined the Australia Group, it is announced in Vienna. {Der Standard 10 Jul in JPRS-TAC 19 Jul}

11 July The Under-Secretary of State for Political Affairs of Finland, Aarno Karhilo, tells the CD more about the training program in instrumented verification which Finland is offering to chemists from developing countries [see 16 Mar] {CD/PV.516}. The 14th volume from the Finnish CW verification project is transmitted to the CD, where it is introduced and explained two days later {CD/932, CD/PV.517}.

Speaking also of the major issues outstanding in the CW talks, Ambassador Karhilo describes the CD's approach to non-production verification in the following terms: "We have not undertaken to monitor the whole production of all the chemical industries of the world. Not even the production of dangerous or lethal chemicals as such. We are interested in the weaponizable chemicals, in weaponizable quantities, and, in making sure that they are not being used to produce weapons. Beyond that, the verification of non-production of minor quantities in a cost-effective way will become increasingly difficult. The best we can strive for is to create a regime that can be used to clear any doubts of non-compliance. If possible, that should be done even before such doubts become serious."

He goes on to express optimism about feasibility: "In practical terms that would mean a regime that allows selective intrusiveness, includes a factor of surprise, and uses technically and scientifically sound methods. We are convinced that all the main elements required are already in existence. The technical methods have been developed to the extent that nonproduction of the named chemicals can be verified. The further tuning of these methods now depends on clear definitions of all parts of the regime."

13 July The head of the Nigerian delegation states the following to the CD: "Nigeria does not possess chemical weapons and has no such weapons from other States stationed on her territory." {CD/PV.517}

16 July Iran has shelved plans for building a pesticide factory, it is reported in the British press, because of refusals to participate by European construction companies fearful of its convertibility to CW-agent production. {Obs 16 Jul, Defence Aug 89}

16 July In Canada, a group of 10 Soviet experts arrive for their visit to Defence Research Establishment Suffield, the country's

principal CW defense R & D facility, in response to an invitation from the Defence Ministry [see 25 Jan] {TASS 17 Jul in FBIS-SOV 18 Jul}. The visit ends on 19 July {TASS 19 Jul in FBIS-SOV 24 Jul, TASS 20 Jul in FBIS-SOV 21 Jul}.

18 July In Washington, at the daily State Department press briefing, officials say that the US Government is not reconsidering its opposition to the idea of a bilateral US-Soviet CW agreement which other countries could then join. "We're talking about a total and global ban," says Department spokesman Richard Boucher {WT 19 Jul}. This was in response to today's *New York Times* report of substantial progress in the recently concluded 11th round of bilaterals [see 29 Jun] {NYT 18 Jul}.

25 July The Chairman of the CD Ad Hoc Committee on Chemical Weapons issues a paper resulting from bilateral, private and open-ended consultations on the subject of challenge inspection, stating that its propositions have "emerged as a basis for further work on the issue." The implication is that Committee-wide consensus has at last been achieved on the principle that challenge inspections should be mandatory, without right of refusal, and that they may be made "anywhere, anytime," albeit under obligation that requests for such inspections be kept "within the objectives of the Convention." {CW/CHAIR.1}

26 July In Washington the Senate Judiciary Committee holds hearings on S.993, a bill to implement the 1972 Biological Weapons Convention in the United States [see 16 May]. There is strong Administration testimony in support of the proposed legislation. {Prepared statement of Ambassador H Allen Holmes, Assistant Secretary of State for Politico-Military Affairs, NYT 27 Jul, CSM 2 Aug}

27 July Norway informs the CD of its intention to conduct a National Trial Inspection towards the end of the year. It also submits a paper describing the possibilities of "headspace" gas chromatographic analysis in verification procedures, drawing on the previous year's work in the Norwegian research program on verification of alleged use of chemical weapons. {CD/936, CD/940, CD/PV.521}

27 July The US House of Representatives, during action on the 1990 Defense Authorization legislation, votes 414-4 in favor of sense-of-Congress language stating that "successful completion of [the CWC] should be one of the highest arms control priorities"; and the House also concurred with the Senate [see 29 Jun] in describing the projected treaty as the "most comprehensive and effective response to the threat posed by the proliferation of chemical weapons." {CR 27 Jul, pp H4390-3}

In other action on the legislation, the House votes 240-179 to delete the \$47 million sought by the Administration for continued production of the 155-mm binary chemical artillery projectile. It had been stated during the debate that around \$100 million of the \$188 million prior-year appropriations remained unspent due to slippages in the program: production of one part of the projectile was only at 2 percent of its schedule. {CR 27 Jul, pp H4383-90; CR 2 Aug, p S9485}

The Chairman of the Foreign Affairs Committee, Dante Fascell, joined by 24 cosponsors, introduces HR 3033, a bill "to control the export, to countries pursuing or expanding the ability to produce or deliver chemical or biological weapons, of items that would assist such countries in acquiring such ability, to impose sanctions against companies which have aided in the proliferation of chemical or biological weapons, to provide for sanctions against countries which use or prepare to use chemical or biological weapons in violation of international law, and for other purposes."

29 July In Paris, during the conference on Cambodia, there is a meeting between USSR Foreign Minister Shevardnadze and US Secretary of State Baker during which there is further progress on

the matter of the bilateral data exchange [see 29 Jun] {TASS 29 Jul in FBIS-SOV 31 Jul, WT 31 Jul, NYT 3 Aug}. The Soviet side presents a paper accepting the US proposal that the information to be exchanged, in two phases, on stockpiles and facilities be verified by on-site inspections even before the CWC is formally concluded -- on the understanding, however, that acceptance of the CWC should be possible within four months of the second phase; the Soviet side reportedly also proposes that bilateral agreement on the matter be formally enunciated during the Baker-Shevardnadze meeting scheduled for September {NYT 3 Aug}.

The Soviet paper not only addresses bilateral data-exchanges. At a USSR Foreign Ministry briefing in Moscow on 3 August, a senior official, Nikita Smidovich, says that the aide-memoire also, as TASS later put it, "concerned a joint comprehensive study of the issue of verifying compliance with the Convention." He says that the USSR hoped for a positive US answer to these and other considerations set out in the paper. {TASS 3 Aug in FBIS-SOV 4 Aug}

2-4 August The Australian Government hosts a regional workshop in Canberra in furtherance of the Hawke initiative [see 20 Jun 88]. The workshop is attended by representatives of 22 nations -- all but one of the Southeast Asian and South Pacific countries. Its purpose is to develop a greater regional understanding of the likely contents of the CWC and of the attitudes of regional countries towards its provisions. {*Pacific Research* (Canberra), Aug 89}

3 August Canada submits to the CD Ad Hoc Committee on Chemical Weapons a case study of the sudden appearance in Canadian waters of a toxin from natural sources, an episode which it said "bears many similarities to the situation that might be expected from a clandestine attack using such a novel agent." The episode had occurred during November 1987, when about 150 people suffered food-poisoning seemingly from eating mussels that had accumulated a previously unrecognized algal toxin, domoic acid. {CD/CW/WP.254}

3 August In Moscow, the USSR Parliamentary Group agrees to the text of an international appeal which proposes forms of inter-parliamentary cooperation for promoting the CWC, observing that it "understands the need to use the potential of state legislatures for removing the chemical war threat once and for all." To this end, the Group is planning a seminar in Moscow to which members of foreign parliaments are soon to be invited. {TASS 3 Aug in FBIS-SOV 4 Aug}

3 August Switzerland informs the CD that it is "willing to make a special effort to support the work" of the projected CWC Preparatory Commission "and to make the necessary infrastructure available to it in Switzerland." {CD/PV.523}

10 August Austria transmits to the CD a preliminary report on its National Trial Inspection, which had been completed the day previously. The experiment had been directed at production of dimethylethanolamine, a Schedule 2 chemical, in a multipurpose plant of unidentified location. The aim had been to verify that the chemical was only used for non-prohibited production purposes and that the equipment of the facility was not used for production of any Schedule 1 substances. {CD/948}

10 August Netherlands CD Ambassador van Schaik cautions the CD against usurping the functions of the CWC Preparatory Commission. Negotiating the details of the international Organization that is to oversee the treaty "clearly fall within the competence of the Preparatory Commission and of the organs to be established under the convention." As to financing the Organization, he observes that, prior to entry of the CWC into force, there might have to be "a special interim financial agreement between countries willing to participate." {CD/PV.525}

10 August China cautions the CD Ad Hoc Committee on Chemical Weapons against pushing through "a hasty decision" on the issue of challenge inspections [see 25 Jul]: "what is needed is more careful study and an accommodation of the reasonable proposals of various parties." {CD/PV.525}

11 August In Washington, the Chairman of the House Foreign Affairs Committee, Dante Fascell, releases a new report from the US General Accounting Office on the Bigeye deep-strike binary chemical munition which says that development problems remain unresolved, and that "DOD has not adequately addressed the requirements in the fiscal year 1987 Senate Appropriations Committee report" {GAO/PEMD-89-27}. The detailed data and analyses on which the conclusion is based are contained in a separate classified report. The management of the Bigeye program says that the questions raised are to be addressed in a rigorous new series of tests starting in May 1990, and unidentified Pentagon officials are reported as saying that Bigeye production contracts could be awarded in 1992 {DN 21 Aug}.

