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EDITORIAL: NO GAS

No one would doubt that the clearest rule against chemical warfare is simply "no gas." Nevertheless, there is a present risk that 'non-lethal' chemical warfare will be exempted from the Chemical Weapons Convention. The idea, found in bracketed language in Article II, is to redefine chemical weapons so as to exclude chemicals with lethality below a specified level, currently set in the draft treaty at 10 mg/kg.

Examples of chemicals falling below this lethality threshold that have been stockpiled for battlefield use are the psychochemical BZ and the irritant CS. Incapacitants lacking the militarily undesirable attributes of these agents are actively being sought in military laboratories. Not highly lethal, such chemicals are nevertheless exceedingly toxic, that is harmful in small doses.

Non-lethal chemical warfare is a myth. Tear gas, when used in war, has been employed almost exclusively to enhance mobility and firepower, potentiating the lethal effects of high explosives and other conventional weapons. This was so in World War I, in Ethiopia and Manchuria during the 1930s, in the Yemen and Vietnam during the 1960s, and in the Iraq-Iran War during the 1980s. The myth was propagated during the Vietnam war that CS was used for purposes resembling riot control, as when civilians are intermingled with combatants. Such use almost never occurred. Instead, more than 8,000 tons of CS were delivered by helicopters before B-52 bombing strikes, fired in artillery projectiles and employed in other modes not even remotely resembling riot control.

A second myth, created by the Vietnam war, is that the combat use of chemical irritants such as tear gas is permitted by international law. In fact, at the League of Nations and then at the United Nations, most governments expressing themselves on the question stated the opposite

view. The United States, whose recent administrations have argued otherwise, held before the Vietnam war that tear gases were chemical weapons and supported their prohibition in war. Facing Senate opposition to its revised view, the Executive Branch accepted severe limitations on the military use of irritants, set out in a 1975 Executive Order, as an explicit condition for Senate approval of the Geneva Protocol.

Toxic chemicals such as CS have a legitimate use for purposes of domestic law enforcement and riot control. This has long been recognized and accepted. Such use is protected in Article II of the draft Chemical Weapons Convention by the general purpose criterion, which exempts chemicals intended for "industrial, agricultural, research, medical, pharmaceutical or other peaceful purposes, domestic law enforcement and riot control purposes", "as long as the types and quantities involved are consistent with such purposes".

But allowing 'non-lethal' disabling chemicals as means of warfare will fuel work on the weaponization of toxic chemicals, build up institutions dependent on a role for chemical weapons, accustom the military to offensive chemical operations, and create a cover for those seeking to violate the remaining prohibitions on toxic warfare. Over time, a treaty legitimizing such activities could do more harm than good.

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Achievements and Failures at the Third Review Conference

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General Assessment. For the 118 States Parties to the 1972 Convention on Biological and Toxin Weapons (BTW), the Third Review Conference (9-27 September 1991) took place amid hopes for significant reinforcement of the disarmament treaty regime flowing from it. Even in the glacial depths of the 'second cold war,' the 1980 review had managed to agree to some modest clarification of the Convention. By this means, information indicative of compliance could be exchanged and a consultative mechanism was defined in order to help improve the management of compliance disputes. The 1986 review had built on these foundations and added the novel element of confidence-building measures (CBMs), under which governments would annually declare high-containment facilities for handling dangerous pathogens, unusual outbreaks of disease, scientific colloquia, exchanges and publications in fields relevant to the Convention. These regular declarations would, it was hoped, reduce the incidence of ambiguities generating fresh suspicions of non-compliance.

If the first two reviews had succeeded in agreeing to these new commitments, why should not even more be achieved in the more propitious international climate of 1991? Delegates had the advantage of unprecedented prior consultation among governments, non-governmental organizations (NGOs) and international networks of scientists and scholars, determined to strengthen this treaty regime as the world's principal safeguard against the threat of biological and toxin weapons.

Several lists of recommendations for treaty reinforcement through the voluntary, consensual development of the treaty regime had been formulated, in order to avoid the pitfalls for formal amendment of the Convention. Individual proposals had been more thoroughly worked out and more widely canvassed in advance than in 1980 or even 1986. The Conference, so well prepared, had no excuse for failure. Yet this Third Review Conference disappointed NGOs and scientists in attendance, as well as many delegates from developed countries, because it was held back by Third World obstruction on some issues and American obstruction on others.

For the Third World, the Conference left still unfulfilled the prospect, which they cherished, of using the Convention to close what the Conference's final declaration called "the increasing gap between the developed and the developing countries in the field of biotechnology, genetic engineering, microbiology and other related areas." Accordingly, until this treaty regime yielded tangible benefits through transfer of industrial technology, its strengthening in other respects would be resisted. From the perspective of developed countries, however, the implied *quid pro quo* was unclear and the treaty obligation to cooperate in the peaceful applications of the relevant sciences was understood in more traditional terms: extended CBMs, medical research, assistance for child immunization programs and the like.

The obstructive role of the United States had to do principally with the issue of verification. In the end it grudgingly allowed a feasibility study (of which, more below) but only on a narrowly-drawn mandate.

The resulting deadlocks and defeats at Geneva were no less regrettable for having been to a certain extent predicted. Yet, if overall the Conference only half rose to the challenge of rising expectations, its achievements were nevertheless far from negligible.

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Confidence-Building Measures. It was, as it turned out, on CBMs that the Third Review Conference did best [see box]. First, governments agreed to sharpen the focus of the declarations required in 1986, so that information of greater relevance to treaty compliance would be exchanged under existing CBMs. Henceforth there would be a stronger emphasis on disclosure of research and development (R&D) activities in national biological defense programs. The 1986 requirement to declare high-containment facilities had been criticized as leaving too much R&D unexplained and the shape and thrust of biological defense programs too often obscure. Greater transparency in permitted activities would, it was hoped, dispel unwarranted suspicions, discourage mischief-making allegations and at the same time show up in sharper relief anything that really did require closer scrutiny or the invocation of consultative procedures among States Parties.

The Conference also expanded the range of CBMs. Some of the ideas revived from 1986 were again unsuccessful: for example, Finland's proposal for a new CBM declaring military immunization programs, which had been much discussed over the intervening five years. But Finland, with Canada, *was* successful in extending the CBM regime for the first time into the pharmaceutical industry. Governments agreed that from 1992 each would annually declare "all facilities, both governmental and non-governmental, within its territory or under its jurisdiction or control anywhere, producing vaccines licensed by the State Party for the protection of humans."

Other new CBMs, mainly of British or French provenance, were added. Governments would in future declare export controls in force against proliferation-risky exports, import controls against pathogenic micro-organisms, national legislation to give domestic effect to the Convention's obligations, and any military BTW programs from 1 January 1946 whether offensive (until they became illegal) or defensive in character. These last two CBMs formalized what had previously been mere invitations to States Parties to share information. Here, again, delegates in 1991 were able to build on foundations laid in the adverse conditions of 1980.

Verification. The Conference was more cautious on verification. On-site inspections at short notice of declared facilities – let alone the undeclared on an "anytime, anywhere" basis – are still a long way off for this treaty regime however acceptable they may have become in others.

Ronald Lehman, leading the United States' delegation, stated three times in his opening speech that this Convention was not effectively verifiable. Other, mainly Western, states came to the Conference with a more open mind on the subject, with France particularly keen to reach early agreement on procedures for verification; but even France was eventually content to leave the argument to a future group of governmental experts. The West concentrated its efforts accordingly on persuading the US to allow such a

CBMs Annexed to the Review Conference Final Declaration

- | | |
|-------------|--|
| A. (part 1) | Exchange of data on research centers and laboratories; |
| A. (part 2) | Exchange of information on national biological defense research and development program. |
| B. | Exchange of information on outbreaks of infectious diseases and similar occurrences caused by toxins. |
| C. | Encouragement of publication of results and promotion of use of knowledge. |
| D. | Active promotion of contacts. |
| E. | Declaration of legislation, regulations and other measures. |
| F. | Declaration of past activities in offensive and/or defensive biological research and development programs. |
| G. | Declaration of vaccine production facilities. |

group to be set up on a reasonable mandate, albeit (in deference to US objections) with no power to produce proposals for a verification procedure but only to examine the feasibility of different verification measures from a scientific and technical standpoint.

The Ad Hoc Group of Governmental Experts will meet on 30 March 1992 for two weeks, and thereafter as necessary until it reports some time in 1993. A special conference to examine its report could take place in 1994 (or even 1993 if Canada has its way) if a majority of States Parties to the Convention so decides. That will be the next stage in the diplomatic effort, in which Western governments and NGOs are likely to remain prominent, to persuade the United States to be more accommodating on the possibilities for verifying compliance. It seems almost certain that a decision for or against grafting verification provisions on to the Convention will have been taken well before the Fourth Review Conference assembles in 1996.

The feasibility study may well conclude that some of the prohibitions in the Convention are more directly verifiable than others (perhaps at the point of weaponization) while others (for example, small-scale development of microbial agents or toxins for hostile purposes) may be hardly verifiable at all. What is decided at the special conference in 1993 or 1994 will undoubtedly be influenced, not only by the experts' report on feasibility of verification in the case of biological and toxin weapons, but equally by the contribution of the new CBM scheme to producing a satisfactory *régime de conformité*, and also by whatever verification provisions may by that time have been concluded in the Chemical Weapons Convention.

Other Achievements. Although the Conference did not eradicate Third World sentiments of disappointment over the widening 'biotechnology gap,' it did reach agreement on various points under the 'development' clause of Article X. It commended the establishment of a world data bank under UN supervision for "facilitating the flow of informa-

tion in the field of genetic engineering, biotechnology and other scientific developments" and several other initiatives. More generally it urged "the developed countries possessing advanced biotechnology to adopt positive measures to promote technological transfer and international cooperation on an equal and non-discriminatory basis, in particular with the developing countries, for the benefit of all mankind." And it returned to the 1960s vision which gave rise to the Convention – a vision of a world united in making war *on* germs not *with* them – when it welcomed "efforts to elaborate an international program of vaccine development" which will "not only enhance peaceful cooperation in biotechnology but will also contribute to improving health care in developing countries and provide transparency in accordance with the Convention."

The Conference also made useful progress in interpreting the terms of the basic prohibition in Article I, so as to close possible loop-holes arising from genetically-modified organisms and resolve other uncertainties. Article I already covered "toxins, whatever their origin or method of production" but now this formulation was further defined as embracing "toxins, naturally or artificially created or altered." On the initiative of Germany, a first tentative step was taken to extend the application of the '4-P formula' ("prophylactic, protective or other peaceful purposes") beyond development and production of agents and toxins into the realm of field testing. "Experimentation involving open-air release of pathogens or toxins harmful to man, animals or plants" is henceforth subject to the same '4-P' set of criteria. Germany wanted aerosol field tests for protective purposes more severely restricted or even declared impermissible; the Conference would not go that far, but the warning has been sounded.

Another set of achievements concerned the clarification of how States Parties can invoke the obligation to consult together under Article V. The Conference elaborated further than in 1986 procedures for the consultative mechanism, defined in 1980 but still untried, in order to encourage resort to it for handling compliance problems. It refrained from calling directly on the American and Soviet governments to speed up the resolution of their difficulties over the Sverdlovsk incident of 1979 and other allegations of the early 1980s. But it did note that "a positive approach in questions of compliance" was required. The framework for applying such an approach is now more evidently in place. There is correspondingly less excuse for allowing old accusations to fester unresolved.

Unconditional and irreversible obligations. Other new paragraphs in its final declaration, going well beyond the 1986 review, addressed fresh concerns so as to render the Convention more robust and irreversible. After twenty years of advocacy, the point was at last taken that States Parties need to ensure that any reservations attached to their acceptance of the 1925 Geneva Protocol are compatible with their obligations under the 1972 Convention "never in any circumstances" to engage in various activities logically prior to any use of biological or toxin weapons.

Problems arise if their Protocol obligations are not unconditional.

The Irish initiative of 1972, which withdrew all reservations to the Protocol because otherwise the then-new Convention might be undermined, had been followed by seven others; and during the Third Review Conference, first the Canadian and then the British government announced that their 1930 reservations would henceforth be modified to the intermediate position occupied by the Netherlands since its ratification in 1930 and by the United States since its in 1975. These four, though retaining for the moment a right of chemical retaliation (pending the conclusion of the CWC), have at least resolved the asymmetry of obligation in favor of making their renunciation of biological and toxin warfare unconditional.