11 August The British government announces an extension of its chemical export controls: Libya and Syria are now to join Iraq and Iran in the category of countries to which special controls are applicable, and thionyl chloride is to be added to the list of chemicals whose unlicensed export anywhere is banned. {DTel 12 Aug}

12 August Two US Congressmen -- Larry Hopkins (Republican, Kentucky) and Bob Stump (Republican, Arizona) -- visit the Soviet chemdemil plant being readied at Chapayevsk as part of a tour of Soviet military sites being undertaken by a group from the House Armed Services Committee. Reporting the visit, *Izvestiya* says that the plant is designed to destroy organophosphorus poisons at a rate of 1-5 tonnes per day. It writes, too, of "mass protests from the local population reluctant to be in the vicinity of what from their viewpoint is such a 'dangerous' enterprise" -- a problem which the Congressmen were told would be resolved "by the most democratic means": the plant would not be set to use "until the conclusions of the government commission created in connection with the protest have been discussed in the very near future and agreed on with the public." {WT 11 Aug, Izv 13 Aug in FBIS-SOV 14 Aug}

15 August The bilateral US-USSR talks on the chemical weapons ban are today due to begin their 12th round in Geneva, set to end on 24 August; the round has been brought forward so as to precede next month's Baker-Shevardnadze meeting in Wyoming [see 29 Jul] {WT 11 Aug}. But the US side asks for a brief delay in order -- so an unidentified official reportedly explains -- that the US Administration can finish preparing a new proposal {WT 16 Aug}. The "concrete results" from the 11th round [see 29 Jun] have not yet been presented to the CD {ADN International Service 15 Aug in FBIS-EEU 18 Aug}. The 12th round finally begins on 17 August, the two sides being led by the heads of the respective CD delegations {TASS 17 Aug in FBIS-SOV 18 Aug}.

17 August The Foreign Minister of Czechoslovakia, Jaromir Johanes, introduces into the CD a paper {CD/949} providing data about the CW status of Czechoslovakia and its production and consumption of scheduled chemicals, following the guidelines proposed in CD/828 by the FRG and the examples set by the Netherlands, Britain, the FRG, the GDR and Australia [see 22 Mar] as well as by Hungary {CD/PV.437}, Italy {CD/CW/WP.220}, Norway {CD/CW/WP.221} and Austria {CD/CW/WP.238}. He speaks of legislation adopted for "limiting exports of certain types of chemicals." He offers a chemical factory at Mnisek in northern Bohemia as a site for a multilateral trial inspection, and says, further, that Czechoslovakia will nominate a reference laboratory for use by CWC control bodies {CD/PV.527}.

17 August The Group of 21 neutral and nonaligned CD member states issues a statement about its apprehensions regarding the forthcoming Canberra conference [see 13 Jun], warning against the conference seeking "to establish any alternative or parallel approach to the chemical weapons negotiations in the CD"; the conference should instead lend its support to the CWC negotiation. {CD/PV.527}

18 August The CD Ad Hoc Committee on Chemical Weapons adopts its report to the CD. The report proposes intersessional meetings of the Ad Hoc Committee: open-ended consultations between 28 November and 14 December, and a session of limited duration during 16 January to 1 February 1990. It recommends, further, that the Ad Hoc Committee be re-established at the outset of the 1990 session of the CD, with Ambassador Hyttenius of Sweden taking the chair.

Attached to the report as Appendix I is a new Rolling Text and, as Appendix II, various papers on which consensus is still emerging. {CD/952}

24 August North Korea recalls to the CD its Foreign Ministry's statement of 26 January [q.v.] in which it said "our Government reaffirmed its ban on the production, storage and import of chemical weapons and its refusal to allow the transit of foreign countries' chemical weapons through our land, airspace or territorial waters." {CD/PV.529}

24 August India counsels the CD against interim measures that seek to prevent the proliferation of chemical weapons, for these, "apart from not being effective, also run the risk of opening up a parallel track which could easily derail ongoing negotiations and confuse the objective we are working towards." Further, India states that the CD should "set itself a timeframe within which to conclude its negotiations on a CW Convention. Setting a time frame would provide the necessary political thrust for concluding our work during the 1990 session." {CD/PV.529}

28 August The 12th round of bilateral US-Soviet talks on the chemical weapons ban [see 15 Aug] ends in Geneva {TASS 28 Aug in FBIS-SOV 29 Aug}. Work on the joint order-of-destruction proposal [see 29 Jun] is said to have been completed in readiness for submission to the CD after it has been approved in the two capitals {TASS in FBIS-SOV 30 Aug}. The joint paper on challenge inspection [see 29 Jun] was finalized, according to one report, and is now being shared with other countries {AN 6 Sep}.

28 August A UN Human Rights Sub-Commission in Geneva hears an oral presentation by UK representative Claire Palley referring to a series of reports by Belgian toxicologist Aubin Heyndrickx, alleging that chemical weapons have been used recently in rebel-held areas of Angola by "external powers." (Two of the reports had been submitted by their author to the CD as a nongovernmental communication at the start of its summer session. {CD/NGC.20}) The Cuban observer states that such arms have never been used by Cuba in Angola or anywhere else {AFP 29 Aug in FBIS-AFR 30 Aug}.

Three days previously, the West Berlin newspaper *Tageszeitung* had published a long article by a member of the Frankfurt-based aid organization Medico International which made similar allegations of chemical weapons employment against UNITA-held areas of Angola, quoting extensively from the Heyndrickx reports {TZ 25 Aug}. These allegations subsequently attract dismissive reporting {DerS 4 Sep, TZ 9 Sep}.

29 August The Chairman of the CD Ad Hoc Committee on Chemical Weapons, Ambassador Morel of France, presents his committee's report [see 18 Aug] to the CD plenum. He draws attention to three of the main advances in its new Rolling Text (which now has 20 basic articles instead of 16): the annex on the protection of confidential information [see 3 Feb], on which con-

sensus is now complete, following close consultations with the chemical industry; the new annex on chemicals in which, among other things, there has been substantial refinement of the lists of chemicals -- now labelled Schedule 1, Schedule 2A, Schedule 2B and Schedule 3 -- to which the systematic verification measures of the treaty are to be applied; and the mandate for the Preparatory Commission that is to function during the period between signing of the treaty and its entry into force.

He notes also the progress made in ten other areas of negotiation, progress registered in papers which, because consensus on their subjects is evidently emerging, are appended to the Rolling Text as bases for future work: the protocol on inspection procedures to be used by the international Organization's Inspectorate; a model for agreements between the Organization and proprietors of Schedule 2 chemical facilities; the composition and functions of the Organization's Executive Council; the projected Scientific Advisory Board; the classification system to be used by the Organization's Technical Secretariat in protecting confidential information; challenge inspection modalities [see 25 Jul]; language for article X (Assistance and Protection) which reconciles the two opposing approaches hitherto manifest; provisions for amending the treaty; national and international measures that will be necessitated by implementation of the treaty; and the highly delicate matter of sanctions in the event of noncompliance. {CD/PV.530}

30 August The US General Accounting Office reports to the House and Senate Armed Services Committees on the operational testing which the Air Force and Navy have been conducting on the Bigeye bomb. Problems additional to those described in the recent GAO report on Bigeye developmental issues [see 11 Aug] are noted. It concludes, as had the Navy, that Bigeye must undergo additional operational tests before any decision on quantity production is made. {GAO/PEMD-89-29, DW 11 Sep, JDW 23 Sep}

30 August *Sovetskaya Rossiya* reports that the future of the Soviet chemdemil plant at Chapayevsk has been placed in doubt by local protests [see 12 Aug]. Despite testimony to the safety of the plant from an interdepartmental ecological commission, the city council of Chapayevsk, where 60,000 signatures have been collected against the plant, has voted to ban its operation. That decision has been supported by the Kuibyshev regional council, which has, however, asked the USSR Council of Ministers to send a Government Commission to the site for final decision. {SovR 30 Aug in FBIS-SOV 1 Sep}

31 August The CD in Geneva completes its summer session.

31 August The US Army announces that it has decided to build a full-scale incineration plant at Tooele Army Depot to destroy the chemical weapons stockpiled there, which amount to about 42 percent of the total US supply. The plant, which is to cost \$138 million, will become operational in 1992, employing some 400 people {NYT 2 Sep, DN 4 Sep}. Already under construction at Johnston Atoll in the Pacific is the first of the full-scale US chemdemil plants: a \$305 million incinerator which the Pentagon now expects will open in April 1990, seven months behind its original schedule [see 22 Mar] {WT 26 Sep}.

The Johnston Atoll chemdemil plant is providing the lead technology for the US chemdemil program overall. A detailed report, strongly critical of its environmental-, health- and safety-impact controls, has just been issued by Greenpeace International. {CSM 26 Sep}

6 September The Soviet news agency TASS reports from Chapayevsk that the chemdemil plant there is to be converted into a training center for industrial methods of destroying toxic chemicals. TASS says that the plant will not be used for its original purpose "as the Soviet Government has decided to heed public requests" [see 30 Aug]. The leader of the Soviet CD delegation had been

quoted by TASS a few days previously deploring the fact that the Chapayevsk plant had been "built without the necessary preliminary agreement with the local authorities and public." {TASS 2 Sep in FBIS-SOV 5 Sep; TASS as in WP 7 Sep}

11 September The shares of Ferranti International Signal are suspended on the London Stock Exchange {STel 17 Sep}. It is this British company which, through a subsidiary, has US Government contracts for production of binary chemical weapons (Bigeye bombs, and chemical canisters for the 155-mm artillery round). The subsidiary, Marquardt Corporation, is under US federal investigation, but neither this nor the parent company's difficulties appear related to the chemical-weapons contracts {Ind 22 Sep}. Ferranti now faces the prospect of a forced merger.

Marquardt is 90 percent behind its delivery schedule on one of the binary-munition contracts, says the US Army {DW 5 Sep}.

14 September In the US Senate, the Appropriations Committee reports on the 1990 Defense Appropriation Bill. It accepts the House recommendation that \$15 million be provided for an Army effort in CW verification research, but would fence the money until 30 days after receiving from the Defense Department "a well-defined, focused program of chemical weapons compliance monitoring research designed to support the US negotiating effort in chemical weapons arms control." The Pentagon had been asked for such a report by the Committee the year previously, but had failed to furnish it. {Senate report 101-132}

18 September In Washington at the State Department, US and Soviet officials start to meet, in four working groups, in preparatory talks for the Baker-Shevardnadze ministerial meeting in Wyoming during 22-23 September. {WT 19 Sep}

19-22 September In Canberra, 375 delegates from 66 countries and 4 international organizations meet for the Government-Industry Conference against Chemical Weapons [see 13 Jun]. About half of the delegations include representatives of national chemical industries, these accounting for about 20 percent of the participation, and many delegations also include representatives of trade unions and of industrial and trade departments of government. It is said that about 95 percent of the world's chemical production capacity is represented.

The industry participants adopt a collective statement in which, among other things, they "express their willingness to work actively with governments to achieve a global ban on chemical weapons, and their willingness to contribute additional momentum to the Geneva negotiating process" and "state their willingness to continue their dialogue with governments to prepare for the entry into force of an effective Chemical Weapons Convention which protects the free and non-discriminatory exchange of chemicals and transfer of technology for economic development and the welfare of all people."

And they agree to establish an International Chemical Industry Forum, meeting in Geneva, as a focal point for industry input into the treaty process. [See Review: The Canberra Conference, pages 16-22.]

19 September Australian Foreign Minister Gareth Evans announces that his department is establishing a Secretariat to act as the nucleus for the National Authority which will be required under article VII of the CWC to implement its provisions domestically. He says that the Secretariat, in consultation with other government departments, State Governments and the Australian chemical industry, "will be responsible for reviewing existing laws and regulations covering the activities of the chemical industry, and looking at ways of introducing and adapting the prospective requirements of the CWC to the current regulatory matrix." {News release no. M164, Australian Ministry of Foreign Affairs and Trade}

19 September The US Chemical Manufacturers Association announces in Canberra that its Board of Directors had the previous week approved a voluntary program under which all CMA member companies (175 in all, representing more than 90 percent of US basic chemical manufacturing) "are expected to implement the following practices: hold regular, formal reviews of company export procedures; promote awareness of chemical weapons concerns among corporate export and marketing personnel; establish ongoing relationships with government export authorities; implement procedures for evaluating whether orders of sensitive chemicals are for legitimate purposes; report suspicious orders or inquiries on chemicals of concern to Federal export authorities; and document all transactions in sensitive materials, and make that information available to the authorities upon request." This program, which goes beyond current requirements of US law, formalizes activities that CMA and its member countries have conducted over the past few years. {US delegation news release 19 Sep}

Similar systems of voluntary disclosure and cooperation have been in place for many years in several European countries, it is said later at a European Chemical Industry Federation (CEPIC) press conference. {CEPIC press conference 21 Sep}

19 September India informs the GICCW in Canberra that it has recently conducted a National Trial Inspection and that it would shortly be submitting a report on it to the CD. {GICCW/WSII/1}

19 September US Assistant Secretary of State for Politico-Military Affairs Richard Clarke, heading the US delegation to the GICCW in Canberra, speaks as follows at a press conference: "But in the end the only good solution, the only solution that will last, to the problem of [chemical weapons] proliferation is to have a global ban Verification is going to be very intrusive. It'll be necessary for inspection of upwards of 3000 chemical plants in the United States alone and 10,000 chemical plants around the world." {transcript}

Later in the day he says to the GICCW: "To the best of our information, there are 22 nations that have chemical weapons in their inventories, controlled by their military and ready for use." {GICCW/INFO/20}

20 September US CD Ambassador Max Friedersdorf, speaking at a press conference in Canberra, says that the majority of the 22 countries thought CW-capable by the United States are among the 68 members and participating non-members of the CD. He goes on: "I can't give you an exact figure. I would have to go down on the list of those we suspect, but as I recall, out of the 22, I would imagine, at least in the neighborhood of 15 or more would be countries that are at the CD." {transcript}

20 September The Soviet Union informs the GICCW in Canberra that its "aggregate number of CW [chemical weapon] production and storage facilities and the facilities for the production (processing or consumption) of Schedule 1, 2 and 3 chemicals exceeds 100, of which approximately 30 facilities produce (process or consume) Schedule 2 chemicals." A Soviet compilation of data on these matters, in conformity with the FRG's CD/828 scheme [see 17 Aug], will soon be submitted to the CD. {GICCW/WSI/8}

21 September North Korea informs the GICCW in Canberra that it "wishes to adopt a joint declaration with South Korea on the establishment of a zone free from chemical as well as nuclear weapons throughout the Korean peninsula as one of the national measures in support of the negotiations on the CW Convention We are convinced that this type of measure could precede administrative steps in the case of Korea where security concerns are much more overwhelming than elsewhere" [see also 26 Jan]. {GICCW/P/49 (PROV)}

22-3 September The Baker-Shevardnadze ministerial talks are held in Jackson Hole, Wyoming. Among the final communiqués

is a Joint Statement on Chemical Weapons, which includes the following:

"...the Secretary of State and the Foreign Minister signed a Memorandum of Understanding [see pages 13-15] regarding a bilateral verification experiment and data exchange. The steps agreed upon in the Memorandum are intended to facilitate the process of negotiation, signature and ratification of a comprehensive, effectively verifiable and truly global convention on the prohibition and destruction of chemical weapons.

"The verification experiment and data exchange will be conducted in two phases. Phase I involves the exchange of general data on the sides' chemical weapons capabilities and a series of visits to relevant military and civil facilities on their respective territories. In Phase II the sides will exchange detailed data and permit on-site inspections to verify the accuracy of the information exchanged.

"The sides also agreed to undertake a cooperative effort with respect to the destruction of chemical weapons. They agreed to reciprocal visits to monitor destruction operations of the other side, and to the exchange of information on past, current and planned destruction activities and procedures.

"The sides noted their agreement on some procedures for conducting challenge inspections and on the provisions governing the order of destruction of chemical weapons and of chemical weapons production facilities. These two approaches will be introduced into the multilateral negotiations in Geneva in an effort to contribute to those negotiations

"...The two sides emphasized the obligation of all states not to use chemical weapons in violation of international law and urged that prompt and effective measures be taken by the international community if that obligation is violated. In this regard, they underscored their support for the UN Secretary-General in investigating reports of violations of the Geneva Protocol or other relevant rules of customary international law.

"...The sides expressed satisfaction with the extensive and productive work accomplished at the [Government-Industry Conference Against Chemical Weapons, just concluded in Canberra] and the positive results reflected in the Chairman's final summary statement.

"Finally, the sides expressed the view that a truly global, comprehensive and effectively verifiable ban on chemical weapons is the best means to address the threat posed by the spread of chemical weapons on a durable long term basis. In the meantime, the sides emphasized their readiness to attempt to prevent the proliferation of chemical weapons. They intend to continue consultations on this issue." {official text}

23 September British Prime Minister Thatcher meets with President Gorbachev, and one of the topics they discuss is arms control. The Prime Minister tells reporters afterwards that the prospects for a ban on chemical weapons are "encouraging." {AP as in NYT 24 Sep; DTel 25 Sep}

25 September President Bush includes the following in his address to the UN General Assembly: "Today I want to announce steps that the United States is ready to take, steps to rid the world of these truly terrible weapons, towards a treaty that will ban, eliminate, all chemical weapons from the earth 10 years from the day it is signed. The initiative contains three major elements:

"First, in the first eight years of a chemical weapons treaty, the US is ready to destroy nearly all -- 98 percent -- of our chemical weapons stockpile, provided the Soviet Union joins the ban

"Second, we are ready to destroy all of our chemical weapons, 100 percent, every one, within 10 years, once all nations capable of building chemical weapons sign that total-ban treaty.

"And third, the United States is ready to begin now. We will eliminate more than 80 percent of our stockpile even as we work to complete a treaty if the Soviet Union joins us in cutting chemical weapons to an equal level and we agree on inspections

to verify that stockpiles are destroyed.