So the Conference for the first time could "stress the importance of the withdrawal of all reservations to the 1925 Geneva Protocol related to the BTW Convention." (Most states have no such reservations.) In practical terms, this paragraph invites such states as Belgium, Chile, France, Portugal and Spain (the five members of the "reserving" minority for which it would probably be easiest) to go at least as far as Canada, the Netherlands, the United Kingdom and the United States in renouncing a theoretical right to retaliate with the very weapons which they have undertaken never to develop, produce, stockpile or otherwise acquire or retain.

The biggest failure: supportive institutions. The most clear-cut failure of this Review Conference was the blocking, on spurious grounds of cost (which would have been minimal) and more understandable disagreements over composition, of all proposals for supportive institutions to underpin the treaty regime. Proposals for a standing or interim committee, to facilitate the operation of the Convention and of its CBMs in particular, received much support from governments and NGOs alike. But in the end, there was insuperable Third World opposition to the concept under *any* of its suggested titles (even the innocuous "intersessional group"), and similarly to proposals for a small CBM-processing unit within the UN Secretariat with staff and office budgets specially funded by the States Parties. Only two new posts would have been created under this scheme, and the Secretariat did all it could to show how inexpensive it would be. Yet even this – a truly modest proposal if ever there was one – proved too much for the intransigents of the South.

This failure is a major setback but not a total one. There are a few points in the final declaration which *may* be developed between now and 1996, when the adequacy of the Conventions's organizational arrangements will be reconsidered. Many governments, which had said nothing about supportive institutions in 1980 or 1986, openly backed them (in one form or another) in 1991. The remainder need to be persuaded that until there is continuous oversight or at least a coordinating mechanism in the common service of States Parties, the Convention remains an

unnecessarily fragile safeguard, damagingly over-dependent upon review conferences alone to promote its implementation. To meet together only once every five years, and then for a mere three weeks, strikes many long-term "friends of the Convention" as an irresponsible lack of care.

It was the biggest failure of the 1991 review because, without any continuing machinery dedicated to the support of the Convention, many of the positive achievements of the Conference are unlikely to be followed up as effectively as could be wished. The enhanced and expanded CBM scheme *should* attract a higher response rate than the mere 24-30 percent (at best) which was all the period 1987-1991 could boast. But if governments ignore the new, user-

friendly questionnaire and withhold the CBM declarations due from them, who will call them to account (or, more mundanely, bore replies out of them with constant reminders of their politically binding commitments)?

Those governments which act as if under the illusion that they can have BTW disarmament at no cost are putting at risk a unique venture which has already weathered twenty years' vicissitudes of fortune only with great difficulty. The challenge of the next five years is to convince such governments that diplomatically acceptable (and financially modest) solutions exist which will endow the Convention with a necessary minimum of supportive institutions at last. ■

News Chronology

August through November 1991

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 the Science Policy Research Unit, University of Sussex, Brighton, BN1 9RF, England.

1 August In Germany the former managing director of Salzgitter Industriebau GmbH [see 12 Nov 90], Andreas Böhm, is arrested on suspicion of illegal participation in the chemical factory project at Rabta in Libya [see 5 Mar] - Project Pharma 150 - in collaboration with Jürgen Hippenstiel-Imhausen [see 27 Jun 90], according to the Mannheim state prosecutor [Tag 2 Aug].

The following week, the trial begins in Mannheim of three more Imhausen-Chemie executives (FR 7, 15, 24 & 30 Aug; SZ 9 & 22 Aug).

1 August The UN Secretary-General submits to the Security Council for its approval the plan required under Resolution 687 for monitoring and verifying Iraq's compliance with its undertaking "not to use, develop, construct or acquire" CBW weapons, agents, components or facilities, or ballistic missiles of range greater than 150 km, the plan to enter into force immediately upon approval. The plan envisages the Special Commission having power to inspect "at any time without hindrance ... any site, facility, activity, material or other item in Iraq," reporting every six months to the Security Council.

As regards chemical weapons, the plan includes two annexed lists of chemicals that are to be subject to particular monitoring and verification: dual-use chemicals in List A and, in List B, predominantly single-use chemicals plus those dual-use chemicals which Iraq actually used "as essential precursors for chemical weapons." List-A chemicals, and equipment or facilities using them, are to be subject to regular data-reporting requirements, as is "any site or facility which is involved in the production or processing of organophosphorus chemicals or which is involved in production of organic chemicals by chlorination." List-B chemicals are, in effect, to be excluded from the Iraqi economy except by prior arrangement with the UN Special Commission.

List B comprises Schedule 1 of the draft CWC in its CD/

1046 (January 1991) version plus dimethyl methylphosphonate, the NN-dialkylphosphoramidic dihalides [see 14 Jun] and thiodiglycol.

List A comprises all the other chemicals scheduled in CD/1046 plus cyclohexanol, hydrogen fluoride and the irritant agent CS [see 30 Jul]. {S/22871}

1 August Pakistan at the CD describes the recent Australian-British-Japanese-US proposal on challenge inspection [see 15 Jul] as "a brave and positive attempt to break the deadlock on this issue." Ambassador Kamal then goes on to identify Pakistan's primary concerns on the issue, beginning with "the imperative need for including clear conditions which prevent abuse of challenge inspection procedures." His statement links the issue with progress on Articles VI, X and XI. In what is presumably intended as a reference to the Australia Group, he says that Article XI "should incorporate ... an undertaking that existing discriminatory mechanisms will be dismantled once the convention comes into force."

Ambassador Kamal continues: "As in the case of the suggestion that has been repeatedly heard in this forum, calling on all States to declare their intention to adhere to a future convention even while its text is still under negotiation, perhaps member States who, individually or collectively, apply export controls and restrictions on the transfer of certain chemicals may consider declaring their intention to dismantle these measures for the States who signed the future chemical weapons convention." {CD/PV.600}

2 August In Iraq, a UN Special Commission team of 28 people from 9 countries - Australia, Canada, Czechoslovakia, France, Germany, the Soviet Union, Sweden, the UK and the USA - under the leadership of Dr David Kelly of the UK Chemical & Biological Defence Establishment, Porton Down, arrives on a 5-day visit to conduct the first BW-related inspection.

tion under Resolution 687 (WP 6 Aug). They meet in the evening with Iraqi officials who provide information supplementing earlier disclosures and who, while reaffirming the nonexistence, as previously declared to the UN, of any "central research laboratory for military biological purposes," disclose "the existence of research work regarding the biological factors for military purposes in one of the locations within a general research center which does other research work," a place which the team subsequently inspects (INA 4 Aug in FBIS-NES 5 Aug) and which the UN soon afterwards discloses is at Salman Pak (see 11 Apr 90 and 28 Feb) (WP 6 Aug). The Iraqi officials say that this biological research work had stopped completely in 1990. Next evening the team meets with representatives of the Ministries of Health and Agriculture (INA 4 Aug in FBIS-NES 5 Aug).

During day 3 of the visit, Dr Kelly tells reporters: "It's actually been excellent. Every request I have made has been met, or they have said they will meet it." (IHT 5 Aug)

2 August The US Senate, by a vote of 97-2, adopts a sense-of-Congress resolution approving the "use of all necessary means" by the Administration to eliminate Iraq's ability to produce nuclear, biological or chemical weapons. The resolution is an amendment to the FY 1992 Defense Authorization bill. (CR 2 Aug, pp. S11959-70; IHT 3-4 Aug)

4 August In Britain the death is reported of Dr C E Gordon Smith, the last director of the former Defence Ministry Microbiological Research Establishment. (TL 10 Aug)

5-7 August In El Escorial, Spain, an expert workshop on Antichemical Protection, its Potential and its Relation to the Spread of Chemical Weapons and their Elimination is convened by the Harvard-Sussex Program in cooperation with the Pugwash CW Study Group, hosted by the Complutense University of Madrid and the Spanish Pugwash Group. There is specialist participation from Australia, Belgium, Canada, China, Egypt, Germany, Israel, Jordan, the Netherlands, Pakistan, Poland, the Soviet Union, Switzerland, the UK, the USA and Yugoslavia. The broad conclusion of the workshop is that antichemical protection can both increase the security benefits of CW disarmament and decrease its risks, and that, for this reason, it should be maintained at near-present levels

during the ten-year period of stockpile-destruction following entry into force of the CWC. (CWCB no. 13, *Pugwash Newsletter* October).

5-9 August The UN Special Commission convenes a second meeting of its Expert Panel on CW Destruction, chaired by Dr R G Manley of the UK Chemical & Biological Defence Establishment at Porton Down (Guar 9 Oct), to develop a detailed analysis of what is needed to destroy Iraqi chemical weapons (S/23165).

6 August Poland and the USSR submit a joint report to the CD on a practice challenge inspection that had been conducted during April at two Soviet military bases in Poland [see 17-18 Apr], one a "central artillery depot," the other a "central chemical depot." The stated purpose was, *inter alia*, "to confirm, insofar as Poland's territory is concerned, the USSR declaration on non-possession of chemical weapons outside its territory." (CD/1093)

6 August The Netherlands submits a working paper to the CD Ad Hoc Committee on Chemical Weapons disclosing results obtained at the country's CW defense laboratory with the new analytical technique of thermospray-interfaced liquid-chromatography/mass-spectrometry when applied to water samples containing CW agents and their degradation products. (CD/CW/WP.355)

6 August The United States submits a proposal to the CD Ad Hoc Committee for challenge inspection procedures at declared facilities. (CD/CW/WP.356)

7 August In Iraq, the first UN biological inspection team [see 2 Aug] concludes its visit. Team Leader David Kelly says to reporters: "We have not found evidence that they possess biological weapons at the site we visited." He adds: "They were undertaking research, they were using fermentation and therefore they were able to produce reasonable quantities" (IHT 7 Aug, AFP 7 Aug in FBIS-NES 8 Aug).

There is a news conference on the inspection one week later at United Nations headquarters in New York. The Secretary-General's press release (14 Aug) for it reads as follows:

GLOSSARY OF ABBREVIATIONS FOR NEWS CHRONOLOGY

ACR	<i>Arms Control Reporter</i>	DN	<i>Defense News</i>	JPRS	Joint Publications Research Service (Washington)
AN	<i>Atlantic News</i>	DPA	Deutsche Presse Agentur	KZ	<i>Krasnaya Zvezda</i>
BBC-SWB	<i>BBC-Summary of World Broadcasts</i>	DTel	<i>Daily Telegraph</i> (London)	MilTech	<i>Military Technology</i>
CBW	Chemical/biological warfare	FBIS	Foreign Broadcast Information Service (Washington)	NYT	<i>New York Times</i>
CD	Conference on Disarmament	FedR	<i>Federal Register</i> (Washington)	Obs	<i>Observer</i> (London)
CD/	CD document	FR	<i>Frankfurter Rundschau</i>	S/	UN Sec. Council document
C&EN	<i>Chemical & Engineering News</i>	FT	<i>Financial Times</i> (London)	TL	<i>Times</i> (London)
CN	<i>Current News Early Bird</i>	Guar	<i>Guardian</i> (London)	Tag	<i>Tageszeitung</i> (West Berlin)
CQ	<i>Congressional Quarterly (Weekly Report)</i>	IHT	<i>International Herald Tribune</i>	STel	<i>Sunday Telegraph</i> (London)
CR	<i>Congressional Record</i>	Ind	<i>Independent</i> (London)	SZ	<i>Süddeutsche Zeitung</i>
CW	Chemical warfare	ITA	<i>Inside the Army</i>	WP	<i>Washington Post</i>
DerS	<i>Der Spiegel</i>	ITP	<i>Inside the Pentagon</i>	WT	<i>Washington Times</i>
		JDW	<i>Jane's Defence Weekly</i>	WSJ	<i>Wall Street Journal</i>

"Iraq had previously declared that it had no biological weapons nor carried out any related activities.

"In order to verify this declaration, a team of 28 personnel (UNSCOM 7) led by the Chief Inspector, Dr David Kelly, undertook an inspection of Iraq's biological warfare capability from 3rd to 7th August inclusive. The team comprised experts in microbiology and biotechnology, safety, medicine and communication.