"We know that monitoring a total ban on chemical weapons will be a challenge. But the knowledge we've gained from our recent arms control experience and our accelerating research in this area makes me believe that we can achieve the level of verification that gives us confidence to go forward with the ban." {official text; NYT 26 Sep}

25 September In the United States, unidentified government officials describe the President's second step [see preceding entry] as "a device to maintain the pressure for truly universal adherence." They say that further CW initiatives are under discussion, including proposals for (a) sanctions against nations that violate a poison gas ban, and (b) export controls on the sale of chemicals to nations that refuse to sign a treaty. {NYT 26 Sep}

A statement on the Bush UN initiative is issued by the Pentagon; it says: "This initiative will neither interfere with nor force us to cut back our chemical modernization program. Our stockpile will see the overall reductions stated by the President. However, the last weapons to be destroyed will be the binary weapons, the safest weapons with the greatest utility." {WT 26 Sep}

25 September Regarding the US stocks of CW weapons in West Germany [see 20 Jun], US Congressman Larry Hopkins tells the press that he has "serious problems" with the plan that has been drawn up for transporting the stocks to Johnston Atoll for destruction, and that he has urged the Department of Defense to reconsider it. {WT 26 Sep}

26 September USSR Foreign Minister Eduard Shevardnadze, addressing the UN General Assembly in New York, says: "We welcome the proposal concerning chemical weapons put forward yesterday by President Bush The Soviet Union is ready, together with the United States, to go further and assume mutual obligations prior to the conclusion of a multilateral convention; cease the production of chemical weapons, as we've already done -- I'm referring here to binary weapons -- and on a bilateral basis radically reduce or completely destroy Soviet and US chemical weapons, viewing it as a step toward the global destruction of chemical weapons; renounce the use of chemical weapons under all circumstances, and institute rigorous verification of the cessation of production and elimination of chemical warfare agents." {NYT 27 Sep}

At a subsequent news conference, USSR Deputy Foreign Minister Viktor Karpov says that the Soviet Union would not want the superpowers to destroy all their chemical weapons before the CD has agreed on a global ban. He says, further, that the Soviet Union would insist on an end to US production of binary weapons as part of any agreement, though this is not a precondition for negotiating. {LAT 27 Sep}

26 September Speaking at the UN General Assembly on behalf of the 12 countries of the European Community, French Foreign Minister Roland Dumas states that the Community wants a comprehensive treaty banning chemical weapons as soon as possible. {G 27 Sep}

26 September Britain proposes at the UN General Assembly that the CWC talks "move from the present intermittent pattern of negotiations to round-the-year meetings" [see also 28 Mar]. {Disarmament Times Oct 89}

27 September President Bush tells reporters that he is "absolutely not" willing to join with the USSR in agreeing, ahead of a global ban, to destroy all their stocks of chemical weapons, as Soviet Foreign Minister Shevardnadze had proposed at the UN the day previously. He continues: "We need a certain sense of deterrence and we need some leverage to get other countries to ban them." {DTel, WP 28 Sep}

27 September The US Defense Department releases its new edition of *Soviet Military Power*. Its accusation of Soviet violation of the Biological Weapons Convention is markedly less direct than that of earlier US Government publications, for example President Reagan's last *Report on Soviet Noncompliance with Arms Control Agreements* [see 2 Dec 88]. What it says is: "The Soviets continue to improve their ability to use biological agents. New biological technologies, including genetic engineering, are being harnessed to improve the toxicity, stability, and military potential of the Soviet biological warfare (BW) stocks. The Soviets continue to deny that they have an offensive BW program, but there has been evidence not only to support the existence of research and development but also weaponized agents. The Sverdlovsk biological agent accident of 1979 that resulted in the release of anthrax from a bacteriological warfare institute provided such evidence and a strong indication that the Soviets have violated the Biological Weapons Convention of 1972." {*Soviet Military Power 1989*}

29 September In the US Senate, the markup session scheduled by the Foreign Relations Committee on sanctions bill S.195, now revised to incorporate S.238 [see 25 Jan], is non-quotate and therefore postponed. The bill requires the President to impose sanctions against countries that use CW weapons and against US and foreign companies that supply materials for the weapons. It is opposed by the Administration, which prefers the House bill, HR 3033 [see 27 Jul], in that it allows the President more discretion in applying the sanctions. {CQ 30 Sep}

29 September The US-Soviet Task Force to Prevent Terrorism, a private organization sponsored by Search for Common Ground (Washington) and *Literaturnaya Gazeta* (Moscow), ends a week-long conference at the Rand Corporation in Santa Monica. Among its draft recommendations is the proposal that existing US-Soviet nuclear crisis control centers be expanded to exchange information on, and deal with, terrorist threats to use biological and chemical weapons. {AP as in SFC 30 Sep}



US Proposes Continued Binary Production?

Charles Flowerree

On October 9th the *Washington Post* reported that the Bush Administration intended to continue producing binary chemical weapons even after a treaty banning all chemical weapons went into effect. The next day Marlin Fitzwater, the White House spokesman, confirmed this report saying: "... as we work down to zero under the treaty, or down to 80 percent under a Soviet agreement, if we could get one, we would continue to replace the more dangerous unitary [weapons] with the binary"

According to a chart presented by a Defense Department witness during Congressional hearings in 1986, the goal for a binary weapons stockpile, which was shown as 20% of the current unitary stockpile, could not be reached until the mid-1990s. Thus, if a Chemical Weapons Convention were achieved before mid-1991 and production stopped at that point, less than half the planned binary stockpile would have been produced. Apparently, US military planners considered that this situation would not be satisfactory during the 10 year destruction period envisaged by the Convention.

This new US position, which would permit any country with a declared chemical weapons program to continue production, is a major departure from the US draft convention presented to the Conference on Disarmament by then Vice President Bush in 1984. The relevant provision of that draft specified that upon the Convention's entry into force, any existing chemical weapons production facilities would have to cease all activities immediately except for those actions required to close down the facility. The same provision is incorporated in the "rolling text" of the Convention now under negotiation in Geneva.

In his United Nations speech in September, Mr. Bush did not mention the possibility of continuing production of binaries after a convention had been negotiated, nor has he ever mentioned such a policy on other occasions. It was widely assumed that his statement concerning US and Soviet reductions of chemical weapons stockpiles had nothing to do with the procedures for dealing with chemical weapons production under a world-wide Convention. When the French had broached the idea of permitting the smaller powers to retain what they called a "security stockpile," until the super-powers had reduced their chemical stocks down to an equivalent level, the notion was vigorously opposed by the United States and most of the other negotiating parties. In order to achieve their security stockpile, the French probably would have had to produce chemical weapons after the Convention went into effect. Subsequently, in 1988, France dropped the idea. There is no reason to believe that the new US position on continued production during the 10 year destruction period would be met with any greater enthusiasm by the countries engaged in the negotiations. Those who see a world-wide convention as a non-proliferation instrument would have reason to fear that the US position could serve as an incentive to countries which have the capacity and the inclination to begin chemical weapons production or to step-up on-going programs. Negotiating such a fundamental change in the current text would pose many potentially disruptive issues.

So far US officials have not given any indications of how they might pursue this subject in Geneva. In fact it is not clear at this writing that the idea of continued production after a Chemical Weapons Convention went into effect, which has already drawn strong criticism from Congressional leaders, is an immutable policy.

17

MEMORANDUM OF UNDERSTANDING BETWEEN THE GOVERNMENT OF THE UNION OF SOVIET SOCIALIST REPUBLICS AND THE GOVERNMENT OF THE UNITED STATES OF AMERICA REGARDING A BILATERAL VERIFICATION EXPERIMENT AND DATA EXCHANGE RELATED TO PROHIBITION OF CHEMICAL WEAPONS

The Government of the Union of Soviet Socialist Republics and the Government of the United States of America,

Determined to facilitate the process of negotiation, signature and ratification of a comprehensive, effectively verifiable, and truly global convention on the prohibition and destruction of chemical weapons,

Convinced that increased openness about their chemical weapons capabilities is essential for building the confidence necessary for early completion of the convention,

Desiring also to gain experience in the procedures and measures for verification of the convention,

Have agreed as follows:

I. General Provisions

1. As set forth below, the two sides shall conduct a bilateral verification experiment and data exchange related to the prohibition of chemical weapons.

2. The bilateral verification experiment and data exchange shall be conducted in two phases. In Phase I, the two sides shall exchange general data on their chemical weapons capabilities and carry out a series of visits to relevant facilities. In Phase II, the two sides shall exchange detailed data and perform on-site inspection to verify the accuracy of those data.

3. The bilateral verification experiment and data exchange is intended to facilitate the process of negotiation, signature and ratification of a comprehensive, effectively verifiable and truly global convention on the prohibition and destruction of chemical weapons by:

- (1) enabling each side to gain confidence in the data on chemical weapons capabilities that will be provided under the provisions of the convention;
- (2) enabling each side to gain confidence in the inspection procedures that will be used

to verify compliance with the convention; and

- (3) facilitating the elaboration of the provisions of the convention.

4. Terms used in this Memorandum shall have the same meaning as in the draft convention text under negotiation by the Conference on Disarmament. The draft convention text that is current as of the date of the exchange of data shall be used.

5. Data shall be current as of the date of the exchange, and shall encompass all sites and facilities specified below, wherever they are located.

6. Each side shall take appropriate steps to protect the confidentiality of the data it receives. Each side undertakes not to divulge this data without the explicit consent of the side that provided the data.

II. Phase I

In Phase I, each side shall provide the following data pertaining to its chemical weapons capabilities:

1. the aggregate quantity of its chemical weapons in agent tons;
2. the specific types of chemicals it possesses that are defined as chemical weapons, indicating the common name of each chemical;
3. the percentage of each of its declared chemicals that is stored in munitions and devices, and the percentage that is stored in storage containers;
4. the precise location of each of its chemical weapons storage facilities;
5. for each of its declared chemical weapons storage facilities:

- the common name of each chemical defined as a chemical weapon that is stored there;
- the percentage of the precise aggregate quantity of its chemical weapons that is stored there; and
- the specific types of munitions and devices that are stored there;

6. the precise location of each of its chemical weapons production facilities, indicating the common name of each chemical that has been or is being produced at each facility; and

7. the precise location of each of its facilities for destruction of chemical weapons, including those currently existing, under construction, or planned.

In Phase I, each side shall permit the other side to visit some of its chemical weapons storage and production facilities, the exact number of which will be agreed upon as soon as possible. In addition, each side shall permit the other side to visit two industrial chemical production facilities. Each side will select the facilities to be visited by the other side.

III. Phase II

In Phase II, each side shall provide the following data pertaining to its chemical weapons capabilities:

1. the chemical name of each chemical it possesses that is defined as a chemical weapon;

2. the detailed inventory, including the quantity, of the chemical weapons at each of its chemical weapons storage facilities;

3. its preliminary general plans for destruction of chemical weapons under the convention, including the characteristics of the facilities it expects to use and the time schedules it expects to follow;

4. the capacity of each of its chemical weapons production facilities;

5. preliminary general plans for closing and destroying each of its chemical weapons production facilities under the convention, including the methods it expects to use and the time schedules it expects to follow;

6. the precise location and capacity of its planned single small-scale facility allowed under the convention for the production, for non-prohibited purposes under strict safeguards, of a limited quantity of chemicals that pose a high risk, i.e., Schedule 1 chemicals;

7. the precise location, nature and general scope of activities of any facility or establishment designed, constructed or used since 1 Janu-

ary 1946 for development of chemical weapons, *inter alia*, laboratories and test and evaluation sites.

IV. Timing

1. Except as specified below, Phase I data shall be exchanged not later than 31 December 1989. Visits shall begin not later than 30 June 1990, provided that the sides have agreed, with appropriate lead time, on the number of visits, as well as on the programs and other detailed arrangements for the visits, and assuming that the sides have agreed by 31 December 1989 on the type of facility to be visited by each side in its first visit to the other side.

2. In Phase I each side may withhold temporarily, for reasons of security, data on the locations of storage facilities that together contain a total quantity of chemical weapons that is not more than two percent of the precise quantity of its chemical weapons. In addition, the other data pertaining to these locations, as specified in Section II, paragraph 5, shall be grouped under the heading "other storage locations" without reference to specific locations. Precise data pertaining to these locations shall be exchanged later in Phase I on a subsequent date to be agreed.

3. Phase II data shall be exchanged on an agreed date not less than four months prior to the initialing of the text of the convention. At that time, both sides shall formally and jointly acknowledge the possibility of initialing the convention within four months.

V. Verification

1. Each side shall use its own national means to evaluate Phase I data and Phase II data.

2. During Phase I, the sides shall hold consultations to discuss the information that has been presented and visits that have been exchanged. The sides will cooperate in clarifying ambiguous situations.

3. During Phase II, each side shall have the opportunity to verify Phase I and Phase II data by means of on-site inspections. The purpose of these inspections shall be to verify the accuracy of the data that has been exchanged and to gain confidence that the signature and ratification of the convention will take place on the basis of up-to-date and verified data on the chemical weapons capabilities of the sides.

4. Prior to the initialing of the convention, each side shall have the opportunity to select and inspect at its discretion up to five facilities from the list of chemical weapons storage facilities and chemical weapons production facilities declared by the other side. During Phase I, the sides will consider whether each side may inspect not less than half of the declared facilities of the other side if their number is more than 10. Should either side as of the date of the Phase II exchange possess a single small-scale facility for production of Schedule 1 chemicals, it shall be subject to an additional inspection.

Each side shall also have the opportunity to carry out up to five challenge inspections, as specified below. All inspections shall be carried out within the agreed four months from the date of the declaration pertaining to Phase II, referred to in Section IV.

5. While the signed convention is being considered by their respective legislative bodies, each side shall have the opportunity to request from the other side, and to obtain from it, updated data. Each side shall have the opportunity to conduct up to five challenge inspections, as specified below. During this process, the two sides will consult with their respective legislative bodies, as appropriate, in accordance with their constitutional requirements.

For each side, these inspections shall be carried out within a four-month period, beginning with the date that it conducts its first inspection. The sides shall consult and agree on the dates when the first inspection will be conducted by each side. The dates shall be chosen to ensure that the inspections shall be conducted by both sides at approximately the same time. Once the inspections begin, the sides may, by mutual consent, extend the four-month periods for an additional specified period.

6. Inspections of declared facilities, as well as challenge inspections, shall be conducted in accordance with the corresponding provisions of the draft convention, taking into account that these inspections are being carried out on a bilateral basis and do not involve the bodies that will be established under the convention. If necessary, the two sides shall supplement the provisions of the draft convention by mutually-agreed procedures.

7. Challenge inspections may be made at any location or facility of the other side, as provided for in the draft convention text, except that, for the purposes of this Memorandum and without creating a precedent, challenge inspections at facilities not on the territory of the sides may be made only at military facilities of a side in a limited number of countries; the sides will

agree later on these specific countries.

8. Challenge inspections conducted pursuant to this Memorandum shall be conducted in a manner consistent with the domestic law of the side being inspected and shall be based on a recognition by both sides of the need to resolve concerns and build confidence.

9. To clarify questions related to the data provided during Phase I and Phase II, the two sides shall employ normal diplomatic channels, specifically-designated representatives, or such other means as may be agreed upon.

VI. Format

1. Unless otherwise provided in this Memorandum, the agreed data shall be provided according to the specifications contained in the draft convention text for the declarations that are to be made not later than 30 days after the convention enters into force.

2. Precise locations shall be specified by means of site diagrams of facilities. Each diagram shall clearly indicate the boundaries of the facility, all structures of the facility, and significant geographical relief features in the vicinity of the facility. If the facility is located within a larger complex, the diagram shall clearly specify the exact location within the complex. On each diagram, the geographic coordinates of the center of the facility shall be specified to the nearest second.

VII. Entry into Force

This Memorandum of Understanding shall enter into force upon signature.

IN WITNESS WHEREOF the undersigned, being duly authorized by their respective Governments, have signed this Memorandum of Understanding.

DONE at Jackson Hole, Wyoming, in duplicate this 23rd day of September, 1989, in the English and Russian languages, both texts being equally authentic.

FOR THE GOVERNMENT OF THE UNION
OF THE SOVIET SOCIALIST REPUBLICS:
Eduard Shevardnadze

FOR THE GOVERNMENT OF THE UNITED
STATES OF AMERICA: James A. Baker III

(P)

REVIEW: THE CANBERRA CONFERENCE

Impressions of the Canberra Conference and events precipitating it, by Julian Perry Robinson.

Two things above all were achieved in Canberra, during 18-22 September 1989, at the Government-Industry Conference Against Chemical Weapons (GICCW). One was the commitment of the world's chemical industry to practical support for the Chemical Weapons Convention. No longer can it now be said that industrial opposition will make the treaty impossible. The other achievement was a convincing display on the part of the US Government that, despite its relatively unconstructive stance at the CD during 1989, its declared policy of support for the Convention really was its actual policy, and that it did not see an international chemical weapons nonproliferation regime as an alternative to the global treaty. Coming immediately before the bilateral US-Soviet agreement on chemical weapons at Jackson Hole, Wyoming, these two advances seemed set to put the treaty on its final course towards conclusion.

Political background

The GICCW was initiated, so it is said in Canberra,¹ by a telephone call from the Bureau of Politico-Military Affairs in the US State Department to the Australian Ministry of Foreign Affairs and Trade. That was some six or seven weeks after the Conference of States Parties to the Geneva Protocol and Other Interested States had convened in Paris during 7-11 January 1989.² The Final Act of that conference, a document endorsed by all participants -- Iraq and Libya, no less than the Soviet Union and the United States --, had reaffirmed the illegitimacy of chemical warfare. More than that, it had strengthened the authority of the United Nations Secretary-General to investigate immediately such future reports as there might be of resort to chemical weapons in violation of the Geneva Protocol. The Paris conference had thus restored some of the damage done by the failure of the great powers to protest in any substantial fashion while Iraq was using poison gas against Iran. The Final Act had gone further still: the 149 assembled nations expressed their belief that chemical weapons were a mounting threat to international peace and security "as long as such weapons remain and are spread," and that the multilateral Conference on Disarmament, the CD, in Geneva should therefore "redouble its efforts" to conclude its global Convention outlawing the weapons.

From the standpoint of many people in Washington, that was all well and good, but the remedy being sought at the CD was too far into the future, maybe even unattainable, meaning that the weapons might continue to spread unless something else were done at the international level. Active measures on chemical weapons were being pressed forward unilaterally by Washington then, manifest in the public diplomacy which it was directing against the Libyan chemical plant at Rabta, and in its related efforts to exclude foreign participation from other such projects in, for example, Iran, Iraq and Egypt. In any case, the new administration of President Bush was still engaged in its strategic review, and would be in no position for some while yet to issue anything more than holding instructions to the US delegation at the CD. The very fact that US policy was under review would no doubt anyway have encouraged advocacy of alternatives by those who, despite the public enthusiasm of their President, did not favor the Geneva enterprise. All in all, then, there could have been some very mixed motives behind that telephone call to Canberra.