"On the first day, Iraq declared that biological research activities for military purposes were initiated in Iraq in mid-1986 at the Salman site. Research was stated to be undertaken on *Clostridium botulinum*, *Clostridium perfringens*, and *Bacillus anthracis*. Military research was later explained to comprise research which could be used for both defensive and offensive purposes.

"The inspection undertaken was a full inspection of a site near Salman Pak. It required five full days. Discussions were also held with senior representatives of the ministries of health and agriculture to define a base of microbiological, especially pathogen, activities within Iraq.

"At Salman site, the team discovered a capability to research, test and store biological warfare agents. Fermentation, production, aerosol testing and storage existed at that site. However, no evidence of biological weapons per se was obtained and no facility for filling weapons was determined. The site had been extensively damaged by Coalition force bombardment, and by the recent physical removal by the Iraqis of key buildings.

"Iraq admitted to have worked on the following biological warfare agents: anthrax and botulinum toxin.

"At the last day, before departure, Iraq handed over a collection of biological materials which could be developed as biological warfare agents. This material included brucellosis and tularaemia. "At the same time, Iraq stated that it would cease developing biological warfare agents."

Dr Kelly, present at the news conference, is reported as saying that the facility had been capable of producing "200 litres of anthrax a week," and that the botulin capacity was still being estimated {Ind & WP 15 Aug}. He reportedly says, too, that the Iraqis had told the inspectors that their R&D team at the site consisted of 10 people {WT 15 Aug}. [See also CWCB no. 13, p. 22]

8 August In Canberra, the Peace Research Centre of Australian National University holds a workshop on issues likely to arise at the imminent Third BWC Review Conference. Participants include academics and governmental officials, with Dr Alexis Shelokov, then Director of Vaccine Research at the Salk Institute, Government Services Division, as guest speaker. {*Pacific Research August*}

8 August The United States submits draft treaty language to the CD Ad Hoc Committee that would limit trade in scheduled chemicals to CWC parties only [see also 13 May and 1 Aug (Pakistan)]. The United States also proposes that trade in equipment and technology used to produce such chemicals be similarly limited, the task of defining these items to fall to the Preparatory Commission. And an obligation would be written into Article VII requiring each state party to establish and maintain a national system for monitoring imports and exports of the scheduled chemicals, equipments and technologies. {CD/CW/WP.357}

8 August Argentina, commenting critically in the CD plenary on the Australian-British-Japanese-US challenge-inspection proposal [see 15 Jul], states that it "joins the existing proposals and will undoubtedly constitute a major contribution to our deliberations." Ambassador Moritan says, further: "Without seeking to carry the analogy with the activities carried out by the [UN Special Commission] further than prudence dictates in these cases, we believe that there are important lessons which must be drawn from this continuing exercise, in particular with regard to physical access for inspectors and securing of inspected sites." {CD/PV.601}

8 August Poland at the CD plenary says that the Australian-British-Japanese-US challenge-inspection proposal [see 15 Jul] "constitutes ... a good basis for further work on article IX" [see also 1 Aug]. {CD/PV.601}

8 August Egypt proposes at the CD that the CWC should itself provide that "all States with retaliatory rights under the 1925 [Geneva] Protocol should renounce their reservations at the time they sign the convention." Ambassador Elaraby, continuing a sharply focussed review of outstanding issues in the CWC negotiation in what is his valedictory statement to the CD, also recommends that "a technical assistance program to help parties in organizing a system for monitoring their chemical industry should be devised" in the context of article XI. {CD/PV.601}

11 August From Hanoi, Vietnamese television reports that the State Science and Technology Commission has recently evaluated the NBC-defense research program of the Army Chemical Corps. The Commission had determined that the program not only was significant to national defense in war-time but also contributed to "fostering life during peacetime, especially preventing and controlling chemical and nuclear accidents" [see also 6 Dec 90]. {Vietnam Television Network 11 Aug in BBC-SWB 21 Aug}

11 August In Tel Aviv, *Ma'ariv* reports that a department has now been established within the Israeli Foreign Ministry to deal with conventional and unconventional disarmament in the region. {*Ma'ariv* 11 Aug in FBIS-NES 14 Aug}

11-14 August In Iraq a small UNSCOM fact-finding mission visits Baghdad for detailed technical discussions with the competent Iraqi authorities on the role which Iraq might assume in the destruction of its own chemical weapons. {S/23165}

13 August The United Kingdom submits to the CD Ad Hoc Committee a paper proposing a simple quantitative criterion of military significance as a means for defining thresholds in the verification regimes to be applied to scheduled chemicals, in this case to Schedule-2B chemicals. The paper states: "Calculations based on simulated battlefield models [discussed in an annex] indicate that regardless of the delivery system (and the potency of the agent) a quantity of about a billion (10^9) times the effective dose of a substance is required for one attack under average meteorological conditions to cover an area within which a typical military unit might operate (0.5 to 2.0 km^2)." The paper then defines five toxicity categories, their lower limits being set at 0 (taken as 1 microgram/man), 0.5, 10, 100 and 500 mg/man, and pro-

poses that Schedule-2B chemicals should become subject to declaration once the quantity produced surpasses a billion times the lower limit of the category into which each one falls, with the exception of chemicals in the least toxic category, which would not need to be declared at all. {CD/CW/ WP.358}

14 August In Germany, the Berghof-Stiftung für Konfliktforschung publishes a proposal for German-Soviet cooperation in the development, acquisition and exploitation of chemdemil technology. {FR 14 Aug}

14 August The United States submits to the CD a detailed report on its third National Trial Inspection, which had been conducted during September 1990 at a chemical factory in Luling, Louisiana, owned by Monsanto Agricultural Co and making, among other products, the organophosphorus herbicide glyphosate. The trial was a practice challenge inspection that included assessment of production capability, possible presence of CW materials and simulation of host-state/observer-state roles. Its underlying scenario was taken to be an allegation that the factory was producing sarin, the challenge being issued on the entire site, but with the glyphosate facility as a primary concern. The inspection was conducted using a negotiated managed-access approach providing, as the report puts it, "for a gradual, increasingly intrusive inspection taking into account protection of sensitive proprietary information, while seeking increasing access to areas of the site relevant to the alleged violation." The report states that lessons learned from the inspection had influenced the development of the US position on challenge inspection [see 15 Jul]: "In particular, our experience suggested the need for an iterative approach to the determination of a final perimeter" within which the inspection would be concentrated. {CD/1100}

15 August The United States CD ambassador, Stephen Ledogar, speaking in the CD plenary, says his delegation believes that "broad consensus" is developing on the issue of the composition and decision-making process of the CWC Executive Council. He continues: "We believe there is broad support for an executive council of approximately 20 to 25 members. Selection would be based on a combination of geographical and industrial criteria. Decision-making on substantive issues would be by a qualified majority."

His remarks are part of a review of issues still outstanding in the CWC negotiation, during which he also addresses the question of old stocks: "We urge the Governments that have problems with old and abandoned chemical weapons to provide technical information on the nature of the problems that exist. This could be done, for example, during the meeting of destruction experts that will be held this fall." {CD/PV. 602}

15 August In the United States, new Commerce Department regulations enter into force embodying the catch-all and other export controls proposed in March as part of President Bush's Enhanced Proliferation Control Initiative - CBW and missile counterproliferation measures [see 7 Mar]. {WSJ 15 Aug; FedR 15 Aug pp. 40494ff}

15 August In Canada, the government's new Biological and Chemical Defence Review Committee says in its first annual

report that the time spent in the Canadian military on CBW defense training "could be judged insufficient in light of the recently intensified threat." {DN 26 Aug; *The Disarmament Bulletin* no. 17}

15 August The UN Security Council adopts three resolutions on Iraq, one of which (Resolution 706) authorizes a limited sale of oil to pay primarily for food and medical supplies but also for war-reparations and weapon-destruction costs [see 29 May]; the Secretary General is required to submit a plan on how this is to be done. One of the other resolutions condemns Iraq's failure to cooperate in the destruction of its nuclear-weapons capabilities and authorizes UN teams to use helicopters and fixed-wing aircraft for inspection and surveillance. {Ind 16 Aug}

15-22 August In Iraq, a UN team of 21 people led by Colonel Jean-Paul Peroz of France conducts the Special Commission's second CW inspection [see 14 Jun]. Colonel Peroz tells reporters upon departure that the "Iraqis have cooperated very well" and "provided all maps of their installations" {Reuter in CN 16 Aug, IHT 22 Aug, AFP 22 Aug in FBIS-NES 26 Aug, AN 29 Aug}. The team, UNSCOM 9, spends one day at each of three chemical production sites in the Al Fallujah area, two days inspecting the pilot plants at Al Muthanna, and one day inspecting the storage sites which Iraq had declared at Tammuz (Al Taqqadum) airbase at Habbaniyah.

From Iraqi officials the team learns that the Al Muthanna State Establishment [see 14 Jun], also known as the State Enterprise for Pesticide Production (SEPP), comprises not only the large production complex at Al Muthanna but also the three projected precursor-production sites at Al Fallujah and the munition depot at Al Muhammediyat.

At the Al Fallujah sites the team finds that the Iraqi declarations [see 17 May] had, in general, been correct. All three sites had suffered heavy bomb damage. Site 1 had been still under construction. Site 2 had commenced production of chlorine in mid-1990, but plans for production of phosphorus trichloride, phosphoryl chloride, thionyl chloride and other precursors had not been realized. Site 3 had been used only for the formulation of pesticides from imported chemicals, though some commercially available CW-agent precursors were stored there.

At Al Muthanna the team concludes that the two relatively undamaged pilot plants could be adapted for use as a pilot-scale facility to develop a hydrolytic destruction process for nerve gases. It later recommends that Iraq be permitted to do this.

At Tammuz airbase, which is 70 km west of Baghdad, the team verifies the Iraqi declaration of 200 mustard-gas bombs in storage there. {S/23165}

16 August In Chile, President Aylwin and Defense Minister Rojas both issue public denials that Chile is developing or producing CBW weapons, as Argentine President Carlos Menem had just been reported as saying {Radio Chilena 16 Aug and Radio Cooperativa 16 Aug in FBIS-WEU 19 Aug}. The Defense Minister says, further: "We are working with the Chilean Foreign Ministry so that with Argentina and other countries - perhaps Brazil and other countries - an agreement could be reached in the near future banning the production and use of chemical, bacteriological and nuclear weapons in our continent" [see also 17 Feb and 25 Jul].

Later, an Argentine military analyst, Rosendo Fraga, is quoted as saying that, up to a year and a half ago, the Chilean military manufactured some unspecified components of the chemical-weapons stockpile of Iraq; and unidentified Western diplomats in Buenos Aires reportedly speak of concern that large weapons manufacturers in Chile might also have such ability. {NYT 6 Sep}

18 August In Kuwait City, a 500-gallon tank apparently containing mustard gas has just been discovered beneath a building that had been occupied by Iraqi forces, according to a report in the London *Observer*. {Obs 18 Aug}

19 August In Geneva, the CD Ad Hoc Committee on Chemical Weapons receives a discussion paper about the CWC Annex on Chemicals resulting from Friend-of-the-Chair consultations conducted by Arend Meerburg of the Netherlands. The paper proposes changes both in the Schedules of Chemicals and in the Guidelines for scheduling chemicals, the former including some of the changes mooted during the second session [see 17 May], among them the idea of expressly exempting certain specific chemicals from schedules that include them generically. {CD/CW/WP.362}

19 August In Brasilia, the presidents of Brazil and Argentina agree to a prohibition of production of chemical and bacteriological weapons. In the communiqué from their meeting they recognize the need to "invite other countries of the region" to join an agreement prohibiting development of non-conventional weapons [see also 16 Aug]. {Telam 19 Aug in BBC-SWB 22 Aug}

19 August In Washington, a Heritage Foundation *Background* on CBW counterproliferation concludes: "[President] Bush should reverse his May 13 decision for America unilaterally to ban chemical weapons production - even if other countries do not. Bush then should propose that the 1972 Convention on Bacteriological and Toxin Weapons be amended to allow the US and other select countries to retain modest biological arsenals." {*Background* no. 844}

19-21 August In the Soviet Union an attempted military coup is defeated.

The head of the Chemical Protection Military Academy had been designated commandant of Baymanskiy, one of the 33 districts through which the commandant of Moscow would have governed the city. {Moscow television 21 Aug in BBC-SWB 22 Aug}

21 August In Geneva the CD Ad Hoc Committee on Chemical Weapons receives for consideration a draft of its report to the CD on its work since January {CD/CW/WP.363}. As usual, Appendix I is the proposed new Rolling Text and Appendix II is a compilation of papers on matters that must later be reflected in the draft CWC but on which consensus is still emerging.

The Ad Hoc Committee finalizes and adopts the report six days later. Among its recommendations to the CD is that it should continue working on the CWC until the start of the 1992 CD session except during the periods 9-27 September, 14 October to 15 November and 23 December to 3 January. {CD/1108}

21 August The United States submits to the CD Ad Hoc Committee a working paper on the organization, staffing and cost estimates for the Technical Secretariat. The paper draws from some of the prior published studies. It envisages an organization of 1225 people, for which it estimates an annual operating cost of \$164 million. {CD/CW/WP.364}

22 August Cuba informs the CD that it is "a country which does not possess chemical weapons." And it says that its "national authorities ... have taken a number of initiatives such as the dismantling of Cuban facilities that consume chemicals which fall under the [chemical weapons] convention and a complete study of the levels of consumption and import of these chemicals."

It proposes that the CD secretariat should, for the benefit of non-member states, "immediately initiate a wide-ranging process of information and clarification" on the draft CWC "so as to enable them to sign the convention immediately once it is concluded." {CD/PV.603}

22 August Germany introduces into the CD a report on its sixth national trial inspection - a practice challenge conducted in February at a large chemical complex in Frankfurt-Hoechst. The conclusion of the report is that, under the conditions tested, "it is quite possible to carry out appropriate inspections which have a decisive deterrent effect on potential infringers of the Convention and do not entail any unreasonable burden for the challenged party." {CD/1101}

Germany also introduces the report on the multilateral practice challenge inspection it had hosted earlier in the year at one of its Luftwaffe bases [see 22-24 May]. The report concludes that the trial had "once again demonstrated that the challenge inspection regime envisaged in the Convention can fully meet requirements as a particularly important verification instrument of the CWC." {CD/1102}

Germany proposes that future inspection exercises include attempts by site management to evacuate concealed simulated chemical weapons from the site during inspection. {CD/PV.603}

22 August Sweden withdraws its proposal, put forward initially in 1971, that the CWC should expressly prohibit military preparations for use of chemical weapons. It does so in the course of an article-by-article review by CD Ambassador Hyltenius of the remaining issues for negotiation. He speaks as follows on the question of challenge inspections (or, as Sweden prefers, "inspections on request"): "Most countries have military installations which are of the highest importance to their national security. Sweden therefore favors a procedure which makes it possible for a State party to protect its national security without giving it the right of denying access to the facility in question. Managed access offers an acceptable way of dealing with these problems. In the view of my delegation, the more restricted access approach contained in CD/CW/WP.352 [see 15 Jul] gives too much freedom to the inspected State party. It may be added that the need for a strict verification regime seems vindicated by recent events." He speaks in favor of the amendments proposed by France. {CD/PV.603}

23 August Germany, through Environment Minister Klaus Töpfer, agrees to provide Iran with long-term assistance in

restoring damage done by CW weapons during the war with Iraq. {SZ 23 Aug}

23 August The United States submits to the CD a detailed report on its fourth National Trial Inspection, conducted as a practice "challenge inspection in a sensitive undeclared government facility" {CD/1107/Rev.1}. The trial had been run during January at Redstone Arsenal, Huntsville, Alabama, a location which, in earlier years, had been the site of Huntsville Arsenal (a former chemical-weapons factory) and the Gulf Chemical Warfare Depot, and which now contains the headquarters of the US Army Missile Command and several other activities.

25 August In Seoul, *Dong-A Ilbo* reports that North Korea is capable of producing 4500 tons per year of chemical weapons, attributing the information to an unidentified defense official. {Ind 26 Aug}

26-30 August In Melbourne and then at MRL Maribyrnong, Australia hosts the third seminar of its Chemical Weapons Regional Initiative [see 12-13 Nov 90 and 14 Feb]. Participating are officials and chemists from 18 countries in the South Pacific and Southeast Asian region. The agenda includes a detailed review of progress in the CWC negotiation and a trial inspection of a chemical factory. The aim is to spread understanding of technical and other aspects of implementing the CWC. {*Australia Background*, undated}

29 August Italy informs the CD that it is "assessing the possibility of carrying out a series of trial inspections, of multilateral and bilateral character, with countries belonging to the Mediterranean and middle eastern areas, which are particularly close to us and with which we share close ties of cooperation." {CD/PV.604}

31 August From Switzerland it is reported that the government's CHF1.77 billion military procurement program for 1992 has received parliamentary approval. The program provides CHF355 million (about \$245 million) for purchase of new NBC protective equipment, including 500,000 masks and 300,000 suits. The masks will be bought from Huger & Suhner, the suits from Saratoga. {MilTech 7/91; JDW 31 Aug}

31 August In Iraq, two UN teams arrive to conduct the third and fourth chemical inspections, UNSCOM 11 and UNSCOM 12 respectively. {S/23165}

UNSCOM 11 is a 26-person team led by Dr Johan Santesson of Sweden, who is on secondment to the World Health Organization (FR 4 Sep; AFP 7 Sep in BBC-SWB 10 Sep). Its (unannounced) mission is to inspect sites which Iraq had not declared, ones designated by UNSCOM at Al Taji and at Al Fallujah General Headquarters, and also to inspect declared sites [see 18 Apr], those at Dujayl, Al Bakr Air Base and Al Fallujah proving ground. {S/23165}

UNSCOM 12 is a 10-man team led by Lt-Col James Knapp of Canada {IHT 3 & 12 Sep}. It is tasked to direct the destruction, by Iraqi personnel, of all unfilled CW munitions held at Al Muthanna, and to select and then show to Iraqi officials the locations at Al Muthanna where bulk agents, precursors, other CW-related chemicals and chemical munitions would be collected and where future destruction operations would be carried out {S/23165}.

1 September USSR CD Ambassador Serguei Batsanov is reported as follows by *International Defense Review*: "Verification is not an end in itself, but an assurance to the states parties of an agreement who renounce certain parts of their military arsenals by complete prohibition or partial destruction.... It is easy to produce chemical warfare agents, but it is not so easy - and the Iraqi experience shows that very well - to acquire a really powerful CW arsenal. Quite large storage areas are necessary.... Production is only one step in the process. That's why verification is not such a great problem." {IDR 9/91}

1 September In Iraq the task of destroying the country's CW weapons in accordance with UN Security Council resolution 687 (1991) commences at Muthanna under the supervision of UNSCOM 12 [see 31 Aug] with the mechanical destruction of unfilled chemical munitions. {IHT 3 Sep}

1 September The British firm Racal Filter Technologies Ltd announces the development of a new series of lightweight plastic filter canisters for gas masks. {DN 9 Sep}

4 September Chile informs the CD that it has initiated domestic legislative procedures for the withdrawal of its Geneva-Protocol reservations. {CD/PV.605}

4 September In the CD, the Chairman of the Ad Hoc Committee on Chemical Weapons, Ambassador Batsanov of the USSR, presents the report on the work of his committee since January [see 21 Aug], drawing attention to the many important advances registered in its 'rolling text' of the draft CWC {CD/PV.605}. An especially striking advance is the renunciation of retaliatory and domestic use of chemical weapons now contained in Article I: states parties will now undertake "never under any circumstances ... to use chemical weapons."

Welcoming the report, the CW Coordinator of the Western Group, Ambassador von Wagner of Germany, says that, for the first time, all the elements of a complete draft CWC are now on the table, except for the challenge-inspection part of Article IX. Reviewing the work that remains to be done, he continues: "Although there seems to be general support for a graduated 'managed access' approach, the discussion on challenge inspections so far hints at major negotiation difficulties concerning the role of the executive council as well as other issues. On the question of verification of chemical industry we need to find a cost-effective and practicable system, balancing breadth of coverage with protection of legitimate industrial activity. Provisions concerning trade with CW-related chemicals for peaceful purposes will not be an easy problem to solve. Against that, the composition and the functions of the executive council seem to be questions which - once political decisions are taken - could be solved rather quickly. Destruction of old and abandoned chemical weapons urgently needs in-depth consideration. Lastly, on the issue of universal adherence to the chemical weapons convention, important proposals are still on the agenda." {CD/PV.605}

4 September The CD adopts the report of its Ad Hoc Committee on Chemical Weapons, appoints Ambassador von Wagner of Germany to chair the committee in 1992, and concludes its third and final session of the year {CD/PV.605}.

The Ad Hoc Committee, however, continues its work [see 21 Aug].

5 September In Iraq the fourth UN chemical inspection [see 31 Aug and 1 Sep] comes to an end {S/23165; NYT 12 Sep}. UNSCOM 12 has identified four possible locations for future destruction operations at Al Muthanna as well as a suitable storage location there for CW agents and munitions awaiting destruction. And by various mechanical means it has disposed of all unfilled CW munitions at Al Muthanna {JDW 28 Sep, *The ASA Newsletter* 9 Oct}.

The UN later reports that UNSCOM 12 destroyed 8157 munitions, consisting of six different varieties of bombs, 155mm artillery shell and 122mm rocket warheads. It also reports two incidents that exemplify the exceptionally hazardous nature of the work. One involved the 30 chemical-filled Al-Hussein missile warheads at Dujayl [see 18 Apr]. These were removed to Muthanna where 10 were opened and drained of the mixed alcohols they contained prior to destruction. However, before the next four warheads could be opened, the senior Iraqi official present said that they contained sarin, not alcohol. The second incident was the spontaneous bursting of a supposedly unfilled 122mm rocket warhead; a near-by Iraqi soldier became exposed to nerve gas. Prompt action by team-member Lt-Col Van Erp of the Netherlands saved him. {S/23165}

5 September In Mendoza, Argentina, the foreign ministers of Argentina, Brazil and Chile sign a declaration [see box, page 19] renouncing development, production, acquisition or use of chemical (and biological) weapons [see 19 Aug]. The three countries have all said that they have no CBW-weapons programs, and that no such programs existed even during the former years of military rule {TELAM 5 Sep in FBIS-LAT 6 Sep; NYT 6 Sep}.

Uruguay will join the Mendoza Declaration. {CD/PV. 605}

9 September In Iraq the third UN chemical inspection, UNSCOM 11 [see 31 Aug], comes to an end. At the first of the undeclared sites it inspected, the depot at All Fallujah General Headquarters, it found a variety of grenades containing agent CS, but no other chemical munitions. At the second, the large military installation at Al Taji (which had been declared for ballistic missiles but not chemicals), the team found some 6000 empty aluminum containers intended for filling with nerve gas and insertion into 122mm rocket warheads. At the declared sites the team found pretty much what had been declared.

At Dujayl, albeit 30 km away from the precise location notified to UNSCOM, there were the previously declared 30 chemical-filled ballistic missile warheads. Iraq stated that 14 of them were of the binary type, containing only alcohol (a mixture of isopropanol and cyclohexanol), the other 16 containing GB/GF mixture; the team confirmed this by sample analysis. Leaky plastic canisters of DF were found on site. The team instructed Iraqi officials to transport the warheads to Al Muthanna for disposal [see 5 Sep].

The 25 type 250 and 135 type 500 mustard-gas bombs declared at Al Bakr Air Base were found at Al Matasim Aerodrome, an auxiliary airfield 30 km to the north. The bombs were developing internal pressure, four having already burst spontaneously.

The 6394 155mm mustard-gas artillery rounds declared at Al Fallujah Proving Ground seemed in good condition. The team found nothing else there that should have been declared. {S/23165}

Speaking to reporters two days before leaving, team leader Johan Santesson reportedly says that he had inspected seven or eight sites, taking samples from chemical weapons. Further, he reportedly says that his team had discovered something that could have been concealed by Iraqis from earlier inspection teams, but declines to be specific, saying only: "I am not sure that Iraq and the UN Special Commission have the same concept of what should be declared" {AFP 7 Sep in BBC-SWB 10 Sep}. Later, in a prepared departure statement, he says that the team had not in fact completed its inspections because of "lack of certain things." {MENA 9 Sep in FBIS-NES 9 Sep}

9 September In Geneva the Third BWC Review Conference [see 8-12 Apr] begins, attended by some two-thirds - 78 of 118 - of the States Parties to the treaty, six signatory-only states (Burma, Egypt, Indonesia, Morocco, Syria and the UAE), three non-signatory observer states (Algeria, Israel and Oman), two international agencies (UNESCO and WHO), the League of Arab States and nine non-governmental organizations {*Disarmament Times* 23 Sep; ACR no. 10-91, pp. 701. B.80-82; *UNIDIR Newsletter* September}. The UK is coordinator of the Western Group, which is reportedly split on key issues {FT 10 Sep}. The conference is due to end on 27 September.