The Ministry of Foreign Affairs and Trade of Australia was, of course, no bystander on chemical arms control, for the matter had been given a special prominence in Australian foreign policy. At the CD, and in its Western Group, participants have long come to expect a forthright Australian stance in the global chemical treaty negotiation, underpinned by constructive study back home. In June 1988, Prime Minister Bob Hawke launched what has come to be known as the "Australian initiative," a largely diplomatic enterprise aimed at promoting the ideas of the global treaty within the South Pacific and Southeast Asian region. In November 1986 Australia had withdrawn its long-standing reservations to the Geneva Protocol. And back in 1984, when trans-Atlantic and European efforts to harmonize and expand national chemical export controls commenced as a counter-proliferation measure, Australia speedily joined in, later taking a leadership role: the ad hoc intergovernmental working group through which the efforts were mediated moved its venue from Brussels to the Australian Embassy in Paris, where it has been ever since. This was the origin of the "Australia Group," which meets twice a year under Australian chairmanship and has now grown to 21 members.³

So the Ministry would have been no stranger to the sharply differing approaches that competed in policy-making on chemical arms control after the Paris conference. There was common ground, within the industrialized countries, on the importance of remedies against the spread of chemical weapons, for such proliferation could have decidedly negative security consequences, and their own domestic industries seemed inadvertently (in most cases) to be

feeding it. But, beyond that, there was a divide between those who saw a global Chemical Weapons Convention as being the only realistic remedy and those who did not. For the latter, the Paris exhortation to redouble efforts at the CD was the merest posturing, not to be taken seriously, for, even if the treaty were feasible, it would remain out of reach without interim steps to check proliferation -- without measures having the effect of impeding nascent programs of chemical armament, diminishing their forward momentum before it became politically impossible to resist. For the globalists, in contrast, interim measures risked diverting the negotiation at precisely the moment when success seemed within reach, while any express focus on proliferation could convey the implication that superpower chemical weapons were somehow legitimate, and might thereby alienate that support from outside the industrialized countries without which the treaty would be largely useless. Those two broad positions no doubt camouflaged others. There would be some interests, for example, that would stand to suffer from the legislation on sanctions which the United States Congress was considering as a counter-proliferation measure. And there are some whose fear of losing chemical weapons makes any delay or diversion seem worthwhile.

The civil chemical industry was crucially important on both sides of the policy divide. There could be no worthwhile Chemical Weapons Convention if the industry was an unwilling participant in the verification arrangements, especially those designed to provide assurance that the vast resources of the industry were not being exploited for clandestine chemical rearmament. The same was no less true for any sort of international nonproliferation regime. So progress on either front would depend on the industry being brought more directly into intergovernmental dealings. A conference which aimed to do just that could therefore be worthwhile, provided it could attract appropriate participation both from governments and from industry. On both those counts, in the aftermath of the Paris Conference, the prospects seemed good. Washington thus felt able to suggest the idea of a new chemical weapons conference to Canberra in fair expectation of the idea being accepted; and Canberra could undertake to host the conference without necessarily lending support by so doing to one or the other policy faction.

Conference objectives

The first public word of the conference came, rather strangely, during the opening day of the Vienna talks on Conventional Forces in Europe, on 6 March. In the course of his address, US Secretary of State James Baker III announced that Australia "has agreed to take the initiative in organizing ... a conference [bringing together governments and representatives of the international chemical industry] ... to discuss the growing problem of the movement of chemical weapons precursors and technology in international commerce. We hope to establish better means of communication about this deadly trade." The CD negotiations on the global treaty were mentioned in his statement, but the immediate con-

text which Secretary Baker gave to his announcement was not the Convention but the Australia Group and the "threat of chemical weapons proliferation." The emphasis was much the same in the counterpart announcement issued, with some signs of haste, by the Australian Foreign Minister, Senator Gareth Evans.⁴

It was hard, therefore, to escape the impression that the real purpose of the conference in the minds of its instigators was to establish some sort of chemical suppliers' club, a more institutionalized and more powerful version of the Australia Group -- chemical arms control by selective trade barriers, in other words, or, if one chose to put it in more emotive terms (as many soon did), yet another device of the rich countries for controlling North-South transfers of technology to their own exclusive advantage. The drift of Washington away from the globalism which it continued to profess for chemical arms control yet which it seemed to be doing so little to promote at the CD thus appeared to be confirmed.

In Geneva, Sweden in particular gave voice to the widespread disquiet which this supposition had engendered. The projected conference, said the Swedish CD ambassador, had real potential for promoting the global treaty, but it could do so only if predicated on "the need to ensure both the free and non-discriminatory exchange of chemicals and technology for peaceful purposes and the need for effective verification of the total prohibition of chemical weapons"; otherwise the conference could prove counterproductive.⁵ The latter was an eventuality which might not, however, alarm everyone in Washington, but the consequent possibility of many governments boycotting the conference could not be dismissed lightly. The State Department, in testimony to the Congress, put forward a new formula: the purpose of the conference was to "create and develop a continuing dialogue between governments and industry, enabling the chemical industry to contribute to the success of the CW negotiations in Geneva and helping us to better control the burgeoning trade in CW precursors and technology."⁶

This formula restored the essential ambivalence of the conference. It did not, however, betoken any weakening of the counter-proliferationist impulse in Washington policy formulation. On the contrary, all sorts of options were under active study, some of which could be advanced at Canberra. There was the idea, for example, of seeking to negotiate an international licensing scheme whereby individual enterprises could qualify as legitimate and therefore permitted recipients or purchasers of dual-purpose chemicals or plant, with on-site inspections to verify that they were not abusing their privileged status.⁷ Yet it was becoming increasingly clear from much behind-the-scenes acrimony that if the declared objectives of the conference were not fitted explicitly into the Geneva framework, key countries would indeed reject their invitations to participate, perceiving the conference as an attempt to supplant the CD's chemical negotiation. This concern was subsequently expressed in a formal statement from the neutral and non-aligned countries at the CD, the Group of 21.⁸

The Australian Government acted accordingly. Foreign Minister Gareth Evans, addressing the CD on 13 June, enunciated the objectives of the conference in unambiguous terms. The GICCW, he said, "will bring together governments and representatives of chemical industries worldwide, with the aim of raising their awareness about the problems of chemical weapons, and considering ways in which they can work together, in partnership, both internationally and domestically, in support of a comprehensive Convention." The conference will aim, he continued, to "encourage the universal support which the Convention must secure and which Australia is intent upon generating. It will be a joint effort designed to give ... impetus to the negotiations in Geneva."⁹ So emphatic was Senator Evans in his new statement of purpose that, in all the five pages of his speech that were given over to chemical arms control, there was not one mention of proliferation and no allusion, even, to the Australia Group. The view had finally taken hold that, as the head of the Australian GICCW delegation would later express it, "nonproliferation is not achievable without elimination."

That announcement by the host and organizer of the conference was duly reflected in the wording of the invitations which by then had been sent to all member countries of the CD and, as Senator Evans put it, "other countries with significant chemical industries and those countries with a particular interest in chemical weapons issues."

The conference

Such conflict as remained became channelled into the procedural issues. How exactly were the objectives to be translated into an agenda, and in what forms should the conference finally express itself? These questions allowed scope for dispute and seem only just to have been resolved when the conference began. The three-and-a-half working days were to include two overlapping Workshops, one on concluding the Convention, the other on implementing it, each with a panel of prepared speakers, and an Industry Forum, as well as plenary sessions. There would be no Conference Resolution or Final Act. Instead, there would be two principal outputs: a consensus statement on behalf of the industry participants, and a closing summary statement from the chair, which would be taken by the Foreign Minister himself. It is those two papers that encapsulate the achievements noted at the beginning of this article. Both represent many weeks of drafting, consultation and negotiation.

More than 400 people are named in the final participation list. They comprised delegates from 66 countries and 4 international organizations, a Conference Secretariat of great efficiency and courtesy, and two people from research institutes who had been invited as individuals to join the Workshop panels. Of the four international organizations, two were governmental (the United Nations and the Commission of the European Communities) and two industrial (the European Chemical Industry Federation [CEFIC] and the International Feder-

ation of Chemical, Energy and General Workers Unions [ICEF]). Absent from the countries represented were one of the 40 CD member-states (Zaire) and eight of the 26 nonmember-states currently listed¹⁰ as participants in the CD Ad Hoc Committee on Chemical Weapons (Ghana, Jordan, Libya, Oman, Qatar, Senegal, Syria and Tunisia). The nine other states represented were Colombia, Cyprus, Gambia, the Holy See, Israel, Malaysia, Saudi Arabia, Singapore and Thailand.

Representation was typically at the level of ambassador, in a few cases higher, in some lower. None of the national delegations was actually headed by an industry figure, although in the case of Italy the delegation leader was a senior Industry Ministry official. Heading the US delegation was the Assistant Secretary of State for Politico-Military Affairs, Richard Clarke, with a team of 28 others -- six from industry, one from the Congress and all but one of the rest from different parts of the US administration. A few delegations included trades-unionists (Australia, Bulgaria, Finland, France, Norway, Sweden and the USSR). Only one, the Australian, included representatives of professional organizations of chemists.

The chemical industry had representation of one sort or another on 35 of the national delegations. There were rather more than a hundred such participants, but from the conference list it seemed that less than a third were from actual industrial enterprises. In fact not a few senior corporate figures were concealed behind affiliation listings that referred only to chemical trade associations to which their companies belonged, such as the British Chemical Industries Association, for example, or the Swiss Society for Chemical Industries. Conspicuous in this regard by their absence, in fact unreal, were several of the large European chemical and pharmaceutical transnational corporations. They were evidently under the sway of public affairs departments concerned to protect the corporate image even from arms-control association with chemical warfare -- but heedless of the consequent suggestion that it is only firms such as Monsanto and Dupont or Hoechst, BASF and Bayer (to name some of those that declared their participation) which want to do away with chemical weapons. The participating representatives of international trade associations -- and it transpired that they were from the South-East Asian Chemical Industry Council as well as the West-European one, CEFIC -- were empowered to speak for the industries of several countries that were not themselves represented. According to the Chair of the conference, about 95 percent of the world's chemical production capacity was represented in Canberra.