10 September At the BWC Review Conference in Geneva, Canada announces that it has recently modified its reservations to the 1925 Geneva Protocol so that they no longer apply to bacteriological methods of warfare. {*The Disarmament Bulletin* no. 17}

10 September At the BWC Review Conference in Geneva, the leader of the US delegation, ACDA Director Ronald Lehman, says: "We believe the Soviet Union and other states have extensive active biological weapons programs in violation of the BW Convention." {Official text}

The UK expresses belief that the scale and nature of the USSR's BW program is inconsistent with a program that is purely defensive and peaceful. {*Arms Control and Disarmament Quarterly Review* no. 23}

10-14 September The UN Special Commission convenes a further meeting [see 5-9 Aug] of its Expert Panel on CW Destruction. The panel submits a third substantive report on the practical problems of destroying Iraqi chemical weapons. {S/23165}

11 September In Geneva the Federation of American Scientists and the Council for Responsible Genetics cosponsor an expert briefing for delegates to the Third BWC Review Conference [see 9 Sep] on issues and proposals before the conference.

11 September The United Nations Postal Service issues a thematic series of six postage stamps on the banning of chemical weapons. One of the stamps depicts the effort to eliminate herbicide warfare. {*Disarmament Newsletter* August}

11 September At the United Nations in New York, the Executive Chairman of UNSCOM, Ambassador Rolf Ekéus of Sweden, briefs reporters about the work thus far of the commission. {*Disarmament Newsletter* October}

13 September The US Defense Department publishes its annual review of Soviet armed forces, this edition being called *Soviet Military Forces in Transition 1991*. It calls into question the official Soviet statement that all Soviet CW weapons are located within Russia [see 11 Sep 90] and states: "There is persuasive evidence that the Soviets are supporting research and development of biological warfare (BW) agents, as well as their weaponization. The Sverdlovsk biological agent accident of 1979 that resulted in the release of anthrax from a bacteriological warfare institute provides one example of such evidence. In general, the size and scope of their efforts are not consistent with any reasonable standard of what could be justified on the basis of prophylactic, protective, or peaceful purposes. Their various BW activities continue to be in violation of the Biological Weapons Convention they ratified in 1975."

14 September In the Netherlands, *Vrij Nederland* reports that two Dutch companies had been exporting potential CW-agent precursors to some 20 countries including ones known or suspected of CW armament programs. This had emerged after officials seized 275 containers of triethanolamine in transit at Vlissingen. {ACR no. 10-91 at p. 704.E-2.46}

16 September In Australia, SANA, a nongovernmental organization of scientists, urges the United States to burn its CW weapons on Johnston Atoll as soon as possible, stating that Pacific island states and environmentalist groups are mistaken in their opposition to the incineration. The national president of SANA, Dr Bob Hunter of Sydney University, reportedly says that "leakage would endanger the environment much more seriously than any pollution produced by burning the weapons in the incinerator on the island." {*Sydney Morning Herald* 17 Sep}

18 September President Bush, speaking in Arizona, acknowledges that he has authorized US warplanes to escort UN helicopters on inspection duties in Iraq [see 15 Aug]. Iraqi authorities have been blocking such overflights, and the controversy has been occupying the UN Security Council for several days now. {IHT 19 Sep}

19 September In Singapore the *Straits Times* reports that, during Japanese occupation in World War 2, Singapore general hospital had housed a biological-warfare laboratory within a military complex there. The laboratory, described as the Singapore branch of Unit 731, is said to have been code-named 'Oka 9420 Butai' {TL 20 Sep}. The Japanese Government says it has no record of any such laboratory {TL 21 Sep}.

19 September The UN Security Council, by resolution 712 (1991), approves the Secretary-General's plan for organizing the sale by Iraq of up to \$1.6 billion worth of oil over a 6-month period [see 15 Aug]. A UN fund will collect the payments and administer disbursements including those needed for the UN demolition of Iraq's weapons of mass destruction. {IHT 20 Sep}

20 September In Iraq, a UN team of 13 inspectors from nine countries led by Dr David Huxsoll of the United States arrives to conduct the second biological inspection [see 7 Aug]. UNSCOM 15 is to inspect sites declared by Iraq under the BWC confidence-building measures [see 17 May] and also undeclared sites: 10 sites in all, four of them to be inspected without advance notice. {WT 20 Sep; INA 27 Sep in BBC-SWB 28 Sep; S/23165}

20 September In Zagreb, the official Croatian Foreign Press Bureau issues a five-page statement, *Yugoslav Army Involvement with Chemical Weapons*, warning that new heavy multiple rocket launchers just about to be delivered to the Yugoslav Army may be used as chemical delivery systems "against Croatia and other non-Serbian nations," and that four categories of CW agent, including nerve gases, produced "at the factory 'Miloje Zakic' in Krusevac, Serbia," are stored in Army warehouses.

The statement also says, without amplification, "Some chemical weapons were already used in Bilje near Zadar, and in Vukovar."

An interview with the director general of the Miloje Zakic factory is later broadcast on Radio Belgrade. He says: "I can officially state that, since 1945, the factory has neither produced nor is it producing chemical weapons, and it is not equipped for such production.... The factory ... produces equipment not only for the Yugoslav People's Army but also for the general public. Our equipment is meant to protect against chemical weapons, for instance: gas masks ..., gloves, protective clothing and so forth. We are a well known manufacturer in Yugoslavia and worldwide." {"Magazine 439" 30 Sep in FBIS-EEU 1 Oct}

20 September Sweden is to participate in the Australia Group, it is announced in Stockholm. {*Svenska Dagbladet* 20 Sep}

20-22 September In England there is a Wilton Park seminar on chemical and biological weapons, with 43 participants from Australia, Austria, Belgium, Canada, Denmark, Germany, the Netherlands, Norway, Oman, Portugal, the Soviet Union, Sweden, Switzerland, the UK and the USA.

24 September Iraq gives the UN Security Council written assurance that it will not interfere with UN helicopter surveillance flights [see 18 Sep]. {IHT 27 Sep}

25 September In the US Senate, during a closed session of the Intelligence Committee hearings on the confirmation of Robert M Gates as CIA director, former senior CIA analyst Melvin A Goodman reportedly states that, when Gates had been head of the Intelligence Directorate of the CIA, he had systematically politicized its assessments, as when, without supporting evidence, he put reports into CIA publications that the USSR was using lethal chemical weapons in Afghanistan. {WP 27 Sep}

Responding to this particular charge in subsequent testimony, Robert Gates says: "In fact, the best we can reconstruct, there was one item in the National Intelligence Daily in the late summer of 1985 suggesting this possibility [that the Soviets used lethal chemicals in Afghanistan]. I was out of town at the time; the item was initiated by analysts in the Soviet Office, and I had nothing to do with it. The allegation

is false." {NYT 4 Oct}

Senior Soviet specialist, John Hibbets, testifies that, under Gates' leadership, many analysts "began to anticipate criticism and write papers that Gates would like or at least find convincing"; and he cites a paper on Soviet use of chemical agents in the Third World that had been rejected by middle managers because, he says, "it would have no payoff; it would not show clear Soviet use and therefore would likely only upset Gates" {NYT 4 Oct}.

26 September In the US Congress tentative agreement is announced by a House-Senate conference committee on a provision attached to the FY 1992-93 State Department authorization legislation that would impose mandatory economic sanctions on countries that use CBW weapons or on companies that sell them or assist in their acquisition [see 29 Jul]. The agreement would grant the President authority to waive sanctions if he determined it to be in the national-security interest to do so, provided he had given Congressional leaders 15 days prior notice. Under such notification procedures, the President customarily refrains from taking actions that are strongly opposed by the leaders. {CQ 28 Sep}

27 September In Stockholm, a Swedish officer based in Saudi Arabia as liaison officer of a Swedish army field hospital, Major Johan Persson, reportedly says in interviews that coalition forces during the Kuwait War had contingency plans for the use of both nuclear and chemical weapons in the event of Iraqi CW attack, and that he had seen some of the documentation. {Guar 28 Sep}

27 September At the BWC Review Conference in Geneva, the head of the UK delegation, Ambassador Tessa Solesby, announces that the British Government has (in the words of a subsequent statement to Parliament), "decided to withdraw that part of our reservation to the 1925 Geneva Protocol which maintained our right to retaliate in kind if biological weapons were used against us." {HansC 16 Oct}

27 September In Geneva the Third BWC Review Conference ends with adoption of a Final Declaration which provides for three additional confidence-building measures, an Ad Hoc Group of Governmental Experts to study possible verification measures, and a Fourth Review Conference in 1996 {BWC/CONF.III/22/Add.2}. The Declaration does not provide, however, for any continuing institutional arrangements to oversee the BWC; problems over cost and membership had proved insoluble {*Arms Control and Disarmament Quarterly Review* no. 23}, not least within the Western Group. Nor does the Final Declaration register agreement on a listing of the particular pathogens and toxins to be regarded, for the purposes of the confidence-building-measures regime, as "directly relevant to the Convention." Reportedly, such lists were supported by the Soviet Union and the European Community but opposed by the United States {FT 13 Sep, C&EN 14 Oct}.

The Ad Hoc Group of Governmental Experts is to meet in Geneva during 30 March to 10 April 1992 under the chairmanship of Ambassador Tibor Tóth of Hungary; it is to complete its work "as soon as possible, preferably before the end of 1993." Its report could be followed, if a majority agree, by a special conference of BWC States Parties.

The three new confidence-building measures are entitled

"Declaration of Legislation, Regulations and Other Measures [having to do with domestic implementation of the BWC]," "Declaration of Past Activities in Offensive and/or Defensive Biological Research and Development Programs," and "Declaration of Vaccine Production Facilities." Modifications to the four confidence-building measures established at the Second Review Conference are also agreed, including expansion of the measure on high-containment-facilities declaration so as to call also for detailed declarations about biological defense programs and facilities.

Submissions to the conference by states parties and states signatories that were distributed as conference documents, including proposals and information papers, were made by Argentina, Austria, Brazil, Canada, Chile, China, Cyprus, Czechoslovakia, France, Germany, Hungary, Italy, Panama, Peru, Poland, Romania, Sweden, Syria, Turkey, Uruguay, Venezuela and Yugoslavia. {UNIDIR Newsletter September}

27 September President Mesic of Yugoslavia meets with the US Senate Foreign Relations Committee in Washington to discuss what he had told the committee two days previously by telephone (WT 27 Sep): that Yugoslav forces aligned with Serbian guerrillas in Croatia had attacked the towns of Patrinja and Vinkovci with poison gas [see also 20 Sep], and that Yugoslavia had participated in building Iraq's chemical weapons facilities in the early 1980s {WT 26 Sep; *MEDNews* 30 Sep}. In response to that allegation, the Yugoslav Federal Secretariat for National Defense had issued the following statement: "This is another tragicomic statement by the President of the Presidency of Yugoslavia, who has definitively quit his function and is now acting on behalf and for the benefit of the leadership of Croatia. The Yugoslav People's Army [JNA] has never used chemical substances because it does not have them. However, the public has been informed that the Croatian armed forces used chemical substances against the JNA members in Sibenik...." {Tanjug 26 Sep in BBC-SWB 28 Sep}

Later, JNA CW expert Lt-Gen Vladimir Vojvodic tells a press conference in Belgrade that, if poison gas of the type referred to by President Mesic had indeed been used, several thousand people would have died. He says, further, that JNA forces in Croatia have not been issued with gas masks as there has been no reason for them {Tanjug 27 Sep in BBC-SWB 30 Sep}.

Next day, however, Radio Croatia broadcasts a report of poisonous gas being sprayed over western Vinkovci from helicopters, causing dry mouth, nausea, vomiting and weakness in a large number of inhabitants {Radio Croatia 28 Sep in FBIS-EEU 30 Sep}. But Radio Croatia later broadcasts a report by the Psychological Service of the Croatian Medical Corps saying that no evidence had been found of the use of blood or nerve gases, and that there had been no reports of the use of any other kinds of chemical agent other than napalm and irritants {Radio Croatia 30 Sep in BBC-SWB 4 Oct}.

27 September The five permanent members of the UN Security Council issue a joint communiqué saying that Iraq's pattern of consistent noncompliance with Security Council resolutions was "unacceptable." {Ind 28 Sep}

29 September In Iraq, the second UN biological inspection team [see 20 Sep] says it is receiving full co-operation from Iraqi authorities. {FT 30 Sep}

30 September The United States General Accounting Office reports that it has found no evidence of the US Export-Import Bank having financed the export of dual-use chemicals to Iraq during the period January 1987 to August 1990. {GAO/NSIAD-91-284; ITA 21 Oct}

30 September A United States General Accounting Office report on the status of US and multilateral CW counterproliferation efforts says that during the December 1989 US-Soviet exchange of data on chemical weapons [see 29 Dec 89] "the United States stated that it had 29,000 agent metric tons, and the USSR stated it had 40,000 agent metric tons." {GAO/NSIAD-91-317}

2 October The Moscow weekly *Literaturnaya Gazeta* publishes another long article about the 1979 anthrax epidemic in Sverdlovsk [see 22 Aug 90], adding substantially to the growing body of Russian investigative reporting on the matter. The article reports eye-witness accounts which it suggests are at variance with the diagnosis of intestinal, as opposed to inhalation, anthrax. It deplores the absence of any official response to the call, in the earlier article, for a parliamentary commission of inquiry. {*Literaturnaya Gazeta* 2 Oct in JPRS-TAC 24 Oct}

2 October The Yugoslav People's Army (JNA) newspaper *Narodna Armija* repeats the allegation that Croatian forces have recently used chemical weapons against JNA members barracked in Sibenik [see 27 Sep]. {Tanjug 2 Oct in BBC-SWB 7 Oct}

2 October In the US Senate, during the Intelligence Committee hearings on the confirmation of Robert Gates as CIA director [see 25 Sep], former CIA analyst Douglas MacEachin testifies as follows: "The Office of Soviet Analysis published a paper on Soviet chemical weapons, and I'm going to read the ... final judgment from that paper ... : 'Accordingly, we now believe that the Soviets are unlikely to initiate extensive use of chemical weapons during a war with NATO.' Now I don't have to tell this audience how welcome that was as it appeared in print at the very ... day that the House, at least, was debating a defense bill on appropriations for binary chemical weapons." {Testimony of Douglas J MacEachin as transmitted by Federal Information Systems Corporation}

2 October North Korean Prime Minister Yon Hyong Muk, addressing the UN General Assembly, states that his government favors a ban on chemical weapons. {NYT 3 Oct}

2 October Israeli Foreign Minister David Levi, addressing the UN General Assembly, reportedly says: "The elimination of chemical weapons all over the world, and especially in the Middle East, is of prime importance, which is why Israel expressed its readiness to join the chemical non-proliferation treaty. Yet in order for the treaty to be effective, all the countries in the area must join it." {*Ha'aretz* 3 Oct in FBIS-NES 4 Oct}

2 October The UN Secretary-General submits to the Security Council for its approval a revised version of the plan [see 1 Aug] for the long-term monitoring and verification of Iraq's obligations under resolutions 687 (1991) and 707 (1991) not to develop, acquire or use CBW weapons or ballistic missiles

of range greater than 150 km {S/22871/Rev.1}. List B remains as it was, but List A has been expanded to include 10 additional precursors from the Australia-Group control list.

Appearing on neither list are 6 of the 50 Australia-Group chemicals: methyl benzilate and N-methyl-3-piperidinol, which are psychochemical precursors, and 3-quinuclidone, which is a precursor of another such precursor; pinacolone, which is a precursor of a soman precursor; phosphorus pentasulphide, a precursor of amiton-family nerve-gas precursors; and potassium bifluoride, a fluorinating agent applicable in sarin-family nerve-gas production.

3 October In India, the Supreme Court upholds the \$470 million settlement in the Bhopal chemical-disaster case but permits the reopening of criminal proceedings for negligence against Union Carbide. {TL 4 Oct}

3 October In Iraq, the second UN biological inspection [see 20 and 29 Sep], UNSCOM 15, comes to an end. The 10 sites visited by the inspectors included a pharmaceutical plant, a blood bank, vaccine production facilities, and research and development laboratories with fermentation capabilities and specially designed facilities allowing work with hazardous disease-causing organisms. No biological weapons or facilities for filling such weapons were found {S/23165}.

The team does, however, conclude that three vaccine production facilities inspected had the capacity to produce sufficient quantities of biological agents to meet weapons requirements. It recommends that these facilities be covered by the future compliance monitoring regime. They make a similar recommendation in regard to a facility at Al Hakam, 45 km southwest of Baghdad: an embryonic fermentation plant designed for development and production of single-cell protein primarily for use in animal feeds {UN press statement, 31 Oct}

3 October In the US House of Representatives, the Committee on Foreign Affairs reports favorably on HR 3409, a CBW counterproliferation bill entitled "Chemical and Biological Weapons Control and Warfare Elimination Act of 1991," recommending that it pass, with amendments. The bill is a new version of the corresponding provision in the State Department authorization legislation on which, in the end, House-Senate conferees had been unable to reach agreement [see 26 Sep]. The sanctions against companies or countries for which the bill provides would be mandatory, but with a national-security waiver available to the President if he has the concurrence of Congressional foreign-policy leaders {House report 102-235}.

Action on the bill is now awaited from the Committee on Ways and Means {CQ 12 Oct}.

6 October In Iraq, a team of 50 people led by Dr Marius van Zelm of the Netherlands begins the fifth chemical inspection, UNSCOM 17. It is scheduled to last more than a month, and is tasked with conducting a detailed and full survey of Al Muthanna in preparation for the destruction phase. {DTel 7 Oct, Guar 9 Oct, S/23165}

8-10 October In Geneva, under the auspices of the CD Ad Hoc Committee on Chemical Weapons, there is an experts' meeting on technical aspects of the destruction of chemical weapons [see 15 Aug]. The meeting, organized by Friend-of-

the-Chair Pierre Canonne of France, is chaired by Dr Jacobus Ooms of The Netherlands. The rapporteurs are Dr Ralf Trapp of Germany and Pugwash, Daniel Froment of the French Defense Ministry, and Dr Bernhard Odernheimer of the German CD delegation. The problem of old or abandoned stocks of chemical weapons is addressed, as well as the chemdemil requirements of the CWC and the possible forms of cooperation that may be needed. {CD/CW/WP.377}

An expert from Germany informs the meeting that, since 1980, 75 tonnes of old CW agents have been incinerated at the Bundeswehr chemdemil facility at Munster and that another 145 tonnes are in storage awaiting destruction. {CD/CW/WP.374}

Italy submits a paper describing the chemdemil process developed by its Military NBC Defense Establishment for destroying old stocks of 50/50 mustard-gas/phenyldichloroarsine, currently being embodied in a chemdemil plant under construction by Italmimpianti. Additional plant is being developed for "an important amount of adamsite," lately discovered, and for "old and obsolete chemical rounds." {CD/CW/WP.375}

9 October In Germany, the second Rabta-related trial [see 1 Aug] ends with the Mannheim regional court finding three Imhausen-Chemie managers guilty of complicity in planning and constructing a CW-agent factory in Libya during 1984-88, thereby violating the Foreign Trade Law. {DPA 9 Oct in FBIS-WEU 10 Oct; FAZ 10 Oct}

10 October The US Army publishes a draft environmental impact statement on the projected incineration of the CW agents held at Umatilla Depot Activity, Hermiston, Oregon - about 12 percent of worldwide US holdings. Review comments are due by 9 December.

11 October In the CD Ad Hoc Committee on Chemical Weapons, the Chairman issues a paper proposing language for CWC Article IX on the procedure for challenge inspections {CD/CW/WP.371}. He explains that the paper, which has much bracketed text, "contains the outcome of the open-ended consultations" which he had been conducting on the issue.

11 October Switzerland submits to the CD Ad Hoc Committee on Chemical Weapons a long report on the practice challenge inspection it had conducted during 6-7 November 1990 at an unidentified munitions factory suspected, in the scenario of the experiment, of filling and storing CW munitions. {CD/CW/WP.372}

11 October In Germany the Parliamentary State-Secretary of the Federal Economics Ministry, Klaus Beckmann, reports to the Bundestag on legal and illegal arms exports to Iraq and on the arming of Iraq by German companies. He speaks of German companies having extensively participated in Iraq's NBC-weapons buildup, and says that the Federal Government is endeavoring to obtain information from the United Nations about the findings of the Special Commission in Iraq

concerning German companies. He describes the information that has already become public as "shocking." {FR 12 Oct}

11 October The UN Security Council, by resolution 715 (1991), authorizes the Special Commission to implement the plans submitted by the Secretary-General [see 2 Oct] for preventing Iraq from ever rearming with CBW weapons {Guar 12 Oct}. Iraq is now required to submit, within one month, the initial declarations of production facilities, holding of potential precursor chemicals and other matters required under the plans [see 1 Aug] {NYT 17 Nov}.

14 October The UK House of Commons, during the first day of its debate on the Defence Estimates 1991, is told by the Secretary of State for Defence, Tom King, that inspections "have now revealed that Iraq has a vast germ warfare capability." {HansC 14 Oct}

15 October The British Government says that it has now received from the United Nations a list of British companies implicated through the findings of UNSCOM as suppliers to Iraqi NBC-weapons programs [see 14 Jun]. The list is not yet public, but it is later reported to name up to 20 companies, including machine-tool and chemical firms and suppliers of 'supergun' parts.

Reportedly, the only other country yet to have received such a UN list is Italy, though Belgium, Germany [see 11 Oct] and Switzerland are amongst those that have requested them. {FT 16 Oct}

17 October The UN General Assembly First Committee (on disarmament and security issues), under the chairmanship of Ambassador Robert Mroziewicz of Poland, starts its month of substantive meetings {Disarmament Times 23 Sep}, during which period the CD Ad Hoc Committee on Chemical Weapons is in recess [see 21 Aug].

21 October The 50 heads of government of the Commonwealth countries end their meeting in Harare and issue a communiqué calling for, among other things, conclusion of the CWC in 1992. {SAPA 21 Oct in BBC-SWB 23 Oct}

21-23 October The *Wall Street Journal* publishes in its editorial pages a three-part series, "Sverdlovsk: what really happened?," by its Moscow bureau chief, Peter Gumbel [see also 2 Oct]. Its broad conclusion is that the Soviet explanation for the 1979 anthrax epidemic "doesn't stand up to close scrutiny," but that "probably only the government or military leadership of the Soviet Union will be able to shed light on what really happened." {WSJ 21, 22 & 23 Oct}

22 October In Iraq, the UN begins its sixth chemical inspection, UNSCOM 20, with a team of 26 people led by Dr Bernhard Brunner of Switzerland. Several widely separated sites are to be visited over a 10-day period, necessitating use of the UN helicopters [see 24 Sep]. {SZ 23 Oct; S/23165}

22 October In Moscow *Izvestiya* publishes an interview with

the Chief of the USSR Chemical Troops, Col Gen Stanislav Veniaminovich Petrov, in which he deplores the absence of progress in the Soviet chemdemil program, noting that, although detailed plans had been prepared, the state commission for deciding on the location of the destruction facilities has not yet even been set up. The cost of the program is currently estimated at just over 5.4 billion 1991 rubles. He says that the US offers of assistance [see 22 May] would not make the program any less costly. On the question of whether, since "practically all stocks of chemical weapons are concentrated on Russian territory" [see 13 Sep], Russia alone should pay for their destruction, he disagrees, saying that the costs should be "borne proportionately by all the sovereign republics." {Izv 22 Oct in FBIS-SOV 23 Oct}

23 October The UN Security Council endorses the plans of the Secretary-General for destroying all plant and equipment in Iraq associated with the country's NBC-weapons programs, exemptions being allowable for *bona fide* dual-use items. {NYT 24 Oct}

24 October Iraq's chemical weapons program had been accident-prone, according to unidentified UNSCOM officials speaking to the *Washington Times*. The officials reportedly say they had learnt from Iraqi sources that there had been about 100 incidents per year involving chemical weapons, 10 of which were major. {WT 25 Oct}

24-27 October In Mosbach-Neckarelz, Germany, there is the 7th International AFES-PRESS Conference, 'Controlling Military Research and Development and Exports of Dual Use Technologies as a Problem of Disarmament and Arms Control Policy in the 1990s'.