The industry statement

The Chairman of the GICCW Industry Forum was the President of the Chemical Confederation of Australia, Tom Reynolds. It was through his good offices that an industry statement finally emerged which reconciled the divergent wishes of, especially, the US, Japanese and West-European industries mediated through their respec-

tive trade associations. A global utterance of this kind had never before been attempted on any subject by the industry. It read as follows:

"The world's chemical industries, as represented by industry representatives present at [GICCW] ...

1. Welcome the Government-Industry Conference against Chemical Weapons and the constructive dialogue which has taken place between governments and representatives of the world's chemical industries, and between industrial representatives of different countries.
2. Express their unequivocal abhorrence of chemical warfare.
3. Express their willingness to work actively with governments to achieve a global ban on chemical weapons, and their willingness to contribute additional momentum to the Geneva negotiating process.
4. Affirm their desire to foster international cooperation for the legitimate civil uses of chemical products; their opposition to the diversion of industry's products for the manufacture of chemical weapons.
5. Declare their support for efforts to conclude and implement the Chemical Weapons Convention at the earliest date. Industry believes that the only solution to the problem of chemical weapons is a global comprehensive and effectively verifiable Chemical Weapons Convention which requires the destruction of all existing stockpiles of, and production facilities for, chemical weapons and which implements measures to assure that their future production does not take place.
- Express the strong hope that the negotiating parties in the Conference on Disarmament in Geneva will resolve urgently the outstanding issues and conclude a Chemical Weapons Convention at the earliest date.
7. State their willingness to continue their dialogue with governments to prepare for the entry into force of an effective Chemical Weapons Convention which protects the free and non-discriminatory exchange of chemicals and transfer of technology for economic development and the welfare of all people. The chemical industry indicates its willingness to participate in national measures designed to facilitate early implementation of the Convention following its conclusion."

There was also agreement, announced by Tom Reynolds at the end of the conference, that the hitherto informal arrangements whereby industry people from different countries had met to discuss chemical arms-control problems should now be formalized. An

International Chemical Industry Forum was to be established, succeeding the informal group which had been meeting since 1987, largely at the behest of the US Chemical Manufacturers Association, originally in response to an initiative from the CD seeking informal discussions with industry representatives. (Earlier in the conference the International Council of Chemical Associations had been mentioned as a possible nucleus for the projected organization.¹¹) The structure of the new body had yet to be finalized, but invitations would shortly be issued to "industrial representatives from all other countries to participate on an active basis." The Forum would "provide a formalized vehicle for transferring international industry's views to the Committee on Disarmament." There was talk of its first meeting perhaps taking place in Geneva during January 1990.

Other initiatives

Other concrete steps were announced, and novel proposals put forward, during the conference. The News Chronology [see page XXX above] records some of these. Most conspicuous, in the sense of being the most publicized, was the suggestion by the United States that a "Technical Experts Group" be established in Geneva "to address the many technical issues that must be resolved before appropriate treaty provisions are drafted"; the Group would not, however, constitute a diversion from the treaty negotiation. Secretary Clarke explained that the proposed TEG would act in an "advisory capacity" and report to the Chairman of the CD Ad Hoc Committee on Chemical Weapons. It would "bring together government, industry and academic experts" and "be a forerunner of the Preparatory Commission and the Secretariat called for in the Treaty."¹² However, the gaps in the proposal as put forward (such as who was to pay for the TEG, and what its relationship was to be to other expert groups already operating in Geneva) suggested that it been devised in a hurry, as did the virtual absence of prior consultations on it. The proposal was therefore received by the conference more as a gesture of US goodwill than as something on which positions could yet be taken, and hopes were expressed that the United States would resubmit it for detailed consideration in Geneva.¹³ The Netherlands delegation suggested that it "could lead to the setting up of a small professional secretariat of the Ad Hoc Committee, financed by voluntary contributions."¹⁴

The Soviet Union proposed the establishment at the treaty negotiations of special "assistance groups" to be "made up of industry experts and researchers ... to facilitate the solution of concrete technical problems."¹⁵ A group of such a type might be convened upon request from the participants in the negotiations, and could function within the framework of an Ad Hoc Committee working group.¹⁶ The Soviet proposal was perhaps more clearly in harmony with the *modus operandi* of the CD, but its basic similarity to the US proposal was a further mark of the dialogue and cooperation which has come to mark East-West relations in the chemical talks these past years. The head of the Soviet delega-

tion drew particular attention to this feature when interviewed during the conference by *Izvestiya*.¹⁷

Several of the national chemical-industry associations announced that they had instituted, or were in the process of instituting, self-monitoring and self-regulating arrangements directed at possible abuses of chemical trade or industrial capacity for chemical-weapons purposes. Such arrangements, which they portrayed as one aspect of the industry's worldwide "Responsible Care" programs,¹⁸ were voluntary and often went substantially beyond the existing requirements of domestic law. The arrangements would form a basis for the national controls that would be needed when the time came to implement the treaty. Making such announcements were the Bundesverband der Deutschen Industrie and the Verband der Chemischen Industrie of FR Germany,¹⁹ the Chemical Manufacturers Association of the USA,²⁰ the Chemical Industries Association of the UK,²¹ the Italian Federation of Chemical Industry,²² the Chemical Industry Union of France²³ and the Swiss chemical industry.²⁴ Contrasting positions also were stated. The representative of the Chambers of the Argentine Chemical Industries, for example, said that "Argentine chemical manufacturers feel that the unilateral export controls on chemicals, equipment and technology, prior to the conclusion of the Convention, are not acceptable because they might significantly limit the development of our industry."²⁵ However, there seemed to be no disagreement with the proposal, initially advanced by France, that the current informal government-industry meetings in Geneva should be increased to two three-day sessions a year -- in February, perhaps, as well as June --, their participation being broadened as well.²⁶ This was one of the contexts in which the projected International Chemical Industry Forum was discussed.

Representatives of industry in the industrialized countries put forward a strikingly sanguine view of the prospects for data-monitoring as a worthwhile component of nonproduction/nondiversion verification. Their stated opinion was that their existing accountancy and record-keeping practices would easily satisfy the data requirements. "The chemical industry in industrialized countries has for a long time learned to account for every kilo of its production", said one of its French spokesmen.²⁷ So, given the appropriate confidentiality safeguards (which were now well on the way to being worked out), there should be no great difficulty in enabling the National Authorities of these countries to set up and run efficient national data-bases on production, consumption and transfer of scheduled chemicals. But this would not be so for all parts of the world. It was suggested by representatives of developing countries,²⁸ and by others too,²⁹ that international assistance in this regard might therefore be needed. This proposal received rather wide attention. Sweden observed that such assistance to "countries with a weaker national

legislative framework ... might bring additional benefits for environmental and labour protection in the countries concerned."³⁰

Other proposals related to possible roles for trades-union and professional societies in the CWC regime. A message from the USSR Union of Chemical and Oil-Processing Industry Workers proposed that the treaty give "labor unions and other non-governmental organizations the right to participate in the effective implementation of the Convention, to request, receive and disseminate compliance-related information."³¹ A message from the Trade Union International of Chemical, Oil and Allied Workers drew attention to the possible contributions of factory workers in compliance monitoring systems.³² A joint statement agreed by the Trade Union representatives attending the conference integrated these proposals, somewhat modified, with others.³³ A message from the Association of the Greek Chemists joined with other Greek professional societies in proposing, among other things, the establishment of a permanent World Association of Chemists to engage itself in the promotion and implementation of a ban on chemical weapons.³⁴

The debate

The formal papers presented at the Conference are soon to be published by the organizers. The publication will in fact cover virtually all of the topics discussed during the four days, so no attempt will be made here to summarize them. The conference debate itself will, however, leave no comprehensive public record.

There were some issues to which participants reverted again and again during the workshops and plenary sessions. One was the delicate matter of whether the economic and technological development provisions of draft Article XI might be made to promote universality of adherence to the treaty, either as carrot to induce states to join or as stick to penalize those that did not join.

Of greater salience to the chemical industry was the highly technical matter of whether the chemicals that were to be subjected to systematic verification measures had to be identified specifically and individually, or whether, in the interests of closing loopholes, whole families of chemicals should instead be specified. Voices could be heard, not only from the industry participants, speaking out against generic identifications and in favor of short control lists. The West-European chemical industry federation (CEFIC) stated its view that nonspecific designations of controllable precursors would actually be counterproductive.³⁵

Related was the question of the quantitative thresholds that needed to be specified in the treaty below which reporting of data or, as the case might be, acceptance of international inspections would not be necessary. This was clearly one of the topics which might usefully be explored, as Japan proposed,³⁶ at an expert-level government-industry meeting in Geneva.

Beside these issues, there was much attention (as in several of the prepared Workshop papers) to the nature of those National Authorities which, under draft Article VII, states parties would be required to establish or designate for purposes of implementing the treaty. The point was repeatedly made that timely implementation could require preparatory work well before the treaty had entered into force. Some countries, such as Australia, New Zealand and Argentina, announced that they were already setting the necessary legislative provisions in train or establishing prototype bodies to coordinate what would need to be done.³⁷ Others, such as Italy,³⁸ spoke of the difficulties of planning the National Authority until more consensus had emerged on the structure and responsibilities of the Executive Council and related elements of the international Organization.