25 October The UN Security Council receives from the Secretary-General a report transmitted by the Special Commission on its first five months of operational activities {S/23165}. The report provides the first authoritative public overview of what UNSCOM has been doing and learning about Iraqi CBW armament.

In its section on progress made, it says: "Subject to confirmation by the completion of the verification phase in the near future, it seems probable that a full assessment of Iraq's chemical weapons capabilities will be achieved. So far Iraq has acknowledged possession of 46,000 pieces of filled munitions. Iraq's facilities include the substantial chemical weapons production complex of the Al Muthanna State Establishment and the three planned precursor production plants in the Al Fallujah area. In addition to the central storage of filled chemical munitions, warfare agents and precursor chemicals in bulk at Al Muthanna, filled chemical munitions, often damaged and leaking, are stored at various sites throughout the country. The process of moving these munitions to storage at Al Muthanna prior to destruction has been initiated. Al Muthanna has been designated as the central destruction site for Iraq's chemical weapons. Destruction of filled munitions and bulk agents at Al Muthanna will begin early in 1992 and is expected to continue into 1993. To date, 11829 unfilled chemical munitions have been destroyed by

Iraqi personnel under the supervision of Special Commission inspectors."

It continues: "In the area of biological weapons capabilities, the inspection activities initially focussed on the major research and development site at Salman Pak but over 10 additional sites have now been inspected. Conclusive evidence that Iraq was engaged in an advanced military biological research program has been collected. No evidence of actual weaponization has been found, but the inspections have provided a sound data base for future monitoring of biological capabilities in Iraq."

As to the attitude of Iraq, the report says: "While cooperation from Iraq has generally been forthcoming at the field level - most notably in the chemical and to a degree in the biological areas - in relation to activities and resources declared by Iraq, a totally different attitude of non-cooperation, concealment and sometimes false information has emerged in relation to non-declared activities, resources and sites that have been designated by the Special Commission on the basis of its own assessments or of data supplied to it by States."

And on the information acquired by UNSCOM about Iraq's foreign suppliers [see 15 Oct], it says: "Until information is more complete and a full analysis of the material has been performed, the Special Commission and the IAEA have agreed to release specific information only to Governments requesting information on Iraqi procurement efforts in their countries. However, once a comprehensive data base has been obtained and fully analyzed, relevant information will be made available to the Sanctions Committee in connection with compliance monitoring. Furthermore, the broader objective of preventing the spread of weapons of mass destruction will require an active and open release policy."

Not mentioned in the report are the large quantities of CS munitions (other than grenades [see 9 Sep]) such as mortar bombs noted in earlier accounts of UNSCOM's work [see 30 Jul] and in subsequent reporting of Iraqi "tear-gas artillery shells." {AFP 7 Sep in BBC-SWB 10 Sep}

Additional detail is later provided by the British Government to Parliament {HansC 18 Nov}. Besides the 46,000 filled chemical munitions, Iraq had also revised its initial declaration to report possession of 79,000 unfilled munitions and over 600 tons of CW agent [see also 30 Jul].

27 October Israeli Housing Minister Ariel Sharon, speaking at a meeting in Beersheba, says that Syria possesses the world's third largest arsenal of chemical weapons. {IDF Radio 27 Oct in BBC-SWB 30 Oct}

28 October The new NATO defense strategy document to be approved in Rome next month contains no role for chemical weapons unlike the current document (MC 14/3 of 1967), so Reuter reports from Brussels. {TL 28 Oct}

31 October In Islamabad, the foreign secretaries of Pakistan and India, Shaharyar Khan and Muchkund Dubey, conclude two days of talks, the fifth such round, with agreement to consider signing a joint communiqué on chemical weapons and to convene a meeting of experts to exchange views on a

bilateral CW agreement. The talks also covered nuclear matters [see also 6 Jun (Pakistan) and 7 Jun (India)]. {Radio Pakistan 31 Oct in FBIS-NES 1 Nov; UPI in CN 1 Nov}

3 November In Iraq, the sixth UN chemical inspection [see 22 Oct], UNSCOM 20, comes to an end. Six declared storage sites have been visited for purposes of organizing the removal of the chemical weapons for destruction at Al Muthanna {SZ 23 Oct}. The sites reportedly include ones near Mosul in the north, Basra in the south and a third to the west of Baghdad. Unidentified Austrian inspectors on the team are later quoted as saying that they had found large stores of rifle grenades, as well as artillery shell and bombs, containing sarin nerve-gas {NYT 12 Nov}.

5 November In Moscow, President Gorbachev meets the visiting US defense-industry delegation led by Defense Under-Secretary Donald Atwood. According to a statement later released by the Chairman of the USSR Scientific and Industrial Union, Arkadiy Volskiy, the agenda includes a Soviet proposal for joint elimination of chemical weapons [see also 22 Oct]. {TASS 5 Nov in FBIS-SOV 6 Nov}

Krasnaya Zvezda reports that US specialists and the Chief's Directorate of the USSR Ministry of Defense Chemical Troops have signed an agreement on the construction of a facility in the Udmurt Republic for the dismantling of chemical munitions. But this is denied next day by the head of the directorate, Professor I Yevstafyev, who says that "no talks are being or have ever been held on this question with US specialists." {KZ 6 Nov in FBIS-SOV 8 Nov}

Interviewed about President Gorbachev's joint elimination proposal, General Yevstafyev (now described as the chief of the General Staff for Chemical Troops) says: "In recent years the two countries actively cooperate in destroying chemical weapons through exchanges of experience and know-how.... I must say bilateral cooperation with American experts has been useful for our scientists, especially in the areas of risk assessment and production safety. Our side was lagging in that area and is still behind.... In 1990 and 1991, a number of American firms and state organizations offered us on a commercial basis individual elements of technologies and even turn-key projects for destroying chemical weapons. The offers were interesting, but the matter is we cannot solve the problems on funding these projects, currency payments and the like. All these problems are listed in the state program for chemical disarmament submitted to the government." {Radio Moscow world service 12 Nov in FBIS-SOV 14 Nov}

8 November The President of South Korea, Roh Tae Woo, says in a televised speech that South Korea will not develop or store chemical or biological weapons. He also says that his country will not make, store or use nuclear weapons, calling on North Korea to adopt a similar policy. {FT 9-10 Nov}

8 November USSR CD Ambassador Serguei Batsanov, interviewed by *Inside the Pentagon*, speaks of the Soviet Chemdemil program [see also 5 Nov]. He says that the collapse of the Soviet central government has thrown previous plans into

disarray, adding: "The new emerging Russian structure is not yet capable to take over in this area at least. We do need a program, the program is not there yet." Talks are in progress between the Soviet central government and the republics about where and what kind of facility could be built, and with what money. He goes on to warn that, although the USSR has not informed the United States officially, it is unlikely to be able to keep to the chemdemil schedule set out in the June 1990 bilateral agreement. As for compliance with the chemdemil obligations of the CWC, he speaks of there being "more breathing space," for even if the treaty is concluded in Summer 1992, entry-into-force is improbable before 1996.

On the possibilities for US-Soviet chemdemil collaboration he says: "What [the US] offered to do is tell us everything it knows about the method of destruction it chose for itself, technology and so on, including the possibility for us to buy a facility, a complete facility. In my view, perhaps that is not the best way to proceed because we do have ... the major part of the technology for the destruction of nerve agents. What we need ... is the supply of certain critical parts of electronic control to make the whole system work more safely and reliably. That would have to be custom made. Then probably filters, environmental protection systems and so on and so forth." Beyond this, he says that there is discussion with the United States about the joint development of a facility for destroying lewisite. {ITP 14 Nov}

9 November In Iraq, the fifth UN chemical inspection, UNSCOM 17, comes to an end {HansC 18 Nov}, having completed its detailed survey of the site at Al Muthanna [see 6 Oct].

14 November In Japan new export controls enter into force on certain dual-use technologies potentially applicable in production of chemical weapons. {Kyoto in CN 8 Oct}

14 November In Britain, a television documentary reports that, according to Zimbabwean sources, the Rhodesian Central Intelligence Organization had, with South African assistance, mounted several clandestine CBW operations during the 15 years of guerrilla warfare following the Rhodesian unilateral declaration of independence in 1965. {Channel 4 network 14 Nov as reported in Obs 10 Nov}

16 November In the United States, the *Washington Times* reports that administration officials are disputing a United Nations conclusion that Iraq had not actually weaponized biological agents despite its extensive biological-weapons research program [see 25 Oct]. It quotes an unidentified senior US official: "We know Saddam Hussein has a weaponized biological warfare program and that he has produced agents." {WT 16 Nov}

17 November In Iraq a new UN inspection team arrives on a combined chemical and biological inspection to search for undeclared weapons or facilities. The Executive Chairman of UNSCOM is quoted as saying: "Iraq had a very advanced military offensive program in biological research, so it is pe-

culiar we have not found a real production plant [for BW weapons] yet" [see 16 Nov]. The team will visit sites identified by national intelligence agencies {IHT 18 Nov}. It will also, apparently, visit sites suggested by a US firm of psychic consultants, PSI Tech {WT 19 Nov, Guar 20 Nov}. The team is led by Major Karen Janssen of the US Army {NYT 17 Nov}.

18 November In Germany, *Der Spiegel* reports that Iran, according to a dossier prepared earlier in the month by the Federal Intelligence Service, may now possess the plans for the first Libyan poison gas factory and that it might be producing "modern chemical weapons" before the end of the decade. {DerS 18 Nov in FBIS-WEU 19 Nov}

18 November In Geneva, the CD Ad Hoc Committee on Chemical Weapons reconvenes after its recess for the UN General Assembly First Committee [see 17 Oct].

18 November In the US Congress, the conference report on the FY 1992 Defense Appropriations legislation fences funding for procurement of chemdemil equipment for Umatilla [see 10 Oct] and Anniston [see 24 Jul] until Phase III of the chemdemil Operational Verification Test at Johnston Atoll [see 27 Feb] has begun, currently scheduled, after slippages, for May 1992. The conferees also require that a revised schedule and life-cycle cost report on the whole US chemdemil program be submitted by 1 February 1992. {CR 18 Nov, p. H10468}

19 November The US Defense Department agrees to a settlement with the Foundation on Economic Trends, which had sued it for not complying with environmental laws in its Biological Defense Research Program (BDRP). The settlement commits the Department to preparing and making public detailed environmental assessments at six research sites: the Biological Aerosol Test Facility and Baker Laboratory at Dugway Proving Ground, the US Army Medical Research Institute of Chemical Defense at Aberdeen Proving Ground, the Salk Institute Government Services Division at Swiftwater, Pennsylvania, and facilities of the Walter Reed Army Institute of Research in Washington and Maryland. It also obliges the Department to prepare environmental assessments for all current or proposed BDRP projects involving BL-3 and BL-4 containment within the United States. {AP in CN 20 Nov, *Nature* 28 Nov, *New Scientist* 30 Nov}

20 November At the USSR Foreign Ministry's press briefing in Moscow (largely concerned with the appointment of Eduard Shevardnadze as Minister of External Relations), chief spokesman Vitaliy Churkin speaks of the private company recently established in the Soviet Union offering chemdemil via under-ground nuclear explosions [see 10 Apr]. He says that the "competent state organs," without whose permission such operations cannot be carried out have not considered the question, though he does say that the country's scientific research establishments are studying a variety of chemdemil possibilities, including the use of nuclear explosions. {TASS 20 Nov in FBIS-SOV 21 Nov}

19-21 November In Pakistan, the US Under-Secretary of State for international security, Reginald Bartholomew, has talks with Pakistani leaders on, among other matters, chemical weapons. He leaves for New Delhi. {FT 21 Nov} [See also 31 Oct]

19-22 November The US Army Chemical Research, Development and Engineering Center convenes its annual scientific conference on chemical defense research at Aberdeen Proving Ground, Maryland.

21 November In the United States a panel of the National Research Council releases a report on cryofracture chemdemil technology concluding that this alternative technology cannot be developed in time to help the United States meet the 2002 chemdemil deadline set in the June 1990 bilateral agreement with the Soviet Union. {DN 25 Nov, C&EN 2 Dec}

25 November The US Senate votes 86-8 to approve a plan for transferring up to \$500 million from the defense budget to Soviet aid. The plan, which now has both House and Administration support, would extend assistance to the Soviet Union or to any Soviet republics that invest in dismantling nuclear or chemical weapons and comply with arms-control treaties. {IHT 27 Nov}

26 November In the British House of Commons, the Select Committee on Trade and Industry publishes a memorandum received some weeks previously from the Department of Trade and Industry indicating that sodium sulphide (65 tons) and sodium cyanide [see 25 Jul (UK)] – both of them chemicals on the Australia-Group CW precursor control list – had been exported from the UK to Iraq since 1988. {FT 5, 22 & 27 Nov; Ind 23 Nov}

26 November The US Congress passes legislation that would impose mandatory import controls and other sanctions on countries and companies that contribute to the spread of CBW weapons. The provisions, introduced in HR 3409 [see 3 Oct] and largely unchanged, are now attached to a bill adjusting unemployment benefits, HR 1724, the conference report on which is agreed by both houses and sent to the President. {CR 26 Nov, pp. H11401-16; CQ 30 Nov & 7 Dec}

29-30 November In Brussels, the Centrum voor Polemologie of the Vrije Universiteit Brussel, and the Groupe de Recherche et d'Information sur la Paix (GRIP), joined this time by the UK-based Information Network on CBW, convene their 3rd Annual Conference on Chemical Warfare, entitled The Second Gulf War and the CBW Threat.

The Declaration of Mendoza

The Government of the Federative Republic of Brazil, the Government of the Republic of Argentina, and the Government of the Republic of Chile,

Convinced that total proscription of chemical and biological weapons will contribute to the strengthening of the security of all countries;

Determined to consolidate the region as an area of peace and cooperation, free from the scourge of these weapons of mass destruction;

Ratifying the respective unilateral declarations on non-possession of chemical weapons formulated by the three countries;

Agreeing with the need to prevent the dissemination of such weapons by means of a multilateral convention, being currently negotiated at the Conference on Disarmament, prohibiting completely chemical arms and their production facilities, urging all countries that manufacture and possess such weapons to be parties to the Convention;

Contributing to the confidence building measures agreed upon by the Party States of the 1972 Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) Weapons and Toxin Weapons and on Their Destruction, which will hold its third Review Conference in Geneva from September 9 to 27;

Declare:

1. Their total commitment not to develop, produce or acquire in any way, stockpile or retain, transfer directly or indirectly, and not to use chemical or biological arms;
2. Until the future Convention on chemical arms enters into force, their commitment to study and analyze jointly all the necessary mechanisms for assuring the fulfillment of the agreement;
3. Until the Convention enters into force in accordance with international law, their intention of establishing in their respective countries appropriate inspection mechanisms for the substances defined as precursors of chemical warfare agents;
4. Their desire to cooperate closely to facilitate conclusion of a multilateral convention on the prohibition of chemical weapons and of subscribing simultaneously as original parties;
5. Their right to use all peaceful applications of chemistry and biology for economic and technological development and for the well being of their people;
6. Their conviction that the application of the Convention will create between the States Parties a sign of mutual trust that will allow substantial improvement of international cooperation in the exchange, among others, of chemical substances, related equipment and technology;
7. Their purpose of contributing decidedly to the success of the Third Review Conference of the Convention on the Prohibition of Biological Weapons and their readiness to examine ways of strengthening their verification mechanisms;
8. Their hope that other countries in the region will join this agreement.

Signed in the City of Mendoza, on 5 September 1991, in two originals, in Portuguese and Spanish, both texts being equally authentic.

Francisco Rezek
for the Government of the
Federative Republic of Brazil

Guido de Tella
for the Government of the
Republic of Argentina

Enrique Silva Cimma
for the Government of the
Republic of Chile

The CWC Negotiations

Following is a checklist of contributions made at the CD by member states and by participating non-members.

Country	A	B	C	D	E	F
-----CD Member States-----						
Algeria	..	..	..	..	..	..
Argentina	**	..	..	..	..	**
Australia	CD/907	CD/907	CD/910	..	..	..
Belgium	PV.424	..	CD/917	..	..	CD/1006
Brazil	PV.460	..	CD/895	..	..	PV.605
Bulgaria	PV.457	CD/1017	..	..	..	PV.567
Burma	PV.452	..	..	..	..	..
Canada	PV.433	..	CD/987 CD/1030	..	CD/1052	CD/1006
China	PV.453	..	..	..	..	..
Cuba	PV.603	..	..	..	..	..
Czechoslovakia	CD/878	CD/949 CD/1048	CD/900	CD/1021	CD/1022	CD/1043
Egypt	PV.459	..	CD/958	..	..	..
Ethiopia	PV.487	..	..	..	..	..
France	PV.484	..	CD/913 CD/960	WP.351	CD/1029 CD/1063	CD/1006
Germany	PV. 437	WP.207	CD/912	CD/950 CD/1101	CD/1056 CD/975 CD/983 CD/1102	CD/930
Hungary	PV.437	CD/969 CD/1061	CD/890	..	..	CD/1043
India	PV.459	..	CD/988	..	..	..
Indonesia	PV.437	..	..	..	..	..
Iran	..	..	PV.573	..	..	..
Italy	PV.437	WP.220	CD/893	..	..	PV.547
Japan	PV.424	WP.281	WP.228	..	..	PV.588
Kenya	PV.499	..	..	..	..	PV.499

[A] Declaration of possession or non-possession of chemical weapons

[B] Provision of CW-capability and chemical-industry data

[C] Report on a trial routine inspection

[D] Report on a non-routine inspection trial in industry

[E] Report on a non-routine inspection trial in military facilities

[F] Declaration of intent to become an original signatory of the CWC

Country	A	B	C	D	E	F
Mexico	PV.421	..	..	..	..	..
Mongolia	PV.442	..	..	..	..	..
Morocco	PV.367	..	..	..	..	..
Netherlands	PV.309	WP.203	CD/924 WP.302	CD/925 WP.302	CD/1018 CD/1052	CD/1006
Nigeria	PV.517	..	..	..	..	..
Pakistan	PV.339	..	..	..	..	..
Peru	PV.472	..	..	..	..	PV.592
Poland	PV.419	CD/985	..	..	CD/1093	PV.503
Romania	PV.440	CD/1014	..	..	..	PV.553
Soviet Union	PV.400	WP.264	CD/894	..	CD/966 CD/1093	CD/931
Sri Lanka	..	..	..	..	..	PV.598
Sweden	PV.481	WP.280	WP.216	..	..	PV.555
United Kingdom	PV.474	WP.206	WP.249	CD/1080	CD/921 CD/1012 CD/1056	CD/1006
United States	CD/711	..	CD/922 WP.301	CD/1100	CD/1107	CD/1006
Venezuela	**	..	..	..	..	..
Yugoslavia	PV.550	..	CD/982	..	..	PV.567
Zaire	..	..	..	..	..	..
-----Participating Non-Members-----						
Angola	..	..	..	..	..	..
Austria	PV.471	WP.238 CD/971	CD/999	..	..	CD/1043
Bahrain	**	..	..	..	..	..
Bangladesh	..	..	..	..	..	..
Cameroon	..	..	..	..	..	..
Chile	CD/1042	CD/1042	..	..	..	PV.605
Colombia	**	..	..	..	..	..
Costa Rica	..	..	..	..	..	..
Denmark	CD/991	CD/991	..	..	..	CD/1006
Finland	PV.441	WP.297	WP.233	..	..	PV.559
Ghana	..	..	..	..	..	..
Greece	**	..	..	..	..	CD/1006
Holy See	..	..	..	..	..	CD/1043
Iraq	**	..	..	..	..	..
Ireland	**	..	..	..	..	CD/1043

Country	A	B	C	D	E	F
Israel	..	..	..	..	..	..
Jordan	..	..	..	..	..	..
Korea, North	PV.529	..	..	..	..	..
Korea, South	PV.573	..	..	..	..	..
Kuwait	**	..	..	..	..	..
Libya	..	..	..	..	..	..
Malaysia	**	..	..	..	..	..
Malta	**	..	..	..	..	CD/1043
New Zealand	PV.445	..	CD/1057	..	..	PV.584
Norway	PV.448	WP.221	WP.285	..	..	CD/1006
Oman	..	..	..	..	..	..
Portugal	..	..	..	..	..	CD/1006
Qatar	**	..	..	..	..	..
Senegal	**	..	..	..	..	..
Spain	PV.422	..	CD/1082	..	..	CD/1006
Syria	..	..	..	..	..	..
Switzerland	PV.270	..	WP.247	WP.372	..	CD/1043
Tunisia	..	..	..	..	..	..
Turkey	**	..	..	..	..	CD/1006
UAR	..	..	..	..	..	..
Uruguay	**	..	..	..	..	**
Vietnam	PV.498	..	..	..	..	..
Zimbabwe	**	..	..	..	..	..

Note: The cutoff date for data is early October 1991. The citations are of CD documentation only, meaning that contributions made in other fora—indicated by a double asterisk (**)—are not listed. The double period (..) indicates the absence of a contribution to the CD. The listing will be updated in a subsequent issue of the *Bulletin*, so readers are asked to inform us of any errors or omissions.

"PV" stands for "CD/PV," meaning the verbatim records of the CD in plenary session. "CD/" indicates a plenary working paper. "WP" stands for "CD/CW/WP," the working papers of the CD Ad Hoc Committee on Chemical Weapons; such papers are cited only when the contribution is not also distributed at plenary level, for papers not so distributed are in effect withheld from the general public.

Recent Publications

- Beck, Herbert; Ronald G. Sutherland; Salah Bassiouny; Thomas Bernauer; Keith Hartley; Michael D. Intriligator; Sten Lundbo; and Johan Molander (separate contributions), "Economic implications of a Chemical Weapons Convention," in Serge Sur (ed.), *Disarmament Agreements and Negotiations: The Economic Dimension*, Aldershot, UK: Dartmouth Publishing Co Ltd, for UNIDIR, 1991, pp. 173-220. [A French-language edition is published by UNIDIR.]
- Birks, John W, "Weapons forsworn: chemical and biological weapons," in Anne H Ehrlich and John W Birks (eds.), *Hidden Dangers: Environmental Consequences of Preparing for War*, San Francisco: Sierra Club Books, 1991.
- Canada, *Novel Toxins and Bioregulators: The Emerging Scientific and Technological Issues Relating to Verification and the Biological and Toxin Weapons Convention*, September 1991, 56 pp.
- Carter, G B, "The Chemical and Biological Defence Establishment, Porton Down 1916-1991," *Journal of the Royal United Services Institution*, Autumn 1991, pp. 66-74.
- Charles, Dan, "How to dismantle a war machine," *New Scientist*, 21 September 1991, pp. 21-22 [on the work of UNSCOM in Iraq].
- Cottureau, Gilles, "Le Protocole de Genève sur l'emploi à la guerre des agents chimiques et biologiques et procédures y afférent (1925)," in Serge Sur (ed.), *La vérification des accords sur le désarmement et la limitation des armements: moyens, méthodes et pratiques*, New York: United Nations, 1991 (UNIDIR/91/48) pp. 37-59. [An English-language edition is published by Dartmouth.]
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- Karkoszka, Andrzej, "La Convention sue les arms biologiques (1972)," in Serge Sur (ed.), *La vérification des accords sur le désarmement et la limitation des armements: moyens, méthodes et pratiques*, New York: United Nations, 1991 (UNIDIR/91/48) pp. 205-225. [An English-language edition is published by Dartmouth.]
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Forthcoming Events

* In Geneva the 19th Workshop of the Pugwash Study Group on Chemical and Biological Warfare will be held during 11-12 January.

* The first part of the 1992 CD session will begin on 21 January, running through 27 March. The second and third parts are scheduled for 11 May-26 June and 20 July-3 September respectively.

* The Swiss Government will convene a symposium on "Chemical Industry and Disarmament" in Basel, Switzerland during 24-27 January.

* At the annual meeting of the AAAS in Chicago, a session will be held on 9 February on "Turning Swords into Superfund Sites: Weapons Destruction." Papers

will be presented on chemical weapons incineration technology and the environmental and health effects of incinerating chemical weapons.

* The Ad Hoc Group of Governmental Experts will hold their first meeting to explore possible verification measures for the BWC in Geneva during 30 March-10 April.

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