The conference offered opportunity to states that had not yet done so to make formal public declaration of whether they do or do not possess chemical weapons. Three states took the opportunity, all declaring nonpossession. They were Colombia,³⁹ Ireland⁴⁰ and Zimbabwe,⁴¹ bringing the total number of declared non-possessors up to 67 at least. Algeria made a statement that could perhaps be interpreted as a declaration of nonpossession.⁴² Countries that did not take the opportunity were Bangladesh, Cuba, Gambia, Iran, Iraq, Israel, Saudi Arabia, Singapore, Sri Lanka and Yugoslavia. Iran stated that, during the war with Iraq, its chemical industry "never took any measure to divert its products for production of chemical weapons."⁴³

There were many optimistic statements from the floor about the prospects for the Convention. The head of the West German delegation, for example, speaking of verification, said: "The aim must be to achieve such a degree of monitoring that militarily significant quantities of chemical weapons cannot be produced or stockpiled without being discovered. This is feasible."⁴⁴ And the head of the Brazilian delegation: "We are asked to verifiably ban a whole class of weapons which are abhorrent, messy, indiscriminate and largely obsolete both in strategic and tactical terms. Our task is eminently feasible and commands universal support. Few if any legitimate national interests are adversely affected. Science and industry are on our side."⁴⁵

There were minatory statements, too. A number of delegations spoke of the importance, at this sensitive juncture of the negotiations, of all countries exercising the utmost self-restraint, above all as regards production of new chemical weapons.⁴⁶ Others, no doubt more

cautious of offending a superpower ally however crass its behavior, merely alluded to the matter.⁴⁷

The Chairman's Summary Statement

The GICCW closed with the summary statement from the Chair. Besides recording the general aims and objectives of the conference, its origin in the Paris Conference and the main items discussed, this statement identified points on which consensus was discernible, above all as regards future relations between government and industry in furthering the Convention. From that portrayal of what the conference had, in effect, agreed, it then derived a listing of the tasks that must now be discharged by governments and by industry. These it stated in general terms, but the specifics were there, in detail, in other documents of the conference.

The summary statement had been the subject of extensive prior consultations with delegations, including Secretary Clarke and his team. That checklist of tasks ahead was one of its several constructive features. Others were these:

First, the statement offered no encouragement to those who call for the early institution of an international CW nonproliferation regime; quite the opposite: "There was at the Conference clearly evident total support for the achievement of a CWC of comprehensive scope, which would be effective, verifiable and workable in practice, non-discriminatory in impact and attract universal adherence. It was acknowledged that no interim regime could be a substitute for such a Convention. The long quest for a comprehensive, global and effectively verifiable ban on chemical weapons, to which we are all firmly committed, has been brought closer to realization by the assembly here in Canberra of the relevant diplomatic skills and industrial expertise needed to complete and implement the Chemical Weapons Convention."

Second, the statement ventured a time-frame for completion of the main negotiation. Senator Evans wrote thus: "In bringing the Convention to a conclusion, 1990 is seen by most delegations as a critical year. I have clearly discerned in the contributions of all delegations both the political and practical will⁴⁸ to work through and resolve, as fast as the complexity of the subject matter allows, remaining outstanding issues in the Convention negotiations. The general view is that the major substantive issues for negotiation should be able to be completed within the coming year."

Finally, in its itemization of the different steps that had been proposed for promoting a favorable negotiating environment, the statement recorded this one: "Such steps could include: ... making unequivocal undertakings not to acquire chemical weapons and acting accordingly, as part of exercising restraint and acting responsibly in accordance with the purpose of the Geneva negotiation."

Notes

1. Trevor Findlay, *Pacific Research*, May 89, p 15.
2. See CWCB no 3, pp 12-13.
3. Australia, Austria, Belgium, Canada, Denmark, European Communities Commission, France, FR Germany, Greece, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Switzerland, United Kingdom and the United States.
4. Australia, CD/897 of 8 Mar 89.
5. Ambassador Hyltenius (Sweden), CD/PV.506, 25 Apr 89, pp 20-21.
6. Prepared statement by the Assistant Secretary of State for Politico-Military Affairs, H Allen Holmes, before the House Foreign Affairs Committee, 4 May 89.
7. John M Goshko, *Washington Post*, 11 Mar 89.
8. See CD/PV.527, 17 Aug 89, pp 14-15.
9. Address by Senator Gareth Evans to the CD in plenary session, 13 Jun 89; CD/PV.508, p 24.
10. In CD/952 of 18 Aug 89, at para 4.89; CD/PV.508, p 24.
11. Tom Reynolds (President, Chemical Confederation of Australia), keynote address at opening of the GICCW, 19 Sep 89, GICCW/P/3.
12. R A Clarke (USA), discussant's paper for Workshop I, GICCW/WSI/2 and GICCW/INFO/20, 19 Sep 89; United States, GICCW/INFO/10 and GICCW/INFO/17.
13. CD Ambassador Marcos Castrioto de Azambuja (Brazil), report of the Chairman of Workshop I, GICCW/P/4, para 16.
14. Netherlands plenary statement, GICCW/P/18 (PROV).
15. N P Smidovich (USSR), commentator's paper for Workshop I, GICCW/WSI/8, 20 Sep 89.
16. G S Leonov (USSR), statement in the Industry Forum, 20 Sep 89, GICCW/INFO/7.
17. V Mikheyev, *Izvestiya* 23 Sep in FBIS-SOV 28 Sep 89
18. Canada, GICCW/INFO/29; UK, GICCW/INFO/34.
19. FRG, GICCW/INFO/8, GICCW/INFO/13 and GICCW/INFO/23.
20. US GICCW delegation, news release, 19 Sep 89, "Drew announces CMA voluntary program."
21. UK, GICCW/INFO/16; UK industry plenary statement, GICCW/P/31 (PROV).
22. Italy, GICCW/INFO/32
23. France, industry plenary statement, GICCW/P/61 (PROV).
24. Switzerland, plenary statement, GICCW/P/70 (PROV).
25. Argentina, plenary industry statement, GICCW/P/23 (PROV).
26. France, plenary statement, GICCW/P/38 (PROV); UK, plenary statement, GICCW/P/47 (PROV).
27. Michel Peelin (UIC, France), statement in the Industry Forum, 20 Sep 89, GICCW/INFO/27.
28. Ambassador N Elaraby (Egypt), commentator's paper for Workshop I, GICCW/WSI/7, para 4.
29. B ter Haar (The Netherlands), discussant's paper for Workshop I, GICCW/WSI/3, para 26.
30. Sweden, plenary statement, GICCW/P/40 (PROV).
31. USSR, GICCW/INFO/11.
32. Hungary, GICCW/INFO/18.
33. ICFTU/ICEF plenary statement, GICCW/P/29 (PROV).
34. Greece, GICCW/INFO/35 and GICCW/P/10 (PROV).
35. CEFIC, GICCW/P/15 (PROV).
36. Japan, GICCW/P/13 (PROV).
37. Argentina, plenary statement, GICCW/P/48 (PROV); Australia [see Chronology]; New Zealand, plenary statement, GICCW/P/39 (PROV).
38. Italy, GICCW/P/16 (PROV).
39. Colombia, plenary statement, GICCW/P/72 (PROV).
40. Ireland, plenary statement, GICCW/P/62 (PROV).
41. Zimbabwe, plenary statement, GICCW/P/43 (PROV).
42. Algeria, plenary statement, GICCW/P/60 (PROV).
43. Iran, industry plenary statement, GICCW/P/36 (PROV).
44. FRG, plenary statement, GICCW/P/8 (PROV).
45. Brazil, plenary statement, GICCW/P/68 (PROV).
46. China plenary statement, GICCW/P/9 (PROV); North Korea, plenary statement, GICCW/P/49 (PROV); and Viet Nam, GICCW/P/28 (PROV). Such statements were not made by delegations of Warsaw-Treaty countries.
47. See, for example, the plenary statements of the Netherlands, GICCW/P/18 (PROV), p 2; Turkey, GICCW/P/24 (PROV), p 3; UK, GICCW/P/47 (PROV), p 3; and Israel, GICCW/P/66 (PROV), p 4.
48. This notion of "practical will," in contrast to "political will," was originally put forward in the conference paper by Dr. Barend ter Haar (The Netherlands).

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SOME FORTHCOMING EVENTS

- * "Chemical Weapons: Military Significance, Prospects for Proliferation, and Implications of Control," AAAS Program on Science, Arms Control, and National Security Colloquium, Washington, DC, 16-17 Nov
- * Thirteenth round of bilateral US-USSR chemical weapons talks begin on 20 Nov in Geneva
- * CD Ad Hoc Committee on Chemical Weapons reconvenes in Geneva for open-ended consultations, 28 Nov -14 Dec
- * Exchange of stockpile size information as mandated by the US-Soviet Memorandum of Understanding, 14-20 Dec
- * Meeting of the Australia Group in December
- * CD Ad Hoc Committee on Chemical Weapons reconvenes in Geneva for its final session under its 1989 chairmanship, 16 Jan - 1 Feb 90
- * 15th Pugwash Workshop on Chemical Warfare, Geneva, 27-28 Jan 90
- * CD reconvenes in Geneva 6 Feb 90
- * "Lessons of the Iran-Iraq War," 17 Feb 90, and "Chemical Weapons Proliferation or Chemical Disarmament?," 18 Feb 90, AAAS Annual Meeting, New Orleans
- * "Implications of Chemical Weapons for Australia and the Region: Future Problems and Possible Arms Control Solutions," workshop at the Peace Research Centre, Australian National University, Canberra, 1-2 Mar 90

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